

World Health Organization

Chair Report

THAIMUN IX

Committee Topics:

1. The question of reforming the global pharmaceutical industry
2. The question of disease control in humanitarian emergencies

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Committee Introduction:

The objective of WHO is the attainment by all peoples of the highest possible level of health. Health, as defined in the WHO Constitution, is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. In support of its main objective, the organization has a wide range of functions, including the following:

- To act as the directing and coordinating authority on international health work;
- To promote technical cooperation;
- To assist Governments, upon request, in strengthening health services;
- To furnish appropriate technical assistance and, in emergencies, necessary aid, upon the request or acceptance of Governments;
- To stimulate and advance work on the prevention and control of epidemic, endemic, and other diseases;
- To promote, in cooperation with other specialized agencies where necessary, the improvement of nutrition, housing, sanitation, recreation, economic or working conditions, and other aspects of environmental hygiene;
- To promote and coordinate biomedical and health services research;
- To promote improved standards of teaching and training in the health, medical and related professions;



- To establish and stimulate the establishment of international standards for biological, pharmaceutical, and similar products, and to standardize diagnostic procedures;
- To foster activities in the field of mental health, especially those activities affecting the harmony of human relations.

WHO also proposes conventions, agreements, and regulations and makes recommendations about international nomenclature of diseases, causes of death, and public health practices. It develops, establishes, and promotes international standards concerning foods and biological, pharmaceutical, and similar substances.

Agenda 1: The question of reforming the global pharmaceutical industry

Introduction:

Outline of the pharmaceutical industry

Types of companies in the industry

The pharmaceutical industry, responsible for the discovery, development and manufacture of medication, is a key asset to humanity. There are 3 main types of companies in the pharmaceutical industry: Pharmaceutical companies, Biotechnology companies, and generic manufacturing companies. Pharmaceutical companies design, develop, commercialize and deploy pharmaceuticals. Biotechnology companies do very similar things to pharmaceutical companies, except their research focuses on biological therapies and biological treatments instead of more chemically based ones. Once these medications become off-patent, generic manufacturers can offer them at a reduced cost for consumers.

Pharmaceutical companies and biotechnology companies invest mainly in developing drugs and commercializing this into a product that can be sold on the open market. Generic manufacturers, on the other hand, focus exclusively on making exact copies of once novel products created by the pharmaceutical and biotechnology companies at a much cheaper cost of production. This can only occur once the patents belonging to these drugs expires. Due to the efficient nature of their production, companies focused on the development of new treatments are unlikely to outperform them, even if they were the ones to first create the medication; thus, they lose out on profits after a medication's patent expires.

Payers

The amount of money that consumers pay when purchasing medication represents a very small fraction of the total cost of the pharmaceuticals, the rest of which is paid by Payers. This reduces the cost of medication tremendously in some places. The payers are comprised of 3 main groups, Government Insurance programs, Health plans, as well as Pharmaceutical and Biotech manufacturers (the ones who make the drugs themselves). Government insurance programs deal mostly with pharmaceutical intervention for seniors and less advantaged people. Health plans are often covered by employers as part

of the employment insurance for their employees (If it is listed as one of the employee benefits, which sometimes it is not). Manufacturers of drugs also contribute to payments through rebates and other types of incentives.

Discovery of a drug:

When creating a drug for a disease, there are two challenges companies have to face. The first is understanding the disease. To be able to efficiently create the drug that is effective against that disease, researchers need to understand to a complex level how the disease operates, specifically identifying “targets” ie. receptors, enzymes, which medication can take advantage of. The second is identifying an existing or creating a suitable compound that will attack/fit into said targets of the disease.

There are many different ways in which this can be done. Two of the most common are:

High-throughput screening, which allows scientists to test thousands of potential targets with thousands of diverse chemical compounds to identify a new drug-target combination. (heavily reliant on trial and error, can take quite a long time).

Rational drug design, which involves designing and synthesizing compounds based on the known structure of a specific target molecule. (relies on computer-based modeling, which is difficult to get to be accurate)

After a drug is developed, it needs to further go through Preclinical Development, Clinical Development, and achieve regulatory approval before it can be sold on the open market.

Definition and Key Terms:

a. Drug

a substance used to treat, cure, prevent, or diagnose a disease or to promote well-being

b. Rebate

premiums and claims for a group of policies issued by an insurance company in a state during the previous calendar year

c. Employee benefits

Various types of non-wage compensation are provided to employees in addition to their normal wages or salaries.

d. Patents

A nonprescription medicinal preparation that is typically protected by a trademark and whose contents are incompletely disclosed. Time is usually 20 years, however, it is issued when a drug is starting development, so about half of that is spent on creating it and passing it through clinical trials

e. Active Pharmaceutical Ingredients

The substances in drugs that are responsible for the beneficial health effects experienced by consumers.

Problems facing the pharmaceutical industry:

A. Healthcare costs / Drug development discouragement

The majority of pharmaceutical companies, like virtually any other company, contain shareholders who are interested in making money, which often results in executive action geared towards maximizing profits for the company. This can result in the price of healthcare and medication exceeding the amount the majority of citizens can afford, with statistics from the WHO stating that “approximately 800 million people worldwide spend at least 10% of their household income on healthcare for themselves or a sick child, and as 100 million of those are left with less than \$1.90 a day to live on as a result“. This high price of healthcare makes it less accessible to many individuals to the point where some will even intentionally avoid seeking out healthcare due to fear of financial repercussions, leading to very preventable deaths.

The focus on profit by pharmaceutical companies also presents itself as another problem: it is driven by market demand as opposed to actual need. An estimated \$1 billion is spent each year in the search for a cure for AIDS, and \$547 million each year in combatting malaria. In contrast to this, an estimated \$2 billion is spent worldwide on surgical procedures in an effort to prevent baldness, according to the International Society of Hair Restoration Surgery. Diseases plaguing the developing world, in particular, are especially concerning, as they lead to numerous deaths annually, but will never be profitable enough to attract companies in the pharmaceutical industry. The WHO has designated 17 of such diseases that massively affect the world’s poor but are given minimal attention by the industry as Neglected Tropical Disease (NTDs). In the countries that will be present during the conference, Yemen and South Africa are among the countries most affected by NTDs.

Nevertheless, excessive profits may be necessary for pharmaceutical companies, as drug development is an extremely risky endeavor. The process of the development of a drug is a time-consuming and very expensive process. This is due to the extremely long time period required to produce a drug, combined with a high failure rate. It is estimated that at least 10 years is required for a new medication to complete the journey from initial discovery to the marketplace, with clinical trials taking six to seven years on average, a consequence of the pharmaceutical industry being one of the most tightly regulated industries in the world. Since regulations and safety precautions take the majority of this time, it is extremely difficult to reduce clinical development time without compromising the quality of medications produced as well. In addition, the overall failure rate in drug development is over 96%, meaning that it is extremely uncertain for a pharmaceutical company whether investment into a medication under current development will bear any fruit. All of these factors combine to lead to “\$2.6 billion dollars of developing a new prescription medicine that giants marketing approval” according to the Tufts Center for the Study of Drug Development.

This creates an incentive for a pharmaceutical company to maximize its profits apart from just greed. Restraining too much of these profits from companies may result in a substantial increase of pharmaceutical companies going bankrupt. Another side effect of lack of funding is that companies will be hesitant to try new and risky techniques and methods that could prove to be a medical breakthrough simply because of fear of financial damage.

A pharmaceutical company cannot even rely on past successes to keep them afloat as once a patent expires as they will be outcompeted by generic companies, which are able to manufacture these drugs with greater efficiency and cheaper costs.

B. Advancement of health in developing countries

A lack of investment into combatting the diseases plaguing their countries is not the only challenge developing countries face. By far their most prominent problem is the lack of access to basic necessities such as clean food and water as well as inadequate levels of sanitation, which tremendously increases the chances of a disease outbreak and overall poor health in the populace. According to the UN: “Worldwide, one in three people do not have access to safe drinking water, two out of five people do not have a basic hand-washing facility with soap and water, and more than 673 million people still practice open defecation.”

This problem extends to some countries’ governments as well. A lack of infrastructure and personnel in the medical field means that healthcare is unavailable to be delivered at all in many places, not even mentioning citizens who are too financially lack to afford it.

C. Drug shortages / Supply chain and distribution

As many countries become more developed, so too has their level of globalization. This has resulted in a substantial decrease in domestic production in these countries, including their pharmaceutical sector, opting instead to import these goods and thus giving a rise to prices and expenditures. The effect of globalization has resulted in drugs and other forms of medicine being manufactured in only a few countries that specialize in this field. Statistics from The World’s Top Exports indicate that 15 countries accounted for 86.2% of all exported drugs and medicine in 2019. While increasing numbers of governments apply no tariffs at all, many countries still impose pharmaceutical and vaccine tariffs of up to 20% and 10% respectively. This increases the price of medication drastically, to the point beyond affordability for many individuals (however a complete removal of tariffs would have devastating effects on governments’ tax revenues).

This also means that almost every other country’s drug supply relies almost exclusively on imports, which puts them at risk of facing a drug or medicine shortage whenever trade becomes unavailable (shortage of raw materials, manufacturing problems, etc.) or stocks in storage is depleted (massive time discrepancy between ordering a drug to the time of its arrival). Sourcing the majority of the world’s medication from one or two places also presents the problem of exported drugs potentially experiencing quality problems, which usually leads to recall of the medication after it has been dispatched in the market.

D. Irrational use of medicine

Governments and pharmaceutical companies combined still do not account for all inefficiencies and obstacles facing the pharmaceutical industry, however, the consumers of these medications themselves

also play a significant role. Antibiotic resistance has always been a problem ever since the creation of antibiotics and still persists as one of the leading causes of death globally. A study estimates that antimicrobial-resistant bacteria may have directly accounted for 1.27 deaths in 2019, which outnumber ones caused by HIV/AIDS or malaria.

According to the University of Birmingham, the most common reasons for antibiotic resistance include:

- Over-prescribing of antibiotics.
- Patients not finishing their treatment.
- Over-use of antibiotics in livestock and fish farming.
- Poor infection control in hospitals and clinics.
- Lack of hygiene and poor sanitation.
- Lack of new antibiotics being developed.

The efficiency of medication has to potential to be improved upon greatly as an estimated \$2.8 billion of medication is currently being thrown away each year. This issue of wasteful usage of pharmaceuticals is very much multifactorial, with several reasons, as highlighted by a study, are stated below:

Reasons related to patient being directly incapable or unwilling to take the prescribed medicine

- Inconvenient experiences
- Side effects from drugs (sometimes people are allergic to drugs, etc)
- Beliefs on medication effectiveness
- Forgetfulness
- Treatment changes
- A patient dying/leaving the facility before finishing a prescription

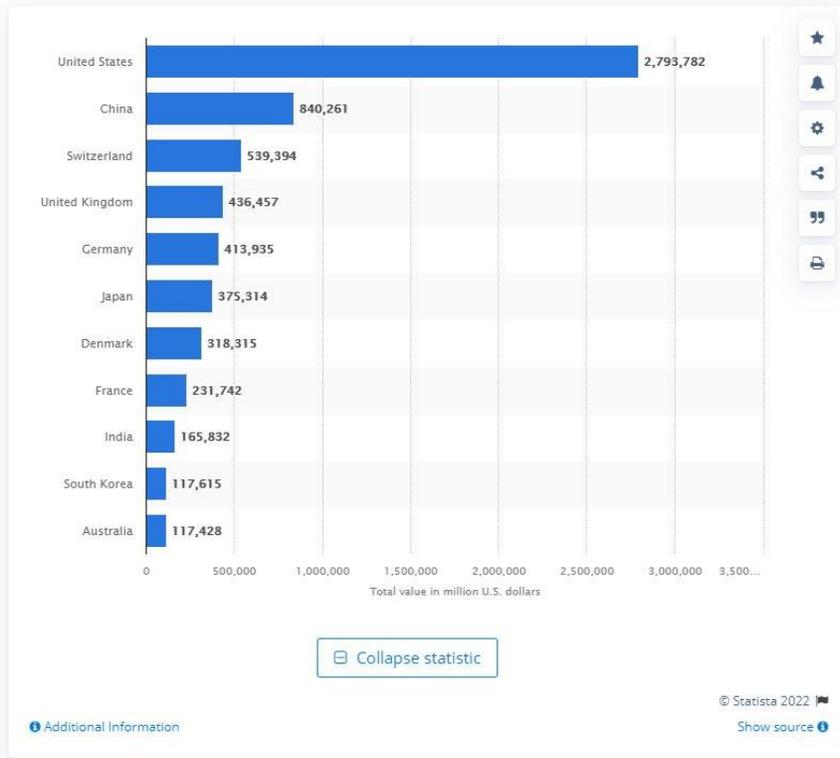
Reasons relating to medication logistics / placement??

- Fear of medication shortage leading to excessive stocking of medications
- Improper storage of medications leading to contamination or rendered unusable
- Medication misplacement or loss

In addition to medication being wasted through lack of use, improper disposal of drugs also results in complications. Improper prescription disposal can lead to drugs leaching into the water system. This problem is quite pervasive, with a study in the US (Kolpin et al. (2002) that evaluated the presence of pharmaceuticals, hormones, and other organic contaminants in 139 streams in 30 states found that eighty percent of streams sampled had more than one contaminant present. This is not only harmful to humans but also threatens the local ecosystem. Studies have shown that these prescription chemical byproducts are causing changes in the behavior, reproduction, and growth of many species, specifically frogs and fish.

Case Studies:

Value of the pharmaceutical sector worldwide as of November 2021, by major country* (in million U.S. dollars)



USA

The USA is the leading country in terms of the value of its pharmaceutical sector. However, this level of investment is not reflected in the quality of health in the country, with a report from 2014 indicating that the US “ranked last overall among 11 industrialized countries on measures of health system quality, efficiency, access to care, equity and healthy lives.” This is also supported by the sharp decrease in life

expectancy in the US following the effects of the Covid-19 pandemic.

Life expectancy at birth in years, 1980-2020



Notes: 2019 & 2020 data for the United States is from CDC. 2020 life expectancy value for Australia is the unweighted average of male and female life expectancy from the Australian Bureau of Statistics. Break in series for Canada in 1982, Germany in 1991, Switzerland and Belgium in 2011, and France in 2013. 2020 values for Germany and United Kingdom are provisional.

Source: KFF Analysis of CDC, Australian Bureau of Statistics and OECD data • Get the data • PNG

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Health System Tracker

In addition to this, the cost of healthcare in the US is very expensive, to the point beyond the affordability of many of its citizens. According to a recent poll from Gallup and West Health “about 18 million Americans, or 7% of U.S. adults, say they were recently unable to pay for at least one prescription medication for their household.

India

India is the largest provider of generic drugs globally, ranking 3rd in terms of pharmaceutical production by volume and 14th by value. Despite this, the country is lacking in the medical field in many regards. India is short of 50,00,000 doctors to fulfill the WHO goal of a 1:1000 doctor-population ratio. The public hospital system is essentially free for all Indian residents, however, the mortality rate is significantly higher in government hospitals compared to private ones due to patients on average being poorer, more malnourished, and often arriving at the hospital in later stages of illness.

China

China is the largest producer of Active Pharmaceutical Ingredients in the world due to its abundant natural resources. Additionally, China dominates the global market in terms of antibiotic production, with 97 percent of all antibiotics in the United States being produced from China. However, historically, China suffers from a lack of quality control with 35 FDA warning letters to Chinese pharmaceutical companies citing serious Data Integrity issues, including data deletion or manipulation or fabrication of test results between the years 2015–2017. These numbers have lessened significantly in recent years, however.

Potential Solutions:

In response to these problems facing the industry, the delegates' resolutions should resolve one or more of the points made pertaining to a delegate's chosen topic:

- Healthcare costs / Drug development discouragement
 - Making discovery of a new drug less risky for pharmaceutical companies
 - Shorten the time required to create a drug either with novel development techniques or more condensed clinical trials
 - Provide an attractive drug development incentive for pharmaceutical companies alternative to market investors
 - Making healthcare costs affordable for all
- Advancement of health in developing countries:
 - Dealing with lack of medical infrastructure and personnel in critical areas
 - Making healthcare accessible to all
 - Bringing industry focus onto NTDs
- Drug shortages:
 - Lowering dependency imports from other countries
 - Increasing domestic production, or improved stockpiling
- Irrational use of medicine
 - Improve surveillance of antibiotic-resistant infections.
 - Implementation of policies for antibiotic-resistant infection prevention and control measures.
 - Regulate and promote the appropriate use and disposal of quality medicines.
 - Educations programs for healthcare providers, in order for them to be mindful of repercussions of wasteful distribution
 - Making more drugs accessible only by prescriptions
 - Establish a medication recycling system for capable countries

Conclusion:

As the topic of the discussion covers an extremely diverse range of issues, there is no need to address all points mentioned in a resolution. Even a resolution that seeks to resolve only one aspect of this topic is acceptable as long as the resolution meets basic requirements for vetting. Additionally, delegates are welcome to tackle issues that are not listed above but still pertain to the topic at hand as they are simply suggestions on possible points to include in a resolution. However, please refrain from topics that require a high level of technical knowledge that will impede other delegates' ability to engage in the fruitful debate.

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Agenda 2: The Question of Disease Control in Humanitarian Emergencies

Introduction:

Humanitarian emergencies are events that can threaten a large group of people regarding their health, safety and well-being. This often involves the displacement of large numbers of people, caused by natural disasters or conflicts. The population that is affected by such humanitarian emergencies are often set in temporary locations with a high population density. Such locations are frequently in substandard conditions with poor hygiene and shelter, inadequate food, unsafe water, and lack of infrastructure. These conditions easily enable the possibility of communicable diseases and other risky health conditions that contribute to increasing mortality.

Disease is one of the primary causes of mortality worldwide. Disease knows no borders, and both preventing and controlling global diseases and disease outbreaks is a critically important task. Humanitarian emergencies often hinder this process as such emergencies may disrupt various supply lines, communications and may lay out more obstacles that are required to be overcome. During situations where the prevention and control of disease is substantially more difficult, public health becomes a more concerning matter worldwide.

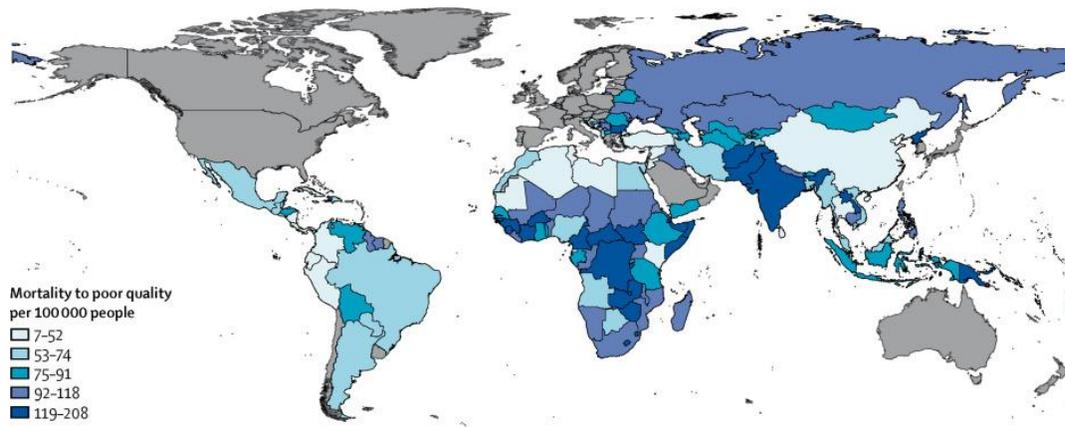
To prevent the spread of disease and deaths, it is key for nations to plan a system to combat issues with current healthcare and response systems. Rapid identification and adequate response to possible epidemics is one of the key priorities when combating humanitarian emergencies. Nations must be able to rapidly prevent, detect, and respond to humanitarian emergencies but there are numerous factors that might hinder this process during humanitarian emergencies:

- 1) less to no access to public health surveillance systems as it may be disturbed or even insubstantial. This means public health surveillance systems could possibly lack when fulfilling the needs of a humanitarian emergency.
- 2) lack of fundings and resources needed in healthcare systems
- 3) lack of public trust and communication between surveillance systems
- 4) lack of drug and medication supplement/development

In addition to the issues mentioned above, there are many other flaws that are present, especially some that are specific to each nation. Therefore it is encouraged for delegates to additionally identify their own nations disease control preparedness. Delegates may ask themselves questions such as “What are some flaws and strengths of the current healthcare system of my country?” and “What are some specific ways my country can reinforce their disease control preparedness?”

Current Issue:

The most effective way of protecting the health of the population affected by humanitarian emergencies is to ensure them adequate shelter, water, food and sanitation along with accessible basic health care. While the WHO and CDC aim to encourage nations to build their capacities, some developing countries lack sustainable health care that would be far more unfeasible during humanitarian emergencies, leading to an increased mortality.



Mortality due to poor quality health care per country.

Unlike most developed nations that possess some level of disease monitoring capabilities, developing nations are put in much more demanding situations, especially because of their harsher economic conditions. Developing nations may also encounter difficulties when establishing a proper surveillance network to take responsibility for the collection, analysis and report of the information needed thus may lack when working in cooperation with agencies working at local, national and international levels as well. This presents a need for the international community to combine efforts to fortify the global surveillance capability so that disease control and prevention can be done even during humanitarian emergencies. A systematic approach is crucial to protect the affected populations and this requires cooperation among all sectors involved in the emergency response and the international community.

Definition and Key Terms:

a. Humanitarian emergencies

An event that can be threatening to the safety and well-being and security of a large group of people.

b. Communicable disease

A disease that can be caused by infectious agents through direct or indirect transmissions

c. Centers for disease control and prevention (CDC)

The CDC is the national public health agency of the United States under the department of health and human services. The CDC is located worldwide and they work to protect the U.S from disease threats. They work to fight disease threats worldwide as it can also become a health threat in the U.S, as disease threats can spread worldwide in the current interconnected world.

Case Studies:

a. USA

The United States has the US Centers for Disease Control and Prevention works, so called the CDC, established to work with other nations when preparing to respond to emerging diseases that may affect the US, including diseases emerging from humanitarian crises. The CDC works worldwide with their UN partners and NGO partners to help determine what needs to be done to help the large groups of displaced people.

b. France

France has its priorities on improving international health security with the World Health Organization (WHO), and has set this as one of their priorities for the 2020~2025 period. France committed to strengthening this through the implementation of the International Health Regulations (IHR) in collaboration and cooperation with the WHO. During its term on the WHO executive board from 2015 till May 2018. They had centered their actions upon strengthening the action of the European Union and ensuring the access to essential health products to fight against emerging diseases.

c. China

The China CDC focuses on strategies and measures for disease prevention as it supervises the management of food safety, public health services, health related product safety, radiological health, environmental health as well as women and children's health. Specifically, the Public Health Emergency Center (PHEC) is in charge of responsive activities and the national public health preparedness. The PHEC focuses on preparing systematically for any public health emergencies such as but not limited to man-made or natural disasters, outbreaks of communicable diseases. The Chinese CDC carries out operational research, and enhances technical instructions, training, and quality controls in national disease control and prevention.

d. India

India also works with the CDC and national partners that are well placed to rapidly respond to emerging health crises. The India CDC delivers support when strengthening public health systems, and they have been highly successful with their technical collaboration with India for over 20 years. They have made various efforts such as developing an Integrated Laboratory Strengthening Initiative and strengthening the surveillance of various diseases. The India CDC also works with the Ministry of Health and Family Welfare when addressing India's public health priorities.

Potential Solutions:

Protecting healthcare workers

- During humanitarian emergencies that are often very chaotic, healthcare workers are the key to strengthening the sustainability of public health surveillance systems. Securing the well-being of such healthcare workers could contribute when enhancing the quality of support that can be provided.

Raising awareness in communities

- Being aware of diseases during a crisis might be difficult in some circumstances. In order to control the spread of communicable diseases, exposed communities could better prevent the disease once they are better educated about it. Educating communities about recognizable symptoms prompting the communities to continuously question and stay aware about the disease.

Securing fundings and investments for medications

- Safe and strong medications that can tackle disease emerged from humanitarian emergencies could decrease mortality in a short period of time. Increased fundings and investments to pharmaceutical companies can result in more well built health products and medications. Such medications could be handed out by agencies to the displaced communities to control and prevent any potential diseases.

Conclusion:

For this issue on disease control during humanitarian emergencies, it is essential for delegates to consider more prolonging and sustainable solutions rather than short term solutions. Humanitarian emergencies are going to occur whether it is wanted or not, and there won't be an end to the possibility of diseases spreading. A more enhanced condition will always be in need, as there will always be populations that are put in life threatening situations. The international community and nations are demanding a solution, and the WHO must be able to provide solutions to ensure the global community's safety and well-being.

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