Introduction

This world is facing a variety of different health threats challenges that vary from outbreaks of vaccine preventable diseases such as measles or diphtheria, increasing reports of drug resistant pathogens, obesity, physical inactivity, environmental pollution, climate change and multiple humanitarian crises. With such infectious diseases, no nation can stand alone. The top ten biggest health threats of 2019 included air pollution and climate change, non communicable diseases, global influenza pandemic, fragile and vulnerable settings, antimicrobial resistance, ebola and other high threat pathogens, weak primary health care, vaccine hesitancy, dengue and HIV. It is claimed by WHO that the biggest environmental risk to public health is air pollution where researched found that it has killed about seven million people every year. This is because of breathing fine particles in polluted air can result in cancer, stokes, lung and heart diseases etc.

When it takes less than 36 hours for an outbreak to spread from a distant village to a major city, the call to action in order to protect our health and national security is crucial whether it is having the correct knowledge, resources and defences to prevent, detect and respond to diseases. With that said, about 70% of the worlds countries report that they are not fully prepared for an outbreak.

It is a fundamental goal of the government to prioritise public health and safety of its people. The three main key factors are presentation wherever possible, early detection and timely and effective response. Countries have developed their methods in managing infectious disease better than before, however these improvements have often been small in scale. Global health plays an increasingly important role in global security as economics become globalised, in terms of travel and commerce, it brings in the idea of thinking of health in a global aspect. There are a variety of different benefits nations gain from investing in improving health, in terms of developing nations, impact can be direct and indirect where these diseases not only can impact country to country but also trade and travel. This brings in economic factors where countries can lose their overall investments. Adding on, standard health messes of life expectancy and chronic diseases drop.

Strong primary health care underpins the global response to non commutable diseases (NCD) which account for around 85% of deaths in low to middle income countries in 2018. Building awareness, detection and diagnostic skills would be improved. “In many developing countries, people must travel far distances to better hospitals, so we must take that equipment to the primary care clinics in order to facilitate early detection,” said an NCD respondent. Adding on, Early detection and diagnostics are not
being prioritised as with any condition, earlier detection causes quicker treatment. By combating these diseases earlier on, it can reduce later risks.

In order to prevent diseases, it is crucial to identify and deal with their causes and tackle the issue from its root to understand the health risks that underlie them during early stages. With these risks come a variety of different socioeconomic factors, environmental factors, community conditions and individual behaviours that can be involved. Treating a disease earlier may be able to prevent or delay problems from the disease and make it easier to live with. Some of the methods include screening tests and diagnostic tests.

**Definition of Key Terms**

**Global Health Risks**

The global health risks are a bunch of leading risks to the health of the population on earth. The leading global risks for mortality in the world are high blood pressure, tobacco use, high blood glucose, physical inactivity and obesity.

**Outbreaks**

Outbreaks are the sudden outburst or breakout of a disease. For example, the Severe Acute Respiratory Syndrome (SARS) which infected around 8,100 people, killing over 700 and reaches more than 24 countries.

**Preventable**

For something to be preventable means it can be avoided. A way to prevent something from happening is by the use of early detection methods.

**Non Communicable Diseases**

Non Communicable Diseases, NCD for short, is a disease that is not able to be passed on fro one person to another. They include diseases such as Parkinsons disease, autoimmune diseases, stokes, most heart diseases, most cancers, diabetes, Alzheimers and others.

**Early Detection**

Early detection is to take measures as early as possible before the disease spreads and when it is easiest to treat.

**Globalised**

The interconnectedness and open-mindedness of countries resulting is increased trade and cultural exchange. In this context, simply means having a safer and healthier country and community leads to a more developed and globalised
Screening

Screening is the use of simple tests across a health group of people to find out who has a certain disease but don't have the symptoms of it yet.

Diagnosis

Early diagnosis of cancer tends to increase the chances of successful treatments by finding out the symptoms of the patients as easy as possible. It aims to reduce the amount of patients who are diagnosed at a later stage.

World Health Organisation

World Health Organisation (WHO) is a specialised agency of the United Nations that focuses on helping and directing international public health. They help ensure valid and productive technical cooperation, as well as promote research.

Background Information

Global health issues proceed, however there are a few prominent issues. Pandemics are global disease outbreaks and examples of that include HIV, influenza, Ebola etc. There are new threats every year and diagnostic symptoms occur only after individuals are infected. Environmental factors is another large cancer than focuses on climate change and air pollution where it effects sanitation and water sources. To this day, not by surprise, communities from all around the world lack the basic fundamental human rights and access to health education and health care. Which leads to high rates of sexually transmitted disease (STDs), high child mortality rates and malnutrition. This is an issue of economic disparities and the lack of access to health care which leads these populations in isolation. Rural areas are acing the greatest threats of shortage which results in income inequality and otherwise. Political factors play a large role in the inadequate access to health care where conflicts between nations destroy critical infrastructures of water, sanitation, transport, waste which leaves the citizens more at risk. The lack of education and behavioural factors effect the role of NCDs and leads to intolerable amounts of ignorance and death rates.

International Health Regulations

To enhance global health security, the WHO released a new International Health Regulations (IHR) in 2005. The main idea was to protect and secure people from all over the world by encouraging all member states to create and maintain core capacities of detection, assessment, reporting and to manage all public heath risks. However, recent publications have indicated that less than one third of the global community fully complies with the IHR, due to economic issues, priorities of the government or lack of education and resources. It is implied on to them that decision makers should priorities rescue allocation, instate governance in building and sustaining preparedness and response measures.
Vaccination

Early detection methods continue to fall under the first and most fundamental component of efficient outbreak management. There are a variety of different responses such as vaccination, contaminant, distribution of medication or any other action targeted at identifying the risk of population and treating them properly. However, The World Health Organisation (WHO), released the ten top threats to global health and for the first time vaccine hesitancy was an issue. "Vaccination is one of the most cost-effective ways of avoiding disease -- it currently prevents 2-3 million deaths a year, and a further 1.5 million could be avoided if global coverage of vaccinations improved," the health agency said. With outbreaks starting anywhere and spreading across the globe overnight, it can be devastating. In 2003, an outbreak of Severe Acute Respiratory Syndrome (SARS) infected around 8,100 people, killing over 700 and reaches more than 24 countries. This shows the importance of early detection methods in order to secure the populations and even more so, during emerging diseases, there may be a need to develop new medications or effective treatment protocols.

Expanding of Early Detection

There have been many attempts to try and publicise and bring more awareness to early detection through the use of mass communication mechanisms. This includes social media, where it was used as a tool to accumulate and disseminate data concerning disease risks. This helped raise more questions and interest in these matters however the considerable data that was received through social media, was used as a complementary measure to traditional information exchange that facilitated an earlier disease. Adding on, communication was not the only platform problem but sharing information among entities required establishment between local, national and international bodies which came across different sectors such as animal, human and environmental sectors.

Early Detection of Cancer

The use of early detection in cancer greatly increases the chances for successful treatment. It comes with two major factors; education to promote early diagnosis and screening. Recognising possible warning signs of cancer and taking action as soon as possible lead to early diagnosis which results in treatment at a stage where the cancer is less persistent. Increased awareness of cancer amongst physicians, nurses, health care providers and the communal public, can have great impacts on lessening the impact of the disease. Screening is another major test that has a great impact. Examples of this include great cancer screening song mammography and cervical cancer screening using cytology screening methods. These screening methods should only be used when their effectiveness has been shown.

Positives and negatives

With every procedure comes positives and negatives, and with cancer screening comes a few. Getting screened can reassure you if the result is normal. It can help prevent cancer by finding changes in your body that would become cancer that could evolve. Adding on, screening can help
find cancer before you have symptoms as it is easier to treat. Furthermore, early detection leads to less treatment and less time spent recovering. Finally, with early detection, you have a better chance of surviving. On the other hand, sometimes test results can be false. There are two types, ‘false positive’ which suggests a patient has cancer when they do not. The second type is known as ‘false negative’ which indicates that a patient doesn’t have cancer while it may be present.

**Major Countries and Organizations Involved**

**France**

France is one of the major countries that took the initiative in resolving the issue in hand, as France has developed policies in order to make child vaccinations mandatory, in which all children born January 1st or later are required to take 11 mandatory vaccines. This includes vaccines against diphtheria, tetanus, hepatitis B, poliomyelitis and many others in order to reduce global health risks. This was also a response towards the measles outbreak in Europe which occurred due to “suboptimal” vaccine coverage. As a result, there was a 79% decrease in measles deaths between 2000 and 2015, which eased the number of preventable deaths around Europe.

However this also led to a negative impact on society, as people who rejected that the vaccines would have their children not get accepted into schools, nurseries and kindergartens, this method of forcing people into vaccinating their children is rather harsh as the punishment may sacrifice the child's early education which is crucial and is a right to children worldwide.

**United States of America**

The USA(United States of America) is another major country that contributed towards the reduction of global health risks through the introduction of mandatory vaccines in order to attend public schools. The USA enforced that all 50 states are supposed to mandate immunizations for children in order to enroll in public schools throughout the country. This vaccination policy was introduced back in the 1850s in Massachusetts where vaccination against smallpox was required in order to enroll into public schools. As time passed, other policies were introduced such as the requirement of vaccination in order to enlist within the US military, as well as green card applicants are required to take vaccinations and immunization, while citizens are recommended to take them. This was a measure taken in order to control disease outbreaks within the country by immigrants that migrate into the USA, therefore vaccinations are compulsory for green card applicants.
World Health Organization:

The WHO (World Health Organization) is an authoritative agency under the UN (United Nations) which is assigned with the monitoring of international public health. The WHO was established after World War II, in which it was created by the member states of the UN back in April 7, 1948. Its headquarters is located in Geneva, Switzerland. The WHO then grew to become the world’s leading health organization, in which its policies and projects/programs led to extensive progress in assisting international public health. The organization aims to unite countries within the common goal of eliminating and tackling diseases as well as achieving better overall health worldwide. The WHO is involved within the issue as they recruit experts with a variety of prowess in order to assist within their programs. Some of these programs include: the elimination of the Ebola virus, Nipah virus infection and the improvement of nutrition and reduction of air pollution in order to control global health risks.

The World Bank

The World Bank is an international organization which was constituted in order to assist developing countries, it was established in 1944, post World War II, to rebuild Europe after it sustained irreparable damage to its infrastructure, The World Bank was categorized under the IBDR (International Bank for Reconstruction and Development), and it is one of the most prominent organizations which aim to shape the global economy. As of today, the World Bank acts as an international organization that offers grants and loans at an affordable rate to middle and low income countries in order to assist in their development in all departments, which include health care. An example of a project conducted by the World Bank in order to ease global and public health risks and crises include the mobilization of 300 million dollars to finance in easing the Ebola virus epidemic in the DRC (Democratic Republic of Congo). This resulted in decreasing the mortality rate in several sectors of the DRC, as well as the development of several vaccines in order to corner the virus and decrease the number of fatalities in the country.


The United Nations International Children’s Fund (UNICEF) is an international organization that aims to meet the basic needs of a child which includes food, clothing and health care. The UNICEF started off with assisting children particularly in Europe, as it was established post World War II in 1946, in which a large percentage of the population of Europe was affected by poverty and war casualties, and the mortality rate of children was far higher than the adult mortality rate.
due to communal diseases. The UNICEF approaches the issue presented through targeting sectors such as "Maternal, newborn and child survival" in which UNICEF attempts to end preventable deaths by improving and supervising essential maternal and newborn care services, as well as the improvement of immunization services and other factors that would decrease the number of maternal deaths, as well as control global health risks and preventing them through targeting these sectors.

**Centers for Disease Control and Prevention (CDC)**

The CDC (Centers for Disease Control) is a federal agency which aims towards the promotion and support of health in the United States of America. The CDC’s unified goal is to improve and enhance the overall public health in the US. The CDC was established in 1946 and is based in the state of Atlanta. It started off as a one floor building and with a simple yet challenging goal of preventing the spread of the malaria virus. The CDC had a budget of 10 million dollars and 400 employees to assist in solving this issue, in which they equipped themselves with enough trucks, sprayers and other equipment in order to initiate war on the mosquitos. The CDC then expanded their responsibilities towards other communicable diseases.

In 1947, the CDC purchased 15 acres of land on Clifton Road, Atlanta in order to build their headquarters, and since then they focused on all communicable diseases and provided practical help to all sectors locally, and nationally. The CDC to this date is attempting to resolve the issue early detection of global health risks through improvement of surveillance capability through the use of data, biotechnology and expansion of biosurveillance in order to resolve the issue.

This has led to positive impacts such as the reduction of the outbreak of smallpox back in the 1850s, and an increase in vaccination rates all the way up to 96.5% in comparison to before the mandate which stood at a much lower percentage of 77.2%, this mandate allowed for the reduction in preventable deaths and the spread of communicable diseases.

However, the mandatory vaccinations for public schools sparked debate and criticism, as parents deemed to complain that the right of freedom is being evicted through the mandate, especially if the vaccine turns out to be harmful. 18 states allow for personal opposition towards vaccines. As some politicians do not believe in immunization mandates in order to maintain and sustain global health risks, while others debate for the opposition and believe that immunization allows for a safer community and reduction in overall deaths and improvement in life expectancy.
## Timeline of Events

<table>
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<tr>
<th>Date</th>
<th>Description of Event</th>
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<tr>
<td>1700s to 1930s</td>
<td>During this time period, there has been several advancements and extensive research within the category of microorganisms, this was adapted as a result of the concept of urbanization which was trending and global trade was on the rise. Which resulted in the introduction of new communicable diseases such as cholera, as six global cholera pandemics occurred due to increased urbanization. The development of the underlying theory of diseases, resulted in the discovery of the first vaccine, and advancements in the development of vaccines and antibiotics. During this time period the germ theory was widely accepted which occurred during the 1850s. This led to methods of eradicating diseases such as smallpox as Edward Jenner’s development of the smallpox vaccine in 1796. As well as antitoxins and vaccines for numerous communicable diseases and viruses such as cholera and tuberculosis. Another theme was the establishment of various international alliances and conferences such as the ISC(International Sanitary Conferences), PAHO(Pan American Health Organization) and many others, this was closely intertwined with the germ theory and the discovery of vaccines and antibiotics/antitoxins.</td>
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<td>1940s to 1960s (Post WWII Era)</td>
<td>As World War II came to an end, the establishment of larger organizations both international and national were on the rise, as organizations such as the UN(United Nations, WHO(World Health Organization) began to form. This led to countries merging and collaborating in order to achieve common goals such as relieving war victims in Europe in 1943. As well as the emergence of health initiatives, NGOs(Non-governmental organizations) and global health programs. The UN then began to develop branches on a global scale such as UNICEF(United Nations</td>
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<td>Time Period</td>
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<td>Late 1960s to 1970s</td>
<td>Dissatisfaction with the WHO due to their focus on disease/infection control at the expense of improving general living conditions, as well as disappointment towards its low budget and availability of staff. More organizations began to form in order to assist with global health such as the IARC (International Agency for Research on Cancer), as well as Doctors without Borders organization. The introduction of WHO’s list of essential medication as well as the allocation of healthcare funding in developing countries in order to ensure the availability of these medicines to increase survivability rate and reduce mortality rate in developing countries.</td>
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<td>1980s to 2000s</td>
<td>Major improvements in efficiency and productivity as technology advances, improvement in maternal and child health, as well as focusing on the Big Three which include sexually transmitted diseases such as HIV/AIDS, tuberculosis and malaria which are highly prominent in developing countries. The CSR (Child survival revolution) was in action, where this movement reduced the child mortality rate in developing countries.</td>
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<td>2000s and later</td>
<td>The UN’s MDGs (Millennium Development Goals) indicates that healthcare is an important goal. Disease-targeting organizations are on the rise and are available in developing countries in order to reduce mortality rates. Ebola virus epidemic starts in 2014-2016 in Western Africa. Vaccines and antibiotics presented to combat Ebola. Mortality rates of the Ebola virus decrease drastically.</td>
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Relevant UN Treaties and Events

- International Covenant on Economic, Social and Cultural Rights, 16 December 1966
- Preventable maternal mortality and morbidity and human rights, 17 June 2009
- Global Immunization Strategy, 25 May 2005
- World Health Assembly endorsed resolution to strengthen immunization, 29 May 2017
- Preventable maternal mortality and morbidity and human rights: follow-up to Council resolution 11/8, 30 September 2010
- Scope, modalities, format and organization of the high-level meeting of the General Assembly on the prevention and control of non-communicable diseases, 13 December 2010
- Prevention and control of non-communicable diseases, 13 May 2010
- Tobacco use and maternal and child health, 22 July 2010

Previous Attempts to solve the Issue:

Organizations and governments around the world have been aiming and focusing on eliminating global health risks and improving the detection of them with a variety of different approaches for each case. These propositions and attempts include targeting sectors such as preventable deaths, causes of death, life expectancy, air pollution and more. Monitoring those sectors assist in the detection of possible health risks that can affect the local and global community.

One of the main ways in which countries work towards eradicating health risks is by working in accordance with the International Health Regulations. These are legally binding and apply to all 194 Member States of the World Health Organisation. These regulations aim to provide public health responses to international epidemics and diseases, while also promoting coordination. In addition, the regulations also aim to avoid unnecessary interference and disruption to international travel and trade. An example of the implementation of the IHR is the emergency committee that was held in order to address the Ebola virus epidemic in the DRC(Democratic Republic of Congo), in which the meeting was convened by the WHO Director-General as the committee ran under the IHR to address the magnitude of the issue/epidemic.
Another undergoing attempt to resolve the issue is the launch of the GDD (Global Disease Detection Program), which is a project that's assigned under the CDC (Centers for Disease Control). The goals of the GDD are to respond to outbreaks, discover high-threat pathogens, surveillance (monitoring of data to detect diseases) and many others that aim to control and monitor health risks throughout the global community. There are currently 10 GDD centers around the globe which aim to assist in the management of the detection of global health risks.

Possible Solutions

There are many different solutions and approaches that can be taken in order to tackle the issues at hand. One effective approach would be to place emphasis on regional cooperation. This could be achieved by establishing WHO affiliated panels for the 5 geographical UN regions, which work in accordance with the UN’s aims. These panels would be able to liaise with each other and also with regional governments, in order to coordinate relief efforts and campaigns. This would be effective as all panels would be able to tailor their approaches and specialise according to the problems they face. In addition, this would also allow for the WHO and the UN to provide the resources necessary for governments to take action. This includes the training of staff and researchers, the medical aid and the infrastructure necessary for governmental action to be taken to provide methods for earlier detection. This also works hand in hand with another possible solution, which would be the setting up of research and training centres at a regional scale. This is effective, as it would provide the skills and knowledge needed to combat health risks on a local level.

Another highly significant solution could be by providing government subsidies and economic incentives to carry out a number of policies that would contribute to the tackling of health risks. These would make it less of an economic strain for governments to effectively allocate resources into public health efforts. These subsidies could be used to provide affordable tests for early detection of various diseases. An example of this could be to provide affordable or cheap pap smears for cervical cancer, blood tests for Type 2 diabetes or tests for bowel cancer. All of these contribute to earlier detection, which significantly increases the survival rate and life expectancy of the patient. In addition, these measures would incentivise governments to contribute more to the WHO and UN efforts, which promotes international cooperation to tackle the issue.

Finally, measures can be taken by governments to invest in scientific research, to prevent and control global health risks through assessing antimicrobial resistance. Antibiotic resistance is a rising epidemic within the medical industry, this is due to microorganisms, such as bacteria and pathogens developing resistance towards antibiotics. This renders standard treatment ineffective, in which the infection persists and spreads to others. Antimicrobial resistance can be tackled on individual or governmental levels. Individuals can contribute through different approaches such as: only using
antibiotics when prescribed by a certified health professional, never demanding medication when your health worker says you don’t need them as well as following an appropriate dosage. As for the government, policy makers have the power to rule out and create laws and regulations that can assist in the tackling of antimicrobial resistance, this can be done through approaches such as: ensuring that there is a national action plan against antimicrobial resistance that is being implemented effectively, improving surveillance of antibiotic-resistant infections, regulating and promoting the appropriate use and disposal of quality medicines, raising awareness of the severity and negative impact of the issue.

Guiding Questions

- Should governments around the world raise awareness regarding global health risks?
- Would measures taken in order to combat health risks be as accessible to all countries regardless of wealth, or would there be inequality?
- Should more emphasis be on lab research or on providing welfare to improve health?

Bibliography


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