



Research Report

World Health Organization

Preparing for the Next Pandemic:

Strengthening Global Health Systems

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Introduction

Over the past few centuries multiple pandemics have threatened and posed challenges to our global health, economies and society. From the first ever recorded pandemic, The Athenian Plague, in 430 B.C to the most recent one, COVID-19. COVID-19 displayed significant weaknesses in our global health systems highlighting areas needing improvement and for future consideration. The COVID-19 pandemic exposed inadequate infrastructure, the slow response time and the weak and disorganized global cooperation and coordination. COVID-19 presented how all of these factors contributed to devastating effects, leading to millions of lives being lost and economic recession worldwide.

The World Health Organization (WHO) and other international health bodies have since accentuated the need to strengthen our global health systems in order to better prepare for the next pandemic. Preparing for the next pandemic requires us to most importantly strengthen our healthcare system to make them more effective, efficient and long standing against future pandemics. This calls for changes, such as ensuring equitable access to medical resources, increasing hospital capacity, improving global surveillance and detection systems, advances for research and the quick development of vaccines and therapeutics, public health education and awareness... Strengthening health systems is especially crucial for low-income, developing nations, where their already weak healthcare infrastructure makes them even more vulnerable to pandemics. Preparing for the next pandemics demands large-scale change and reforms at local, national and international level.

Without decisive action, our world risks facing another global pandemic with potentially even greater consequences. Strengthening our global health systems isn't a job we are able to delegate

to one group or individual. It is our collective responsibility to protect ourselves from another future health crisis. We must all act on this. Requiring international cooperation and collaboration, large strategic investments, reforms ranging from policy to corporate in order to mitigate future pandemics and protect our global health.

Definition of Key Terms

Epidemic

A disease that affects a large group of people within a community, population or region

mRNA vaccine

A new vaccine that uses mRNA to teach our cells how to make a protein which triggers an immune response inside our bodies which in turn fights the disease

Pandemic

When a new disease or strain of an existing disease spreads worldwide, a type of epidemic

SARS

Severe Acute Respiratory Syndrome, a viral respiratory disease caused by a SARS-associated coronavirus, first outbreak in the 21st century to gain major public attention

Quarantine

Isolating yourself from others during a period of time because you may have a disease in order to prevent the spread of that disease

Zoonotic

An infection transmitted directly or indirectly between animals and humans

General Overview

Pandemics have been around much longer than we would imagine and aren't as rare as we would think. A pandemic is when a new disease or strain of an existing disease spreads worldwide. So far there have been 249 recorded pandemics throughout history, from 1,200 BC up to today. We all know the effects of a pandemic having all lived through the most recent one, COVID-19, ourselves. Pandemics affect our human civilization, public health, our economies and overall our individual, national and international stability. Before having actually experienced a pandemic we simply believe our health system are strong and able to withhold them. But this simply isn't the case. The most recent pandemic proved this point exactly, it exposes critical weaknesses in our global health systems and the fact that we were completely unprepared. However this allowed us to comprehend the importance and urgency in strengthening and addressing those critical flaws in our global health systems in order to better prepare for the next pandemic.

History of Pandemics

The first pandemic occurred much earlier than you would imagine, in 430 B.C, this shows how much and how long pandemics have been present and influence our history & culture. They have shaped our human society, for example it is now a norm to wash your hands and wear masks.

This was a habit normalized during pandemics. Pandemics have influenced our medical advancements, COVID-19 forced scientists to discover and develop mRNA vaccines which have revolutionized fast vaccine development.

Throughout history, pandemics have significantly affected our communities. The Black Death (1347-1351) also known as the Bubonic Plague killed around 75-200 million people which is

approximately 60% of the European population. This pandemic was also one of the first steps towards major societal shifts, from changes in labor markets to public health measures. For example the concept of major quarantines was first introduced during this pandemic and is to this day an effective public health measure to combat outbreaks. Another major pandemic is the Spanish Flu (1918-1919) which infected approximately 1 third of the global population and led to roughly 50 million deaths. This was one of the first key major pandemics which highlighted our weak health systems and the need to better prepare for pandemics. More recently there have been other pandemics which underlined that same fact, the truth that we are unprepared for pandemics and we must strengthen our health systems in order to become more prepared. The HIV/AIDS pandemic beginning in the early 1980s, has led to the death of 35 million people worldwide. The Ebola outbreaks originating from Africa in 2014, have affected 28,000 and killed 11,000 people. These 2 pandemics are only examples of the 249 recorded pandemics which have affected us and served as examples that our health systems are not prepared. The results of these pandemics highlight the importance of strengthening our global health systems in order to protect our populations.

Causes of Pandemics

There have been so many pandemic outbreaks and their consequences are dreadful and shocking but what exactly are their causes ?

Pandemics occur for various reasons and some of these are interconnected with some issues that arise during pandemics. Firstly, most recent pandemics such as COVID-19, SARS or Swine Flu originate from zoonotic diseases which are infections transmitted from animals to humans. The

increasing encroachment of humans into wildlife habitats has in turn increased our human-animal interactions which puts us more at risk of contracting zoonotic diseases; however the relationship between -animal and humans is essential for our survival and cant be eliminated in the foreseeable future. Simply putting us more at risk of another zoonotic disease outbreak and making the chances that the next outbreak is a zoonosis extremely high.

Another cause of pandemics is globalization and international travel which is particularly relevant to the 21st century. Nowadays modern transportation allows us to travel anywhere in the world in such short periods of time, this is very beneficial, but it also enables pathogens to spread worldwide within days. Take COVID-19 as an example, the reason COVID spread worldwide so fast is because tourists and people were travelling around bringing the disease with them and thus infecting others in other countries. This interconnectedness of our economies and societies means that an outbreak in one area can quickly spread worldwide leading to a global crisis.

Current Issues in Global Health Systems

The latest pandemic, COVID-19 exposed critical weaknesses in our global health systems. Before looking to strengthen our global health system we must first understand what the issues actually are.

Starting off, many people face inequitable access to healthcare, specifically low-middle income nations. This means that countries struggle to get vaccines, treatments, and basic medical supplies which simply gives the disease an easy path to spreading throughout the country and infecting people fast since there is very little to no medical intervention. Another issue in underfunded and overcrowded & overburdened healthcare systems, this leads to shortages in

hospital beds, medical staff, essential equipment... Making it impossible to manage patient surges, take the NHS for example, during COVID the UK healthcare systems struggled desperately there were simply too many patients for the medical staff to handle according to the research by (Triggle) “more than half of the 1,700 health staff said at times patients who were acutely ill with Covid could not get the care they needed.” There were also vulnerabilities within supply chains, when the demand for certain products rose drastically such as for masks during the COVID pandemic, the various chains were unable to provide vast amounts of these products rapidly. Meaning it took a while for supply chains to adjust and start producing and distributing certain products at a faster and large rate and amount. The slowed distribution of certain life-saving resources delayed efforts requiring certain products, allowing the outbreaks to escalate. Returning to the issues within our health systems, it is also very noticeable especially during pandemic times, such as during COVID, that our global health system are badly equipped at fast decision making and responses. During COVID this resulted in slow decision-making, inconsistent public health measures, weak international coordination... preventing swift and effective response. Finally our global health systems lacked reassurance, due to the rapid spread of misinformation during such a period, the public distrust towards health systems grew, this in turn fueled vaccine hesitancy and resistance to health guidelines. Our global health systems simply needed to reassure the public and show that they could be trusted.

All of these issues and weaknesses simply prolong the impact of pandemics and make us more susceptible to future pandemics as well, highlighting the urgent need to strengthen our global health systems.

Timeline of Key Events

430 B.C. The Athenian Plague The first recorded pandemic

1347-1351 The Bubonic Plague Killed around 75-200 million people, led to the 1st large scale quarantine measures

1918-1919 The Spanish Flu Infected 1 third of the world's population demonstrated the urgent need for pandemic preparedness

1980s-Present HIV/AIDS Pandemic Ongoing health crisis proving the importance of long-term disease management and access to healthcare

2002-2003 SARS Outbreak The first disease caused by coronavirus

2014-2016 Ebola Outbreak in Africa Shows the consequences of outbreaks in resource-limited areas and the need for stronger healthcare infrastructure worldwide

December 2019 COVID-19 Outbreak Begins

March 2020 WHO Declares COVID-19 a Pandemic

2020-Present New COVID-19 Vaccine Development and Distribution Showcases the new mRNA vaccine technology

2023 WHO's Pandemic Preparedness Treaty

Stakeholders

World Health Organization (WHO)

The World Health Organization is committed to preparing for future pandemics and overall strengthening our global health systems. They are currently working on the “Pandemic prevention preparedness and response” accord with other member states of the World Health Organization.

Center for Disease Control and Prevention (CDC)

The CDC plays a critical role in preparing for future pandemics, especially in the United States. It focuses on early detection, public health education, and emergency response.

China

China is committed to preparing for future pandemics and endorses all initiatives that assist developing nations; however, they advocate for greater representation and rebalancing and believe that a broader viewpoint, less West-focused, must be taken.

G20 Countries

The major economies of the world have all recognized the importance and urgency of this issue and are all committed towards preparing for the next pandemic and strengthening the global health system. Their participation, commitment, and investments are essential towards finding a solution for this issue.

Possible Solutions

We should reflect on the core issues and try to find solutions that directly address them. Firstly, we should look into investing and improving our global surveillance and detection systems, especially now with our various new technologies and advancements. It will help us faster identify the outbreaks and have more timely intervention. Secondly, we should strengthen our healthcare infrastructure, particularly in developing and lower income regions; this will help

ensure that our healthcare systems are able to manage surges and treat & provide all necessary medical supplies. Thirdly, investing in the development of vaccines & therapeutics and the equitable distribution of them. Take COVID-19 as an example it took scientists 10 months to develop a vaccine, previously it took 10-15 years, if we were able to reduce the time to create a vaccine from 10-15 years to 10 months, we are most certainly able to reduce it again. Another possible solution and very important one would be to encourage and foster international cooperation since a pandemic is a global crisis we must work together to solve it, by working together we will be able to enhance global response coordination. Lastly supporting research and innovation of all types to drive for new solutions to infectious diseases as well as supporting public health education campaigns to increase awareness and in the future ensure the importance of compliance with preventive measures is understood.

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