BIGMUN 2023
World Health Organization

Research Report Guide

Topic 2: Developing a framework to prevent another Pandemic

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Introduction

Following the Covid-19 Pandemic, which led to the death of millions of people, the lockdown of several industries, and overwhelmed public healthcare systems it is clear that a comprehensive and coordinated effort is required to develop a framework to prevent another pandemic at this scale from ever occurring[1]. Pandemics refer to the worldwide spread of disease as such global collaboration is essential to preventing the beginning of pandemics[2]. With the Sars-Cov-2 outbreak, it is believed that the true size of the outbreak was unknown, and that there may have been upto 1000 cases of Covid-19 in Wuhan, which then continued to spread rapidly around the country[3]. As people continued to travel and hold gatherings the virus began to spread outside China and to all continents[4]. It is clear that a lack of effective surveillance, as well as comprehensive communication with the rest of the world is to blame for this incident. There has been a lot criticism of the lack of effective frameworks to control the spread.

Definition and Key Terms

Pandemic: "an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people"[5].

Epidemic: "an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area."[6] It is very important to note that epidemic and pandemic are two different things. While epidemic refers to the spread of diseases in certain areas in the world and are contained. And pandemics refer to the spread of diseases that cross international borders and are uncontrollable.

Endemic: a disease outbreak that is present in a certain area but only limited to that region.

Immunity: Protection from an infectious disease. If you are immune to a disease, you can be exposed to it without becoming infected.[7]

Vaccine: A preparation that is used to stimulate the body's immune response against diseases. Vaccines are usually administered through needle injections, but some can be administered by mouth or sprayed into the nose.[8]

Herd Immunity: when a significant portion of a population becomes immune to an infectious disease and the risk of spread from person to person decreases; those who are not immune are indirectly protected because ongoing disease spread is very small.[9]

Preparedness: "refers to the ability of governments, professional response organisations, communities and individuals to anticipate and respond effectively to the impact of likely, imminent or current hazards, events or conditions" [10]

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[1] (World Health Organisation)
[2] (Health Direct, n.d.)
[3] (New York Times , n.d.)
[4] (New York Times , n.d.)
[5] (PubMed Central , n.d.)
[6] (Columbia, Mailman School of Public Health, n.d.)
[7] (CDC, n.d.)
[8] (CDC, n.d.)
[9] (Angel N. Desai, n.d.)
[10] (OCHA Services , n.d.)

Background Information

To prevent another pandemic a comprehensive and coordinated global effort is required. The development of a framework to prevent the widespread occurrence of infectious disease is an ongoing process that has evolved over the years. The recent Covid-19 Pandemic highlighted the need for better preparedness and response systems, as well as the importance of international cooperation and collaboration.

In 1948 the World Health Organization (WHO) was established[11]. The World Health Organization (WHO) is a United Nations agency that connects nations, partners, and people to promote health[12]. The organization oversees leading and coordinating a global response to public health emergencies such as outbreaks and pandemics[13]. The formation of WHO is a major example of efforts to prevent pandemics. The World Health Organization (WHO) launched the International Health Regulations (IHR) in 2005, which established the legal framework for countries to report and respond to public health emergencies of international concern[14].

The WHO also established the Global Outbreak Alert and Response Network (GOARN) in the aftermath of the SARS outbreak in 2002-2003, which provides a coordinated global response to outbreaks and other public health emergencies[15]. The GOARN is a network of over 60 partners, including countries, international organizations, and other stakeholders, who work together to share outbreak-related information, resources, and expertise[16].

Other international organizations and initiatives, in addition to the WHO's efforts, have been established to prevent pandemics. For example, the United Nations (UN) adopted the Political Declaration of the High-level Meeting of the General Assembly on the Fight Against Infectious Diseases in 2016, which included a number of commitments from member states to improve the world's ability to detect, diagnose, and respond to outbreaks[17].

In recent years, the private sector has also begun to play an important role in the development of frameworks to prevent pandemics. Companies and organizations are investing in research and development, as well as technology and data analytics, to improve the detection and response to outbreaks. For example, the European Centre for Disease Prevention and Control's (ECDC) Epidemic Intelligence from Open Sources (EIOS) program aims to improve early detection of outbreaks and emerging health threats by analyzing data from open sources such as social media, news articles, and other online sources[18]. The private sector also contributes to the development of vaccines and treatments for infectious diseases, as well as the distribution and distribution of these vital resources to the general public.

Overall, the development of frameworks to prevent pandemics is a continuous process that involves collaboration between international organizations, governments, and the private sector. The key to success is early detection, timely response, and effective mitigation strategies. Through continued efforts, a comprehensive framework can be developed to prevent another pandemic in the future.

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[11] (World Health Organization, n.d.)
[12] (World Health Organization, n.d.)
[13] (World Health Organization, n.d.)
[14] (World Health Organization, n.d.)
[15] (World Health Organisation , n.d.)
[16] (World Health Organisation , n.d.)
[17] (UNAIDS, n.d.)
[18] (World Health Organisation , n.d.)

Major Countries and Organizations Involved

The Global Outbreak Alert and Response Network known as (GOARN) is a network of technical institutions and networks[19]. The organization was established in April 2000[20]. The organization supports increasing Global Health Security through rapid detection, ensuring requisite technical support to affected areas and supporting long-term epidemic preparedness and capacity-building[21]. The organization has expanded to include government agencies, universities, laboratories, nongovernmental organisations and international organisations as well as networks in specialized areas. An operational team at WHO coordinates the day-to-day activities of the network[22].

The Epidemic Intelligence from Open Sources is collaboration between various public health stakeholders around the globe[23]. The EIOS' approach to preventing another pandemic is the early detection, verification, assessment and communication of public health threats using publicly available information. EIOS is a program who's aim is to create a community of practice for public health intelligence that includes member states (WHO), international originations, research facilities as well as partners and collaborators to improve capacity for the early detection of outbreaks and emerging health threats[24]. The EIOS program uses data analytics as well as machine learning in order to scan large amounts of data from open sources[25]. The data is analyzed in order to identify patterns and trends that may indicate an outbreak or emerging health threat.

The International Health Regulations is an instrument of international law that is legally binding on 196 countries, 194 of which are WHO member states[26]. The IHR was formed in 2005 and provides an overarching legal framework that defines countries rights and obligations in handling public health events and emergencies that have the potential to cross borders[27]. The IHR was formed out of the response to deadly epidemic in Europe. The IHR requires countries to establish and maintain capacities for surveillance and response[28].

Relevant UN Resolutions

As mentioned previously, preventing another pandemic requires a coordinated global effort and the United Nations as played a key role in this. The United Nations facilitates communication between its member states and is able to further support them by providing guidance and resources such as finical aid. Through the UN's various bodies, a number of resolutions have been adopted that aim at strengthening the worlds' ability to detect, diagnose and effectively respond to outbreaks.

Resolution WHA 73.1: This resolution presented on the Seventy-Third World Health Assemby calls for *"the universal, timely and equitable access to, and fair distribution of, all quality, safe, efficacious and affordable essential health technologies and products, including their components and precursors, that are required in the response to the COVID-19 pandemic"[29]*.

Draft Resolution A74/A/CONF./2: This resolutions was presented at the Seventy-Fourth World Health Assembly and acknowledges *"the importance of strong, resilient and agile health systems with integrated public health functions, competent and well-trained health workforce, timely and equitable*

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[19] (World Health Organisation , n.d.)
[20] (World Health Organisation , n.d.)
[21] (World Health Organisation , n.d.)
[22] (World Health Organisation , n.d.)
[23] (World Health Organisation , n.d.)
[24] (World Health Organisation , n.d.)
[25] (World Health Organisation , n.d.)
[26] (CDC, n.d.)
[27] (CDC, n.d.)
[28] (CDC, n.d.)
[29] (World Health Organisation)

access to quality health services including those for strong routine immunization, mental health and psychosocial support, trauma recovery, sexual and reproductive health, and maternal, newborn and child health, as well as equitable access to quality, safe, effective and affordable technologies and products to strengthen multisectoral collaboration among all stakeholders for achieving universal health coverage"[30]. The resolution urges member states to adopt early-warning surveillance, effective a coordinated approach in preparedness for health emergencies and to strengthen cooperation to create mechanisms for communication[31].

Previous Attempts to Solve the Issue

The Pandem project was an 18-month, project coordinated by the University of Galway in Ireland and funded by the Horizon 2020 Secure Societies[32].

The program's focus was Protecting the freedom and security of Europe its citzens[33]. The program was created as the European Union began facing growing health security threats including disease emergence, amplification, and dissemination of pathogens with pandemic potential[34].

PANDEM addressed the needs and priorities detailed in the Horizon 2020 Work Programme crisis management topic DRS-4[35]. The program brought together highly skilled and multi-disciplinary senior experts from the health, security, defense, microbiology, communications, information technology and emergency management fields[36].

The European Union notes that in order to protect the security of Citizens in the EU in the face of these pandemic threats a coherent reponse would be required by all stakeholders driven by effective pandemic risk management[37].

The Pandem project focused on reducing threats to the health, supporting socio- economic and security to society posed by future pandemics additionally ensuring preparedness, at the regional, national, EU and Global level, in case of future pandemics[38].

Pandem assessed pandemic preparedness including response tools, systems, risk assessment and surveillance, communication and public awareness, governance and legal frameworks. Pandem was able to identify drawbacks and suggest improvement[39].
On February 1st, 2021, the Pandem.2 project was started which builds on the key nsights and lessons learned in the PANDEM project and will build international best practice standard in areas such as modelling, simulations, pandemic communications and contact tracing[40].

The PANDEM is an EU funded project that will develop an IT system to enhance planning, situational awareness and decision support capabilities for pandemic management within the EU as well as facilitating two-way communication with the public. The system will be tested through demonstrations in various member states[41]. The project will track the health, social and economic impact of a pandemic by capturing and integrating pandemic-relevant data from international

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[30] (World Health Organisation , n.d.)
[31] (World Health Organisation , n.d.)
[32] (European Commission, n.d.)
[33] (European Commission, n.d.)
[34] (European Commission, n.d.)
[35] (European Commission, n.d.)
[36] (European Commission, n.d.)
[37] (European Commission, n.d.)
[38] (European Commission, n.d.)
[39] (European Commission, n.d.)
[40] (European Commission, n.d.)
[41] (European Commission, n.d.)

laboratory and social media systems[42]. The data accumulated will be available on an online dashboard to support decision-making[43].

The PANDEM-2 project is set to end on the 31 July 2023[44].

Possible Solutions

There are several viewpoints that can be taken regarding the issue of developing a framework to prevent another pandemic.

One solution is adopting a more proactive approach, taking proactive measures to detect and respond to outbreaks early, the main focus of this approach would be surveillance, investment in global surveillance and response systems, strengthening of health systems, and the investment in the research and development of new diagnostic tests, treatments and vaccines. By improving capacity for early detection, it will be easier to observe/discover emerging health threats. Additionally, the formation of more organisations focusing on surveillance like the Global Outbreak Alert and Response Network (GOARN), who has established a network of more than 1000 partners.

Another solution is stressing the importance of international cooperation. This approach focuses on the sharing of information and resources between countries and international organisations to combat the spread of disease. By building stronger partnerships between countries, international organisations and the private sector resources and knowledge can spread between countries supporting countries to strengthen surveillance, public health systems, workforce capacities as well as preparedness and response capacities. Information surrounding the epidemiology of disease as well as treatment, care etc. By building stronger partnerships between countries, international organisations will also facilitate efficient and effective communication.

Involvement from the private sector can help to develop a framework. The private sector can include pharmaceutical companies, technology firms and other firms that can contribute to development of vaccines, treatments, awareness etc. Involvement from between the private sector was essential to controlling the Covid-19 pandemic. Companies such as Pfizer, Moderna, AstraZeneca and Johnson and Johnson were able to develop Covid-19 Vaccines. Logistic companies such as DHL, UPS and FedEx were able to distribute the vaccines, providing individuals access to the vaccines. Additionally, Media and communication companies have raised awareness, discouraged the spread of misinformation and encouraged people to follow advice from public health officials.

Investing in research and development which includes funding research for the development of diagnostic test, treatments, and vaccines as well as new technologies such as the Pandem project.

Strengthen health care systems funding research on new diagnostic tests, treatments, and vaccines as well as investing in the development of the new technologies and platforms to help fight pandemics.

Developing a comprehensive plan that can outline procedure on how to respond to a pandemic, such as containment, detection, surveillance. Moreover, plans to protect healthcare workers and plans to mitigate the impact of the increase of the spread of disease on the healthcare system.

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[42] (European Commission, n.d.)
[43] (European Commission, n.d.)
[44] (European Commission, n.d.)

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