



World Health Organization (WHO)



Topic:

Confronting the need to utilize new technological developments for the detection of emerging diseases to prevent global-scale outbreaks.



Committee: WHO

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I. Quorum

- Australia
- Brazil
- Canada
- China
- Denmark
- Egypt
- France
- Germany
- India
- Indonesia
- Italy
- Japan
- Kenya
- Mexico
- Netherlands
- Nigeria
- Norway
- Russia
- South Africa
- South Korea
- Spain
- Sweden
- United Kingdom
- United States
- Vietnam



II. Committee Background

The World Health Organization, also known as WHO, was founded on April 7, 1948 after several diplomats met to form the United Nations. Representatives from Brazil and China proposed establishing an international health organization because they believed that an increase in international cooperation toward improving health worldwide was necessary. The official headquarters of the organization are in Geneva. WHO was founded to ensure that every single person has the opportunity to live a healthy life.

WHO is responsible for expanding universal health coverage, promoting healthier lives, and much more. Their main targets are to assist countries that look for progress towards universal health coverage; increasing access to important and high-quality medical products; and helping nations, mainly third world countries, handle diseases. WHO has made crucial progress towards improving healthcare worldwide.

WHO has been an important body of the United Nations by contributing to the prevention and controlling of outbreaks like polio and smallpox as well as many tropical diseases, creating important antibiotics and vaccines. In 1997 they made the first essential medicines list, which included the medicines a health care system requires. Furthermore, WHO has launched vaccines against tuberculosis and malaria, reduced the levels of tobacco consumed, helped with mental health, collaborated with COVID-19, among others.

III. History of Topic

WHO has been supporting the international community for many years to prevent diseases from spreading globally. They have assisted throughout investigations and the publishing of articles to the general public, something which a few years ago was deemed almost impossible due to the lack of communications technologies. This forced scientists and medics to send their hand-written investigation reports by mail, so by the time it was received, the virus had already started to spread, which made it difficult to find and prevent diseases.

Furthermore, health professionals realized that the need for more effective communication was important if they wanted to make a big impact after the SARS outbreak in 2003. In response WHO then created the Global Outbreak Alert and Response Network, GOARN, which aimed to help countries with communication issues and granted them the ability to freely report viruses and assist in stopping or preventing them.. Then, in 2005, the International Health Regulations were agreed upon by almost every country to ensure all members reported new diseases to WHO



when found.

Diseases such as Ebola, from 2014 to 2016, and COVID-19, in 2020, demonstrated that these systems weren't enough. During COVID-19, scientists tried using artificial intelligence and data tracking systems to find the virus, make vaccines, and study how it spread. These tools helped save millions of lives, but countries with fewer technological advancements had little to no access to these new technologies, to this day this remains as a critical challenge for the international community that must be solved.

New viruses can appear anywhere, and if countries don't have the appropriate systems in place to prevent or locate them, they can spread all around the world. And as previously mentioned even when there are tracking systems and artificial intelligence networks, not all countries have access to them. WHO is planning some projects, such as the WHO Hub for Pandemic and Epidemic Intelligence, to make sure all countries have useful tools to prevent diseases. This and other problems can cause the worldwide spread of viruses, and without the immediate attention it requires, might go unnoticed.

IV. Topic Information

Emerging diseases and viruses can quickly spread across the world, so early detection and response is extremely important to prevent the loss of lives. WHO has stated that traditional methods are no longer enough, and that we have to use modern technology to solve the problem. As an example, WHO has made progress by creating modern systems for early detection for diseases that help more than 150 countries using artificial intelligence and several new methods. Globally, the search for expanding viruses is improving because of the integration of artificial intelligence and digital health.

Many countries have made progress in developing modern technologies for disease detection. In the United States of America, Centers for Disease Control and Prevention, CDC, are using advanced technologies to improve public health. India's Integrated Health Information Platform, IHIP, uses media-scanning tools that use artificial intelligence to track diseases from different places. Other countries including South Korea, Germany, and Europe in general, have also collaborated with the early detection of diseases. WHO is helping by creating systems in developing countries with funds from the Hub's International Pathogen Surveillance Network.

Despite these advancements, there are still many problems that remain to be solved. First,



low-income countries often lack modern technology and advanced systems for the detection of viruses. Not all health systems have integrated artificial intelligence and digital tools. As stated by WHO, sharing reports and findings from one country to another is not easy and delayed by political issues. Also establishing laboratories and surveillance systems in areas with limited resources is a major problem; maintaining them and having professional and well-trained scientists and medical staff is a bigger challenge.

Significant actions have been made to help developing nations improve their capabilities of early detection of viruses and diseases. In some African countries, WHO has helped by One Health activities in improving the shipping of specimens and scientific research. The number of different diagnostics and digital health tools has increased. Many of the actions have helped. As mentioned before, the Hub helps more than 150 nations. For example, India has advanced tools that detect viruses from over 90,000 sources. However, many problems such as the data sharing and the systems in developing nations still have to be solved, so even though there have been many improvements throughout the years, there is still much to improve.

V. Current Issues

United States

The United States of America has advanced in the early detection of emerging diseases in various ways. They have developed more advanced systems by using artificial intelligence and making big data analysis to quickly detect the new viruses. They also use genomic sequencing to rapidly identify emerging diseases. The CDC is one of the main entities that uses genomic sequencing, contributing to the development of solutions to detect new viruses. Artificial intelligence is being used to analyze data to find patterns from medical purposes.

AI is also employed by systems such as HealthMap to detect early signals of disease outbreak. Furthermore, there is a Health Alert Network, HAN, to improve the quick communication of data. These are some of the ways the United States have collaborated with the use of new and modern technologic systems. However, issues are yet to be solved. The main problem is that these technologies are not always used efficiently. In addition, the aforementioned surveillance systems are incomplete, which has been a factor for the delay of progress regarding these issues.

China

Germany has been one of the countries with the most collaboration in investing in new systems to stop diseases before they spread. In Berlin, Germany is where the WHO Hub for Pandemic



and Epidemic Intelligence is located. It uses artificial intelligence and real-time information to track emerging viruses. Germany also uses systems such as SORMAS, which is an organization that helps several countries in all continents, to help scientists and doctors share information about the new findings in a fast and easy way. Projects such as these ones show Germany's teamwork and the use of technology to overcome different challenges.

However, Germany still faces many challenges. Some poorer countries don't have access to the same level of technology. Through its Global Health Protection Programme, GHPP, Germany works to share their knowledge and tools with other countries to make disease detection effective and easy. Nevertheless, issues like funding, privacy, and collaboration between countries make the process slower. Germany still focuses on making disease detecting fair for all nations by implementing the use of artificial intelligence and digital systems for everyone to benefit.

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Japan

Japan has struggled in updating part of their information, making it harder to find useful information when needed. Sometimes decision-making is done too slowly. These are the issues Japan still has, despite this they are one of the countries with the most cooperation for all of the solutions they've made. Japan believes that new technology is key to find and stop diseases before they spread worldwide. The COVID-19 pandemic demonstrated how quickly viruses can spread around and how important it would have been to detect it earlier. Japan has used certain tools, including artificial intelligence, genomic sequencing, and digital tracking systems to search for emerging diseases. As an example, Japan's National Institute of Infectious Diseases, NIID, uses modern data analysis to track new viruses and share information with WHO. Japan supports



improving these systems throughout the world, especially in areas with low resources and less advanced technology.

Japan is ready to share technology, research, relevant information, and training programs with other countries. They have openly shown agreement with WHO projects that help other nations in using digital tools in a safe and efficient way. Japan also believes that when using technology, it's important to protect and guarantee people privacy and make all nations benefit equally. By collaborating with partnerships such as the Global Health Security Agenda, GHSA, and the G7 Global Digital Health Framework, Japan's goal is to make a successful and bigger global health network. Moreover, Japan hopes that the world can prevent future pandemics and to protect the world together by using technology and cooperation.

VI. UN Actions

Through the World Health Organization(WHO) the United Nations (UN) has been working non-stop by using new technologies to detect emerging viruses as quickly as possible. Because new diseases appear more often nowadays, the need to make faster and smarter detection systems is a key to prevent global spread of disease. Programs including the Global Health Observatory and the International Health Regulations, IHR, help countries to share information quickly about possible outbreaks. By using artificial intelligence and digital tools, the UN and WHO plan to make it simpler to find new diseases and take action before they spread.

Today, new technological developments have completely changed the way experts find and track new viruses. Right now, satellite-based environmental monitoring, normally used by WHO, can help scientists to find climate or vegetation changes that increase the chances of mosquito-borne diseases such as malaria and dengue. Additionally, genomic sequencing helps researchers read and share the genetic code of new viruses quickly, which played a key role in identifying COVID-19 and creating vaccines faster than ever before. Also with cloud computing technology, a lot of health data can be stored, shared, and analyzed, helping laboratories and hospitals from all over the world work together. In a similar way, the UN manages big data systems that let scientists find more information that might contribute to reveal new signs of outbreaks.

In addition, the UN has expanded global collaboration by initiatives including the Pandemic Fund and the Global Preparedness Monitoring Board, which aim to upgrade every country's ability to detect viruses and act quickly. WHO has cooperated with some agencies including the United Nations Development Programme, UNDP, to make sure that even low-resource countries have access to surveillance systems. Likewise, the UN promotes the use of data platforms to



connect national health information, making real-time information being shared possible. All of the mentioned actions show the United Nations' dedication to improving the detection of emerging diseases to prevent outbreaks before they affect people worldwide.

VII. Conclusion

The World Health Organization is in charge of assuring that everyone, everywhere has access to a healthy life. They have helped in many ways, by making vaccines available to all and supporting nations to eliminate diseases. Years ago, there were many difficulties in detecting diseases, but then new systems, that were improved over time, started to emerge. Throughout the years, WHO helped more than 150 countries by implementing the use of artificial intelligence and digital tools to prevent global-scale outbreaks. However, issues like the lack of professional scientists, modern technology, resources, and communication have slowed the progress, mainly affecting third world countries.

Nowadays, many countries are involved in this problem, both with solutions and issues that remain unsolved. In the USA, programs such as the CDC, HAN, HealthMap, and more have collaborated a lot. China's systems are slower, there is less technology in rural areas, there are more privacy concerns, and communication is still an issue that has to be solved. Even though the WHO Hub for Pandemic and Epidemic Intelligence is located in Germany, they are struggling in funding, addressing privacy properly, and making collaboration more efficient. Japan is very advanced with genomic sequencing, and they always share technology and research with WHO to cooperate. In general, many countries have very advanced systems that include artificial intelligence. The United Nations has helped a lot too by WHO. They've made and improved satellite-based environmental monitoring, have cooperated with the majority of nations, and show their dedication in helping everyone.

VII. Guiding Questions

1. How can Member States ensure equitable access to advanced technologies (such as artificial intelligence, genomic sequencing, and digital surveillance tools) for early disease detection, particularly in low- and middle-income countries?
2. What global standards and legal frameworks are needed to facilitate timely and transparent cross-border data sharing while still protecting privacy, sovereignty, and



3. national security?
4. In what ways can WHO and the United Nations strengthen capacity-building in laboratories, digital infrastructure, and human resources in countries with weak health systems?
5. How can existing mechanisms, such as the International Health Regulations (IHR) and the Global Outbreak Alert and Response Network (GOARN), be improved to better support early detection and rapid response to emerging diseases?
6. What role should public–private partnerships play in developing, financing, and implementing new technologies for outbreak detection and surveillance?
7. How can Member States ensure that the use of artificial intelligence and big data in health surveillance respects ethical principles, including human rights and non-discrimination?
8. What strategies can be used to harmonize data collection and reporting systems so that information from different countries can be integrated and compared effectively?
9. How can technological solutions be adapted to meet the needs of rural, remote, and marginalized communities that often lack stable internet access and health infrastructure?
10. In what ways can international funding mechanisms, such as the Pandemic Fund and other multilateral initiatives, be optimized to support sustainable investments in early detection technologies?
11. How can Member States improve public trust in digital health tools and counter misinformation that may undermine the use of new surveillance technologies?
12. What training and education programs are necessary to ensure that health workers and data scientists can effectively operate and maintain advanced detection systems?
13. How can Member States address disparities between high-income and low-income countries in terms of access to genomic sequencing, laboratory networks, and real-time surveillance platforms?
14. What indicators and evaluation methods should be used to measure the effectiveness and impact of new technological developments in preventing global-scale outbreaks?
15. How can regional organizations and cooperation frameworks (e.g., the African Union, the European Union, ASEAN) support the coordination and sharing of technological tools for early detection?
16. What concrete steps can the international community take to ensure that lessons learned from past outbreaks, such as Ebola and COVID-19, are translated into long-term technological and institutional reforms?



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