

Forum: GA Committee 6 - World Health Organization (WHO)

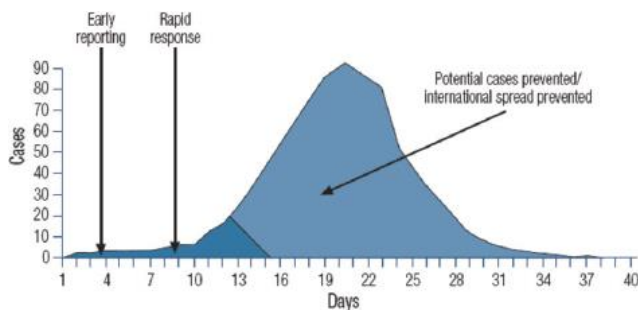
Issue: The question of creating a response system to virus outbreaks

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Introduction

A virus outbreak consists in the occurrence of cases of disease in excess of what would normally be expected in an area and may last for a few days until several years. Virus outbreaks can be common like for example flu, but can also be more violent and dangerous if the virus has been for a long absent from a population, not previously recognized in that area or unknown. A virus can spread in



many ways: through blood-sucking insects, by coughing and sneezing, through contact, through infected food or water, through sexual contacts. The ability of a virus to cause a disease is described in terms of virulence. When an outbreak became global it is called pandemic. Prevent and create a response system to virus outbreaks is essential to reduce at the minimum

level the number of people infected.

Definition of Key Terms

A virus is a group of ultramicroscopic, infectious agents that replicate within the cells of living organisms. The disease that is caused as a result of it is also referred to as the virus. The outbreak of a virus would imply a sudden or violent increase in the incidence of a disease.

Timeline

Viruses were only discovered at the end of the *19th century*, for absurd after the creation of the first vaccine by Louis Pasteur and Edward Jenner. In *1928* the first book was published about virus named “Filterable viruses”, a collection of essays regarding the recent discoveries about viruses. In *1931*, thanks to the invention of the electron microscope, the complex structure of viruses could be uncovered and examined.

The influenza virus was only discovered in *1933*, after the influenza pandemic of *1918-1919* that killed 40-50 million people in less than a year; in the *1950s* it was discovered that the virus recombines at high frequencies.

In *1949* the polio virus was discovered and isolated during a period in which the poliomyelitis was killing a huge number of people, reaching a peak in *1952* when the first vaccine was produced. Nowadays the cases a year of poliomyelitis have been reduced from 350,000 in *1988* to 37 in *2016*.

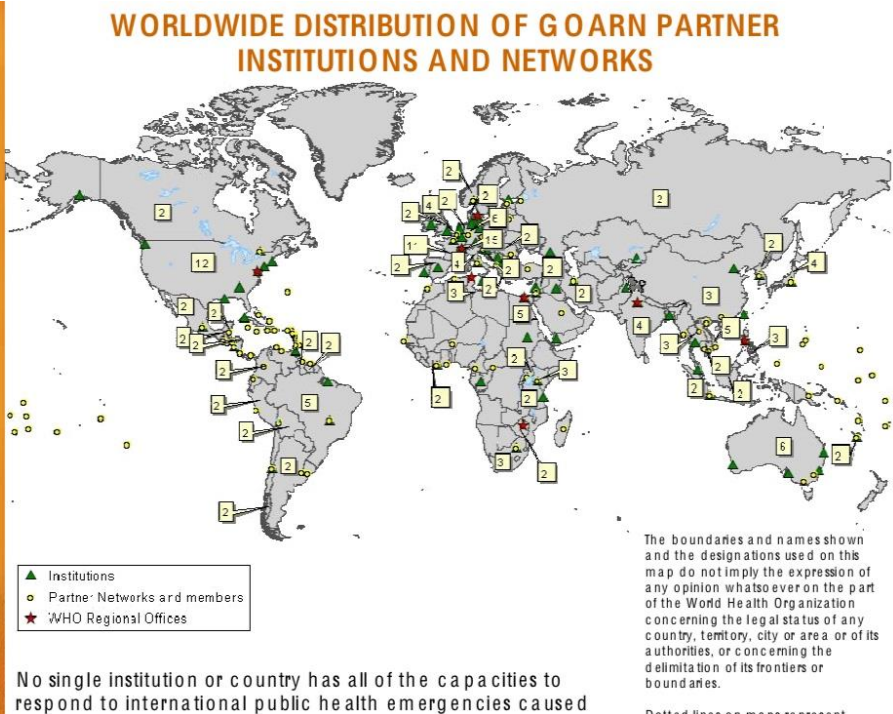
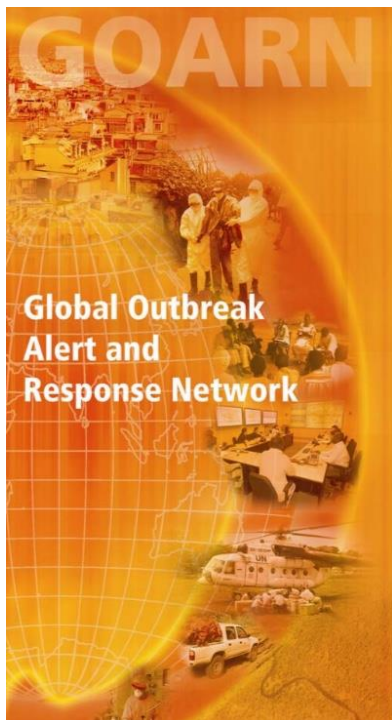
The 20th century was the golden period of virus discovery: in 1946 bovine viral diarrhoea was discovered and in 1957 it was the equine viral arteritis. In 1960s, through the improvement in virus isolation and detection methods, were discovered many important human viruses such as hepatitis B virus and retrovirus, essential to produce antiviral drugs. In 1983 for the first time the HIV virus was isolated. Six years later Hepatitis C was discovered.

The discovery of new viruses continued in the 21st century with the appearance of new viral diseases such as SARS and nipah virus. The research in that sector has made huge steps but viruses continue to pose new threats and challenges creating new viral diseases and outbreaks.

Major Parties Involved

WHO is the most involved organization in the control of a virus outbreaks. Other important organizations give information and help WHO in discovering and analyzing viruses. An example are the International Health Regulations (IHR), legal instrument that requires WHO Member States to notify diseases of global importance. IHR have been in action since 2007 with the scope to prevent, control and provide a public health response to outbreaks by emphasizing the immediate notification of all disease outbreaks of urgent international importance.

The coordination of international outbreak response is ensured by GOARN resources. GOARN (Global Outbreak Alert and Response Network) ensures that the right technical expertise and skills are where and where they are needed most. It is a collaboration between existing institution and networks. The network uses the resources for rapid identification, confirmation and response to outbreaks. It is the result of the cooperation between scientific institutions in Member States, medical and surveillance initiatives, regional technical networks, laboratories' networks, UN organizations (UNICEF, UNHCR), the Red Cross and international humanitarian NGOs.



History

Since 1992, alarm over emerging and re-emerging diseases has resulted in a number of national and international initiatives to restore and improve surveillance and control of communicable diseases. The Member States of WHO expressed their concern in a resolution of the World Health Assembly in 1995, urging all Member States to strengthen surveillance for infectious diseases in order to promptly detect re-emerging diseases and identify new infectious diseases.

One of WHO's main means of creating a global surveillance system has been the development of a "network of networks" which links together existing local, regional, national and international networks of laboratories and medical centers into a super surveillance network. This network is constructed together with WHO Member States and other partners, including the European Union-United States Task Force on Emerging Communicable Diseases and the US-Japan Common Agenda; the network has also been cited as an area of collaboration by the G-7, G-8 member countries at both the Lyon and the Denver Summit Meetings. Requirements for monitoring the intentional use of pathogenic microbes have also been addressed by the network, specifically in the revision of the International Health Regulations (IHR), and in collaboration with the ad hoc Group of States Parties to the Biological Weapons Convention.

Evaluation of Previous Attempts

An important part in creating a response system to virus outbreak consists in the communication and exchange of information between countries, in order to recognize, identify and classify the virus that causes the disease as soon as possible and then establish an extensive distribution network of vaccine or necessary drugs.

With this purpose WHO has developed a comprehensive "event management system" to manage critical information about outbreaks and to ensure accurate and timely communications between international public health professionals including WHO Regional Offices, Country Offices, collaborating centers and partners in the Global Alert and Response Network. This system includes databases on epidemic intelligence, verification status, laboratory investigation and operational information; tracks and records of historical outbreaks, critical decisions and important actions by WHO and partners. The management system provides information to enable WHO and the GOARM to prepare better, respond faster and manage resources more effectively.

Possible Solutions

Since viral disease outbreaks can recur, the study through molecular biology of viruses is essential. This studies can be used to improve diagnostics and develop treatment programs and vaccines in order to trace the spread of pathogens. Epidemiology is one of the science that is used to control a virus outbreak breaking the chain of infection through the knowledge of how the virus is transmitted. When the virus has been identified the chain of transmission can be broken by vaccine, or through sanitation and disinfection.

Useful links:

http://apps.who.int/iris/bitstream/10665/44014/1/9789241597449_eng.pdf?ua=1&ua=1

http://www.who.int/csr/disease/WHO_PED_flyer_2014.PDF?ua=1

<http://www.who.int/mediacentre/factsheets/fs200/en/>

<https://www.ncbi.nlm.nih.gov/books/NBK54163/>

<http://www.who.int/csr/resources/publications/surveillance/whocdscsr2003.pdf?ua=1>