



2011 *Global Classrooms*

Middle School MUN

BACKGROUND GUIDE: Global Epidemic Outbreak Alert & Response

READ TO DISCOVER:

1. What is an epidemic and why are they so dangerous?
2. What are some of the diseases that are most likely to cause a global epidemic outbreak?
3. How can the international community coordinate its response?

DESCRIPTION OF THE COMMITTEE

The World Health Organization (WHO), established on April 7, 1948, is a United Nations agency that advances health worldwide. WHO's primary goal is the "attainment by all peoples of the highest possible level of health." The organization defines health as not just the absence of physical illness, but also a state of physical, mental and social well-being.

The World Health Organization is governed by the World Health Assembly (WHA), which is composed of 193 member states. WHA is charged with overseeing WHO's work and approving its programs, budgets and policies.

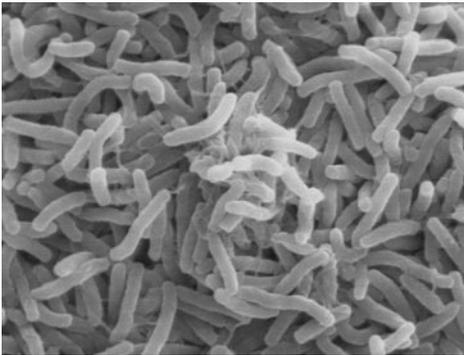


World Health Organization



INTRODUCTION

A **communicable disease** is one that spreads from human to human through different kinds of contact, usually causing infection. These **infectious diseases** are caused by **microorganisms** such as viruses and bacteria. Microorganisms that cause disease are called **pathogens**. When an infectious disease spreads quickly through a population, infecting many people, this is known as an **epidemic**. When a disease spreads into many regions of the world and infects large numbers of people, it causes a **pandemic**. A pandemic is most likely to occur if the disease is new and if it spreads very easily among people.



Cholera bacteria under a microscope.

Source: commons.wikimedia.org

It is very important that countries, international organizations and local governments are prepared in the event that an infectious disease begins to spread quickly. With action plans in place, health officials have a much better chance of stopping an epidemic and preventing it from spreading too far.

While epidemics and pandemics are rare, they have very serious effects. Apart from making people sick and sometimes causing them to die, they also interrupt everyday economic activity such as travel and trade, which can put a serious strain on economic development.

BACKGROUND

Epidemics place a huge strain on health systems. When an epidemic occurs, health systems must devote a lot of resources to fighting it, including doctors' and nurses' time and effort, hospital beds, medicines and supplies. These resources cannot then be used to fight other diseases. As a result, people with other diseases also suffer. When an epidemic occurs in a country without a sound health system, it makes conditions even worse by using up the few available health resources.

Public health emergencies like epidemics also interrupt trade and travel, which can be very damaging to **economies**. When people are afraid that a disease might spread, a country might try to keep people from moving or traveling. Countries might refuse to admit people into their borders from regions where an epidemic is occurring. International shipments of products may also be stopped. Goods and services within a single country might even be harder or impossible to get in the event of a serious epidemic threat.

TERMS & CONCEPTS

Communicable disease: a disease that can be transmitted from one person to another.

Infectious disease: A disease caused by a microorganism such as a bacterium, fungus, or virus.

Microorganism: a living thing too small to be seen.

Pathogen: a substance or organism that causes disease.

Epidemic: an outbreak of a contagious disease that spreads widely and quickly.

Pandemic: an epidemic that affects multiple countries or regions.

Economy: the system of producing goods and services that people buy and sell.



TERMS & CONCEPTS

Potential: possible, capable of being something without being that thing yet.

Epidemic intelligence: information gathered about potential epidemics and diseases that may become epidemics.

In addition to the effects on national and international economic systems, epidemics are harmful to development because they take away money and resources from other public health and development projects. In addition, when people are sick they lose time from work. This lost income can hurt their families and make their living conditions worse, especially for poor families. In very serious situations, people may be unable or unwilling to go out in public at all, because they are afraid of catching the disease.

Information about infectious disease epidemics changes very quickly and governments and organizations must communicate very quickly. Epidemic and Pandemic Alert and Response (EPR) is one of the World Health Organization's main focuses. The most important feature of an alert and response plan is to identify a **potential** epidemic early, before it becomes widespread or turns into a pandemic. Once officials confirm that the disease is a threat, information on how to treat and contain the disease must be communicated as quickly as possible to affected areas.

Epidemic Intelligence

As part of its global alert and response system, WHO gathers **epidemic intelligence**, which is information about suspected disease outbreaks. Often the word “intelligence” is used to mean secret information gathered by a country's government about a potential enemy. In this case, the enemy is an infectious disease, and public health officials must learn as much about it as possible to prevent it from becoming a full-scale epidemic.

Besides official reports from a country's health ministry, reports on disease outbreaks also come from WHO country offices, laboratories, universities and nongovernmental organizations (NGOs). However, many times informal sources yield even more information. WHO explains, “With the advent of modern communications technologies, many initial outbreak reports now originate in the electronic media and electronic (online) discussion groups.” More than 60 percent of epidemic intelligence comes from these informal, unofficial reports, which must then be verified by WHO officials.¹



Modern technology allows this man in Haiti to share information quickly.

Source: blogs.state.gov



The first step in stopping a potential epidemic is to recognize the spread of an infectious disease. For some highly infectious diseases, the existence of a single case is significant. For other diseases that are more common, health experts look for a pattern that shows that the disease is spreading to large numbers of people in a population—a sign that an epidemic may be starting.

Event Verification

The next step after gathering epidemic intelligence is event **verification**. In this case, an “event” might be a single reported case of a rare disease, or the spread of an epidemic-prone disease from one location to another. Officials must confirm the event actually took place and determine whether the outbreak is a cause for international concern. If they ignore a case of unknown illness or a disease, a deadly epidemic might result. But if they overreact, they risk wasting important resources and disrupting travel and trade, which would also be damaging.



Verification: making sure that something is true.

Criteria: rules or tests for making a decision.

There are six **criteria** that WHO uses to determine whether a reported disease outbreak is truly a cause for international concern.² If any of these conditions are present, WHO will make a decision to get involved so that the outbreak does not turn into a more serious problem. A disease is treated as a serious threat if:

CRITICAL THINKING

Why is it so important for the WHO to make sure that reports of disease outbreak are real? Why might there be a false report?

1. it is a previously unknown disease;
2. it has the potential to spread beyond national borders;
3. it is causing an unusually high illness or death rate;
4. it might potentially interfere with international travel or trade;
5. the country where the disease outbreak is taking place does not have the capacity to contain the outbreak on its own; or
6. there is suspicion that the disease was released on purpose, or released accidentally from a lab.



Information Management

If news of an infectious disease event is confirmed and officials believe it is a threat, the next step is to get this information to the health professionals who need it, so that they can take appropriate action. First, the event goes onto a list called the WHO Outbreak Verification List (OVL) which provides public health professionals with real-time alerts and information on possible and confirmed disease outbreaks.

WHO also maintains a news service called Disease Outbreak News, which provides information to the public about diseases of international importance. The Disease Outbreak News is available online on the WHO website. In addition, WHO publishes the *Weekly Epidemiological Record*, which provides information on the disease outbreaks to public health specialists.³

TERMS & CONCEPTS

Deliberate: done on purpose.

Ban: to not allow something.

Biological weapon: something used on purpose in order to spread disease and kill or harm people.

The goal of information management efforts is to make sure that infectious disease outbreaks get the attention that they deserve. At the same time, WHO must make sure that the threat is well-understood so that no inappropriate or excessive actions are taken, and to make sure that people do not panic.

Preparing for Deliberate Epidemics

Although it is extremely rare, the international community must also be prepared for the possibility of a **deliberate** epidemic—one that is started on purpose as an act of war or terrorism. It is possible that a deliberate epidemic would be difficult to recognize, or might be mistaken for a natural phenomenon. However, it is very important that authorities recognize a deliberate outbreak as soon as possible. Once the disease spreads into the population, containing the outbreak is much more difficult.

A deliberate epidemic may also be more challenging because it will require that health agencies work collaboratively with partners that may be unfamiliar to them, such as police and military. Even though several international laws **ban** the use of **biological weapons** under all circumstances, the international health community must be prepared for the possibility of a biological attack.

Not only could such an attack cause illness and death, but it would also tax health systems and could be economically damaging to countries all over the world. According to the WHO, even in the case of a small-scale attack, “widespread panic and fear would be certain; the public health system would be overwhelmed and economic impact would be considerable.”⁴

CRITICAL THINKING

Why might a biological weapon be a particularly devastating, whether or not it were to cause a large number of deaths? Think about what terrorism is intended to accomplish, as well as the long term effects of such an attack.



CURRENT SITUATION

Epidemic-Prone Diseases

The issue of epidemic alert and response has been getting a lot of attention over the last few years because of several recent threats of emerging diseases and epidemics.

One ongoing threat of pandemic is H5N1 Avian Influenza, also known as “bird flu.” H5N1 refers to the genetic makeup of the pathogen (in this case, a virus) that causes the disease. The pathogen is similar to the virus that causes other types of flu, but is far more deadly to humans. The virus is carried by birds such as chickens. Beginning in 2003, a large number of cases began to be reported in Asia of humans being infected with a particularly deadly form of bird flu, a form that spread quickly across Asia, Africa, and Europe. The virus does not easily pass from human to human, though there have been cases reported where such an infection has occurred. Millions of specimens of domestic poultry, such as chickens, geese, and ducks, have been **culled** to halt the spread of the disease, and it individually never reached the status of being a pandemic.⁵ As of May 2009, only three countries reported cases of avian flu to the WHO: Egypt, Vietnam, and China.⁶ That does not mean that the disease won't mutate further into a new, and deadly, version.

TERMS & CONCEPTS

Cull: killing animals to limit their population and prevent the spread of disease.

Immunity: resistance to or protection from a disease.

Mutate: to change genetically.

Vaccine: something given to a person to help develop their immunity to a disease.



A woman wears a decorated surgical mask to prevent catching avian flu.

H5N1 could be particularly dangerous because it is a relatively new strain, so humans have not had a chance to develop any kind of resistance, or **immunity**, to this form of the virus. In addition, this form of the flu virus causes very serious illness. A large proportion of the people who contract the disease die from it. Currently, the virus affects very few people. However, scientists fear that the disease will **mutate**, allowing it to spread from human to human. If this happens, the world may experience a very serious pandemic.⁷

Source: telegraph.co.uk



DID YOU KNOW...

“Compared with seasonal influenza, the H1N1 virus affects a much younger age group in all categories – those most frequently infected, hospitalized, requiring intensive care, and dying.”³

Source: WHO, Pandemic (H1N1) 2009 Briefing

Another recent case is H1N1, also known as swine flu, which has been one of the primary diseases of concern since it began to spread in spring of 2009. H1N1 developed as a mutated version of previously known versions of avian, swine, and human influenza. Starting in Mexico, the disease made its way around the world in record time, forcing the Mexican government to close down public areas in Mexico City for weeks, including the schools and the famous Zocalo public square.⁸ Different countries took different steps to halt the spread of the disease. The United States began stockpiling flu **vaccines** to keep the disease from affecting young people and the elderly. Other countries, such as China, began to detain foreigners from affected countries who entered the country for days at a time.

In June 2009, the WHO labeled swine flu as a Phase 6 influenza pandemic, or a disease that “is characterized by community level outbreaks in at least one other country in a different WHO region,” the highest level on its pandemic warning scale.⁹ Since both avian and swine flu are forms of influenza, the Phase 6 level applies to both. As of January 2010, H1N1 remains a pandemic, having killed over 23,000 worldwide.¹⁰ The WHO has provided guidance and delivered vaccine to its member states, to help lessen the impact of the pandemic, slowing its once rapid spread.

In October 2010, there was a Cholera outbreak in Haiti. Cholera is a bacterial infection in the intestines that causes diarrhea, vomiting and severe dehydration, and can spread and kill very quickly. Though it is generally easily treatable, it can often spread so quickly to be contained. Haiti was recovering from a devastating earthquake, meaning that refugee camps, huge numbers of foreign aid workers and existing generally poor health conditions made the nation vulnerable and were probably the main causes of the epidemic. It was the first time in 100 years that there had been cholera cases in Haiti.

One other serious case from the last decade was SARS. In 2003, a highly contagious lung infection known as SARS (severe acute respiratory syndrome) threatened to become a serious pandemic. The disease is believed to have originated in Guangdong Province, China. It quickly spread within Asia, and to North America and Europe. By the end of the outbreak, 8,096 people had contracted the disease and 774 died.¹¹ Despite these tragic deaths, the outbreak could have been much more serious. Drawing on the Epidemic Alert and Response system, WHO acted quickly to identify the pathogen and stop the disease’s spread.¹²

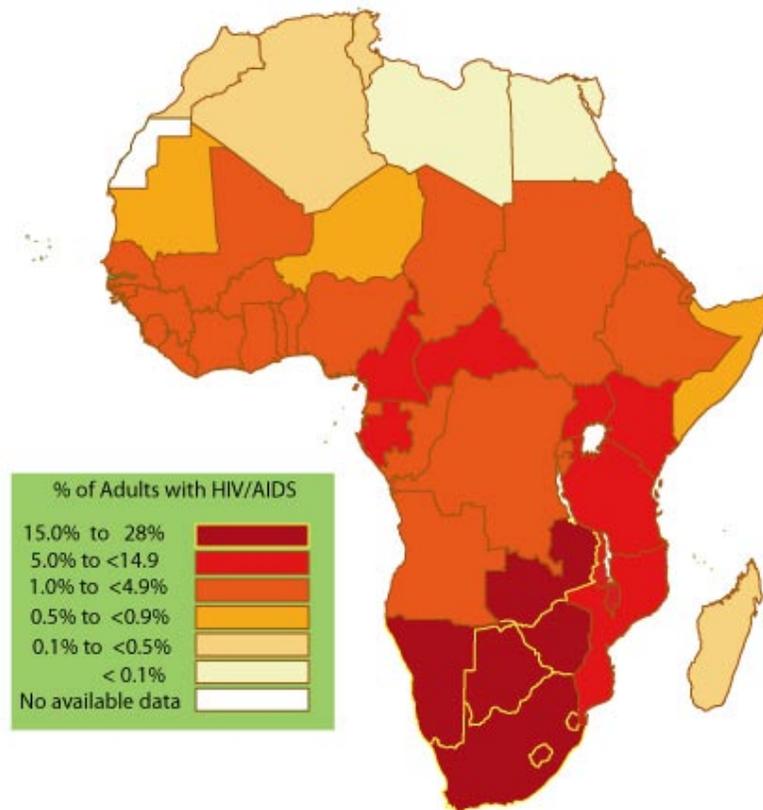
CRITICAL THINKING

China was severely criticized, and later apologized, for not reporting the SARS outbreak when it first began. What incentive might governments have to hide the fact that an infectious disease epidemic is occurring within their borders? What effect might hiding this evidence have on the infectious disease outbreak?



HIV/AIDS is also considered a pandemic. Although the virus cannot be spread through casual contact, the HIV/AIDS pandemic is one of the worst in history. Since its appearance in 1981, AIDS has claimed the lives of over 25 million people—and approximately 40 million people are currently living with HIV/AIDS.¹³ According to the UN, HIV/AIDS “threatens development, social cohesion, political stability, food security, and life expectancy and imposes a devastating economic burden that requires urgent action.”¹⁴

Estimated HIV Infection in Africa in 2007
based on statistics from the Joint UN Programme on HIV/AIDS



Many countries in Africa, especially in the southern region of the continent, have very high rates of HIV/AIDS.

These are recent cases, but many diseases have threatened pandemic throughout history. Influenza, cholera, plague, yellow fever, typhus and small pox are all examples of diseases that have caused epidemics and pandemics in the past, killing tens of thousands. However, today’s pandemics threaten a wider and larger outbreak. Today, people can travel around the world farther and faster than ever before. They come into contact with many more people in many more locations, making the risk of a global pandemic even more serious.



INTERNATIONAL ACTION

The World Health Organization has a Global Alert and Response Team in place that includes WHO officials from national, regional and international WHO offices. Each weekday morning, the team meets to review information on infectious disease outbreaks and to decide what actions, if any, should be taken. WHO has identified six key areas where it focuses its alert and response efforts¹⁵:

1. Helping member states improve their preparedness by developing laboratories and early warning systems;
2. Supporting national and international training programs;
3. Help member states to prepare for and respond to seasonal Influenza;
4. Standardize the procedures used in outbreaks of particular epidemic-prone diseases;
5. Strengthen biosafety and biosecurity; and
6. Continue to develop and maintain a global system for outbreak response that includes international and regional offices.

The WHO also maintains a Strategic Health Operations Center (SHOC) that helps to facilitate the sharing of information, collaboration and problem solving during health crises. SHOC was first commissioned in 2004, and served as a communications hub during the tsunami disaster in South East Asia, because the spread of disease is a serious post-disaster threat. It helped to coordinate and streamline the efforts of WHO, other UN agencies, member states and NGOs. In 2005, it deployed to support the coordination of WHO's response to an outbreak of Marburg haemorrhagic fever in Angola and also coordinated the international medical response to Hurricane Katrina and the earthquake in Pakistan. Since then, it has continued to act as an effective coordinator in many public health emergencies.



WHO workers help vaccinate children for polio in Angola.
Source: unmultimedia.org

For gathering epidemic intelligence, the WHO has a Global Public Health Intelligence Network (GPHIN), which is a secure Internet search tool that continually looks for news of potential epidemics on websites and newswires. GPHIN has been a very important early-warning tool for preventing epidemics.¹⁶

In 2002, the World Health Assembly passed a resolution to help address the threat associated with natural, accidental and deliberate epidemics. It is called the *Global Public Health Response to Natural Occurrence, Accidental Release or Deliberate Use of Biological and Chemical Agents or Radionuclear Materials that Affect Health*. WHO developed four of its main epidemic-related focuses in response to this resolution: international preparedness, global alert and response, national preparedness, and preparedness for particular diseases.¹⁷



International Health Regulations (IHR)

WHO has been responsible for the implementation of the International Health Regulations (IHR) since 1948. IHR focuses on three epidemic-prone diseases: cholera, plague and yellow fever. According to WHO, the International Health Regulations (IHR) are designed to “ensure maximum security against the international spread of diseases with a minimum interference with world traffic.”¹⁸ They define the rights and obligations of countries to report public health events, and establish a number of procedures that WHO must follow in its work to uphold global public health security.

TERMS & CONCEPTS

Diagnosis: identifying a disease from its signs and symptoms.

Global Outbreak Alert & Response Network (GOARN)

The Global Outbreak Alert and Response Network (GOARN) is a collaboration between 110 different organizations, including labs, research institutions and NGOs, which pool their resources to improve global alert and response. GOARN investigative teams can be on the scene of an infectious disease event in under 24 hours. They help to confirm the **diagnosis**, handle dangerous pathogens, treat affected patients and contain the outbreak.

RECOMMENDATIONS FOR CREATING A RESOLUTION

Delegates may consider the following when drafting resolutions:

- Defining the responsibility of member states in reporting, verifying and handling an epidemic or pandemic threat;
- Forming strategies for dealing with the threat of specific diseases;
- Identifying other potential threats to international public health;
- Finding ways to encourage member states to contribute the needed resources to strengthen public health systems;
- Encouraging collaboration and cooperation among countries in handling epidemic and pandemic threats; and
- Raising awareness about measures that would improve public health systems, such as increasing the number of available health personnel, making drugs and treatment available, and providing medical technology.



Questions to Consider:

When researching your country's policy, keep the following questions in mind to better understand your country's position and possible solutions on the topic:

1. Which infectious diseases are most common in your country?
2. Is an infectious disease epidemic a major concern for your country?
3. Has your country ever experienced an epidemic? If so, what effect did it have?
4. Is there a strong health system in your country?
5. What measures has your country's government taken to address the threat of potential epidemics?

RESEARCH AID

The World Factbook by the United States Central Intelligence Agency will provide you will basic information about your country and hundreds of other countries around the world.

- **CIA World Factbook**, <https://www.cia.gov/library/publications/the-world-factbook/>

Similar to the CIA World Factbook, the British Broadcasting Company Country Profiles will also give you a historical, political, and economic background on your country and other UN member states:

- **BBC Country Profiles**, http://news.bbc.co.uk/2/hi/country_profiles/default.stm

The World Health Organization (WHO) website is well organized, contains extensive information on the work of the organization, and provides background on all of the topics above. It also contains a large numbers of videos that demonstrate what the WHO is doing in the field:

- **WHO**, <http://www.who.int>

The United States Center for Disease Control (CDC) website provides an example of how one country is dealing with public health threats:

- **CDC**, <http://www.cdc.gov>



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