

**An Introduction to Global Health and Global Health Ethics:
Ebola 2014-15 - An Introduction to Global Health and
Global Health Ethics**

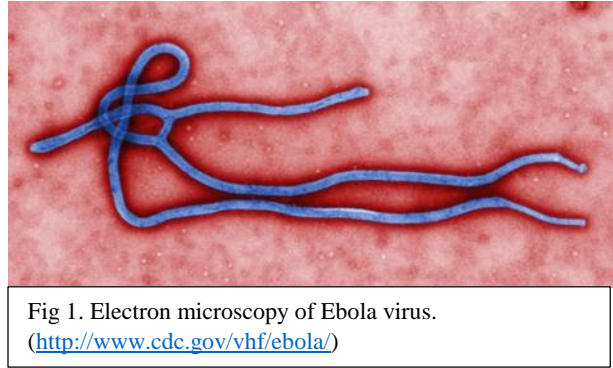
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Learning Objectives:

1. Describe factors that contributed to the 2014-2015 Ebola Outbreak
2. Compare different definitions of Global Health
3. Consider ethical issues in Global Health response to the 2014-15 Ebola Outbreak

Ebola in West Africa: 2014-15

In December 2013, a small child in the town of Guéckédou, Guinea, contracted an illness that led to his death.ⁱ The illness spread first to his family and then to the local community, bringing with it a high rate of mortality. The World Health Organization (WHO) and Doctors without Borders (MSF) dispatched teams to the area to help with treatment and containment. Health workers identified the epidemic as Ebola Virus Disease (EVD). Then in April of 2014, the epidemic that had been simmering in the border region of Guinea and Sierra Leone showed a sharp increase in the number of cases. By June the growth had become exponential and the virus had crossed into Liberia.ⁱⁱ By the end of the summer there were 3,052 confirmed or suspected cases and 1,546 deaths (51% mortality). The epidemic showed no signs of slowing down and new cases were reported in Nigeria as well.ⁱⁱⁱ On August 8, 2014 the WHO declared the outbreak a Public Health Emergency of International Concern, a designation which required WHO member-nations to contribute to containment efforts. The efforts included travel restrictions, quarantines and deployment of international aid workers to the region.^{iv} Though sporadic outbreaks of the Ebola virus had been reported in Africa since 1976, this *pandemic* was by far the worst.



The Virus

The Ebola virus is from a family of filoviruses and was first described in Zaire (now Democratic Republic of Congo) in 1976 when patients and workers at a hospital began to fall ill and die from a hemorrhagic fever. In this original outbreak a total of 318 cases were reported.

Where does it come from? The virus exists in an animal reservoir and will occasionally mutate and gain the ability to infect humans and other primates. Bats are suspected to be the primary reservoir and humans likely come in contact with the virus by ingestion or through animal bites.

How does it make us ill? Ebola virus is able to affect a variety of tissues in the human body, including the immune system, liver and blood vessels. At first the body reacts with a *viral prodrome* of fever, malaise, muscle aches, and fatigue. As the disease progresses the virus affects blood vessels, leading to *shock* and clotting dysfunction. In some cases this results in the “hemorrhagic” symptoms of blood oozing from gums and any puncture sites, symptoms that are not present in all cases. Other systems are often affected leading to liver failure and kidney failure. The virus’ ability to affect several types of tissues in the body leads to an overall dysfunction that can be fatal.

How is it transmitted? The Ebola virus is transmitted when infected fluids come in contact with mucosal surfaces (nose, mouth, genitalia) or breaks in the skin, meaning that ingestion,

accidental cuts or sexual contact are all methods of transmission. Once someone has been exposed there is an *incubation period* (time between infection and development of symptoms) of 6-21 days. People can only transmit the virus once they are symptomatic (fever, vomiting, etc.).

How can we treat it? The current treatment for patients with Ebola virus is supportive care; giving them fluids, keeping their fever down, maintaining nutrition, etc. In places where treatment is available mortality rates of the virus are significantly reduced; making the toll of the virus significantly higher in resource-poor settings. There are some experimental treatments but none that have been widely tested and proven to be effective.^v

How do you fight an outbreak? Infectious disease control is based on identifying cases of illness, limiting exposure to the source and limiting transmission. Since the exact source of the Ebola virus is unknown and transmission is person-to-person, *quarantine* and *isolation* are the main methods of disease control. Health workers first must identify a) people exposed to the virus and b) people who have contracted the virus. For the first group, contact tracing is used to identify people who may have been exposed and then implementing quarantine. In the second group, screening tests and laboratory tests are used to identify cases of Ebola virus. Those with signs and symptoms of disease are isolated and tested for the virus. Those with known virus are treated and kept isolated until they are no longer infectious. Proper disposal of the deceased is also very important to prevent further transmission.^{vi}

What Happened Next

Despite the massive effort to combat the virus, the pandemic was still spreading in the autumn of 2014. By the end of July the first case of Ebola in the US had been reported leading to increased attention to the crisis by the international community.^{vii} The WHO worked to raise US\$174 million in funds to supply workers on the ground with mobile hospital units, diagnostic equipment, adequate personal protective equipment as well as food. The money came from donors such as the African Development Bank Group, the World Bank and countries like the US.^{viii} In September 2014, President Obama sent 3,000 US troops along with material assistance such as portable hospitals, home health kits and logistical equipment.^{ix} By this point the Ebola crisis was one of the deadliest and widespread on record, and many factors contributed to its virulence:

- Environment: Most previous outbreaks of Ebola had taken place in Central Africa. The communities of Guinea, Liberia and Sierra Leone had limited previous experience with the illness. Furthermore, there was a high degree of population mobility along the border of these three countries, where the Ebola outbreak began. People often travel far to find work and food making the transmission chains widespread.^x
- Lack of local resources – The countries most affected had recently gone through civil unrest and had limited healthcare infrastructure. Leading into the crisis Liberia had 1 doctor for every 100,000 citizens.^{xi} Tracing the disease and treating individuals was difficult in the face of severe workforce shortages. Furthermore, the impoverished

countries often lacked the means to support citizens needing to be under quarantine, with food and water, making it hard to enforce good disease control practices.

- **Cultural Differences** – Local practices such as returning to die in one’s hometown and the ritual of washing the dead before burial are thought to have contributed to the spread of the Ebola virus.^{xiii} There was also evidence in many areas that local communities had a mistrust of hospitals and avoided bringing the sick to be treated; it is estimated only 18% of Ebola patients had received care in hospitals during the first months of the outbreak.^{xiii}
- **Vaccines and Treatments** – Though vaccines and treatments for Ebola are being researched there is nothing ready for wide-scale implementation. Treatment relies on daily nursing care and supportive measures such as intravenous fluids and nutrition.^{xiv} As a result, treatment for Ebola often puts healthcare workers at risk and fatalities are high among the physicians and nurses working in the epidemic.^{xv}

Beginning of the End or End of the Beginning?

By the start of 2015 numbers of new cases began to decrease and several countries, such as Nigeria, had stopped the spread of the virus all together. However since January 2014 new cases of Ebola virus have continued to be reported in Liberia and Sierra Leone. New case appeared scattered across the country and many suspected that cases continued to go un-reported leaving the potential for future spread as people were unwittingly exposed.^{xvi} Nigeria, unlike Sierra Leone and Liberia, had the personnel and healthcare infrastructure to implement successful public health measures to contain the virus.

By February 2015 fundraising for the Ebola crisis had slowed and the WHO faced a \$200 million deficit in their budget for the first six months of 2015.^{xvii} Aside from the money contributed to the WHO fund, the US congress passed a bill for US\$6 billion to fight Ebola, of which about \$2.5 billion will go towards oversea efforts and \$3 billion will go towards the US ability to confront future outbreaks of Ebola, although only 10 cases of Ebola were reported in the US during the crisis.^{xviii} International organizations and wealthy nations stepped in to increase funding and support when the Ebola crisis was reaching a peak. Now that cases have decreased international efforts have continued though funding and deployment of aid workers has decreased. Though the crisis may have reached its peak in 2014, the lasting impact of the Ebola virus in West-Central Africa remains to be seen.

Global Health and Global Health Ethics

When the WHO declared the Ebola outbreak a Public Health Emergency of International Concern, it was a formal recognition that the infection happening in West-Central Africa was a global health issue. Why was this outbreak a global health concern? To begin to answer that question, we must consider the different definitions of global health.

International Health: One way to define global health is that “global” refers to the scope of the problem. This would define global health issues as those that cross international borders and

affect more than one nation. Another consideration would be that global health issues are those that require international efforts to address.^{xix} This emphasizes the interactions between nations in health concerns as the foundation of global health.

Supranational Health: This definition considers health issues to be “global” in the sense that they are universal concerns. Health is something that is important for each individual regardless of where they are born and so global health issues include anything that threatens human health, including issues such as poverty, discrimination and access to healthcare.^{xx}

In response to the WHO’s declaration of the Ebola outbreak as a Public Health Emergency of International Concern, nations such as the US responded with funding and material assistance to help fight the disease. Before that, international organizations like the WHO and Doctors without Borders had sent international aid workers to assist national efforts in Liberia, Guinea and Sierra Leone. Every day, nations, organizations and individuals are participating in the work of global health. It is important to take a step back and wonder why.

Global Health Ethics: a discipline that considers why individuals and nations should care about the fate and existence of individuals and nations in other parts of the world.^{xxi} It is a discipline that encompasses ethics in clinical medicine, public health, research, sociology, religion, law and many other areas of study. It examines questions such as social justice, human rights and health inequalities throughout the world.^{xxii}

Examining questions of global health ethics is vital to understand the work of global health. Billions of dollars in international aid and thousands of international health organizations are all focused on improving global health. However, many have very different understandings of what that means. Studying the moral basis of global health sheds light on the complex networks and interventions of global health.

Questions to Consider:

Why do you think the US Government sent aid and troops to the countries of West-Central Africa during the Ebola outbreak? To prevent spread of infection to the US? Out of charity? Out of a duty to help other nations? Classify these reasons within the two definitions of global health offered above.

The individuals that provided care for Ebola patients put themselves at significant risk of being infected. Do you think that healthcare providers in the affected countries were



Tommy Trenchard, “Photograph,” *Bloomberg Business*. 2014.

required to help patients? What about healthcare providers from other nations? Do they have different duties toward Ebola patients? If so, why?

The supranational definition of global health considers the social factors of disease such as poverty and infrastructure as health issues. In what ways did these factors affect the outbreak of Ebola? Should these factors be addressed as part of international aid, for example spending money on building new medical schools in affected countries to try and address the workforce shortage?

Glossary

Epidemic – a sudden increase in the frequency of infection in a population or region

Pandemic – An epidemic that affects populations in large regions

Reservoir - Zoonosis – transmission of infection from one species to another

Incubation period – time between infection and the development of symptoms

Quarantine – restriction of healthy persons on the basis of exposure to infection to prevent transmission

Isolation – restriction of persons with known or suspected infection to prevent transmission

Viral prodrome – a combination of symptoms shared by a variety of viral illnesses

Shock – the bodies in ability to maintain blood pressure adequate to supply oxygen and nutrients to vital organs

Additional Resources:

- The World Health Organization’s Website for updated information on Ebola in West-Central Africa and elsewhere
 - <http://apps.who.int/ebola/>
 - Includes interactive maps to illustrate spread of disease

ⁱ Stephen B Kennedy and Richard A Nisbett, “The Ebola Epidemic: A Transformative Moment for Global Health,” *Bulletin of the World Health Organization* 93, no. 2 (2015).

ⁱⁱ Maimuna Majumder, “The Fight against Ebola,” *Significance*, no. December (2014): 10–13.

ⁱⁱⁱ The World Health Organization, *WHO : Ebola Response Roadmap Situation Report 1*, 2014.

^{iv} Sylvie Briand et al., “The International Ebola Emergency.,” *The New England Journal of Medicine* 2014 (2014): 1–4, doi:10.1056/NEJMp1409858.

^v Heinz Feldmann and Thomas W. Geisbert, “Ebola Haemorrhagic Fever,” *The Lancet* 377, no. 9768 (2011): 849–62, doi:10.1016/S0140-6736(10)60667-8.

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- ^{vii} Medecins Sans Frontieres, *Pushed to the Limit and Beyond: A Year into the Largest Ever Ebola Outbreak*, 2015.
- ^{viii} The World Health Organization, "Ebola: Funding," *WHO.int*, 2015, <http://apps.who.int/ebola/en/get-involved/funding>.
- ^{ix} Helene Cooper, Michael D Shear, and Denise Grady, "U.S. to Commit Up to 3,000 Troops to Fight Ebola in Africa," *The New York Times*, September 15, 2014, <http://www.nytimes.com/2014/09/16/world/africa/obama-to-announce-expanded-effort-against-ebola.html>.
- ^x The World Health Organization, *Factors the Contributed to the Undetected Spread of the Ebola Virus and Impeded Rapid Containment*, 2015, <http://who.int/csr/disease/ebola/one-year-report/factors/en/>.
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- ^{xii} The World Health Organization, *Factors the Contributed to the Undetected Spread of the Ebola Virus and Impeded Rapid Containment*.
- ^{xiii} Rothstein, "The Moral Challenge of Ebola."
- ^{xiv} Feldmann and Geisbert, "Ebola Haemorrhagic Fever."
- ^{xv} Ernest Tambo, "Non-Conventional Humanitarian Interventions on Ebola Outbreak Crisis in West Africa: Health, Ethics and Legal Implications," *Infectious Diseases of Poverty* 3, no. 1 (2014): 1–11, doi:10.1186/2049-9957-3-42.
- ^{xvi} Declan Butler, "Six Challenges to Stamping out Ebola," *Nature*, February 2015.
- ^{xvii} The World Health Organization, "Ebola: Funding."
- ^{xviii} Julie H Davis, "Obama to Recall Military Personnel From Ebola Zone, Officials Say," *The New York Times*, February 10, 2015, <http://www.nytimes.com/2015/02/11/world/africa/obama-to-bring-most-military-personnel-fighting-ebola-home-officials-say.html>.
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