

## Committee Overview

The World Health Organization was formed on the day that the United Nations was set up in 1945. The diplomats that met to form the United Nations also discussed setting up a health organization that would be effective worldwide. On April 7, 1948 the World Health Organization's Constitution came into force. This date is now celebrated annually as World Health Day.<sup>i</sup>

The World Health Organization is directly in charge of all matters related to health within the United Nations. The organization's responsibilities include leading the effort against a lack of worldwide health, organizing research and studies necessary to write policies, supporting and providing technical assistance to nations, and monitoring progress as well as trends in healthcare policy. The six leadership priorities the World Health Organization has undertaken are providing universal health coverage, establishing and enforcing the International Health Regulations, providing better access to medical products, addressing social, economic, and environmental health determinants and decreasing the potency of noncommunicable diseases. Another key goal is reaching the Millennium Development Goals that directly relate to health which include reducing child mortality, improve maternal health, and combating HIV/AIDS, malaria, and other diseases.<sup>ii</sup> The International Health Regulations are an "international legal instrument" whose purpose is to prevent the spread of disease across borders.<sup>iii</sup> You have to make sure to detail the MDGs and the International Health Regulations Currently, the World Health Organization is laboring to keep up with demanding problems that the 21<sup>st</sup> century has presented. Some of its recent projects include providing education to the illiterate, preventing the spread of diseases, reducing child and infant mortality, and finding a way to contain and cure Ebola, among others.<sup>iv</sup>

## Topic 1: Zoonosis

Zoonosis is classified by the Pan American Health Organization as “any disease or infection that is naturally transmissible from vertebrate animals to humans and vice-versa”.<sup>v</sup> Birds, primates, insects, domestic animals, and wildlife are all possible vectors by means of which diseases or infection are communicated to the human population. The reverse, in which humans infect the aforementioned non-human animals, also occurs, and is aptly referred to as reverse zoonosis. Two major classifications of zoonosis include direct zoonosis, in which the disease or infectious agents are passed between the two sources without significant change in disease composition during transmission, and indirect zoonosis, in which an intermediary party transmits the disease but fails to become affected.<sup>vi</sup>

Over 200 diseases and infections have been classified under these terms spanning back hundreds of years in human history. In early human history, small bands of hunter-gatherers with little intersociety contact formed causing epidemic diseases that depended on constant exposure by numerous individuals to die after an initial passage through the community. From a pathogen’s point of view, the infection or disease had to be chronic and sustain its life in a non-human reservoir while waiting for humans to infect. The disease would then accidentally find itself into the population and have the potential to consistently recur as the pathogens were incubated inside a non-human organism. In reality, many modern epidemic diseases, such as influenza, HIV, diphtheria, measles, and small pox among many others, originated from zoonotic roots.<sup>vii</sup> The five major classifications of the agents of zoonoses include bacteria such as Salmonellosis, anthrax, brucellosis, *Escherichia Coli*, and leptospirosis, parasites such as trematodosis, toxoplasmosis, and trichinellosis, viruses such as rabies, avian flu, Ebola, and Rift Valley Fever, fungi, and other unconventional agents.<sup>viii</sup>

The Bubonic Plague, a historical example of a zoonotic disease, was spread by means of rodents and fleas that killed approximately 25 million people in 14<sup>th</sup> century Europe. The bacterial culprit begins in the intestine of a flea. After continuous regurgitation or ingested blood and aggregation in the gut of the flea, the infected pathogen can spread to a rodent or human host and transfer the disease in an indirect manner. The disease's manifestation and action period consists of four days in which bacteria attach inside a lymph node to cause painful gangrene of the extremities, fevers, chills, lymph gland inflammation and swelling, vomiting, and extreme fatigue.<sup>ix</sup>

Creutzfeldt-Jakob disease, more commonly known as mad cow disease, is a neurological degenerative disorder obtained when humans consume animals infected with the bovine counterpart disease. Epidemiologically, the disease can spread anywhere with infected bovine and human populations. A prion, the protein rendered defective by the disease, taints nearby proteins causing an incorrectly folded structure that ultimately causes the brain to develop holes and a sponge-like texture. Due to the fact that the disease is transferable by blood, officials are concerned about a potential large epidemic of the disease in the near future. As of right now, there is no treatment for the disease, guaranteeing death for all patients.<sup>x</sup>

Zoonotic diseases can spread with great celerity. For example, In 2012, West Nile Virus killed 286 citizens living in the United States of America when the bacteria were originally found, for their namesake, in the West Nile Region of East Africa. Since its discovery, moreover, the disease has spread to Asia, Australia, Europe, and the United States. The primary vector for this disease is the female mosquito acting as an indirect disease transmitter, meaning that the mosquito fails to feel the negative effects of the disease that it carries.<sup>xi</sup>

Many additional zoonotic diseases and potential animal vectors exist causing epidemic and endemic disease concerns for many healthcare officials. The possibilities of the creation of diseases are also endless, so the need has arisen for adequate attention be donated to the control of such pathogens.

### *Human Public Health Concerns*

Currently, 840 species of infectious human pathogens as well as two out of every three emerging infectious diseases are derived from animal sources. With nearly one tenth of the world's population directly connected to animals by means of livestock, the need for effective disease control has been exacerbated. The WHO Technical Report Series denotes that zoonotic diseases originate from "endemic, chronic, disabling, frequently misdiagnosed and often unreported infections of remote populations that are dependent on livestock for their survival and asset base."<sup>xii</sup> These infectious diseases also tend to more prominently affect war populations, refugees, and displaced persons who are affected by natural disasters for there is an inadequate surveillance of and report of these diseases. Due to the infrequent resource imports as well as counterfeit or black market medicines, drug efficacy for these infected animal and human populations cannot be verified. Although every human is susceptible to a zoonotic disease, individuals with a weakened immune system, whether naturally or medically induced, children under the age of five, the elderly and pregnant women are most susceptible.

Additionally, the vast majority of zoonotic diseases more greatly affect impoverished populations whose lack of adequate health care services is ignored due to third world country status. These "bottom billion" poorest persons degree of healthcare to various zoonotic diseases depends on the specific disease, donor quantities, and single-issue

advocacy groups. Many large healthcare organizations focus on funds to fight AIDS, Malaria, and Tuberculosis with minimal funding and efforts designated to additional global diseases<sup>xiii</sup>. There has been stagnation of research and resources to fight these additional diseases, such as the World Health Organization's seven neglected zoonoses, the plural of zoonosis, are anthrax, bovine tuberculosis, brucellosis, cysticercosis and neurocysticercosis, cystic echinococcosis, rabies, and zoonotic sleeping sickness, which will ultimately offer a higher global burden than the three prominently funded aforementioned diseases combined.

Despite efforts to control zoonotic diseases, the recent outbreak of Ebola this summer 2014 showcases the much needed room for effective control, treatment, and emergency planning. Ebola virus disease is spread by contact with the bodily fluid of an infected animal. Symptoms include fatigue, fever, vomiting, diarrhea, abdominal pain, and headaches.<sup>xiv</sup> The circulatory impairment stage involves vomiting blood, blood in the stools, heavy bleeding in the gastrointestinal tract, or impaired clotting. The final stage involves death due to multiple organ dysfunction syndromes within two weeks of initial viral infection<sup>xv</sup>. Local burial traditions in which the still infectious body comes into contact with susceptible individuals, healthcare workers with inappropriate protective clothing, and reuse of needles due to inadequate resources or universal precautions all allow the spread and further contamination of the disease. The 2014 outbreak began with a two-year old child who died on December 6, 2013.<sup>xvi</sup> As the disease spread to Liberia and Sierra Leone with suspected cases and deaths on the rise, the WHO declared the epidemic to be an international public health emergency urging the international community to collaborate in the aid effort. By mid-August, however, the situation was deteriorating rapidly with Ebola treatment centers shutting down in fear of personal harm, protestors attacking treatment centers in distrust of the government due to corruption, as well as thousands of citizens

across Africa in quarantine without access to medicine or nourishment. Although the United Nations' World Food Programme has been set to deliver rations, the considerable level of unpreparedness concerning the entire outbreak must be made apparent as well as changes be made to the approach of zoonotic disease outbreaks.<sup>xvii</sup>

### *Veterinary Public Health Concerns*

The WHO defines Veterinary Public Health (VPH) concerns as “the sum of all contributions to the physical, mental, and social well-being of humans through an understanding and application of veterinary science”.<sup>xviii</sup> Between human health and animal health exists a close bond only strengthened when animals provide transportation, clothing, nourishment, as well as monetary value. Thus, veterinary medicine has long aimed to sustain the health standards of animals that thereby reflect the relative health of their human companions. Due to the presence and risk of zoonotic diseases, effective production of food derived from animals as well as many nutritional benefits have been stunted from the international trade market.

The main areas of veterinary concern according to the WHO include: “diagnosis, surveillance, epidemiology, control, prevention and elimination of zoonoses, food protection, management of health aspects of laboratory animal facilities and diagnostic laboratories, biomedical research, health education, and production and control of biological products and medical devices.”<sup>xix</sup> Provisions must be made for domestic and wild animal populations and the transport of them across nations with minimal risk of disease transmission, for safe drinking water in developing and developed countries alike, as well as a clear and universally accepted public veterinary health emergency plan. Concerns in animal-

assisted therapy and animal visitation programs for rabies, ringworm, and external parasitism must be addressed.

### *Challenges*

Currently, zoonoses are not clearly mentioned in the Millennium Development Goals and are relegated to the status of “other diseases” with much focus diverted to HIV, malaria, and tuberculosis. The cycle of poverty sustains the threat to zoonotic epidemic diseases. Lack of access to governmental services, lack of resources, civil unrest, as well as political, social, and cultural upheaval have all increased the difficulty of organized group efforts to provide long-term help.

In addition to outside circumstances dictating the quality of care, inadequate surveillance and reports of clinical manifestations in which the disease is falsely recorded as a simple fever or in which the incidence of the disease is kept hidden in fear of stigmas or governmental intervention have caused additional challenges in the control of zoonoses. There is also an information gap pertaining to weighing treatment costs against productivity losses in the form of manual labor, and livestock; thus, there is not enough of an incentive for intervention or enough fiscal planning to distribute resources as intelligently as possible. Additionally, many professionals have died while in contact with the zoonotic diseases they prevent against. For example, of the 240 health care givers infected with Ebola in Sierra Leone, Nigeria, Liberia, and Guinea, more than 120 have died.<sup>xx</sup>

### *Call to Action*

By placing a focus on the animal reservoir of diseases, zoonotic diseases can be more easily contained. This containment would in turn decrease disease burden, reduce poverty, increase the food supply, and lead toward the achievement of the Millennium Development

Goals. To accomplish this goal, the WHO and other international agencies must work in conjunction over agricultural, health, and environmental policies at the national and international level, and though they already do so when a zoonotic disease such as Ebola breaks out, this multidisciplinary communication effort must be constant. Your duty is now to solve this global issue placed before you. Time is of the essence. Good luck.

### Questions to Consider

- How might we increase the “importance” of zoonotic diseases (i.e. mention on Millennium Development Goals) in order to designate increased financial resources to them?
- Should there be a universally accepted emergency plan for the spread of zoonotic diseases?
- How can the WHO increase surveillance of these diseases to obtain more epidemiologic information? What kinds of information would the WHO gather?
- Can anything be done to ameliorate the cycle of poverty that fosters the spread of zoonotic diseases?
- Can zoonotic diseases be dealt with as a single entity, or should the WHO make divisions among them?
- How can we increase the level of trust that individuals and their government have in the efficacy of zoonotic disease treatment options?
- What is the production loss in human and animal resources due to zoonotic diseases?

- Is there any way to stop the geographical spread of zoonotic diseases from in the way of more specific border checks?
- Should more resources be diverted into the research of zoonotic diseases such as Creutzfeldt-Jakob disease that have no cure?
- What concerns of zoonotic diseases are out of the hands of the WHO committee?

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- <http://www.sciencedirect.com/science/article/pii/S0001706X00001790> - Article on Environmental Change and Emergence of Infectious Diseases

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## Topic 2: Infant Mortality

Infant mortality is defined as the death of a child under 1 year of age. It has always been a part of human history; however, due to technology that deals with specific issues that research has found to cause infant mortality, infant mortality rates have been significantly reduced in most countries. While WHO is targeting child health, 73% of the deaths of children under five years of age occurred in the first year of life in 2012, qualifying them as infant deaths. This shows that pediatric health may be significantly increased around the world by the recent attempts to prevent infant deaths.<sup>xxi</sup>

The highest rate of infant mortality occurred in the African WHO region with 63 deaths per 1000 live births. The European WHO region had 10 deaths per every 1000 live births. Over the last few decades, the number of infant deaths every year has globally decreased from 8.9 million deaths in 1990 to 4.8 million deaths in 2012.<sup>xxii</sup> While this constitutes a nearly 50% decrease, there is still much to do.

Nearly half of the mothers and newborn babies of third world countries do not receive the proper care that is required of a birth. Nearly two-thirds of all these deaths can be prevented with simple treatments that are common in first-world countries, which is the reason that the World Health Organization agrees that a major aspect of increasing child health is providing "lifelong access to healthcare" with care that starts before childbirth and can be available throughout all communities and homes.<sup>xxiii</sup>

The World Health Organization's main goal being universal health coverage, building a resilient base of research is of the utmost importance and contributes to trials, case studies, and plans for further action. In order to provide the highest quality of care, the World Health Organization has taken enormous steps to methodically ask and answer questions

with pertaining research. The importance of child health has warranted the identification of the most important questions on this topic. The WHO has chosen to focus on research as results from these studies can lead to the provision of health services that are both accessible and affordable.

In relation to child health, the World Health Organization recently performed an observational case study in Bangladesh, Brazil, Uganda, and the United Republic of Tanzania. The study consisted of 1,262 children in 265 government facilities. The purpose of the study, "Task shifting in the scale-up of interventions to improve child survival," was to determine if the duration of the training undertaken by the caretakers of the children affected the quality of care provided. By comparing the performance of workers who had varied times of training, the WHO was able to find that task shifting did not affect the level of care given. It was concluded that switching from a few health workers with more training to many more workers with adequate training will improve health care systems and be effective in areas lacking proper resources.<sup>xxiv</sup>

As preventing infant deaths is such a universal problem that requires many delicate solutions, the World Health Organization has resolved the only solution will be to improve health systems worldwide. In 2000, the United Nations adopted a set of goals titled the Millennium Development Goals, which aim to decrease child and maternal deaths by 2015. Member States of the UN have set their own goals and established strategies to monitor conditions and reduce infant mortality.<sup>xxv</sup>

The leading cause of child death globally is prematurity; after that, pneumonia, pre-term birth complications, noncommunicable diseases, diarrhea and malaria, and birth asphyxia are the major causes. Malnutrition has been linked to 45% of all child deaths.<sup>xxvi</sup> Providing proper care can prevent many infant deaths: maintaining the health of the mother

and child during pregnancy, a secure delivery by a skilled health worker, and postnatal care are all examples of necessary measures. Immediate care after the baby is born includes neonatal resuscitation, noting the baby's weight and warmth, and initiating breastfeeding early. Exclusive breastfeeding for at least 6 months, swift immunization, using antibiotics appropriately, utilizing insecticides, and ensuring hydration can prevent an infant from dying.<sup>xxvii</sup> Other solutions include effective health interventions, improving practices and establishments that care for families, increasing access to clean water and sanitation, and having a system for responding immediately to emergencies.<sup>xxviii</sup>

Delegates, you are being called to intellectually discuss possible solutions to assist in the continued effort to resolve infant mortality. Good luck!

## Questions to Consider

1. In lesser-developed countries, should WHO directly target infant mortality first or attempt to develop infrastructure that would indirectly reduce infant mortality rates but may take a longer time?
2. With the ever-increasing population, how should WHO, other organizations, and Member States allocate resources?
3. How much importance should be placed on this specific issue in terms of resources as there are so many other issues that lesser developed countries are facing?
4. How should WHO give all mothers an opportunity to receive proper care before, during, and after birthing despite the location?
5. How much research should be done before taking action as conditions are always changing and research requires resources?
6. As malnutrition and poverty have a profound impact on the health of infants, how should WHO attempt to overcome these obstacles?
7. How should WHO assist those who are illiterate as they would not be able to read prescriptions among other important things?
8. Should WHO provide quality care to a small group of people as opposed to adequate care and supplies to a larger group of people?
9. In war-torn areas such as Syria, how should WHO prevent protect infants in addition to providing care to the infants and mothers?
10. How much responsibility should individual nations be given in terms of providing infrastructure, giving aid, and monitoring progress?

## List of Possible Sources

1. <http://www.who.int/mediacentre/factsheets/fs178/en/> This article is published by the World Health Organization and discusses the main causes of child mortality.
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Published by the World Health Organization, this is the World Health Report for 2013. It is well over 100 pages but contains information about research systems and case studies.
3. <http://www.who.int/mediacentre/factsheets/fs333/en/>. Again published by the World Health Organization, this article provides insight on the causes and prevention strategies for newborn mortalities.
4. [http://www.who.int/gho/child\\_health/mortality/neonatal\\_infant/en/](http://www.who.int/gho/child_health/mortality/neonatal_infant/en/). This article provides data and a short summary for specifically infant mortalities.
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## Endnotes

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