



Florida High Schools Model United Nations

FHSMUN GULF COAST 7

WORLD HEALTH ORGANIZATION

DISEASE CONTROL IN HUMANITARIAN EMERGENCIES

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“...[T]he health of refugees and migrants is shaped by health conditions, including the prevalence of infectious diseases, in their country of origin. But they also face health risks created by stresses during their journey and initial arrival, including physical exhaustion, inadequate safe food and water, accidents, and crowded living conditions.”¹

-Dr. Margaret Chan, former Director-General of the World Health Organization

Introduction

The spread of infectious diseases – which the World Health Organization (WHO) identifies as being caused by “bacteria, viruses, parasites or fungi” – can spread through direct human contact, indirect human contact, or from animals to humans, which is defined as zoonosis.² For every localized outbreak of an infectious disease, WHO takes seriously the threat and possibility of an outbreak developing into an epidemic (a regional outbreak) and, more gravely, into a pandemic (a worldwide outbreak). The last influenza pandemic, for example, occurred in 2009 with the H1N1 influenza virus (colloquially referred to as “Swine Flu”) and was characterized by a much higher level of severity, as compared to the seasonal outbreaks of influenza, due to the “number of people in the population who lack[ed] pre-existing immunity to the new virus.”³

Critically, the precipitation, spread, and severity of an infectious disease outbreak does not always follow the outbreak trend characterized by pandemic and seasonal influenza viruses. In recent decades, as humanitarian disasters, especially man-made disasters, proliferate in already vulnerable regions around the globe, disease outbreaks have increased in both their occurrence and their severity. These humanitarian disasters can be classified into two categories: man-made (e.g. armed conflict); and natural (e.g. hurricanes, earthquakes, drought, tsunamis, disease). Tragically, combinations of these two categories (e.g. a natural disaster preempting armed conflict) are increasingly common in the 21st century.⁴ In many humanitarian emergencies, populations become displaced, reside in temporary settlements, which typically have a high population density, and, coupled with environmental factors that adversely affect

¹ “WHO | WHO Director-General Addresses UN Meeting on Refugees, Migrants Crisis,” WHO, <http://www.who.int/dg/speeches/2016/unga-refugees-migrants/en/>.

² “WHO | Infectious Diseases,” WHO, http://www.who.int/topics/infectious_diseases/en/.

³ “WHO | What Is a Pandemic?,” WHO, https://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/.

⁴ “What Is a Humanitarian Emergency?,” Text, May 6, 2015, <https://www.humanitariancoalition.ca/what-is-a-humanitarian-emergency/>.

these populations' immune response, become increasingly susceptible to contracting communicable diseases.⁵

It is then possible to understand how Member States, which are already susceptible to strain on their healthcare infrastructure, would face difficulties in containing an outbreak of a communicable disease during a humanitarian emergency. Outbreaks and epidemics can also overwhelm even the most sophisticated and advanced healthcare infrastructure as, oftentimes, fear, coupled with the uncertainty of an emergency, can exacerbate the spread of a disease while straining sectors of the healthcare infrastructure. A one-size-fits-all approach will not address the control of diseases during humanitarian emergencies. Instead, understanding how to identify the susceptibility of a state to an outbreak during a humanitarian emergency while also possessing a thorough understanding of the role that WHO played, or could have played, in the prevention of an outbreak during previous humanitarian emergencies will provide the most versatile approach to address disease control.

2010 Cholera Outbreak in Haiti

A cholera infection is characterized by its extreme inhumanity and suffering. After an individual drinks from a water supply contaminated with human fecal matter, the *Vibrio cholerae* bacteria “colonize the lining of the small intestine and produce a toxin,” which, after a series of biochemical processes, “causes the intestinal cells to secrete large amounts of water and salts into the intestines” thereby condemning the patient to extreme diarrhea-induced dehydration.⁶ After the patient enters into this state of extreme dehydration, medical care is necessary to treat the patient, which can come in the form of oral rehydration therapy (ORT), intravenous fluids, and antibiotics. When treated, cholera's mortality rate is less than 1% of all infected patients; untreated, and the mortality rate increases to nearly 50% of all cases.⁷

The preventability of the infection is what made the recent cholera outbreak in Haiti so alarming. The UN reports that approximately 800,000 Haitians have contracted the disease since 2010 with at least 9,000 dying (a 1.125% mortality rate)⁸ – unofficial estimates report as much as 2.9% higher mortality rate.⁹ While the outbreak is largely contained, with an average 46 reported cases per week (down from 301 in 2017 and 18,500 per week in 2010), its impetus was, largely, preventable.

⁵ World Health Organization, “Disease control in humanitarian emergencies,” (WHO/CDS/NTD/DCE/2006.1), 2006, p. 1

⁶ Neil A. Campbell and Jane B. Reece, *Biology AP Edition*, 7th edition (San Francisco: Pearson, 2004), p. 211. “The cholera toxin is an enzyme that chemically modifies a G protein involved in regulating salt and water secretion. Because the modified G protein is unable to hydrolyze GTP to GDP, it remains stuck in its active form, continuously stimulating adenylyl cyclase to make cAMP. The resulting high concentration of cAMP causes the intestinal cells to secrete large amounts of water and salts into the intestines” (c.f. p. 211).

⁷ “WHO | Cholera: Mechanism for Control and Prevention,” WHO, accessed July 18, 2019, https://www.who.int/cholera/technical/secretariat_report/en/.

⁸ “New UN System Approach on Cholera in Haiti,” https://www.un.org/News/dh/infocus/haiti/Haiti_UN_System_Cholera.pdf

⁹ Francisco J. Luquero et al., “Mortality Rates during Cholera Epidemic, Haiti, 2010–2011 - Volume 22, Number 3—March 2016 - Emerging Infectious Diseases Journal - CDC,” accessed July 29, 2019, p. 413 <https://doi.org/10.3201/eid2203.141970>.

Following the devastating 2010 earthquake that all but destroyed Haiti's domestic economy and infrastructure, the UN renewed the United Nations Stabilisation Mission in Haiti's (MINUSTAH)s mandate (S/RES/1944) to "ensur[e] Haiti's security and stability" during the nation's recovery.¹⁰ However, within months, Nepalese MINUSTAH soldiers were rumored to have brought a cholera strand with them (at the time, Nepal was undergoing its own cholera outbreak) and were alleged to be dumping human waste into the Artibonite River, a vital water source for many Haitians.¹¹ Long before official UN recognition, one study indicated "an exact correlation in time and places between the arrival of a Nepalese battalion from an area experiencing a cholera outbreak and the appearance of the first cases in Meille a few days after."¹² While it would take nearly six years for the UN-system to acknowledge its role in the creation of the outbreak (an admission of fault for the introduction of the disease in Haiti was not a part of the statement),¹³ its efforts to contain the infection have been largely successful.

The UN's containment strategy focused resources in rapid response medical teams to isolate and treat localized outbreaks, to administer cholera vaccinations, and to build long term sanitation infrastructure.¹⁴ However, it would take nearly six years for the UN-system to acknowledge its role in the creation of the outbreak (an admission of fault for the introduction of the disease in Haiti was not a part of the statement),¹⁵ which has overshadowed the UN's successful response to the outbreak because of the system's lack of public reform and its systemic denial (prior to the 2016 statement) of any UN involvement in the disease's outbreak.¹⁶ Because of the UN's legal "abdication approach" in denying any culpability with the outbreak, efforts, within and without the UN-system, to compensate the victims of the outbreak have fallen flat.¹⁷ This approach has also yielded very little public acknowledgment within the UN-system's recent peacekeeping reform efforts to address how future outbreaks could be prevented. It is important for WHO delegates to draft its own guiding principles that would prevent disease transmission from WHO-personnel in the manner we have seen in Haiti as it was reported in 2016 that the United Nations Office of Internal Oversight Services found "'unsatisfactory' waste management" in numerous peacekeeping missions,¹⁸ an assessment WHO delegates should not ignore in their deliberations.

¹⁰ United Nations Security Council resolution 1944 (S/RES/1944), October 14, 2010.

¹¹ Renaud Piarroux et al., "Understanding the Cholera Epidemic, Haiti," *Emerging Infectious Diseases* 17, no. 7 (July 2011): 1161–68, <https://doi.org/10.3201/eid1707.110059>.

¹² Piarroux et al., "Understanding the Cholera Epidemic, Haiti."

¹³ Jonathan M. Katz, "U.N. Admits Role in Cholera Epidemic in Haiti," *The New York Times*, August 17, 2016, sec. World, <https://www.nytimes.com/2016/08/18/world/americas/united-nations-haiti-cholera.html>.

¹⁴ "New UN System Approach on Cholera in Haiti," https://www.un.org/News/dh/infocus/haiti/Haiti_UN_System_Cholera.pdf

¹⁵ Jonathan M. Katz, "U.N. Admits Role in Cholera Epidemic in Haiti," *The New York Times*, August 17, 2016, sec. World, <https://www.nytimes.com/2016/08/18/world/americas/united-nations-haiti-cholera.html>.

¹⁶ Philip Alston, "Report of the Special Rapporteur on extreme poverty and human rights," (A/71/367), August 26, 2016, p. 7

¹⁷ Alston, "Report," p. 4

¹⁸ Rick Gladstone, "Poor Sanitation Persisted at U.N. Missions Long After Haiti Cholera Crisis," *The New York Times*, August 19, 2016, sec. World, <https://www.nytimes.com/2016/08/20/world/americas/haiti-cholera-sanitation-un-peacekeepers.html>.

2016 Cholera Outbreak in Yemen

With at least 1.2 million infections since April 2017 and approximately 2,500 fatalities, the recent cholera outbreak in Yemen, combined with the ongoing civil war, is, as the UN stated, “the world’s worst humanitarian crisis.”¹⁹ The cholera outbreak was precipitated by a Saudi Arabian-led military intervention in Yemen, which began in 2015, and was worsened by the United States-Saudi Arabian blockade of the country. Initial Saudi-led airstrikes destroyed infrastructure that provided electricity, food, and medicine to the Yemeni population thereby making the population increasingly vulnerable to food and healthcare instability.²⁰ Prior to the outbreak of the conflict, imports accounted for nearly 90% of the Yemeni food intake,²¹ which, after the blockade, resulted in nearly 20 million Yemeni citizens (of a population of approximately 27 million) becoming food insecure.²² With around half of the Yemeni population lacking access to clean drinking water and nearly 20 million lacking access to health care,²³ confirmed cholera cases increased. Malnutrition, combined with inadequate health care resources, the stress of war and instability, with a lack of clean sources of drinking water have destroyed the immune response of conflict victims and children, an already vulnerable group, who constituted 58% of all cholera cases in the country.²⁴

WHO and the United Nations International Children's Emergency Fund (UNICEF) currently constitute a majority of the UN’s work in Yemen in its mission to combat the spread of cholera. In its own work, WHO has created oral rehydration centers, cholera treatment centers, provided fuel for hospital generators, and “expanded disease surveillance capacity.”²⁵ UNICEF has provided “ORS [(oral rehydration solutions)], IV fluids and diarrhea kits,” clean drinking water, and launched awareness campaigns for the disease in Yemen.²⁶ At the core of the UN’s work in Yemen is a commitment to Sustainable Development Goal 6, which emphasizes the importance of water, sanitation, and hygiene (WaSH) as a cornerstone of public health care policy with or without the presence of an infectious disease. The situation in Yemen is still precarious, however, as the demand for oral cholera vaccines (OCVs) continues to increase while calls for WHO, and the UN system, to begin addressing environmental factors that precipitate the outbreak of infectious diseases during humanitarian disasters only grow louder.²⁷

The 2018 Ebola Outbreak in Congo

Ebola virus disease (EVD) emerged in the past forty years as one of the most deadly, violent, and feared infectious diseases with an estimated 31,087 confirmed EVD cases with nearly 12,950 suspected dead among thirty-seven confirmed outbreaks; the mortality rates range

¹⁹ Frederik Federspiel and Mohammad Ali, “The Cholera Outbreak in Yemen: Lessons Learned and Way Forward,” *BMC Public Health* 18 (December 4, 2018), <https://doi.org/10.1186/s12889-018-6227-6>.

²⁰ Human Rights Watch | 350 Fifth Avenue, 34th Floor | New York, and NY 10118-3299 USA, “Bombing Businesses | Saudi Coalition Airstrikes on Yemen’s Civilian Economic Structures,” Human Rights Watch, July 11, 2016, <https://www.hrw.org/report/2016/07/11/bombing-businesses/saudi-coalition-airstrikes-yemens-civilian-economic-structures>.

²¹ “Bombing Businesses | Saudi Coalition Airstrikes on Yemen’s Civilian Economic Structures.”

²² “Crisis Overview,” OCHA, August 23, 2017, <https://www.unocha.org/yemen/crisis-overview>.

²³ “Crisis Overview,” OCHA, August 23, 2017, <https://www.unocha.org/yemen/crisis-overview>.

²⁴ Federspiel and Ali, “The Cholera Outbreak in Yemen.”

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

from 0% to 100%, with an average of 55.75% among the thirty-seven confirmed outbreaks.²⁸ While a patient does not become capable of disease transmission until they become symptomatic, these symptoms “typically include vomiting, diarrhea, coughing, rash, dementia, [internal] hemorrhag[ing], and hiccups” and lead to a shock-induced death.²⁹ Humans contract EVD through pathogenic spillover, the process of a disease crossing from a reservoir population into a susceptible host population,³⁰ which has occurred, in the case of EVD, when the virus crosses over from animals, typically bats and non-human primates, into a human population.³¹ Once within a human population, EVD spreads a potential patient comes into contact with an infected living or deceased patient; the new patient will remain asymptomatic for a short period of time following the initial infection (thereby making immediate virus identification and treatment difficult).³²

When a young, Guinean boy encountered an infected bat in late 2013, the boy, after falling ill with EVD and, presumably, being treated by family members, spread the virus to those family members before the infection spread to village-members and, fatally, to thousands of others.³³ This is perhaps the tragedy of EVD – that the care and concern for patients that occurs at the most intimate levels leads to its spread. While the outbreak was eventually contained, the virus ravaged West African Member States, exposed weaknesses in WHO’s global outbreak preparedness, and forced healthcare policy makers to formulate new prevention tactics. This new preparedness formulation included the publication of twelve-steps to conduct a safe burial of an EVD patient,³⁴ a protocol for important messages to be relayed to infected communities and those most at-risk for EVD contraction,³⁵ and the creation of EVD treatment centers across the region.

Individual Member States have also undertaken the difficult task of preventing the further spread of EVD once an infection was reported within their borders. Senegal’s first EVD case, reported in 2015, was successfully isolated because of the Senegalese government’s efforts in creating separate EVD treatment centers, in disseminating disease prevention information through mass-marketing campaigns, all the while embedding internationally-associated doctors and epidemiologists with their own medical professionals.³⁶

2019 WHO Deputy Director-General for Emergency Preparedness and Response Dr. Peter Salama commented that the growing conflict and instability in the western Congo province

²⁸ “Ebola Virus Disease,” <https://www.who.int/news-room/fact-sheets/detail/ebola-virus-disease>. Data assessed by author.

²⁹ Richard Preston, “Is Ebola Evolving Into a Deadlier Virus?,” August 7, 2019,

<https://www.newyorker.com/science/elements/is-ebola-evolving-into-a-more-deadly-virus>.

³⁰ Alison G. Power and Charles E. Mitchell, “Pathogen Spillover in Disease Epidemics,” *The American Naturalist* 164, no. S5 (November 2004): S79–89, <https://doi.org/10.1086/424610>.

³¹ “Transmission | Ebola Hemorrhagic Fever | CDC,” May 17, 2019,

<https://www.cdc.gov/vhf/ebola/transmission/index.html>.

³² Ibid.

³³ Preston, “Is Ebola Evolving Into a Deadlier Virus?”

³⁴ “How to conduct safe and dignified burial of a patient who has died from suspected or confirmed Ebola or Marburg virus disease,” (WHO/EVD/GUIDANCE/Burials/14.2Rev1), 2017, p. 1

³⁵ “Key messages for social mobilization and community engagement in intense transmission areas,” (WHO/EVD/Guidance/SocMob/14.1), 2014

³⁶ “WHO | Successful Ebola Responses in Nigeria, Senegal and Mali,” WHO, accessed August 11, 2019, <http://www.who.int/csr/disease/ebola/one-year-report/nigeria/en/>.

of Kivu was creating “a potential perfect storm” for the spread of EVD.³⁷ As of 4 August 2019, there were a total of 2,793 cases of EVD in eastern Congo with 1,849 confirmed deaths.³⁸ The current armed conflict in the province increases the difficulty for WHO professionals, Congolese healthcare providers, and other international aid workers to provide adequate monitoring and disease treatment to infected patients. Compounding this threat is the appearance of the disease in the Congolese city of Goma with its nearly two million residents,³⁹ because of WHO’s deployment of a new, experimental EVD vaccine, however, no new cases of EVD were reported in the city after those who came in contact with those infected were vaccinated.⁴⁰ While delegates to the WHO should not debate conflict resolution, even within the context of this current outbreak, WHO delegates should develop plans to deploy vaccines to rural populations, how WHO will coordinate with national healthcare systems to monitor those who have come in contact with the infected, and how WHO plans to identify future at-risk areas after this outbreak has been contained.

Living Conditions for Displaced Persons

WHO routinely links the spread of communicable diseases during humanitarian emergencies with the density of population centers containing displaced persons. In most refugee camps, displaced persons live in temporary shelter (i.e. tents) and often arrive food insecure to facilities that are overburdened, understaffed, and underfunded to accommodate the, in many cases, thousands of displaced persons entreated to the care of the United Nations High Commissioner for Refugees (UNHCR).

As of June 2019, Al-Hol refugee camp in northern Syria, which that held around 10,000 persons in January 2019,⁴¹ reached a population of approximately 72,000 persons.⁴² WHO reported that at least twenty-nine children died from hypothermia either en route to or upon arrival at al-Hol with many of the new arrivals forced to sleep without shelter or proper heating equipment.⁴³ In their report, WHO stated that the camp was “unheated” with “shortages of health care services, tents, latrines and sanitation facilities,” citing “bureaucratic obstacles and security constraints,” which prevented the delivery of proper humanitarian aid to the camp.⁴⁴ Despite WHO’s efforts to deploy “vaccination teams ... [and] disease surveillance,” the WHO representative in Syria “call[ed] on all parties to give [WHO] unhindered access [to the camps].”⁴⁵ In one study of the Nuseirat refugee camp in the Gaza Strip, a link was established

³⁷ “Ebola-Hit DRC Faces ‘Perfect Storm’ as Uptick in Violence Halts WHO Operation,” UN News, September 25, 2018, <https://news.un.org/en/story/2018/09/1020392>.

³⁸ “Ebola Virus Disease,” WHO | Regional Office for Africa, accessed August 11, 2019, <http://www.afro.who.int/health-topics/ebola-virus-disease>.

³⁹ Preston, “Is Ebola Evolving Into a Deadlier Virus?”

⁴⁰ “WHO Says No New Ebola Cases in Goma, Vaccinates over 1,300 - Reuters,” accessed August 11, 2019, <https://www.reuters.com/article/us-health-ebola-congo/who-says-no-new-ebola-cases-in-goma-vaccinates-over-1300-idUSKCN1V10C8>.

⁴¹ WHO EMRO | WHO Concerned over Critical Health Situation in Al-Hol Camp, Al-Hasakeh | Syria-News | Syrian Arab Republic,” <http://www.emro.who.int/syr/syria-news/who-concerned-over-critical-health-situation-in-al-hol-camp-al-hasakeh.html>.

⁴² António Guterres, “Report of the Secretary-General,” (S/2019/508), 19 June 2019, p. 8.

⁴³ “WHO EMRO | WHO Concerned over Critical Health Situation in Al-Hol Camp, Al-Hasakeh | Syria-News | Syrian Arab Republic.”

⁴⁴ Ibid.

⁴⁵ Ibid.

between the prevalence of intestinal parasites in children and overcrowding in the home, improper disposal of fecal matter, and a lack of a clean, full-day's water supply.⁴⁶ For refugee camps in Lesbos, Greece, one study found that “prevent[ing] crowding and ... increas[ing] hygiene will decrease the rate of infectious conditions”⁴⁷ while another study confirmed “8179 diphtheria cases” among the nearly one million Rohingya refugees settled in refugee camps in Cox's Bazar, Bangladesh.⁴⁸

The UN system's ability to prevent localized outbreaks in refugee camps is only as strong as Member States' and WHO's ability to both monitor and treat disease occurrences among displaced populations. While WHO and its partner organizations may inordinately undertake disease surveillance and treatment among refugee populations in Syria and Bangladesh, coordination between Member States and WHO remains the global norm for disease surveillance and treatment during humanitarian emergencies. Delegates should understand that while the WHO may have general principles to apply to humanitarian emergencies, each emergency is unique and all responses must be coordinated with Member States to ensure WHO's eventual withdrawal from the situation is seamless and orderly.

EWARS & EWARN

Two pillars of WHO's integrated global disease response and surveillance network are the Early Warning and Response Network (EWARN) and the Early Warning, Alert and Response System (EWARS); both are routinely deployed to Member States during humanitarian emergencies to monitor outbreaks. “An EWARN is made up of a network of people who collect information, inform the next reporting level and implement any necessary control measures.”⁴⁹ With two reporting components, an immediate notification and a sustained weekly update, the network depends on health facilities and administrators capable of creating a data-collection network within the Member State, which include a multisectoral outbreak control team (OCT).⁵⁰ WHO does not prescribe a specific template for an EWARN deployment, as every humanitarian emergency will be different, but does maintain that understanding the prior immunity of displaced populations, the probability of a disease outbreak in a set population, and understanding the living conditions for displaced persons should occur upon deployment. The network of healthcare professionals⁵¹ that an EWARN establishes during a humanitarian emergency is not intended to continue operations after an emergency has ended and an exit-plan is to be established upon any EWARN deployment.⁵²

⁴⁶ T.A Abu Mourad, “Palestinian Refugee Conditions Associated with Intestinal Parasites and Diarrhoea: Nuseirat Refugee Camp as a Case Study,” *Public Health* 118, no. 2 (March 2004): p. 139

⁴⁷ Maaiké P. J. Hermans et al., “Healthcare and Disease Burden among Refugees in Long-Stay Refugee Camps at Lesbos, Greece,” *European Journal of Epidemiology* 32, no. 9 (September 2017): p. 853

⁴⁸ Ridwanur Rahman and Khaleda Islam, “Massive Diphtheria Outbreak among Rohingya Refugees: Lessons Learnt,” *Journal of Travel Medicine* 26, no. 1 (January 24, 2019), pp. 1-2

⁴⁹ “Outbreak Surveillance and Response in Humanitarian Emergencies: WHO Guidelines for EWARN Implementation,” (WHO/HSE/GAR/DCE/2012.1.), 2012, p. 5 – Delegates are encouraged to review the Executive Summary of the document here:

https://www.who.int/diseasecontrol_emergencies/publications/who_hse_gar_dce_2012_1/en/

⁵⁰ “WHO/HSE/GAR/DCE/2012.1,” pp. 5-7

⁵¹ Delegates are encouraged to familiarize themselves with the “Minimum personnel requirement for EWARN” flowchart on page 53 of the above document.

⁵² *Ibid.*, p. 8

While the EWARNS system helps establish a surveillance network of medical and public health professionals during a humanitarian emergency, the Early Warning, Alert and Response System (EWARS) improves disease surveillance infrastructure during emergency situations. The EWARS system is deployed to Member States in a box that “contains 60 mobile phones, laptops and a local server to collect, report and manage disease data.”⁵³ Each box allows disease surveillance for approximately fifty health care facilities, which can cover nearly half a million people.⁵⁴ The system was successfully deployed in the Nigerian Borno State, which has suffered from Boko Haram’s armed insurgency, and, after two months, successfully covered nearly 1.3 million internally displaced persons across the state.⁵⁵ The EWARS system did not replace Nigeria’s Integrated Disease Surveillance and Response (IDSR) team, but, rather was able to complement the existing efforts to identify the high prevalence of malaria in Borno State, allowing WHO and Nigerian health officials to improve medical care and disease prevention among the displaced population.⁵⁶

“admit that the waters / Around you have grown”⁵⁷

Climate change poses an existential threat to humanity and will test global health networks in new ways as refugee populations increase and environmental factors change infectious disease prevalence and infection patterns. In addition to these threats, climate change may also lead to higher malnutrition rates among vulnerable populations and lead to more “death[s], disease[s], and injur[ies] from heat waves, floods, storms, fires, and droughts.”⁵⁸ The myriad of threats to global health posed by climate change cannot be addressed by WHO alone; rather, response and planning efforts should be coordinated with existing UN and regional bodies as well as with Member States’ own governments.

The World Bank Group estimates that 143 million people residing in Sub-Saharan Africa, South Asia, and Latin America could face displacement by 2050; this mass-migration is estimated to take place from rural populations seeking refuge in highly urbanized environments.⁵⁹ As previously shown, high population densities among displaced persons who lack proper medical attention and care increase the prevalence of infectious diseases among those population groups. Displacement, either from environmental conditions (e.g. drought, flooding) or from environmentally-induced conditions (e.g. conflict, famine), may compromise the immune systems of the world’s poorest populations through stress, the absence of consistent medical care, and from the burdens that migration and travel impose on displaced populations. Delegates to the WHO should augment the UN-system’s current climate refugee preparedness by

⁵³ “WHO | EWARS: A Simple, Robust System to Detect Disease Outbreaks,” WHO, accessed August 1, 2019, <http://www.who.int/emergencies/kits/ewars/en/>.

⁵⁴ “WHO | EWARS.”

⁵⁵ “Early Warnings on Disease Outbreaks Help Guide WHO’s Response in North Eastern Nigeria,” accessed August 2, 2019, <https://www.who.int/news-room/feature-stories/detail/early-warnings-on-disease-outbreaks-help-guide-who-s-response-in-north-eastern-nigeria>.

⁵⁶ “Early Warnings on Disease Outbreaks Help Guide WHO’s Response in North Eastern Nigeria.”

⁵⁷ Bob Dylan, “The Times They Are a-Changin,” in *The Times They Are a-Changin*, Columbia Records, 1964

⁵⁸ Ichiro Kurane, “The Effect of Global Warming on Infectious Diseases,” *Osong Public Health and Research Perspectives* 1, no. 1 (December 2010): p. 8

⁵⁹ Laignee Barron, “143 Million People Could Soon Become Climate Change Refugees,” *Time*, March 20, 2018, <https://time.com/5206716/world-bank-climate-change-internal-migration/>.

demonstrating an awareness of disease control among current refugee populations while also assessing the effectiveness of current WHO structures to plan for future climate refugees.

Climate change is also predicted to pose serious affects on the spread and future control of infectious diseases. One study indicated three possible changes in current infectious disease trends: a shift in the geographic spread of malarial infections, an increase in the instance of diarrheal diseases across the globe, and an overall increase in the number of people at risk for contracting dengue fever.⁶⁰ The growing proportion of the world's poor that are at risk of global flooding as a part of climate instability will also face another challenge – that “increased frequency of floods exacerbates challenges with water pollution and this will increase the risks for food- and water-borne diseases, and various other infectious diseases, that are disproportionately affecting vulnerable groups and areas.”⁶¹

The geographic range of tropical diseases (e.g. dengue fever, Ebola virus, malaria) may also increase as global temperatures rise. Take, for example, the 2015-16 spread of the Zika virus, a mosquito-born tropical disease that was first identified in the Uganda's Zika forest in 1947, that originated in Brazil and spread across the Americas.⁶² The globalization of commerce and transportation, combined with growing extension in tropical disease ranges,⁶³ caused a new disease to frighten and disrupt the healthcare infrastructure of Latin America's largest state. This threat, of new diseases reaching new areas around the globe, will only add uncertainty to disease control plans during humanitarian emergencies.

While the climate crisis grows increasingly volatile, the aforementioned scenarios, while not entirely preventable, may be containable. As Member States' undertake their own initiatives to strengthen their health care systems, WHO initiatives for vaccine research and availability, disease surveillance among displaced populations, and global WaSH investment may prepare the next generation to prepare for and prevent future epidemics.

Conclusion

Treats to global security will always include armed conflict and environmental disasters; compounding this threat is the ever-present specter of the spread of infectious diseases among populations displaced and affected by these humanitarian emergencies. The ability to control disease outbreaks and prevent their spread during humanitarian emergencies is a responsibility shared by Member States', the UN-system, and the WHO – a coordination that becomes increasingly important as climate change alters the nature of conflict, food security, and global health. WHO delegates should understand that many of the systems to control diseases during humanitarian emergencies already exist, either within WHO structures or within Member States' healthcare infrastructures, and that each emergency must be assessed individually. This should encourage, rather than prevent, delegates expanding current WHO procedures in disease surveillance deployment and WHO's current work with Member States.

⁶⁰ Kurane, “The Effect of Global Warming on Infectious Diseases,” p.8

⁶¹ Guéladio Cissé, “Food-Borne and Water-Borne Diseases under Climate Change in Low- and Middle-Income Countries: Further Efforts Needed for Reducing Environmental Health Exposure Risks,” *Acta Tropica* 194 (June 2019): p. 185

⁶² “WHO | Zika: The Origin and Spread of a Mosquito-Borne Virus,” WHO, accessed August 4, 2019, http://www.who.int/bulletin/online_first/16-171082/en/.

⁶³ As the global temperatures rise, the *Aedes* mosquito, which is responsible for the transmission of many tropical diseases including Zika, may expand its habitat range into new areas thereby causing the virus' range to increase in turn.

Guiding Questions

1. What steps has your country taken to address outbreaks of infectious diseases either within your own country or within others? How coordinated were your efforts with WHO efforts?
2. Has your country endured a humanitarian emergency before? What was its response to the emergency and what steps did your healthcare infrastructure take to prevent the spread of infectious diseases during the emergency?
3. What efforts can your country and the global community undertake to improve WHO responses to outbreaks during humanitarian emergencies? What changes has your own country made to its public health response in recent decades to the spread of infectious diseases (e.g. the season influenza virus)?

UN Documents

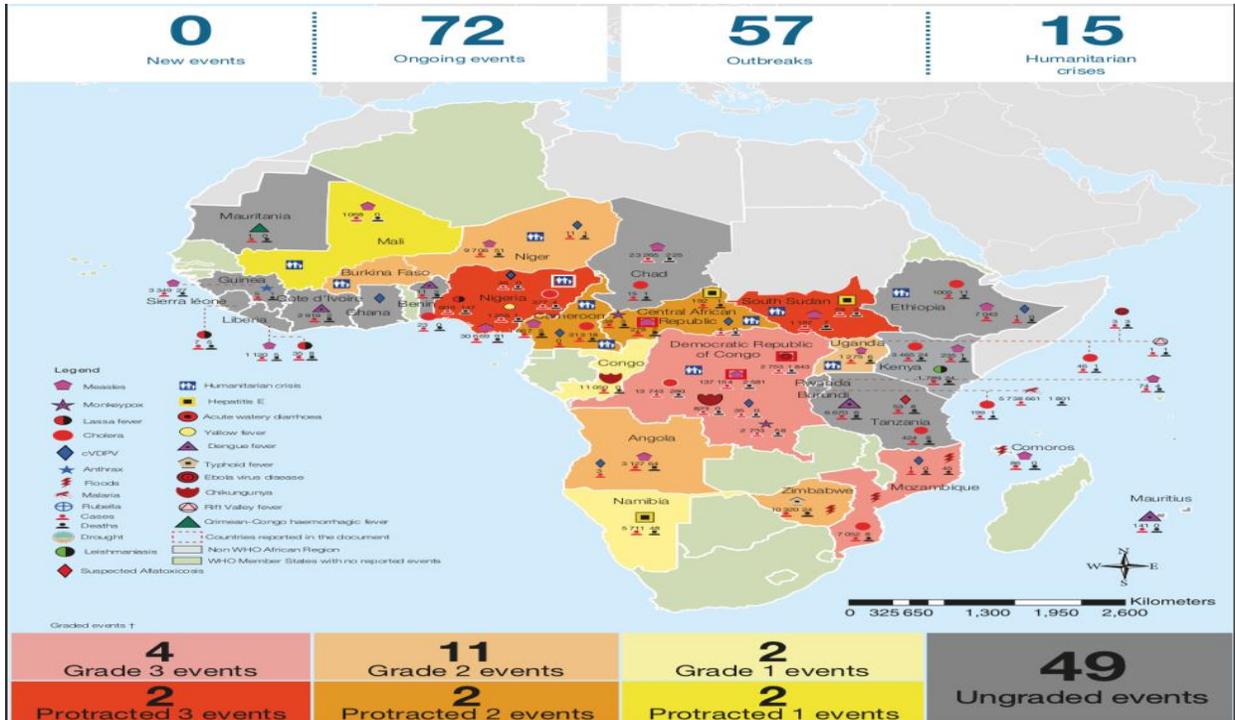
World Health Organization, “Disease control in humanitarian emergencies,” (WHO/CDS/NTD/DCE/2006.1), 2006

World Health Organization, “Outbreak Surveillance and Response in Humanitarian Emergencies: WHO Guidelines for EWARN Implementation,” (WHO/HSE/GAR/DCE/2012.1.”), 2012

World Health Organization, *World Health Statistics 2018: Monitoring Health for the SDGs*, 2018

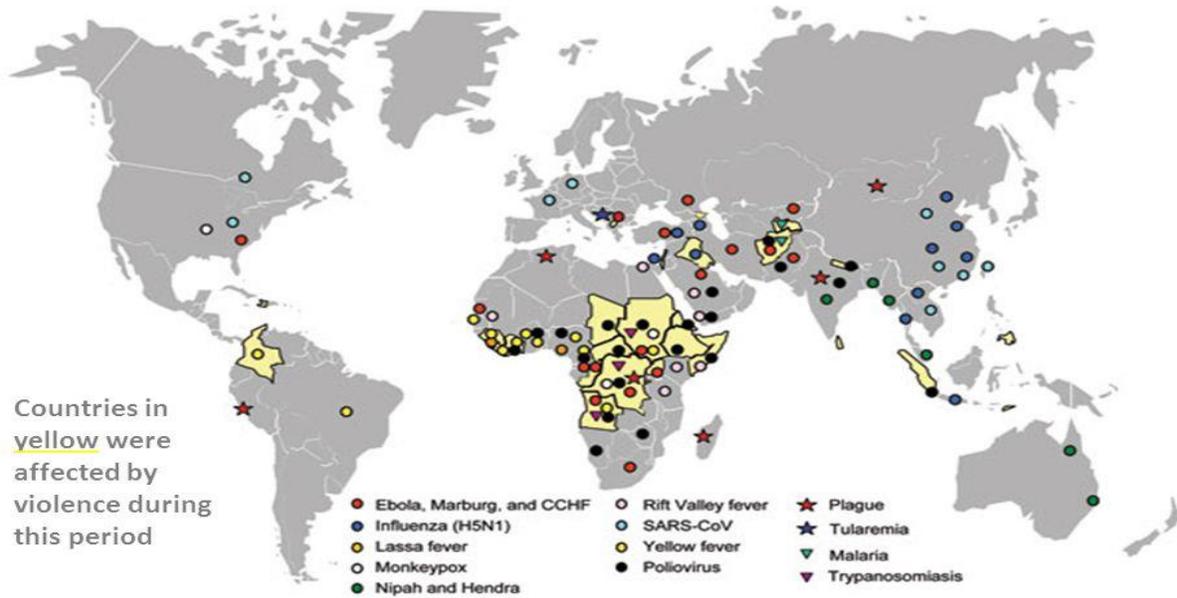
World Health Organization, “The Thirteenth General Programme of Work, 2019–2023,” (WHO/PRP/18.1), 2019

Maps:



Ongoing epidemiological events occurring in Sub-Saharan and North African Member States

Geographic distribution of recent emerging or reemerging infectious disease outbreaks and countries affected by conflict, 1990–2006



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