

GLOBAL HEALTH AND EMERGING INFECTIOUS DISEASES

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As a primary care nurse practitioner located within West Africa during the Ebola outbreak, I was able to witness the impact of emerging infectious diseases upon global health. As our world becomes smaller through travel and linked economic interests and as global weather patterns change, diseases that were once isolated gain the ability to enter new terrain and affect new populations. In this article, 2 emerging infectious diseases affecting global health are presented. These diseases are encroaching quickly upon our domestic populations and will become diseases that we must recognize and treat appropriately in our local practices. Nurses will gain familiarity with these diseases to provide evidence-based care, including diagnosis and treatment to promote best outcomes for our patients.

In the wake of the ongoing epidemic of Ebola virus disease (EVD) in western Africa, the importance of global health has gained deserved notoriety in our media and culture. No longer can Western nations ignore the outbreaks of disease in the Third World. As we travel the globe and the world becomes smaller, that which affects disease in one nation is easily transferred to another nation. As our global environment changes, vectors that once were confined to warm tropical climates move into hitherto untouched areas. As microbes mutate, once isolated diseases are gaining the ability to enter new locales. Outbreaks in the Third World become a concern for all of us. EVD is affecting our global consciousness as we form a coalition of many nations to combat the disease and protect our own health.

As a nurse practitioner stationed in Sierra Leone for the first 6 months of the EVD outbreak in West Africa, I was able to witness the impact of culture and belief, trust in health care systems, and communication on infectious disease outbreaks. Cultural practices based on long-held beliefs about death and the afterlife helped spread EVD

through unsafe burial practices. The belief that the loved one could not enter the afterlife without first having the body washed in a ritual manner drove many persons to continue the practices of washing, thus exposing themselves to EVD when it was highly infectious. This practice led to secondary spread of this lethal illness. Distrust of the governmental health care system along with a symptom pattern similar to that of many other common illnesses led villagers to avoid reporting the disease and hide ill persons in their homes for fear that the government wished them ill or was causing the illness. Because of the failure to communicate timely, culturally sensitive information using locally trusted messengers, villagers experienced a delay in learning about this fatal illness and the challenge that EVD was placing upon them.

EVD is a devastating disease. As of October 23, 2015, a total of 28,511 cases of EVD and 11,298 deaths occurred in Liberia, Sierra Leone, and Guinea.¹ In the Western world, the combined number of confirmed and suspected cases of EVD was 35 with 15 deaths. Cases of EVD were widespread and included such diverse places as Spain, Britain, Senegal, Nigeria, Mali, and the United States.¹ Much more needs to be learned about how best to control it. Health care infrastructure that is suitable and adequate to control these types of outbreaks is essential to maintaining global health security. It is yet to be seen how multinational coalitions will provide the support needed to develop sustainable public health infrastructure in these resource-poor countries.

As the world changes and grows smaller, new emerging diseases are presenting in areas never seen before. Outbreaks of emerging infectious diseases such as acute flaccid myelitis, Dengue fever, and Chikungunya are no longer confined to the reaches of the Third World. They provide new challenges for awareness and understanding by the globally aligned nurse practitioner of today.

Chikungunya

Chikungunya virus is a disabling virus that the Makonde of Tanzania describe as “that which bends over or dries up”² due to widespread pain that is so severe it prevents one from standing up. This pain can affect all joints but has a predilection for small joints of the hands and feet. Pain may subside within the usual 7- to 10-day course or persist for months or years after acquiring the disease. First presenting

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FIGURE 1
Freetown children.

in 1952, Chikungunya has made its debut in the Western world in 2014.³ Originating in Africa and Southeast Asia, it spread into Europe in 2007 and into the Americas in December 2013 when it caused an epidemic in the Caribbean island of St Martin.^{3,4} Whereas most cases in the Western world have involved travelers, the first local transmission of Chikungunya in the Americas occurred in Florida in 2014.³ Puerto Rico has reported widespread transmission.³

Chikungunya is a ribonucleic acid single-stranded alpha virus with 3 major subtypes: Asian, West African, and East/Central/South African.⁵ Both Dengue fever and Chikungunya are transmitted via identical mosquito vectors, *Aedes aegypti* and *Aedes albopictus*.⁵ Both are found in the United States, with *A aegypti* primarily found in the southeast and *A albopictus* widespread, reaching as far north as New York.^{3,4} A mutation in the viral genetics of Chikungunya has enhanced transmission and infectivity of the virus.⁵ *A albopictus* breeds well in trash and flower pots in our neighborhoods.

Dengue

Dengue is transmitted by the same mosquito vectors as Chikungunya. Most of Southeast Asia, Africa, Central America, South America, Caribbean, and the Pacific Islands are affected. Dengue affects more than 100 million people in southeast Asia, Central America, the Caribbean, and the Pacific Islands yearly. Hemorrhagic fever is likely to develop in nearly 500,000 children every year.⁶ Dengue originated from monkeys and remained localized in tropical countries



FIGURE 2
Freetown marketplace.

until the 1900s. Only in 1981 did Dengue hemorrhagic fever become widespread in Latin America and the Caribbean. The World Health Organization estimates that 22,000 deaths, mostly among children, occur as a



FIGURE 3
Author Heidi McGuigan at the St George Orphanage in Sierra Leone.

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