

OPINION

Ebola: How Worried Should We Be?

The threat in the developed world is minimal, and any infections that did occur could be easily isolated.

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Few people alive today personally recall the influenza pandemic of 1918 that killed between 50 million and 100 million people. But I have vivid memories from 2003 of deserted airports and streets when the SARS virus, which infected fewer than 9,000 people and killed fewer than 800 world-wide, brought Beijing, Hong Kong, Singapore and Toronto to their knees. On several trips to Saudi Arabia in the past 18 months I've also seen the impact of MERS, caused by a similar virus, which has infected at least 837 people and killed at least 291.

The Ebola outbreak in West Africa has so far infected more than 1,450 people and killed close to 800. But while the outbreak is a frightening and formidable challenge, this viral disease does not pose the risks of a pandemic influenza, SARS or MERS.

In addition to its effect on public health, the emergence of a new lethal infectious agent, or the re-emergence of a known one, can slow travel and trade. This can have profound effects on the economies where the disease appears, and elsewhere given global integration. The costs of surveillance, containment and treatment can be crippling, particularly in the developing world, where most new infectious diseases emerge.

Epidemiologists ask several questions to assess the risks from an infectious agent. How easily is it transmitted? How many of those infected have serious illness? How many die? Are there vaccines or drugs to prevent or treat the disease? For example, seasonal influenza is highly transmissible and infects large numbers of people every year, though only a small proportion develops serious disease. Nonetheless, influenza kills up to 30,000 people annually in the U.S. alone. Although not 100% effective, vaccines to prevent influenza and drugs to treat it are available.

Like influenza, the viruses that cause SARS and MERS are primarily transmitted through droplets in the air and on surfaces, droplets released when an infected person coughs or sneezes. While we could vaccinate against MERS or SARS, the current risk of disease is too low to warrant wide-scale vaccine campaigns. There have been no cases of SARS since May 2004, and the virus responsible for MERS does not typically cause severe disease in otherwise healthy people.

Ebola, in contrast, has a high mortality rate (up to 90%) but is spread only through intimate contact with bodily secretions such as vomit, blood or feces. There is no risk in sitting next to an infected traveler on an airplane. In principle, therefore, transmission can be prevented by isolating people with the disease.

About 70% of emerging infectious diseases, including HIV/AIDS, West Nile, influenza, SARS, MERS and Ebola, are animal infections that have jumped to humans, frequently through a domesticated animal. Pigs are a common intermediate for respiratory viruses including influenza. Opportunities for such cross-species jumps are increased by the loss of wildlife habitat to development as well as the human consumption of bushmeat due to poverty or cultural preference. A warming climate may also increase the geographic range of insects like mosquitoes and ticks that can carry diseases such as dengue, malaria and chikungunya. By analogy to a related virus, Marburg, scientists presume that Ebola originated in bats, although there is no proof.

We may not be able to directly address the drivers of infectious disease, but we can invest in surveillance in the developing world where cross-species transmission is likely to occur. We also can improve diagnostics and pursue new strategies for rapidly developing and manufacturing drugs and vaccines.

The most common question I hear is whether Ebola can travel to the United States. It can. John F. Kennedy airport in New York City annually receives more than 21 million international passengers on more than 190,000 international flights.

An infected individual could board a flight in West Africa, become symptomatic in the air or after landing and then expose others to the virus. At worst, this might result in a few other people becoming infected and possibly dying. But sustained outbreaks would not occur in the U.S. because cultural factors in the developing world that spread Ebola—such as intimate contact while family and friends are caring for the sick and during the preparation of bodies for burial—aren't common in the developed world. Health authorities would also rapidly identify and isolate infected individuals.

What else can be done to mitigate risk in America? Nonessential travel to areas where Ebola is active should be curtailed, and individuals returning from these areas must be monitored.

In 2003, travelers to the U.S. from areas at risk for SARS, including China, Southeast Asia and Canada, were given cards on landing that directed them to report to the local board of health if they developed symptoms of respiratory disease within 10 days (the virus incubation period). I became ill on returning to New York from Beijing in 2003 and was placed into isolation; I just had a bad case of influenza. Eight Americans contracted SARS; none died. In Canada 438 people contracted SARS and 44 died.

There is also more we can do to reduce the risk of pandemic disease. The economic downturn of the past several years has reduced funding for the World Health Organization, U.S. national health agencies such as the Centers for Disease Control and the National Institutes of Health, impairing their ability to respond to outbreaks such as Ebola. But clinical, laboratory and support staff and supplies are urgently needed in Guinea, Sierra Leone and Liberia for patient care, infection control, contact tracing and community engagement.

The U.N.'s International Health Regulations, adopted in 2005, commit all member states to respond to the spread of diseases throughout the world that pose risks to public health without unnecessarily disrupting international traffic and trade. The U.S. must honor this commitment by investing in science and public-health surveillance at home and abroad. This is the right thing to do. It is also—for more threatening infectious diseases if not for Ebola—in our own self-interest.

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