Responding to Ebola

NEW YORK – The horrific Ebola epidemic in at least four West African countries (Guinea, Liberia, Sierra Leone, and Nigeria) demands not only an emergency response to halt the outbreak; it also calls for re-thinking some basic assumptions of global public health. We live in an age of emerging and re-emerging infectious diseases that can spread quickly through global networks. We therefore need a global disease-control system commensurate with that reality. Fortunately, such a system is within reach if we invest appropriately.

Ebola is the latest of many recent epidemics, also including AIDS, SARS, H1N1 flu, H7N9 flu, and others. AIDS is the deadliest of these killers, claiming nearly 36 million lives since 1981.

Of course, even larger and more sudden epidemics are possible, such as the 1918 influenza during World War I, which claimed 50-100 million lives (far more than the war itself). And, though the 2003 SARS outbreak was contained, causing fewer than 1,000 deaths, the disease was on the verge of deeply disrupting several East Asian economies including China’s.
There are four crucial facts to understand about Ebola and the other epidemics. First, most emerging infectious diseases are zoonoses, meaning that they start in animal populations, sometimes with a genetic mutation that enables the jump to humans. Ebola may have been transmitted from bats; HIV/AIDS emerged from chimpanzees; SARS most likely came from civets traded in animal markets in southern China; and influenza strains such as H1N1 and H7N9 arose from genetic re-combinations of viruses among wild and farm animals. New zoonotic diseases are inevitable as humanity pushes into new ecosystems (such as formerly remote forest regions); the food industry creates more conditions for genetic recombination; and climate change scrambles natural habitats and species interactions.

Second, once a new infectious disease appears, its spread through airlines, ships, megacities, and trade in animal products is likely to be extremely rapid. These epidemic diseases are new markers of globalization, revealing through their chain of death how vulnerable the world has become from the pervasive movement of people and goods.

Third, the poor are the first to suffer and the worst affected. The rural poor live closest to the infected animals that first transmit the disease. They often hunt and eat bushmeat, leaving them vulnerable to infection. Poor, often illiterate, individuals are generally unaware of how infectious diseases – especially unfamiliar diseases – are transmitted, making them much more likely to become infected and to infect others. Moreover, given poor nutrition and lack of access to basic health services, their weakened immune systems are easily overcome by infections that better nourished and treated individuals can survive. And “de-medicalized” conditions – with few if any professional health workers to ensure an appropriate public-health response to an epidemic (such as isolation of infected individuals, tracing of contacts, surveillance, and so forth) – make initial outbreaks more severe.

Finally, the required medical responses, including diagnostic tools and effective medications and vaccines, inevitably lag behind the emerging diseases. In any event, such tools must be continually replenished. This requires cutting-edge biotechnology, immunology, and ultimately bioengineering to create large-scale industrial responses (such as millions of doses of vaccines or medicines in the case of large epidemics).
The AIDS crisis, for example, called forth tens of billions of dollars for research and development – and similarly substantial commitments by the pharmaceutical industry – to produce lifesaving antiretroviral drugs at global scale. Yet each breakthrough inevitably leads to the pathogen's mutation, rendering previous treatments less effective. There is no ultimate victory, only a constant arms race between humanity and disease-causing agents.

So, is the world ready for Ebola, a newly lethal influenza, a mutation of HIV that could speed the transfer of the disease, or the development of new multi-drug-resistant strains of malaria or other pathogens? The answer is no.

Though investment in public health increased significantly after 2000, leading to notable successes in the fights against AIDS, tuberculosis, and malaria, there has recently been a marked shortfall in global spending on public health relative to need. Donor countries, failing to anticipate and respond adequately to new and ongoing challenges, have subjected the World Health Organization to a debilitating budget squeeze, while funding for the Global Fund to Fight AIDS, Tuberculosis, and Malaria has fallen far short of the sums needed to win the war against these diseases.

Here is a shortlist of what urgently needs to be done. First, the United States, the European Union, the Gulf countries, and East Asian states should establish a flexible fund under WHO leadership to combat the current Ebola epidemic, probably at an initial level of $50-$100 million, pending further developments. This would allow a rapid public-health response that is commensurate to the immediate challenge.

Second, donor countries should quickly expand both the Global Fund's budget and mandate, so that it becomes a global health fund for low-income countries. The main goal would be to help the poorest countries establish basic health systems in every slum and rural community, a concept known as Universal Health Coverage (UHC). The greatest urgency lies in Sub-Saharan Africa and South Asia, where health conditions and extreme poverty are worst, and preventable and controllable infectious diseases continue to rage.

In particular, these regions should train and deploy a new cadre of community health
workers, trained to recognize disease symptoms, provide surveillance, and administer diagnoses and appropriate treatments. At a cost of just $5 billion per year, it would be possible to ensure that well-trained health workers are present in every African community to provide lifesaving interventions and respond effectively to health emergencies like Ebola.

Finally, high-income countries must continue to invest adequately in global disease surveillance, the WHO’s outreach capacities, and life-saving biomedical research, which has consistently delivered massive benefits for humanity during the past century. Despite tight national budgets, it would be reckless to put our very survival on the fiscal chopping block.