Brief: America's Leadership in Global Health Security

THE CHALLENGE

Ebola. Zika. Pandemic flu. Emerging infectious disease and pandemic threats to human health have regularly made front-page news. Fueled by population growth, increased mobility, and poor health infrastructure, the frequency and severity of disease outbreaks have dramatically increased.[1] Diseases that historically only impacted other geographies now directly threaten American health. In addition to the devastating loss of life, pandemic outbreaks also have a disastrous effect on economies, costing up to US$60 billion a year to contain.[2]

In 2005, the United States and World Health Organization (WHO) member states adopted the revised International Health Regulations (IHR)—legal guidelines that require countries to report public health emergencies of international concern. More importantly, the IHR obligated nations to develop core capacities to detect, assess, report, and respond to these emergencies. However, nearly a decade later, more than 70 percent of countries were still not properly prepared to address global health epidemics.[3] While countries have taken steps to respond to the increasing threat of emerging infectious diseases, sustained commitment and support are needed.

Additionally, research and development (R&D) for new tools and technologies to prevent, detect, and respond to emerging disease threats has not kept pace with the growing need. As seen with the Ebola and Zika outbreaks, there is a shortage of appropriate drugs, diagnostics, and vaccines to manage the response, necessitating a rapid mobilization of emergency R&D resources. This includes a lack of regulatory frameworks for fast-tracking tools and technologies when responding is necessary. R&D is also needed to help prevent and detect two of the biggest public health threats: disease transmission between animals and humans, which makes up over 60 percent of new outbreaks,[4] and antimicrobial resistance, which has been recognized as one of the foremost growing threats to the world.[5]

IMPACT OF US INVESTMENTS

Experiences with recent outbreaks serve as a reminder that we are only as safe as the most fragile states. The implications are clear: strengthening the capacity of every country to prevent, detect, and respond to public health threats is in our national interest. Leveraging our nation's deep technical expertise in pandemic preparedness and response, the US government has been a key player in handling global threats over the last two decades.

In 2014, the US helped coordinate a worldwide response to the Ebola outbreak in West Africa. Ebola served as a reminder of the necessity of global cooperation and multisectoral response, demonstrating how diseases can threaten Americans both at home and abroad. The US effort included building 15 treatment units, providing more than 400 tons of personal protective supplies, and operating more than 190 burial teams in the region.[6] This response leveraged long-standing investments to control known disease threats, such as polio, tuberculosis and malaria, in low- and middle-income countries.

GLOBAL HEALTH SECURITY FACTS

- **Six in ten Americans support** investments in developing countries that will help **prevent future epidemics,** and **seven in ten Americans believe** that **strengthening health care** in developing countries will save the world money.[7]
- A large-scale global outbreak could **cost the global economy up to $6 trillion**. In comparison, for $0.65 per person per year, we can strengthen country health systems and global networks to avert a pandemic.[8]
- US investments through CDC currently support **ten Global Disease Detection Centers** around the world covering over **55 countries** and **75 million people**. These Centers have **discovered 12 pathogens** that were identified for the first time anywhere.[9]

In early 2014, the US joined together with other nations to launch the Global Health Security Agenda (GHSA) to combat the impacts of highly infectious diseases. Now a partnership of more than 55 nations, this effort has built common, measurable targets to prevent or mitigate the impact of outbreaks and dangerous pathogens; detect and report outbreaks when they occur; and respond and control outbreaks before they overwhelm often fragile health systems. The GHSA enhances coordination and leverages commitments to provide capacity strengthening for infrastructure, equipment, and skilled personnel across sectors, with the goal of bolstering self-reliance and accountability for partnering countries.

US investments in global health security have mobilized contributions from other donor nations and the private sector. In 2014, leaders of the G20—a collection of the world's largest economies—committed to financial contributions, workforce, as well as medical and protective equipment to end the Ebola epidemic. Growing out of this commitment, the Republic of Korea pledged $100 million to support activities in 13 low- and middle-income countries. During the Ebola outbreak, private-sector companies contributed nearly $300 million[10] as well as expertise and capabilities including logistics and supply chain, health, technology, data management, or financial services.[11]

Internationally, the US plays a central role in biosecurity and biosafety, ensuring that pathogens are identified, secured, and monitored; supporting risk management training and educational outreach in partner countries; and promoting country-specific legislation, licensing, and control measures in key locations. For example, the US Centers for Disease Control and Prevention's (CDC) Field Epidemiology Training Program has trained more than 3,100 epidemiologists around the world, helping to grow a trained workforce able to rapidly detect and respond to infectious disease threats and achieve the goal of at least one trained field epidemiologist per 200,000 people worldwide.[12]

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US DEPARTMENTS AND AGENCIES

Several US departments and agencies work together to strengthen global health security capacities in order to:

- Establish and strengthen surveillance, laboratory systems, and biosecurity systems.
- Develop reporting systems and emergency operations centers.
- Slow the spread of antibiotic resistance.
- Reduce disease transmission between animals and humans, known as zoonotic threats.
- Increase routine immunization.
- Engage in R&D for new drugs, vaccines, diagnostics, and other urgently needed health technologies.

The following selected examples illustrate US agency engagement in global health security.

US Department of Health and Human Services

The Office of Global Affairs leverages its relationships with other nations and partners to develop, promote, and advance global policies and efforts to strengthen global health security. Within HHS, the **CDC** serves as the lead technical agency. CDC uses multiple platforms to combat health threats, including Global Disease Detection Centers, Field Epidemiology Training Programs, Epidemic Intelligence Service, and the Public Health Emergency Management Program. These programs support critical disease detection networks, diagnostic tools, laboratory systems, and the public health workforce. The **National Institutes of Health (NIH)** support for R&D on infectious diseases such as Ebola, Zika, and HIV/AIDS is conducted through programs at the **National Institute of Allergy and Infectious Diseases** and the **Fogarty International Center**. The **Food and Drug Administration (FDA)** supports the development of products that may be used in the event of a public health emergency as well as enhances international regulatory systems for antibiotic resistance, food safety, and supply chain strengthening. The **Office of the Assistant Secretary for Preparedness and Response** houses The **Biomedical Advanced Research and Development Authority**, which provides a systematic approach to the development and purchase of the necessary vaccines, drugs, therapies, and diagnostic tools for public health medical emergencies.

Examples: In the last two years, CDC has tracked more than 280 outbreaks in over 150 countries in addition to Ebola. NIH is partnering with pharmaceutical company GlaxoSmithKline to develop several Ebola vaccine candidates and is sponsoring trials in Africa run by a Liberia-US clinical research partnership.

US Agency for International Development

US Agency for International Development (USAID) focuses on zoonotic diseases, workforce development, disease surveillance, and antimicrobial resistance. Specifically, USAID collaborates with national governments to monitor viruses with pandemic potential as well as behaviors, practices, and conditions associated with viral evolution, spillover, amplification, and spread. More than 15,000 at-risk people, livestock, and wildlife have been sampled to better understand zoonotic disease risk profiles and spillover events. The agency also continues to make significant contributions in improving biosafety and biosecurity as well as national laboratory systems.

Example: USAID has worked with African and Asian universities to develop course curricula including developing 17 new modules and training more than 3,500 future health managers and workers on the intersection between human health, animal health, and environmental health, also known as the One Health approach.

US Department of State

Several offices within the Department of State engage on health security. **The Office of International Health and Biodefense**, for example, takes part in policymaking and coordination of international efforts across the US government on infectious diseases, environmental health, global health security, and antibiotic resistance. **The International Security and Nonproliferation (ISN) Bureau**'s Biosecurity Engagement Program strengthens biorisk management practices, enhances infectious disease detection and surveillance, and supports cooperative R&D worldwide to prevent terrorist access to dangerous biological agents. ISN's Coordinator for Threat Reduction Programs works closely with domestic and international partners in the security, animal and human health, development, and law enforcement sectors to coordinate global biological security programs and funding as well as leads US government outreach to domestic and international nongovernmental organizations.

Example: During the Ebola outbreak, State supported the training of 1,200 Liberian National Police in Monrovia to limit the spread of, and prevent access to, dangerous pathogens from the laboratory setting, and 500 Guinean Law Enforcement officers were trained on biosafety and biosecurity.

US Department of Agriculture

As the leading authority on animal diseases and agricultural production, the Department of Agriculture's (USDA) **Animal and Plant Health Inspection Service (APHIS)** utilizes its domestic pest and disease programs to prevent infections, including potential zoonotic diseases, for US livestock and poultry. APHIS also operates high containment laboratories, coordinates disaster preparedness and response, and assists in investigations of foodborne disease outbreaks. APHIS collaborates with the **Foreign Agricultural Service**, **the National Institute of Food and Agriculture,** and the **Agriculture Research Service** to conduct agricultural and animal disease research, education and outreach programs, biosafety, biosecurity, and activities to improve responses to infectious diseases and countering weapons of mass destruction.

Example: USDA provided $43 million to states, universities, and tribal lands to increase homeland security, prevention, detection and response efforts, as well as developed the National Animal Health Reserve Corps to mobilize 300 veterinarians to assist during an emergency.

US Department of Defense

Through the Department of Defense's (DoD) **Cooperative Threat Reduction's** Cooperative Biological Engagement Program and the **Armed Forces Health Surveillance Branch**'s Global Emerging Infections Surveillance and Response System, DoD is focused on national security and force health protection, advancing partner nation abilities to detect and report outbreaks of diseases; prevent the sale, theft, diversion, or release of biological materials, technology, and expertise; respond to all-hazard threats using an integrated, multisectoral approach; and improve understanding of new and emerging human and animal disease threats of natural or deliberate origin.

Example: DoD surveillance systems detected the first case of H1N1 in the United States, helping initiate our public health response, as well as the first cases of Zika in Southeast Asia, paving the way for detection and monitoring of the virus as it emerged in the Western Hemisphere.