A REPORT OF THE CSIS
GLOBAL HEALTH POLICY CENTER

Investing in a Safer United States

WHAT IS GLOBAL HEALTH SECURITY AND WHY DOES IT MATTER?

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August 2012

50 YEARS | CHARTING OUR FUTURE

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Cover: Researchers from the Centers for Disease Control and Prevention and the Universidad del Valle collecting biological samples from bats in Guatemala. Photo courtesy of the CDC–Universidad del Valle de Guatemala.

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INVESTING IN A SAFER UNITED STATES

WHAT IS GLOBAL HEALTH SECURITY AND WHY DOES IT MATTER?

Rebecca Miller and Scott F. Dowell[1]

Introduction

In response to the questions—why does the United States engage in global health, and what are the national interests of the United States in this area?—humanitarian and ethical considerations are often the lead rationales cited: the United States is a philanthropic nation committed to the values of easing the vulnerability and suffering of people from HIV/AIDS, malaria, polio, and a number of other diseases. Not far behind are the U.S. foreign policy and development stakes: U.S. investments in global health are a cost-effective "soft power" tool that promotes economic growth and prosperity in poor communities and that generates important earned goodwill toward the United States by visibly saving and enhancing lives. No less important than these however, but often less acknowledged, is the U.S. interest in global health security: investing in the basics of quality public health systems, including effective and adequate laboratories, information systems, and human resources to conduct disease surveillance and epidemiological analyses, and effective response strategies that can protect Americans and persons around the world from both predictable and unforeseen emerging health threats that can quickly cross populations and borders.

In September 2011, speaking to the United Nations General Assembly about international priorities, President Barack Obama helped to define global health security and to bring it to the forefront. "To stop disease that spreads across borders, we must strengthen our system of public health . . . . we must come together to prevent, detect, and fight every kind of biological danger—

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whether it is a pandemic like H1N1, a terrorist threat, or a treatable disease."[2] And yet, work by the United States and its partners in global health security often draws minimal attention from the general public, especially during lulls in the perceived threat of emerging infectious diseases and man-made pathogens. This can and will change suddenly, when a serious outbreak occurs that triggers intense media attention and an international scramble to mobilize. This cycle makes it difficult to sustain adequate support to accomplish global health security mandates. While U.S. agencies and their international partners have made significant progress in the last decade, much work remains to be done, especially to encourage the strengthening of basic detection and response capacities in low- and middle-income countries. No less important, there is a continued need for better integration of U.S. programs to reduce potential fragmentation and duplication.

Global Health Security: Varying Perspectives and Common Goals

The World Health Organization (WHO) defines global health security as the "activities required…to reduce the vulnerability of people around the world to new, acute, or rapidly spreading risks to health, particularly those that threaten to cross international borders."[3] It focuses on the prevention of, and response to, naturally occurring disease outbreaks and disasters, as well as intentional acts of bioterrorism. The essential new framework for global health security is the International Health Regulations (IHR) that came into force in 2007.[4] Spurred by severe acute respiratory syndrome (SARS), anthrax attacks, and by the persisting threat of emerging diseases such as avian influenza A (H5N1), the IHR was completely revised and modernized in 2005 to require countries to adequately prepare for, and respond to, public health emergencies of all types—nuclear, chemical, or biological—whether intentional or naturally occurring. The IHR serve as the basis for defining core competencies that are necessary for national responses to such public health emergencies, and they serve as a central and driving force in global health security implementation around the world. In a rare instance of international unanimity, all 194 WHO member states signed on to the IHR and to the IHR's timetable for implementation.

Global health security covers a broad scope of activities that are implemented by a mix of U.S. and international agencies. WHO plays an essential role in providing leadership on matters critical to health, shaping the research agenda, stimulating the generation and dissemination of knowledge, setting and monitoring norms and standards, providing technical support on a multitude of issues, and promoting evidence-based policy decisions. WHO has also increasingly become

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[2] Barack Obama, "Remarks by President Obama in Address to the United Nations General Assembly," speech presented before the UN, September 21, 2011, http://www.whitehouse.gov/the-press-office/2011/09/21/remarks-president-obama-address-united-nations-general-assembly.

[3] World Health Organization (WHO), *The World Health Report 2007—A Safer Future: Global Public Health Security in the 21st Century,* http://www.who.int/whr/2007/overview/en/index.html.

[4] World Health Organization (WHO), *International Health Regulations (2005)*, http://www.who.int/ihr/en/.

involved in issues of international biosafety (keeping laboratory workers safe) and biosecurity (preventing the deliberate misuse of dangerous pathogens). Specific to global health security, WHO is the designated coordinating body for the implementation of the IHR.

Within the U.S. government, the Department of Health and Human Services (DHHS) provides policy direction and coordinates global health security capacity development worldwide. The recent signing of a bilateral memorandum of understanding on U.S.-WHO global health security collaboration by Secretary of Health and Human Services Kathleen Sebelius and WHO Secretary General Margaret Chan,[5] and the recent release of the HHS's Global Health Strategy,[6] highlight this leadership role. The latter explicitly articulates the department's objectives in global health including important global health security elements—enhancing global health surveillance, preparing for, and responding to, public health emergencies, and strengthening international health security standards through multilateral engagement.

At the HHS operating division level, the Centers for Disease Control and Prevention (CDC) has important technical, research, and regulatory responsibilities within the global health security arena. The Global Disease Detection (GDD) program in the Center for Global Health builds a country level public health capacity for the detection and response to emerging threats through seven regional centers placed strategically throughout the world.[7] The GDD is named as a WHO Collaborating Center for IHR Implementation of National Surveillance and Response Capacity and draws upon the efforts of other CDC programs and international partners. Since its inception in 2006, the GDD regional centers have assisted their partners in the response to more than 900 disease outbreaks and public health events and helped to establish the capacity to perform more than 200 new diagnostic tests in more than 50 countries. At CDC headquarters, the GDD Operations Center[8] provides early warning for emerging diseases through event-based surveillance methods. The CDC also implements many other programs and lends critical subject matter expertise that makes valuable contributions to outbreak detection and response for a wide range of pathogens and for outbreaks of unknown etiology. Among these, the CDC's National Center for Immunization and Respiratory Diseases (NCIRD)[9] works to establish disease burden estimates and to document, prevent, and control outbreaks of seasonal influenza and other respiratory and enteric viruses as well as providing critical support for polio eradication and

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[5] U.S. Department of Health and Human Services, "Memorandum of Understanding Between the Government of the United States and the World Health Organization Regarding Cooperation on Global Health Security Initiatives," http://www.globalhealth.gov/global-health-topics/health-diplomacy/agreements-and-regulations/20110922-mem.html.

[6] U.S. Department of Health and Human Services, "The Global Health Strategy of the U.S. Department of Health and Human Services," October 2011, http://globalhealth.gov/pdfs/GlobalHealthSecretary.pdf.

[7] Centers for Disease Control and Prevention (CDC), Global Disease Detection Program, http://www.cdc.gov/globalhealth/gdder/gdd/.

[8] CDC, Global Disease Detection Operations Center, http://www.cdc.gov/globalhealth/GDDER/optcenter/.

[9] CDC, National Center for Immunization and Respiratory Diseases, http://www.cdc.gov/ncird/html.

measles mortality reduction. The CDC's National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)[10] helps strengthen capacities and capabilities to identify, respond, and control the spread of disease by humans, live animals, and potentially infectious cargoes such as animal products, and human biological specimens and products and human remains at ports of entry throughout the world and assists with zoonotic disease investigations and control programs in other countries. Additionally, the Field Epidemiology Training Program (FETP) trains physicians and other scientists in the basics of public health investigations, forming the core of future public health leaders with over 2,000 graduates in more than 30 countries around the world. Modeled after the U.S. Epidemic Intelligence Service, often known as the domestic "disease detectives," FETP graduates use their skills in disease surveillance, outbreak response, and program evaluation to assist Ministries of Health in outbreak investigation and control.

Outside the DHHS, several well-established U.S. government programs contribute greatly to global health security. The Department of State's Biosecurity Engagement Program (BEP)[11] and the Department of Defense's Defense Threat Reduction Agency (DTRA)[12] strive to prevent the proliferation of expertise, materials, equipment, and technologies that could contribute to the development of biological weapons. The Global Emerging Infections Surveillance and Response System (GEIS)[13] at the Department of Defense (DoD) aims to centralize the coordination of surveillance efforts conducted through DoD overseas medical research and development laboratories. More recently, the U.S. Agency for International Development (USAID's) Emerging Pandemic Threats Program[14] has focused on the early identification of animal pathogens and the promotion of early responses to zoonotic disease threats.

Although these programs serve different purposes and mandates, clearly many of the activities and global partners are similar. There is also an innate tension between the public health mission of agencies such as the CDC and the primary missions of the security community. At the same time there is a well-recognized synergy in these missions—one of the greatest threats to U.S. security and stability comes from naturally occurring disease outbreaks such as pandemic influenza, and the early identification and containment of such threats is a priority both for public health and security. In the midst of fiscal scarcity, the necessity to achieve greater integration of effort has become even more important, as has the requirement to reduce fragmentation and

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[10] CDC, National Center for Emerging and Zoonotic Infectious Diseases, http://www.cdc.gov/ncezid/.
[11] U.S. Department of State, Biosecurity Engagement Program, http://www.bepstate.net.
[12] U.S. Department of Defense, Defense Threat Reduction Agency & U.S. Strategic Command Center for Combating Weapons of Mass Destruction, Biological Threat Reduction Program, http://www.dtra.mil/missions/NunLugar/BiologicalThreatReductionProgram.aspx.
[13] Armed Forces Health Surveillance Center, Global Emerging Infections Surveillance (GEIS) Operations, http://www.afhsc.mil/geis.
[14] U.S. Agency for International Development (USAID), Emerging Threat Program, http://www.usaid.gov/press/releases/2009/pr091021_1.html.

duplication. The collective strengths of the agencies when they work together, as happened during the H1N1 pandemic, can be enormously effective.

Progress Has Been Made, But Threats Still Exist

Substantial progress has been made in global health security in recent years, with international consensus and U.S. government support. The Biological Weapons Convention (BWC), established in 1975, as the first multilateral disarmament treaty to ban the production and use of entire categories of weapons, now has 159 state parties.[15] In addition, in 2004, the UN Security Council unanimously adopted Resolution 1540, obliging member states to refrain from supporting non-state actors in developing, acquiring, manufacturing, possessing, transporting, transferring, or using nuclear, chemical, or biological weapons and their delivery systems.[16]

U.S. government frameworks and agreements have also progressed. In July 2011, after more than a year of work that was undertaken by National Security staff, an interagency working group released a set of internal U.S. goals and indicators for IHR implementation. This guidance was designed to focus U.S. government capacity development efforts on high-yield IHR core capacities. Entitled *Promoting Global Health Security: Guidance and Principles for U.S. Government Departments and Agencies to Strengthen International Health Regulation Core Capacities Internationally*, this pivotal document acknowledged the shared responsibilities among many U.S. agencies for preparedness and response to international public health emergencies, requiring cohesive goals and benchmarks.[17]

While substantial progress has been made to establish a strengthened framework for global health security, emerging disease threats are a persistent reality. Avian influenza A (H5N1) continues to cause devastating disease with 60 percent mortality among those humans who have been infected, and the recent demonstration that mutations in the HA gene can result in a more easily transmissible version only increases the potential danger from this pathogen.[18] In February 2012, Indian health officials reported four cases of "totally drug resistant TB"—patients infected with strains of the organism resistant to all first- and second-line drugs.[19] Rapid subsequent testing indicated that use of the term *totally resistant* was premature, but the frequency of extensively drug resistant TB, or XDR-TB, in Mumbai and in other parts of the world should nevertheless be

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[15] United Nations, UN Office at Geneva, "Seventh Review Conference of the Biological Weapons Convention," http://www.unog.ch/80256EE600585943/.

[16] United Nations, 1540 Committee, http://www.un.org/en/sc/1540/.

[17] K. Ijaz et al., "International Health Regulations: What Gets Measured Gets Done," *Emerging Infectious Diseases,* July 2012.

[18] M. Imai et al., "Experimental Adaptation of an Influenza H5 HA Confers Respiratory Droplet Transmission to a Reassortant H5 HA/H1N1 Virus in Ferrets," *Nature,* May 2, 2012.

[19] Z.F. Udwadia et al., "Totally Drug-Resistant Tuberculosis in India," *Clinical Infectious Diseases* 54 (2012): 579–81.

taken quite seriously by the global health and security communities. It also should be recognized that the spread of HIV and the persistent global health challenge, can amplify the spread of XDR-TB, putting HIV-negative individuals at risk for TB infection. The interaction between these diseases is a prime example of the connection between public health and security. Finally, despite the fact that polio is one of the pathogens explicitly identified by the IHR as a potential public health emergency of international concern, the virus continues to circulate in three endemic countries in 2012, leading the global community to declare a public health emergency[20] so as to redouble efforts to eradicate this crippling and sometimes deadly disease.

Most essentially, full IHR implementation is in jeopardy. The IHRs have 194 signatories; however most countries still lack the systems, infrastructure, and workforce to meet the requirements for IHR compliance. As of the implementation deadline of June 15, 2012, fewer than 20 percent of all of the countries had indicated that they have met the requirements for compliance.[21] While perhaps an ambitious goal to bring all 194 countries into compliance in the short five years between the initiation of the IHR in 2007, to the deadline of June 2012, WHO's leadership in this effort has been essential to the progress that has been made to date.

Important Policy Considerations for Global Health Security

In our view, three major principles should guide ongoing U.S. approaches to global health security. As a practical matter, the most effective U.S. government programs advancing global health security have implicitly recognized these principles, but making them explicit would also help to focus the efforts of a growing number of programs seeking to contribute to progress in this area.

- *Global health security depends most profoundly on host country ownership.* Global health security investments require time to be fully realized. Experience has also taught us that limiting the spread of disease before it becomes an outbreak, avoids an ineffective and costly response, with a far-reaching economic toll.[22] Building host country capacity is imperative to preparing and responding to immediate threats, but is also necessary to eventually transition

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[20] Sixty-fifth World Health Assembly, *Poliomyelitis: Intensification of the Global Eradication Initiative,* May 26, 2012, http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_R5-en.pdf.

[21] Isabella Nuttall, e-mail message to author, June 3, 2012.

[22] Emma Xiaoqin Fan, "SARS: Economic Impacts and Implications," Asian Development Bank, May 2003, http://www.adb.org/publications/sars-economic-impacts-and-implications; and M.R. Keogh-Brown and R.D. Smith, "The economic impact of SARS: How does the reality match the predictions?" *Health Policy* 88 (October 2008): 110–20. Also, Howard Lempel, Ross A. Hammond, and Joshua M. Epstein, "Economic Cost and Health Care Workforce Effects of School Closures in the U.S.," Center on Social and Economic Dynamics Working Paper no. 55, Brookings Institution, September 30, 2009, http://www.brookings.edu/papers/2009/0930_school_closure_lempel_hammond_epstein.aspx.

full ownership with little need for U.S. or other assistance. We have seen clear examples of host countries such as Thailand, China, Kenya, and South Africa taking on leadership roles and investing financial resources in global health security components, but we have also seen countries with less interest in investment, given other competing priorities. Each country will require different approaches and an important aspect of this will be to utilize all diplomatic channels and partners to encourage and develop strategies for host country ownership. Partners in the private sector, civil society, academia, and multilateral organizations will need to work with host countries to find unique solutions to ownership and encourage financial investment in their public health systems. Specific goals and targets for meeting IHR requirements are an important means to measure progress and host country ownership.

- *Stable resources are essential for global health security.* Funding for global health security has continued to be challenged by the very nature of outbreaks. During, and immediately following major outbreaks, such as SARS, pandemic H1N1, and H5N1 avian influenza, U.S. government agencies and partners have received an influx of funding to execute the immediate response to that particular disease. However, global health security entails more than responding to the major outbreaks that are reported in the news. It involves continued strengthening of basic public health systems in-country, including laboratory, surveillance, and epidemiology for a variety of threats as well as building the human resources over time to better respond to all types of outbreaks. There are no shortcuts. Checklists and algorithms can be helpful guides, but cannot substitute for stable and expanded investments in core public health response systems.

  Many of the key U.S. government programs mentioned previously are accomplishing those tasks, but some core program budgets have been recently constrained. For example, the GDD Operations Center supported responses to 20 outbreaks in 17 different countries in 2011, all on a budget of less than $1 million.

  New resources for threat reduction are welcome additions, but they must be balanced for overall effectiveness. For example, significant investments in laboratory biosecurity for especially dangerous pathogens will result in strengthened protection against rare bioterrorist events, but will not substitute for public health preparedness for the more common greater security risk inherent in naturally occurring disease epidemics. A stable, phased approach to global health security implementation is needed, that includes both shorter-term threat reduction goals that also build on a more stable public health foundation. This will ensure that capabilities for the detection and response to rare diseases or threats will also be used for more common diseases of high public health impact. This will require new investments in the public health side of global health security in order to balance the effectiveness of investments made by threat reduction resources. Investment also needs to be made for strengthening and establishing national public health institutes worldwide. These institutes, analogous to the CDC in function and mandate, will be instrumental in global public health response and outbreak capacity.

- *Leadership from WHO is critical.* During public health emergencies, we must work with important multilateral institutions, in particular the UN and WHO. WHO and its regional offices provide critical backbones during emergency response and coordination, serve as the lead health authorities, and as neutral and respected global conveners and arbiters with long-standing experience in public health. Not being fully engaged with these multilateral organizations means less information, less coordination, and a weaker ability to protect Americans and others around the world. In addition, leadership from, and collaboration with, WHO, is critical for IHR implementation. The U.S. government–WHO bilateral memorandum of understanding on global health security was an important first step in this collaboration, but further commitment and planning are necessary to fully realize this agreement.

The Way Forward

Leaders in the U.S. government and others around the world are increasingly recognizing the importance of investing in global health security. The year 2011 marked the first time in history that the U.S. secretary of state gave opening remarks at the Biological Weapons Convention Review Conference. Secretary Hillary Clinton said, "We need public health systems that can quickly diagnose outbreaks, whatever their source, and mobilize the right medical resources and personnel. By making any one country more secure, we make the international community more secure at the same time."[23]

Global health security is a shared responsibility that requires shared implementation and assistance. There is political commitment and goodwill between diverse entities to attempt to strengthen global health security and the implementation of the IHR. What is needed now, more than ever, is to turn this political commitment to global health security into action. Despite fiscal constraints and austere times, we must commit to strengthening global health security. The stakes are too high for the United States and international partners to ignore or to postpone action. If we do, we will be woefully unable to adequately detect and respond to the inevitable disease threats, leaving Americans vulnerable.

[23] Hillary Rodham Clinton, "Remarks at the 7th Biological and Toxin Weapons Convention Review Conference," speech presented at the Palais des Nations, Geneva, Switzerland, December 7, 2011, http://www.state.gov/secretary/rm/2011/12/178409.htm.

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