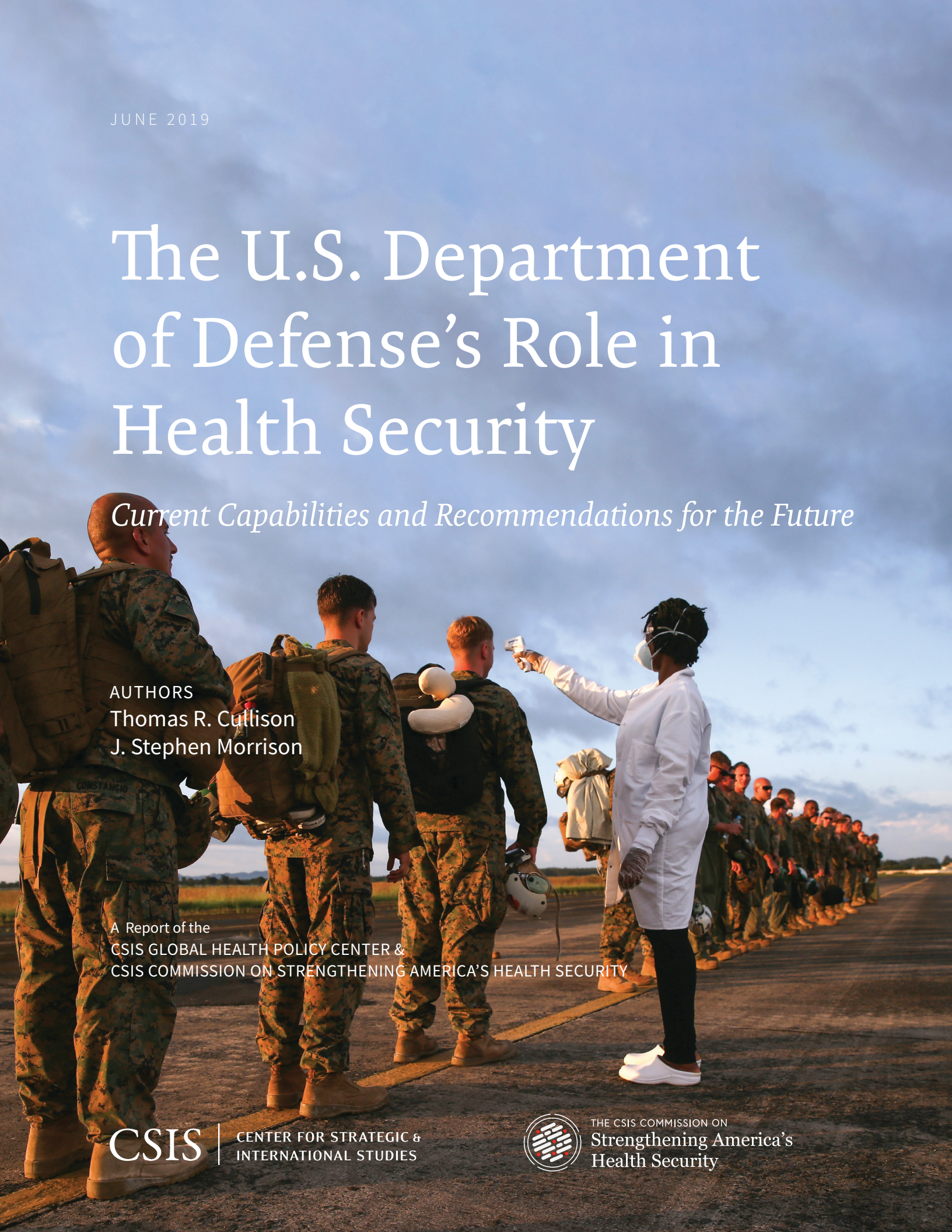
JUNE 2019

The U.S. Department of Defense's Role in Health Security

Current Capabilities and Recommendations for the Future



AUTHORS
Thomas R. Cullison
J. Stephen Morrison

A Report of the
CSIS GLOBAL HEALTH POLICY CENTER &
CSIS COMMISSION ON STRENGTHENING AMERICA'S HEALTH SECURITY

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

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Center for Strategic & International Studies
1616 Rhode Island Avenue, NW
Washington, D.C. 20036
202-887-0200 | www.csis.org

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Contents

1 | Introduction

Protecting the homeland against biological threats begins with preventing those threats from reaching our shores. Since the Cold War, Department of Defense (DOD) health security capabilities have developed largely along two separate lines: countering biological weapons of mass destruction and force health protection mostly from naturally occurring disease and environmental hazards. Significant advances have been made in both areas, often with much in common; however, organizational stovepipes have inhibited communication between the communities. The recent improvements in collaboration and integration are encouraging.

> *Protecting the homeland against biological threats begins with preventing those threats from reaching our shores.*

The DOD contributes to overall U.S. health security[1] through programs specifically aimed at countering biological threats from all sources—through public health activities coordinated with civilian counterparts at home and abroad and through research and development of medical countermeasures aimed at protecting U.S. Forces against health risks throughout the world. Additionally, military forces are available for disaster response anywhere in the world when necessary to augment civilian capabilities, as seen in the 2014–15 West African Ebola crisis.

Civilian and military scientists, public health experts, and disaster planners are somewhat familiar with DOD's health security capabilities, yet most lack a clear understanding of the breadth, depth, and limitations of DOD's capacities. Historically, within the DOD, compartmentalization of the work of countering biological weapons of mass destruction and that of military public health and clinical sectors inhibited communication between these respective communities. Fortunately, these barriers seem to be diminishing. Both

1. There is no universally accepted definition for the term "health security." It is used here in the broadest sense of assuring good health through efforts which prevent, detect, and treat diseases and other threats to assure the well-being of individuals and populations. See William Aldis, "Health security as a public health concept: a critical analysis," Health Policy and Planning 23, no. 6 (November 2008): 369-75, https://doi.org/10.1093/heapol/czn030.

communities share a focus on biological agents and diseases not generally encountered in the developed world, but which clearly threaten U.S. forces deployed throughout the globe.

A solid and consistent U.S. policy framework has steadily evolved over the past few decades that identifies health as a national security issue and calls for a broad-based, inclusive national response to addressing the issue of health security. Most recently, the National Biodefense Strategy (NBS) released in October 2018 and the subsequent implementation plan provide structure for an ongoing national deliberation coordinated by a secretarial-level steering committee providing input to the national security adviser.

Now is the time to more fully integrate DOD's unique expertise and capabilities in a more cohesive and efficient manner. This paper provides a broad overview of DOD health security activities and capabilities and also offers select concrete recommendations for strengthening the coherence and integration of DOD activities, with a special emphasis on leadership, novel diseases and new dangerous forms of resistance, surveillance, building host country capacities, and expanded exercises.

> *Now is the time to more fully integrate DOD's unique expertise and capabilities in a more cohesive and efficient manner.*

2 | Authorities and Policies Exist

Overarching U.S. national health security policies are vital if there is to be any hope of coordinating DOD capabilities within the Department, let alone developing baseline consensus and clarity for an effective national health security structure.

From the late 1990s through the early 2000s, a series of highly visible and potentially disastrous diseases threatened the globe. HIV/AIDS seemed at times out of control. SARS, recurrent pandemic influenza, and intentionally released anthrax letters following the 9/11 attacks caused a major shift in thinking to disease being considered as a threat in the 2002 National Security Strategy (NSS) and National Defense Authorization Act. From 2010 through 2017, the NSS consistently identified health issues, particularly highly contagious infectious disease, as national security issues:

> "American leadership has proven essential to bringing to bear the international community to contain recent crises while building public health capacity to prevent future ones."[2]
>
> "Biological threats to the U.S. homeland—whether as the result of deliberate attack, accident or natural outbreak—are growing and require actions to address them at their source."[3]

The 2018 National Defense Strategy (NDS) recognizes the importance of biological threats, particularly the ease with which potential enemies may use bioengineering.[4] Citing increased threats from non-state actors, the NDS makes a strong case for increased collaboration between government at all levels as well as with non-governmental and international partners. Building on the NDS, the 2018 NBS and subsequent Implementation Plan further the argument that these threats are ubiquitous, requiring "a collaborative, multi-sectoral, and trans-disciplinary approach to the national biodefense enterprise . . . to counter biological threats effectively and efficiently."[5] The NBS creates a secretarial-level federal interagency steering committee, chaired by the secretary of health and human services, to coordinate input from the secretaries of state, defense,

2. The White House, *National Security Strategy: February 2015* (Washington, D.C.: The White House, 2015): 27.
3. The White House, *National Security Strategy of the United States of America: December 2017* (Washington, D.C.: The White House, 2017): 9.
4. U.S. Department of Defense, *2018 National Defense Strategy* (Washington, D.C.: U.S. Department of Defense, 2018): 3.
5. The White House, *National Biodefense Strategy 2018* (Washington, D.C.: The White House, 2018): 3.

homeland security and agriculture, and the attorney general for delivery to the national security adviser. Lower level interagency working groups are beginning to meet regularly in support. Within DOD, the formation of the Biodefense Unity of Effort Council, with broad representation from the countering weapons of mass destruction (CWMD) office and public health communities, is a major step to "cross the divide between the medical and non-medical (bio)defense."[6]

The challenge ahead is to translate these policies and planning advances into concrete actions.

6. Daniel Gerstein, "Statement to Blue Ribbon on Biodefense Military Panel," February 9, 2019.

3 | Senior Leadership Is a Necessity

"(T)he ability to prevent, quickly detect and contain outbreaks with pandemic potential has never been so important."

— Barack Obama, 2010

"Biological threats to the U.S. homeland . . . are growing and require actions to address them at their source."

— Donald Trump, 2017

Active senior leadership support is essential if DOD health security efforts are to be effective. Considering the impact of health risks throughout the range of military operations, from shaping and deterrence through combat operations to stabilization, they should receive attention equal to any other obstacle to mission success. Military units must maintain the ability to perform in hostile environments that are contaminated or carry a high risk of infection. In a permissive environment, lessening the burden of infectious disease in a developing country is invaluable for stabilization and cultivation as a long-term U.S. partner.

> *Active senior leadership support is essential if DOD health security efforts are to be effective.*

Realization of these capabilities requires clear support and guidance from senior leadership. The Chairman of the Joint Chiefs of Staff (CJCS), the global integrator of the joint force, is charged with effectively preparing for changing security environments in an increasingly interconnected world. The JCS Chairman, General Joe Dunford, recently stated that he views this responsibility as "making sure that your global posture is aligned against strategic priorities."[7] This includes the broad spectrum of overseas U.S. military participation in health and other issues through foreign humanitarian assistance (FHA) programs, ranging from "steady state Geographic Combatant Command (GCC) security cooperation programs to conducting limited contingency operations in support of another

7. Jim Garamone, "Global Integration Seeks to Buy Leaders Decision Time, Increase 'Speed of Relevance,'" DOD News, https://www.jcs.mil/Media/News/News-Display/Article/1565627/global-integration-seeks-to-buy-leaders-decision-time-increasespeed-of-relevan/.

United States Government (USG) department or agency [including] foreign disaster relief or other activities that directly address a humanitarian need."[8]

8. Joint Chiefs of Staff, *JP 3-29: Foreign Humanitarian Assistance* (Washington, D.C.: Joint Chiefs of Staff, 2014): ix.

4 | DOD Health Security Activities

Natural, Accidental, and Intentional Threats

It makes sense to merge public health, clinical, and biosecurity approaches to common purposes. Recently, similarities have been emphasized over differences in these two cultures, including disease surveillance, scientific and applied research, medical countermeasure development, and international partner capacity building.

Naturally occurring illnesses and intentionally released biological agents are often considered separately as diseases and bioweapons. From a forensic standpoint, this is appropriate. However, in the early phase of an outbreak, either will likely cause an unexpectedly large number of patients presenting for care with similar symptoms. The initial diagnosis will likely be made when an astute clinician sends a specimen for laboratory analysis or an alert public health practitioner notices a spike of diarrheal disease or an increase in respiratory illness. At that point, appropriate actions can be taken to determine whether it is due to a naturally occurring, highly infectious organism, or even a terrorist weapon intended to immobilize society through fear.

DOD biodefense efforts have long been hampered by a lack of synergy due to organizational structure. DOD biosafety, biosecurity, and biodefense efforts evolved from activities involving two largely separate communities: one from a background of countering weapons of mass destruction (CWMD) and the other from the world of public health, agriculture, industrial hygiene, and clinical and preventive medicine.[9]

Biosecurity responsibilities fall within the purview of numerous DOD components whose authorities align only at the level of the secretary of defense.

Four undersecretaries of defense, the Defense Health Agency Director, Secretaries of the Army, Navy, and Air Force, GCCs, and Special Operations Command[10] (USSOCM) are all responsible for part of the DOD health security effort. Operationally, each GCC faces unique, yet interrelated, challenges within their area of operations (AOR).

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9. Although "biosafety," "biosecurity," and "biodefense" carry specific narrow technical definitions, particularly in the context of preventing proliferation, the term "biosecurity" is generally used in this paper in the broadest sense—"the set of measures taken to limit or counter the threat of sudden widespread disease or biological contamination." See American Heritage Dictionary of Medicine, 2018.
10. Andrew Feickert, *Special Operations Forces (SOF): Background and Issues for Congress* (Washington, D.C.: Congressional Research Service, 2018).

Figure 1: DOD Organizations Involved in Biosecurity

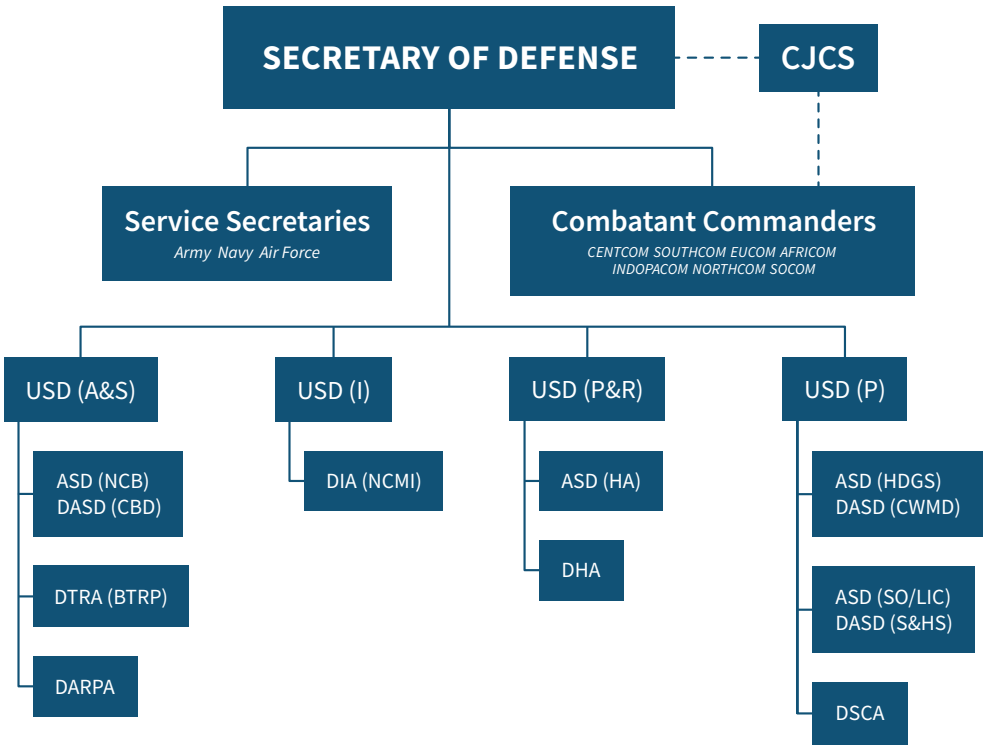

Figure 1: DOD Organizations involved in Biosecurity (for abbreviations see appendix)

Overall DOD input to national security and defense policy emanates from the Undersecretary of Defense for Policy [USD(P)] organization. The ASD (HDGS) guides issues around weapons of mass destruction and defense support to civil authorities supported by the DASD (CWMD), who oversees, among other things, implementation of policies countering biological threats. Under the USD(P) is the ASD (SO/LIC) that is responsible for special operations and stability operations activities, including USSOCOM's countering WMD mission. The ASD (SO/LIC) is charged to "maximize utility of existing programs, personnel and organizations to improve stability operations effectiveness and improve integration of civilian and military stability operations efforts within DOD and in conjunction with other USG agencies, allies, and private sector partners."[11] Funding for disaster response and other stabilization efforts, through the Defense Security Cooperation Agency (DSCA), is overseen by ASD (HDGS).

Execution of biodefense policies is mostly carried out by entities under the USD (A&S) for activities historically responsible for CWMD-related issues, and by USD (P&R), through the ASD (HA), for public health, industrial hygiene, and food safety matters in a manner similar to civilian health departments and infectious disease research.

11. "Deputy Assistant Secretary of Defense for Stability and Humanitarian Affairs," Under Secretary of Defense for Policy, https://policy.defense.gov/OUSDP-Offices/ASD-for-Special-Operations-Low-Intensity-Conflict/Stability-and-Humanitarian-Affairs/.

THE RELATIONSHIP BETWEEN COMBATING WEAPONS OF MASS DESTRUCTION AND HEALTH SECURITY

Biological agents have been used in one form or another for centuries. During the Cold War, many nations, including the United States and the Soviet Union, developed offensive biological weapons programs. The United States unilaterally halted its offensive program in 1969. With the signing and ratification of the Biological and Toxic Weapons Convention[12] in 1975, most other nations stopped developing biological weapons as well. With the breakup of the Soviet Union came worries that Soviet weapons of mass destruction, including biological weapons, would fall into the hands of nations not friendly to the West and to terrorist organizations. The Nunn-Lugar Cooperative Threat Reduction (CTR) Program developed processes to contain or destroy many of these weapons beginning in 1991. The Defense Threat Reduction Agency (DTRA), established in 1998, includes the CTR Program within its mandate to protect the United States against the threat of nuclear, chemical, and biological weapons.

Concerns arose that both the weapons themselves and the scientists and engineers capable of their creation would be employed by potential enemies. The CTR Program tasks experts from the United States and other nations to work with their former Soviet Union counterparts through the Nunn-Lugar Biological Threat Reduction Program, later the Cooperative Biological Engagement Program (CBEP), "to dismantle this massive biological WMD research, development and production infrastructure."[13] Initially, DTRA personnel engaged with their counterparts throughout Russia and other former Soviet Union nations,[14] focusing on containment of existing stocks and prevention of further production. As CBEP evolved, the focus moved toward collaborative engagement with scientific exchanges and the creation of biological research facilities, such as the Richard Lugar Center for Public Health Research in Tbilisi, Georgia,[15] to rapidly and safely detect and identify deadly agents in order to limit their spread. Although intended to advance the host nation's biosurveillance, biosafety, biosecurity capabilities for peaceful purposes, some still question whether these facilities are built for nefarious purposes.[16]

Recently CBEP was renamed the Biological Threat Reduction Program (BTRP), with current efforts focused beyond bioweapons issues to contributions against the threat of intentional, accident and naturally occurring biological threats through the world through cooperative efforts to:

- "Consolidate and secure dangerous pathogen collections into central reference labs or repositories;

12. The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological, (Biological) and Toxin Weapons and on their Destruction—usually referred to as the Biological Weapons Convention (BWC) or the Biological and Toxin Weapons Convention (BTWC)—entered into force on March 26, 1975. To date, 182 nations are parties to this treaty.
13. "Cooperative Biological Engagement Program," Defense Threat Reduction Agency, http://www.dtra.mil/Missions/Partnering/CTR-Biological-Threat-Reduction/.
14. Ken Alibek and Stephen Handelman, *Biohazard: The Chilling True Story of the Largest Covert Biological Weapons Program in the World—Told from Inside by the Man Who Ran It* (New York: Dell, 1999), 293.
15. "DTRA Cooperation with Georgia (October 20)," U.S. Embassy in Georgia, October 20, 2016, https://ge.usembassy.gov/dtra-cooperation-georgia-lugar/.
16. Dilyana Gaytandzhieva, "The Pentagon Bio-weapons," Dilyana.bg, April 29, 2018, https://dilyana.bg/the-pentagon-bio-weapons/.

- Improve the safety and security of biological facilities;
- Enhance partner states' capabilities to detect, diagnose, and report bio-terror attacks, accidental release, and potential pandemics;
- Engage scientists with biological weapon-related expertise in research that supports force protection, medical countermeasures, diagnostics, and modeling."[17]

Currently, BTRP works closely with regional geographic combatant commanders (GCCs) to support activities in Asia, Africa, the Middle East, and Europe. These efforts have become increasingly coordinated with activities of other programs and organizations aligning with international frameworks such as the International Health Regulations (IHR) and Global Health Security Agenda (GHSA), further described below. BTRP developed training, scientific research, and development programs strengthening partner nation civilian, military and animal health system capacities against especially dangerous pathogens[18,19] including many diseases that have received little or no attention for economic or other reasons. For example, long before the West Africa Ebola outbreak, DTRA supported combined efforts of the U.S. Army Research Institute of Infectious Diseases (USAMRIID) and industry partners to develop diagnostics for Ebola and other hemorrhagic fevers.[20]

BTRP currently collaborates with other DOD organizations, U.S. agencies, non-governmental organizations, and international partners in both cooperative biological research and partner nation capacity building, applying capabilities primarily focused on countries with bioweapons programs into mainstream national preparedness against the most potentially devastating biological threats no matter what the source.

THE ROLE OF DOD IN PUBLIC HEALTH AND INFECTIOUS DISEASE

Historically, more military casualties result from disease than munitions. It follows that investments in efforts to prevent debilitating illness are justified from both force preservation and humanitarian viewpoints. Protecting the United States and allied forces against emerging infectious disease resulted in extensive disease surveillance and research programs beneficial to both the military and the general public.[21]

> *Historically, more military casualties result from disease than munitions.*

DOD operates a worldwide public health, infectious disease research, and disease surveillance network. Presidential Decision Directive NSCT-7 highlighted the inadequacy of national and international infectious disease surveillance, prevention and response

17. "Cooperative Biological Engagement Program," DTRA.
18. "Select Agents and Toxins List," Federal Select Agent Program, https://www.selectagents.gov/selectagentsandtoxinslist.html.
19. Especially dangerous pathogens include agents on the select agents and toxins list as well as pathogens of pandemic potential and emerging and reemerging infectious diseases.
20. James Pettit et al., "Therapeutic Intervention of Ebola Virus Infection in Rhesus Macaques with the MB-003 Monoclonal Antibody Cocktail," *Science Translational Medicine* 5, no. 199 (August 2013): 199ra113. http://stm.sciencemag.org/content/5/199/199ra113.
21. Institute of Medicine, *Perspectives on the Department of Defense Global Emerging Infections Surveillance and Response System: A Program Review* (Washington, D.C.: The National Academies Press, 2001), https://doi.org/10.17226/10203.

capabilities, and directed DOD to expand its mission "to include support of global surveillance, training, research and response to emerging infectious disease threats." It directed, "DOD will strengthen its global disease reduction efforts through: centralized coordination, improved preventive health programs and epidemiological capabilities, and enhanced involvement with military treatment facilities and United States and overseas laboratories."[22] Since its establishment in 1997, the U.S. military Global Emerging Infections Surveillance System (GEIS) has worked closely with DOD overseas and domestic infectious disease research laboratories,[23] the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and others. GEIS is currently part of the Armed Forces Health Surveillance Branch (AFHSB) which acts as the central epidemiological resource for U.S. Armed Forces, providing current open source information on infectious disease threats throughout the world.

The Military Infectious Diseases Research Program (MIDRP) manages research on naturally occurring infectious diseases, focusing on the development of vaccines and drugs, diagnostics, and vector control on illnesses most likely to impact military operations. MIDRP supports basic science, preclinical studies, and clinical trials leading to Federal Drug Administration (FDA) approval. Most of this work is carried out at DOD laboratories located in Maryland—the Walter Reed Army Institute of Research (WRAIR), U.S. Navy Medical Research Center (NMRC), and USAMRIID—as well as the overseas DOD laboratories. Critical to these efforts are collaborations with academic and governmental organizations for critical research that is not always available at military laboratories. Most product development is done in collaboration with industry partners through cooperative research and development agreements (CRADAs).

U.S. military medicine has a long history of landmark successes against tropical diseases affecting troops from temperate zones operating in tropical environments. Examples include the efforts against yellow fever, which were led by U.S. Army Majors Walter Reed and William Gorgas during the Spanish American War, and the extensive epidemiological studies during the 1918 worldwide influenza epidemic. U.S. military successes in malaria control and eradication resulted in most of the effective pharmaceutical treatments to date, including the most advanced malaria vaccine candidate.[24] Work supported by MIDRP and other military sources is closely aligned and leveraged against other programs, for example with HIV vaccine development efforts. An annual review of MIDRP research grants ensures that efforts align with U.S. national interests, target diseases of particular concern to military operations, and focus on areas not emphasized by the work of other institutions.

INTERNATIONAL HEALTH REGULATIONS, THE GLOBAL HEALTH SECURITY AGENDA, AND THE DOD

The International Health Regulations (IHR) 2005 is an international legal agreement, which went into force in 2007 and is intended to prevent and respond to serious public health risks that could necessitate an international response. The regulations mandate

22. "PDD/NSCT-7 Emerging Infectious Diseases," The White House, June 12, 1996.
23. See James B. Peake, J. Stephen Morrison, Michèle M. Ledgerwood, and Seth E. Gannon, T*he Defense Department's Enduring Contributions to Global Health—The Future of the U.S. Army and Navy Overseas Medical Research Laboratories* (Washington, D.C.: CSIS, 2011).
24. See Mark Fukuda and Tom Cullison, *U.S. Department of Defense Contributions to Malaria Elimination in the Era of Artemisinin Resistance*, (Washington, D.C.: CSIS, 2014).

that signatory nations must report a public health emergency of international concern (PHEIC), defined as an "extraordinary event which is determined to constitute a public health risk to other States the spread of disease and to potentially require a coordinated international response."[25] Although technically legally binding on the 196 signatory nations, no enforcement mechanism exists beyond peer pressure.

A 2012 review of the IHR found that 85 percent of the world's nations were far behind in meeting IHR standards of disease surveillance, diagnosis, and reporting, particularly with PHEIC. To address this situation, the Global Health Security Agenda (GHSA) was launched in February 2014 as a U.S.-led international alliance to put in place national action plans and capabilities assisting all countries to comply with IHR requirements. The GHSA provides a framework to meet the vision of a "world safe and secure from global health threats posed by infectious diseases—where we can prevent or mitigate the impact of naturally occurring outbreaks and accidental or intentional releases of dangerous pathogens, rapidly detect and transparently report outbreaks when they occur, and employ an interconnected global network that can respond effectively to limit the spread of infectious disease outbreaks. . . ."[26]

Although most U.S. involvement with both IHR and GHSA is coordinated through the Department of Health and Human Services, DOD biosecurity activities can align with the framework these international agreements provide—both force health protection activities for U.S. forces and those assisting other nations to improve their biosurveillance, biosecurity, and biosafety processes in all three GHSA domains: Prevent, Detect and Respond (see Appendix A).

25. "International Health Regulations (HR)," World Health Organization, https://www.who.int/topics/international_health_regulations/en/.
26. "About," Global Health Security Agenda, https://www.ghsagenda.org/about.

5 | DOD Health Security Today

"Referring to (interagency) activities as a federal biodefense enterprise suggests a coordinated interagency endeavor unified in achieving common goals, but this is not the reality that exists currently."[27]

DOD involvement in major health events occurs infrequently (although seemingly more often than new armed conflicts). Such situations invariably arise on short notice, often in the context of a complex security situation. The frequency of command rotations seldom allows for individual senior military line leaders to develop deep experience in health security. Although ongoing agreements and policies are present, each event requires adaptation to a unique situation complicated by issues around politics, command and control, organizational culture differences, and availability of military assets. The importance of realistic, effective exercises to prepare for such unique stressful situations cannot be overstated.

Intradepartmental and Interagency Exercises

Synergy among DOD biosecurity efforts is advancing but still has room for improvement. At the activity level and below, active collaboration between laboratories, scientists, and operational forces has occurred for years.

Strategically, focusing attention upon health as a national security concern through the NSS, NDS, NBS, and other inclusive policy documents encourages communication among formerly cloistered communities. From an interagency perspective, the NBS Implementation Plan establishes a roadmap for coordination among the numerous organizations involved in health security activities. It remains to be seen how effective the NBS-directed Interagency Steering Committee and subordinate groups will be in bringing together disparate clans under a common banner. This process can be tested and facilitated through exercises at all levels:

- Realistic interagency exercises will identify the limits and shortcomings of DOD capabilities.
- Humanitarian assistance and disaster response exercises will reveal the dynamic, multidimensional challenges of these situations.

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27. Blue Ribbon Study Panel on Biodefense, *Budget Reform for Biodefense: Integrated Budget Needed to Increase Return on Investment* (Washington, D.C.: Blue Ribbon Study Panel on Biodefense, 2018), 1.

- Realistic exercises that center on the transition from international to domestic response can reveal the imperative for early, forward planning.

FIND COMMON GROUND

DOD organizations are routinely involved in disaster response, humanitarian assistance, global health engagement, capacity-building exercises, subject matter expert exchanges, and numerous other activities within the Department, across the U.S. interagency, and in concert with international partners. One way to remove the seeming mystery from biodefense is to consider it not as a unique threat but rather like any other issue to which DOD responds with deliberate planning within the Department and with its partners—supported by research, acquisition, and sustainment organized to provide the necessary knowledge, material, and training.

At least a cursory understanding of the military deliberate planning process[28] is helpful in understanding DOD international biodefense preparation. This process is foreign to most health professionals and seemingly very detailed and cumbersome, complete with confusing lexicon and innumerable acronyms. Nonetheless, it provides a comprehensive method of analyzing and developing useful approaches to seemingly complex issues. Just as important, it represents how senior military officials, most notably GCCs and their staffs, think and operate (see Appendix B).

ALL HAZARDS DISASTER PLANNING—PANDEMIC DISEASE

Pandemic influenza has been used as a model for whole of government response to all-hazards disaster management capacity building. To a large degree, this is what happens today; however, room for improvement remains in advancing collaboration among the various DOD entities dealing with this issue.

The DOD Implementation Plan for Pandemic Influenza reads, "The Secretary of Defense's principal responsibility in responding to a pandemic will be to protect U.S. interests at home and abroad."[29] Utilization of military forces in a health crisis makes those assets unavailable for other missions, both for the duration of the event itself and possibly longer should individuals become infected with the disease. Identifying health security as a specified mission with specific requirements will allow appropriate prioritization across the range of military operations, stable funding, adequate training, and visibility hitherto not devoted to these threats (see Appendix C).

Partner Nation Capacity Building—Global Health Engagement

Hitherto DOD international health engagement activities intended to increase U.S. health security by improving other nations' health and biosecurity capacities operated in isolated pockets of excellent but narrowly focused and relatively isolated centers. This work was often neither aligned with other DOD programs nor with development work supported by USAID, other national development agencies, and civil society organizations.

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28. Joint Chiefs of Staff, *Joint Publication 5-0: Joint Planning* (Washington, D.C.: Joint Chiefs of Staff, 2017).
29. U.S. Department of Defense, *Department of Defense Implementation Plan for Pandemic Influenza*, (Washington, D.C.: U.S. Department of Defense, 2006), 52.

Fortunately, this is changing. Aligning GHSA action packages[30] with cyclical planning models creates a common framework in which to align efforts of the various DOD entities with international efforts against biological risks. For example:

- GHSA Action Package Prevent-3 "Biosafety and Biosecurity" aims for "a whole of government national biosafety and biosecurity system in place, ensuring that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices . . . reduce dual use risks, mitigate biological proliferation and deliberate use threats, and ensure . . . country-specific biosafety and biosecurity legislation laboratory licensing and pathogen control measures are in place. . . ."[31] This matches well with disaster "prevent and prepare" phases as well as military "shape and deter." BTRP biosafety and biosecurity efforts aligned with Army and Navy overseas infectious disease laboratory activities combine to improve host nation health security capabilities.
- GHSA action package Detect 2&3 "Real-Time Surveillance" has gained long-term support from GEIS and other DOD contributions for disease reporting as well as developments from DTRA-supported products such as the Biosurveillance Ecosystem (BSVE), an open source, unclassified cloud-based early warning system.[32]

30. "GHSA 2024 Materials," Global Health Security Agenda, https://www.ghsagenda.org/ghsa2024.
31. "Biosafety and Biosecurity Action Package," Global Health Security Agenda, https://www.ghsagenda.org/packages/p3-biosafety-biosecurity.
32. Cheryl Pellerin, "DTRA Scientists Develop Cloud-Based Biosurveillance Ecosystem," DOD News, February 29, 2016, https://dod.defense.gov/News/Article/Article/681832/dtra-scientists-develop-cloud-based-biosurveillance-ecosystem/.

6 | Conclusion and Recommendations

The urgency is short-lived. Realities of naturally occurring fulminant epidemics, such as Ebola; intentional release, as seen with the 9/11 anthrax attacks; and the continuing threat of partially controlled lethal diseases, like HIV, reveal the need to do better.

We are encouraged by recent efforts to align national biosecurity efforts. To support and continue this progress, we make the following observations and recommendations:

1. It is critical that national leadership understand and embrace health security as a DOD mission priority. Although recent strategy statements clearly support this concept, biological threats are often not highly prioritized when considered with the multitude of other pressing security concerns.

    This can be achieved through leadership development programs, across both military and civilian careers, that specifically and consistently address biological threats as a national security issue. This could begin in early training courses and continue through Service War Colleges and General and Flag Officer courses.

    Health security should be treated as a DOD Global Force Management capability woven into Service deployment programs in support of Geographic Combatant Commander requirements.

2. It is critical that DOD biological research and development programs be systematically sustained and strengthened. They focus on diseases not studied in other venues, resulting in medical countermeasures that would otherwise be delayed or not developed at all. Widely available vaccines, pharmaceutical products, rapid diagnostic capabilities, and personal protective equipment produced initially for military purposes have resulted from this research.

    In practice, that means that there should be predictable and sustained support of military infectious disease research laboratories and similar work funded with DOD resources on countermeasures against especially virulent diseases.

    Important in this regard, the Biological Threat Reduction Program authorities should be expanded to increase flexibility in detection

and countering proliferation of novel highly communicable emerging diseases which pose serious international threats, such as multidrug-resistant tuberculosis and artemisinin-resistant malaria. This will complement, not displace, other efforts.

3. The worldwide network of DOD disease surveillance activities should be placed explicitly at the center of DOD's health security capabilities. That network plays a prominent and essential role in force health protection by identifying biological threats, particularly in areas in which U.S. forces may be active. This information is freely shared with host nation health organizations and international bodies such as the World Health Organization.

   To achieve this goal will require sustained funding commensurate with the contributions DOD assets provide to U.S. and global health security. Specifically, this includes military overseas infectious research laboratories, the Armed Forces Health Surveillance Branch, Global Emerging Infections Surveillance System, the National Center for Medical Intelligence, and Biological Threat Reduction Program work in support of host nation disease surveillance capabilities.

   A priority focus should be on furthering expanded collaboration between DOD, Centers for Disease Control and Prevention, Department of State, and USAID overseas activities.

4. The Global Health Security Agenda provides a comprehensive framework for international health security which could be used to align all U.S. government engagement, development, and diplomatic efforts in the health security domain intended to strengthen partner nations' health systems, thereby protecting the United States by preventing or mitigating disease transmission to our shores.

   DOD engagement has proven very successful to both military and civilian capabilities overseas through the Biological Threat Reduction Program, Army and Navy overseas infectious disease research laboratories, and DOD global health engagement programs executed through GCC theater campaign plans.

   These efforts could be more effective if they more closely aligned with USAID, CDC, and State Department programs designed to strengthen partner nations' health systems and if they are more closely affiliated with international frameworks, such as the Global Health Security Agenda.

   Multiyear funding for global health engagement efforts within Geographic Combatant Commanders' security cooperation programs will improve effectiveness by providing continuity for health system strengthening programs which require years to fully mature.

5. A priority should be the expanded use of exercise and the development of new scenarios. The role of military forces in disaster response domestically is clearly delineated in law. Internationally, the involvement of foreign military and civil

defense forces is guided by international agreements.[33] In spite of this, military capabilities and limitations are not always well understood by planners and those who respond to natural disasters, including widespread pandemic disease. This can be improved by:

- Developing broad-based domestic whole of society disaster scenarios at all levels—national to local—involving the international spread of a highly infectious disease involving the U.S. homeland.
- DOD senior leadership participation in such exercises.
- Realistic insertion of DOD capabilities, limitations, and requirements into whole of society exercise scenarios.
- Exercising mechanisms allowing DOD participation in health security scenarios to minimize time to effective involvement.
- Inclusion of biological events in Geographic Combatant Commander exercise programs with realistic scenarios for disaster relief and other contingencies. Agencies represented in GCC joint interagency task forces should play significant roles in these events.

Protecting the homeland against biological threats begins overseas, in preventing those threats from reaching our shores. That rests on continued improvements in DOD's worldwide capacities in disease surveillance, diagnosis, and response that remain essential to help stop outbreaks at their source and ensure sufficient time to understand what is happening and respond effectively. The DOD plays a critical, active role both in deploying a healthy U.S. military force trained and ready to support international responses to dangerous outbreaks and in cooperating in new and dynamic ways with USAID and CDC on shared health security concerns. Internally, DOD's performance and coherence in matters of health security will steadily improve as its public health and biosecurity streams converge, and as high-level leadership brings greater accountability and sustained multi-year budgets.

33. Office for the Coordination of Humanitarian Affairs, *Oslo Guidelines: Guidelines on The Use of Foreign Military and Civil Defence Assets In Disaster Relief* (Geneva: United Nations, 2007), https://docs.unocha.org/sites/dms/Documents/Oslo Guidelines ENGLISH (November 2007).pdf.

Appendix A

DOD Activities in Support of the International Health Regulations and the Global Health Security Agenda

DOD Activities—Prevent and Detect

"The Secretary of Defense's principal responsibility in responding to a pandemic will be to protect U. S. interests at home and abroad."

— National Pandemic Influenza Implementation Plan, 2006

Integration of DOD assets with other USG, state, and local capabilities at home is transparent to most. A large part of DOD health security activities occurs every day as routine physical examinations, disease surveillance, vaccination programs, and ongoing health intelligence processes aligned with state and local health departments and national health organizations, particularly CDC.

Each day innumerable prevention and detection activities take place at home and abroad with little fanfare. BTRP sponsored development projects support host nation biosurveillance, diagnostic, and epidemiologic capabilities through construction, education, and training. The ability to identify disease overseas protects the United States by increased early warning capabilities. Routine epidemiological surveillance carried out by GEIS, DOD overseas laboratories, and other military public health organizations contributes to regular disease reports such as the CDC Morbidity and Mortality Weekly Report (MMWR), the CDC Weekly U.S. Surveillance Report, and the World Health Organization (WHO) disease reporting systems.

Military laboratories contribute to medical countermeasure development, including vaccines development in conjunction with industry partners.

The Defense HIV/AIDS Prevention Program (DHAPP), working in tandem with the President's Emergency Plan for AIDS Relief (PEPFAR), carries out activities around the world to diminish the AIDS threat to host nation militaries.

GCC global health engagement activities include health system strengthening projects intended to improve host nation defenses against pandemic disease.

DOD Activities—Response

DOMESTIC

Any DOD response to a domestic emergency, including a major health security event, follows the process of defense support of civil authorities.[34] In such cases, military forces are requested by another federal agency, the Federal Emergency Management Agency (FEMA) for example, that state what capability is required. DOD assets remain under the military chain of command through NORTHCOM. National Guard forces—separately deployed on the authority of a state Governor—are closely coordinated with military forces but remain under the Governor's control.

Within the United States, response to a major health security event follow National Strategies for Pandemic Influenza and the accompanying Implementation Plans. The DOD global coordinator for pandemic influenza, USNORTHCOM, has developed detailed plans for coordination with other governmental departments and agencies.

Some examples:

- The 1918 influenza epidemic that killed millions throughout the world and greatly affected U.S. military mission capability by decimating young adults concentrated in military barracks throughout the country.
- The 2001 Anthrax letters that killed 5 and infected 17 yet overwhelmed public health laboratories analyzing white powder of all kinds. U.S. military laboratories across the nation supplemented state facilities overwhelmed with suspicious white powder specimens. (Much of today's biological warfare countermeasure programs were spurred by the response to this attack.)
- The 2009 H1N1 influenza pandemic that infected approximately 59 million Americans, hospitalizing 265,000 and resulting in 12,000 deaths. The first laboratory-confirmed case, made by the Naval Health Research Center, was a child treated by a U.S. Navy clinic in Southern California.

INTERNATIONAL

"Foreign military and civil defense organizations are the response of last resort to a crisis, becoming involved only when capabilities of the affected country and international civilian responders are overwhelmed."

— UN Oslo Guidelines, 2007

The U.S. military usually becomes involved in foreign disasters when catastrophic events overwhelm all other relief efforts—at a point when conditions are the most tenuous—in support of the USAID Office of Foreign Disaster Assistance (OFDA) at the request of the affected nation through the U.S. Embassy. Inserting military organizations with large amounts of materiel and cultural differences with the host nation and international relief workers can be somewhat jarring. As in the 2014 Ebola outbreak or the 2010 Haiti earthquake, dedicated responders often experience a flurry of organizational entropy that gradually evolves into a more normal routine.

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34. "Department of Defense Directive 3025.18: Defense Support of Civil Authorities" U.S. Department of Defense, December 29, 2010, https://www.dco.uscg.mil/Portals/9/CG-5R/nsarc/DoDD%203025.18%20Defense%20Support%20of%20Civil%20Authorities.pdf.

An example:

- The 2014-15 West African Ebola outbreak caused a reported 11,325 deaths with a case fatality rate of over 60 percent. As the disease appeared on the brink of decimating urban areas, Liberian President Sirleaf's request for additional U.S. assistance resulted in the airlift of 2,800 troops, the first ever overseas deployment of U. S. military personnel to combat an infectious disease outbreak, providing both a logistical and strategic psychological boost.

Appendix B

Military Deliberate Planning and Disaster Planning

Desired end states are determined from strategic direction beginning with the NSS. Steps are then taken to determine the ways (how) and means (capabilities) to achieve these objectives (ends).

Phases of military operations progress from a stable status quo in which national interests are furthered through peaceful processes with potential adversaries' probes are countered largely through collaboration and capacity building [Phases 0 (Shape) and I (Deter)]. As events deteriorate, more aggressive actions are employed [Phase II (Seize Initiative)] leading to combat [Phase III (Dominate)] if necessary. Following successful military action stabilization activities (Phase IV) leads to the organized return of civil authority (Phase V).

A similar process, with a different lexicon, is familiar to those involved in disaster planning for naturally occurring catastrophic events.

Figure 2: Disaster Risk Reduction Cycle/Military Operational Phases.

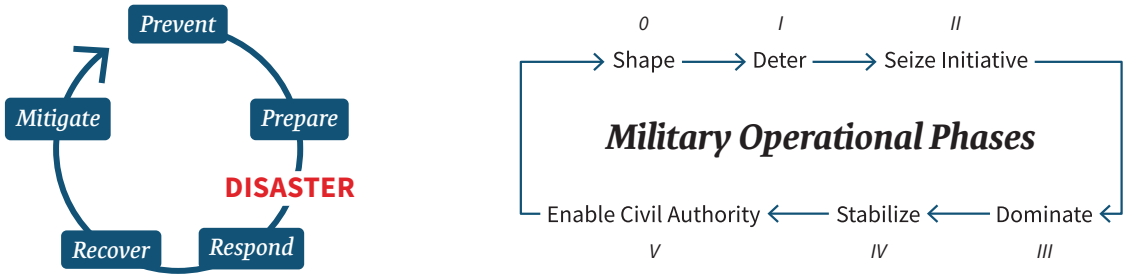

Figure 2: Disaster risk reduction cycle/military operational phases

Appendix C

Pandemic Influenza as a Model—DOD Disaster Preparation at Home and Abroad

U.S. military preparations for dealing with influenza pandemics provide a model applicable to most other highly contagious diseases.

Worldwide influenza epidemics—pandemics—occur regularly, often beginning as a zoonotic disease spreading to humans in a relatively confined geographic location, followed by rapid dissemination throughout the globe with devastating human suffering and significant economic impact. The most dramatic example is the H1N1 "Spanish Influenza" epidemic of 1918, which killed millions throughout the world. Since then, the world has experienced several other less lethal pandemics, notably in 1957-8 (Asian Flu), 1968 (Hong Kong Flu), 1977-78 (Russian Flu), and 2009-10 (Swine Flu). Fear of a novel influenza virus, potentially one which has been intentionally bioengineered to increased lethality, created urgency to develop effective countermeasures to limit the impact of the disease as well as identify the source and determine whether it is naturally occurring or has been manipulated by man.

Questions facing the military are how to maintain operational capability and, if necessary, how to operate in a biologically contaminated environment. What increased logistical and support requirements would be needed to treat and potentially transport infected troops? How would widespread disease within a population affect the ability to perform military operations? Can and should U.S. military forces support the host nation and international efforts against disease in an area of ongoing military operations? How will the disease affect political and economic stability and how does that affect military goals and tactics? Finally, how and when does the U.S. military participate in health security issues at home?

In the mid-2000s, several USG efforts focused on pandemic influenza as a health threat to the United States. The Homeland Security Council (HSC) developed the National Strategy for Pandemic Influenza (2005), which aligns federal, state, and local entities to develop and exercise mechanisms to address the threat within and beyond our borders. The accompanying National Strategy for Pandemic Influenza Implementation Plan, released by the HSC in 2006, delineates responsibilities for various government entities, including DOD, both at home and abroad. The strategy clearly states the "overriding responsibility

for DOD overseas" is to "protect operational effectiveness of our forces throughout the globe."[35] DOD is tasked: "In conjunction with DOS (Department of State) and HHS (Health and Human Services), [DOD] will utilize its existing research centers to strengthen recipient nation capability for surveillance, early detection, and rapid response to animal and human avian influenza.[36]

The DOD Implementation Plan for Pandemic Influenza, published in 2006, provides guidance for the Services and GCCs. United States Northern Command (USNORTHCOM), assigned as the DOD pandemic influenza synchronizing organization, developed a concept plan[37] aligning DOD with other USG agencies in support of the National Strategy.

35. Homeland Security Council, *National Strategy for Pandemic Influenza Implementation Plan* (Washington, D.C: Homeland Security Council, 2006).
36. U.S. Department of Defense, *Department of Defense Implementation Plan for Pandemic Influenza*, 52.
37. USNORTHCOM, *CONPLAN 3551-09* (Colorado Springs, CO: USNORTHCOM, 2009).

Abbreviations and Acronyms

ASD(HA)	Assistant Secretary of Defense for Health Affairs
ASD(HDGS)	Assistant Secretary of Defense for Homeland Defense and Global Security
ASD(NCBD)	Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense
ASD(SO/LIC)	Assistant Secretary of Defense for Special Operations and Low Intensity Conflict
AFRICOM	United States Africa Command
BTRP	Biological Threat Reduction Program
CBEP	Cooperative Biological Engagement Program
CENTCOM	United States Central Command
CJCS	Chairman of the Joint Chiefs of Staff
CTR	Cooperative Threat Reduction Program
DASD(CBD)	Deputy Assistant Secretary of Defense for Chemical and Biological Defense
DASD(CWMD)	Deputy Secretary of Defense for Countering Weapons of Mass Destruction
DARPA	Defense Advanced Research Projects Agency
DASD(S&HS)	Deputy Secretary of Defense for Strategy and Force Development
DIA	Defense Intelligence Agency
DHA	Defense Health Agency
DOD	Department of Defense
DSCA	Defense Security Cooperation Agency

DTRA	Defense Threat Reduction Agency
EUCOM	United States European Command
GHSA	Global Health Security Agenda
INDOPACOM	United States Indo-Pacific Command
JCS	Joint Chiefs of Staff
MIDRP	Military Infectious Disease Research Program
MMWR	Morbidity and Mortality Weekly Report (CDC)
NCMI	National Center for Medical Intelligence
NORTHCOM	United States Northern Command
NRMC	Naval Medical Research Center
OFDA	Office of Foreign Disaster Assistance (USAID)
PHEIC	Public Health Emergency of International Concern
SOCOM	United States Special Operations Command
USAID	United States Agency for International Development
USAMRIID	U.S. Army Medical Research Institute of Infectious Diseases
USD(A&S)	Undersecretary of Defense for Acquisition and Sustainment
USD(I)	Undersecretary of Defense for Intelligence
USD(P)	Undersecretary of Defense for Policy
USD(P&R)	Undersecretary of Defense for Personnel and Readiness
WRAIR	Walter Reed Army Institute of Research

About the Authors

Thomas R. Cullison is an adjunct fellow at CSIS currently reviewing Department of Defense contributions to U.S. health security in support of the CSIS Commission on Strengthening America's Health Security. Rear Admiral (Ret.) Thomas R. Cullison has been actively involved in health policy and international health engagement issues since retiring in 2010 following a 38-year career that culminated in service as deputy surgeon heneral of the Navy. He currently serves as senior advisor to the Uniformed Services University's Center for Global Health Engagement. Previous military leadership positions included deputy commander, Naval Medical Center Portsmouth; commanding officer, Naval Hospital Camp Lejeune; fleet surgeon, U.S. Pacific Fleet; command surgeon, U.S. Indo-Pacific Command; medical officer of the Marine Corps; commander, Naval Medical Center Portsmouth; and commander, Navy Medicine East.

J. Stephen Morrison is senior vice president at CSIS and director of its Global Health Policy Center. Dr. Morrison writes widely, has directed several high-level commissions, and is a frequent commentator on U.S. foreign policy, global health, Africa, and foreign assistance. He served in the Clinton administration, as committee staff in the House of Representatives, and taught for 12 years at the Johns Hopkins School of Advanced International Studies. He holds a Ph.D. in political science from the University of Wisconsin and is a magna cum laude graduate of Yale College.

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CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

1616 Rhode Island Avenue NW
Washington, DC 20036
202 887 0200 | **www.csis.org**