Opportunities for Enhanced Defense, Military, and Security Sector Engagement in Global Health Security
Copyright © 2021 by EcoHealth Alliance

Suggested citation:
Opportunities for Enhanced
DEFENSE, MILITARY, AND SECURITY SECTOR ENGAGEMENT IN GLOBAL HEALTH SECURITY
AUTHORS AND CONTRIBUTORS

Ellen P. Carlin
Research Fellow, EcoHealth Alliance and Assistant Research Professor, Georgetown University Center for Global Health Science and Security

Mackenzie S. Moore
Student Research Assistant, Georgetown University Center for Global Health Science and Security

Emily Shambaugh
Student Research Assistant, Georgetown University Center for Global Health Science and Security

William B. Karesh
Executive Vice President for Health and Policy, EcoHealth Alliance

ACKNOWLEDGEMENTS

We gratefully acknowledge the thoughtful comments and input provided by the dozens of experts listed in Appendix A as well as the feedback provided by anonymous reviewers. Their insights and guidance made this project possible. We also thank Mary Prescott for proofreading. Finally, we thank the Smith Richardson Foundation for its generous fiscal support.
TABLE OF CONTENTS
Abbreviations .................................................. 2
A note on definitions ........................................... 3
Executive Summary ........................................... 4
Introduction .................................................... 12
  Security, defense, and COVID-19 .......................... 14
  Securitization of public health ............................ 15
  Purpose of this evaluation ................................. 19
Chapter 1: Historical Context and the Intentional Threat ... 20
  The relevance of the intentional biological threat ..... 21
Chapter 2: The Roles of the Sectors .......................... 24
  Defense ................................................... 27
  Military .................................................. 28
  Security ............................................... 33
Chapter 3: Domestic Engagement as Foundational .......... 36
  Challenges with DMS engagement in domestic health security
  The role of the United States domestically and globally ... 39
Chapter 4: Global Engagement and Multilateralism ........ 52
  Multilateral efforts ........................................ 53
  Who’s driving global health security? ..................... 54
  Making the global health security table multisectoral ... 56
Chapter 5: The Choices Ahead ................................ 60
  Benefits of engagement ................................... 61
  Appropriate limitations to engagement .................. 64
Chapter 6: Conclusions and Roadmap ....................... 66
Appendix A: Process and Acknowledgements ............... 75
References .................................................... 77

FIGURES, TABLES, AND BOXES

Figures
Figure 1: U.S. funding for global health security FY2009-2020
Figure 2: Roadmap for optimized engagement of Defense, Military, and Security in global health security

Boxes
Box 1: Two Militaries, Two Ebolas
Box 2: Canada’s Weapons Threat Reduction Program
Box 3: The World Health Organization’s Military-Civilian Collaboration Initiative for Health Security

Tables
Table 1: Pillars and supporting functions for global health security
Table 2: Annual public threat assessments from the U.S. Office of the Director of National Intelligence that assess infectious disease as a national security threat
Table 3: The codified role of the U.S. Department of Defense in health security and global health security
Table 4: Dedicated U.S. global health security spending – key departments and agencies
OPPORTUNITIES FOR ENHANCED DEFENSE, MILITARY, AND SECURITY SECTOR ENGAGEMENT IN GLOBAL HEALTH SECURITY

ABBREVIATIONS

AFL  Armed Forces of Liberia
CBRN  chemical, biological, radiological, and nuclear
CDC  U.S. Centers for Disease Control and Prevention
BTRP  U.S. Biological Threat Reduction Program
DFID  U.K. Department for International Development
DHS  U.S. Department of Homeland Security
DMS  Defense, Military, and Security
DoD  U.S. Department of Defense
DRC  Democratic Republic of the Congo
DTRA  U.S. Defense Threat Reduction Agency
EC  European Commission
ECOWAS  Economic Community of West African States
FAO  Food and Agriculture Organization of the United Nations
FBI  U.S. Federal Bureau of Investigation
G7  Group of Seven
G8  Group of Eight
GEIS  Global Emerging Infections Surveillance
GHSA  Global Health Security Agenda
GHSI  Global Health Security Initiative
GHSS  U.S. Global Health Security Strategy
Global  Global Partnership Against the Spread of Weapons Partnership and Materials of Mass Destruction
HHS  U.S. Department of Health and Human Services
IHRS  International Health Regulations
INTERPOL  International Criminal Police Organization
JEE  Joint External Evaluation
MCM  medical countermeasure(s)
NAPHS  National Action Plan for Health Security
NDS  U.S. National Defense Strategy
NATO  North Atlantic Treaty Organization
NBS  U.S. National Biodefense Strategy
NIH  U.S. National Institutes of Health
OIE  World Organisation for Animal Health
PDD  Presidential Decision Directive
PEPFAR  U.S. President’s Emergency Plan for AIDS Relief
PMI  President’s Malaria Initiative
R&D  Research and Development
RDOIT  Rapidly Deployable Outbreak Investigation Team
USAID  U.S. Agency for International Development
US DoS  U.S. Department of State
WHO  World Health Organization
WMD  weapons of mass destruction
WTRP  Weapons Threat Reduction Program (Canada)
A NOTE ON DEFINITIONS

Many of the terms in this report lack standardized definitions, and their usage may vary from one country to another. Referencing global literature and expertise, the authors have made every effort to define terms in a way that is meaningful across countries and in intergovernmental fora. We acknowledge that some of the terminology is U.S.-centric and suggest that readers consider the definitions below as a guide.

The distinction among the terms “defense,” “military,” and “security” are not always clear-cut. “Security” often includes military and defense. The Global Health Security Agenda distinguishes “defense, security, and law enforcement” actors. The Joint External Evaluation Tool 2.0 sometimes distinguishes defense ministries from security authorities, but also describes “security authorities” as that which may include “law enforcement, border control officers, defence and/or customs enforcement.” We aim to highlight the distinctions where they are relevant to global health security. For the purpose of this document, we use the shorthand “defense, military, and security sector” or “DMS” where these sectors can reasonably be considered a unit. We generally rely on the following understanding of these sectors and their missions in order to identify distinctions where appropriate and particularly relevant in the context of global health security:

Defense sector: Defense departments or ministries and the non-governmental actors that may support them, such as private sector entities and academic researchers. The Defense sector sets policy and strategy, and implements and oversees areas like research, development, and intelligence collection.

Military sector: Organized armed or uniformed units designed for operational activity, which often exist within defense departments or ministries. Contracted support for military operations is also included in this sector. In many countries, the distinction between “defense” and “military” is negligible.

Security sector: A broad category that may include departments or ministries, such as Homeland Security, Foreign Affairs, Home Office, Internal Affairs, Customs Service, or intelligence agencies. It may also include subnational actors such as police and other law enforcement agencies, as well as private sector contractors. The security sector operates at both policy and operational levels.

We consider global health security to be the organization of epidemic and pandemic preparedness efforts and capabilities to minimize vulnerability to acute public health events that could endanger the health of populations across geographical regions and international boundaries.

Finally, we use the term biodefense in its broadest sense as those efforts to prevent or otherwise counter biological threats of any origin whether natural, accidental, or intentional.
EXECUTIVE SUMMARY
Despite years of dedicated resources, the global community remains unable to prevent the appearance of emerging infectious diseases and to reliably mount an optimal response when prevention fails. SARS-CoV-2 is the most recent in a long line of pathogens whose penetration into human populations has revealed fragilities in subnational, national, and international postures with respect to major outbreaks. The world is grappling with how to address these weaknesses in advance of the next outbreak with pandemic potential.

Identifying the role of the Defense, Military, and Security sectors (or “DMS” where these sectors can reasonably be considered a unit) in global health security is especially relevant at a time when outbreaks in fragile areas are increasing, and the capacity to deal with them—even in relatively secure regions—is stretched. There are, of course, important differences among these sectors. Some are comprised of operational units (military forces, border protection, intelligence) while others offer policy and programmatic support. There are also relevant differences within sectors which may reveal themselves from country to country, with broad variation across military capabilities, defense priorities, and other areas. Indeed, the missions of these individual sectors, and their particular roles in infectious disease, are sufficiently unique to justify dedicated treatments of each; much of this work has in fact been done, particularly regarding Defense and Military. Here we collate analyses and view the sectors collectively because, at their core, these are all security agencies in some form. DMS are security actors in the most traditional sense that are also engaged in preventing and mitigating high consequence health threats.

This evaluation offers an analysis of what global health security leadership and effort looks like as performed by nations and by international organizations, and highlights selected domestic and international activities of some countries. It describes the specific ways in which the defense, military, and security sectors are represented, and potentially under-represented, in these efforts. It identifies factors that may be driving under-representation and considers opportunities for redirecting these sectors toward successful partnerships with the Health sector and global health security groups. Finally, it issues findings, solutions, and a roadmap for optimizing the integration of global-level defense, military, and security sectors into global health security initiatives.

Key issues identified

The totality of functions required to optimize global health security surpasses the capability of any single sector to provide it. DMS is already involved in many of the core functions needed to achieve global health security. The health sector specializes in functions such as biosurveillance, healthcare surge, and case management, but is less well suited to threat identification and detection, logistics and transport, or bioweapons disposal functions. DMS offers Prevent-Detect-Respond-Recover capabilities in any number of areas, such as intelligence, early warning, medical countermeasures, reporting, remains disposition, law enforcement, and capacity-building that supports recovery.

A number of experts interviewed, while acknowledging that DMS sectors can and do perform many of these activities, cited declines in interest, funding, and engagement from some corners of DMS that could shape the future landscape. The public health sector, for example, drives the (lowercase) global health security agenda, and thus health concerns are always primary. Some noted a resistance on the part of the health sector, or at least a perceived resistance, to integrating DMS as an equal partner into global health security.
Some cited a resistance to considering whether efforts to counter deliberate misuse might be useful as part of global health security frameworks and functions, and others noted that the “S” in Global Health Security Agenda became small over time as the public health sector assumed leadership, while Defense and Military seemed almost too willing to recede to the background. This may be because those sectors were more comfortable confronting the issues they were used to addressing. The “deliberate” and “natural” threat communities are quite distinct in their disciplines and the mechanics of how they operate, but that distinction does not preclude the possibility of greater synergy. The question is less about whether to bring bioweapon-focused efforts under the global health security umbrella and more about what the two cohorts can learn from one another.

For its part, the U.S. Department of Defense (DoD), long a global health security leader, has recently taken a more restrained position with respect to emerging infectious disease that may be viewed as at odds with national security assessments and strategies. More than a dozen years of Worldwide Threat Assessments from the U.S. Director of National Intelligence consider the growing biological threats from nature, noting their impacts on human populations, their causes in human activity, and their role as an effect or driver of destabilization. Yet the DoD appears to be receding in some respects from global health security engagement—despite its role as the largest U.S. funder of global health security programs.

The following figure offers the findings of this evaluation along with suggested solutions and a roadmap to implement them through entities, venues, or other entry points, optimizing the use of existing channels. Fully optimized DMS engagement depends on many factors, the most important of which is political will. With political will at country and intergovernmental levels, backed up by engaged and supportive leadership, full engagement is a feasible goal within the next five years. The roadmap is organized along a rough timeline, with solutions that could be implemented in the near term (1-2 years) listed first, followed by those that may take a few years longer to deliberate over and execute. The recommendations can be thematically grouped by communication, representation, and institutionalization.
**Near-term (1-2 years)**

**Communication**

The global health security mission would benefit from targeted and refined outreach to the specific stakeholders that can contribute to global health security.

The United Nations General Assembly should resolve that each Member State’s commitments to prevent, detect, and respond to infectious disease threats engage the Defense, Military, and Security sectors toward reinforcement of International Health Regulations capacities and implementation. This would send the message that the Assembly views these sectors’ roles as critical, helping to lay the groundwork for further efforts as outlined below.

**Venue:** United Nations General Assembly

**Representation**

Part of the Global Health Security Agenda’s structure is a team of Permanent Advisors. These advisors include representatives from the U.N. Food and Agriculture Organization, World Organisation for Animal Health, and World Health Organisation. The team lacks a representative from DMS.

The Global Health Security Agenda Steering Group should appoint INTERPOL to the GHSA’s team of Permanent Advisors. Formalizing INTERPOL as a permanent representative advisor within the Steering Group would ensure a voice for the security sector.

**Venue:** Quarterly meeting of the Global Health Security Agenda Steering Group

**Few Joint External Evaluations put forth recommendations for the military.**

To improve military-civilian engagement and DMS engagement at large, and to better standardize input into Joint External Evaluations, each country undertaking a JEE should appoint at least one DMS representative to its JEE team. In addition, the external mission teams should include at least one representative from DMS. Representation across all relevant sectors for these health assessments does not have to be equal, but a process for ensuring that their perspectives and capabilities are represented is likely to improve the utility of the assessments and the preparedness activity that can be built upon them.

**Venue:** Country JEE planners; World Health Organization
### Near-term (1-2 years)

**Potential DMS roles in recovery are poorly defined.**

In part because the Global Health Security Agenda construct excludes “Recover” from “Prevent-Detect-Respond,” recovery is poorly defined and planned for, including the DMS sectors’ role within it. This insufficiency could be mitigated by ensuring that the implementation of COVID-19 recovery funding and programs coming online at national and global levels integrates DMS personnel, assets, and capabilities. Ultimately, this could help institutionalize the ways that DMS can play a role in other infectious diseases.

**Venue:** National implementation programs, development donors, and drafters of COVID-19 recovery policies and plans

---

**U.S. biodefense and global health security strategies could guide the United States toward further refining and institutionalizing the modern role of its defense, military, and security sectors in domestic and global health security.**

It is the obligation of the U.S. government, per National Security Presidential Memorandum-14 (Presidential Memorandum on the Support for National Biodefense), to assess biodefense capabilities and capability gaps across federal entities. No such analysis has been made publicly available, stymieing congressional and public oversight that could help ensure efforts are correctly prioritized and funded. As the White House and U.S. interagency work to implement the National Biodefense Strategy and Global Health Security Strategy, they should explicitly and publicly reckon with priorities, programs, and budgets from the defense, military, and security sectors that could be better optimized to support domestic needs and global goods. The output from the analysis should articulate and define the DMS biodefense mission space in the context of U.S. global health security efforts and priorities.

**Venue:** U.S. National Security Council
### Medium-term (More than 2 years)

| Representation | The impacts of DMS investment in global health and global health security have not been quantified. The dearth of data makes decision-making about the optimal nature and extent of DMS involvement difficult to base on evidence.  
   | Metrics to evaluate optimal security sector involvement in global health security should be developed. These metrics should capture Prevent, Detect, Respond, and Recover functions. Once developed, the metrics can be utilized in joint assessments that include DMS and health sectors and can lead to better decisions about optimal level of representation of DMS sectors within global health security.  
   | **Venue:** Governments or private foundations funding the private sector and academia |
| Representation | Military incorporation into National Action Plans for Health Security, particularly in the context of specific entry points, is limited. National Action Plan for Health Security costing exercises are largely confined to resource needs under the health sector.  
   | Military and other DMS representatives should be present during National Action Plans for Health Security costing exercises and be tasked to develop cost estimates for specific deliverables. Costing exercises are central to ensuring that countries can implement planned improvements; DMS representation would add value to the costed plans to reinforce their multisectoral nature in resource mobilization and implementation.  
   | **Venue:** World Health Organization |
| Institutionalization | The Military sector’s engagement in global health security tends to emphasize response; and prevention, detection, and recovery to a lesser extent. Early Military and other DMS sectoral engagement at national levels in planning, needs assessments, readiness exercises, and implementation could mitigate the dearth of military incorporation into National Action Plans for Health Security and other planning processes, and in turn support optimization and institutionalization of DMS into prevention, detection, and recovery functions that have to date been overlooked.  
   | National preparedness planners should consider extending DMS involvement beyond Respond and into Prevent, Detect, and Recover through improved early planning and engagement at national levels. Codification of requirements to integrate DMS into these processes can occur at national policy levels or global guidance levels.  
   | **Venue:** National preparedness planners; World Health Organization; Global Health Security Agenda |
## SUMMARY OF RECOMMENDATIONS BY CATEGORY OF ACTOR:

### International Organizations

The **United Nations General Assembly** should resolve that each Member State’s commitments to prevent, detect, and respond to infectious disease threats engage Defense, Military, and Security sectors to reinforce International Health Regulations capacities and implementation.

The **Global Health Security Agenda Steering Group** should appoint INTERPOL to the GHSA’s team of Permanent Advisors. Formalizing INTERPOL as a permanent representative advisor within the Steering Group would ensure a voice for the security sector.

The **World Health Organization** and the **Global Health Security Agenda leadership** should support national preparedness planners in developing guidance and/or codifying requirements to integrate DMS into national planning processes for health security.

### All Nations

Each country undertaking a JEE should appoint at least one DMS representative to its JEE team. In addition, the **external mission teams** should include at least one representative from DMS.

**National preparedness planners**, supported by the **World Health Organization** and **Global Health Security Agenda leadership**, should consider extending DMS involvement in health security through improved early planning, and potentially through codification of guidance or requirements.

**National implementation programs, development donors, and drafters of COVID-19 recovery policies** and plans should ensure that the implementation of COVID-19 recovery funding and programs coming online at national and global levels integrates DMS personnel, assets, and capabilities.

**Governments or private foundations**, in their funding of the **private sector and academia**, should support the development of metrics to evaluate optimal security sector involvement in global health security.

**Defense, Military, and Security representatives**, supported by the **World Health Organization**, should be present during National Action Plans for Health Security costing exercises and be tasked to develop cost estimates for specific deliverables.

### United States

As the **U.S. National Security Council and the Federal Interagency** work to implement the National Biodefense Strategy and Global Health Security Strategy, they should explicitly and publicly reckon with priorities, programs, and budgets from the defense, military, and security sectors that could be better optimized to support domestic needs and global goods.
Conclusions

The tendency to think about biothreats in terms of human health drives planning and implementation processes, despite the fact that dozens of sectors are relevant for prevention, detection, response, and recovery. A relative marginalization of defense, military, and security is a weakness that, if addressed, could provide a better balance of these sectors’ participation given the expertise and capacity they might offer.

Given the ways that countries and the world at large were overwhelmed by COVID-19, there is room for reassessing the domestic and international role that DMS should play in health security efforts. Lessons from countries that were able to flatten their epidemic curves should be taken into account, including the role played by DMS in the response. Initial points of engagement within countries may focus on biodefense and risk reduction of particular pathogens, which could provide a foundation for further and broader health security engagement. A fully engaged DMS at the country level, as measured by Joint External Evaluation, National Action Plan for Health Security, and other indicators, and at the international level, as measured by participation of these sectors in key fora, could have positive impacts on other global health security metrics. The ultimate goal should be fruitful participation in global health security for all sectors.
INTRODUCTION
Despite years of dedicated resources, the global community remains unable to prevent the appearance of emerging infectious diseases and to mount an optimal response when prevention fails. SARS-CoV-2 is the most recent in a long line of pathogens whose penetration into human populations has revealed fragilities in subnational, national, and international postures with respect to major outbreaks. The world is grappling with how to address these weaknesses in advance of the next outbreak with pandemic potential.

The human experience with outbreaks has grown in recent years as the rate of emergence of infectious diseases has increased. The Ebola outbreak in the North Kivu/Ituri area of the Democratic Republic of the Congo (DRC) that began in 2018 and continued contemporaneous with COVID-19 through June 2020 resulted in 2,287 deaths. This is a startling statistic for a disease that has been known to medical science for more than 40 years; for which DRC has gained more response experience than any other nation, having faced ten prior outbreaks; and for which billions of U.S. and other donor dollars have been poured into the development of diagnostics and vaccines. The lack of security in the region was perceived as a primary driver of the magnitude of this outbreak and a major hindrance in controlling it. A long string of other regional and global outbreaks has revealed a chronic state of vulnerability to emergent threats—COVID-19, Zika, Ebola in West Africa, MERS, SARS, highly pathogenic avian influenza, and many more.

The majority of emergent disease events are zoonotic diseases, that is, they are characterized by the transfer of pathogens from animals into people. Zoonoses can be viral, bacterial, parasitic, or fungal and they account for at least 60% of emerging infectious disease events. Each of the viruses listed above has caused a well-known “spillover” event by which the pathogen jumped from animals to humans. SARS is a significant example of the havoc that a spillover event can cause. In February 2003, a severe acute respiratory syndrome (or SARS for short) was identified in patients in Southeast Asia. Patients incubating the virus traveled by plane and created a focal outbreak in Toronto, Canada. Globally, more than 8,000 people were infected and nearly 800 died, a high case fatality rate. Global losses amounted to an estimated US$35-50 billion from its spread to 29 countries; these costs include a preponderance of indirect costs through widespread disruptions in trade, travel, and public event attendance.

Each outbreak has taught us something new, and our follow-on efforts have often sought to address the particular weaknesses revealed by these teachings. The fault lines revealed by SARS demonstrated areas in need of capacity strengthening, especially in terms of establishing updated international reporting requirements and ensuring adherence to them. Ebola in West Africa revealed other weaknesses, perhaps most notably challenging the expert community’s assumptions about where given outbreaks might occur and spread. This epidemic of Ebola also changed the global response landscape, provoking a prolonged humanitarian response and transitioning actors from a containment-driven mindset to one of longer-term planning, a drastic shift that challenged existing mechanisms for coordination, deliberation, and funding. In 2020, the emergence of COVID-19 proved that the global community still struggles to prevent and contain novel pathogens and the diseases they cause.
In its most humble definition, “security” is a state of existence free from threat, a definition not inherently incompatible with constructs that would support global health in purely human terms ... this evaluation ... offers a perspective whereby all sectors that are affected by epidemic-prone diseases understand the value they can bring to mitigating the threat and the risk to their interests and to global populations. Pandemics are an enemy to all of humankind—everyone can be impacted, and everyone who has a tool to counter pandemics can be enlisted to do so.

Security, defense, and COVID-19

Reports that some governments in Southeast Asia have been using their militaries to supplement an insufficient COVID-19 public health capacity for response have some commentators concerned about their potential to “undermine democracy in a region with a history of autocratic rule.” In Indonesia and the Philippines, army officials were managing the crisis for a time; in the Philippines, Defense Secretary Delfin Lorenzana heads the coronavirus task force. Over-militarization is a legitimate concern, particularly when governments appoint military personnel without appropriate health backgrounds to high level public health positions. In the midst of the COVID-19 pandemic, Brazilian President Jair Bolsonaro assigned an Army General with no medical experience as interim health minister. Yet the fact that military resources were brought to bear in many countries may be an inherent acknowledgement of the militaries’ health and public health capabilities. In Liberia, the military has established 14 military medical hospitals for isolation of COVID-19 cases.

COVID-19 is also a reminder that pandemics can lead to—and even exacerbate—existing unrest. The rioting over social justice issues that occurred in the United States during COVID-19 echoed history. During the 1918 influenza pandemic, Sydney, Australia faced riots among returning soldiers that had been deployed to Europe. They had returned to unemployment, and brought the virus with them.

The pandemic has also revealed preparedness and response vulnerabilities that not only reflect a lack of readiness for outbreaks arising from nature, but for those originating from human intent. Criminals and terrorists could exploit these vulnerabilities,
deploying bioweapons with advance awareness of the enormous impact they could have on human life, economies, and political instability. Criminal exploitation globally can already be seen in illicit online sales of medicine and medical products: organized crime groups have taken advantage of the high market demand for medicines and personal protection and hygiene products during COVID-19 and profited from the sale of counterfeit items. These crimes create inherent risks to public health. Difficulties in controlling disinformation can offer attractive opportunities to actors who would deploy disinformation for their own agendas.

COVID-19 has turned out to be inconvenient for defense and security actors looking at the geopolitical landscape in a Cold War or “kinetic” frame of mind. It has exacerbated existing geopolitical political tensions, notably between China and the United States. It has also revealed that infectious disease threats to military and security personnel are growing. This lesson may begin to resonate in the context of peer competitiveness. For its part, China’s global health diplomacy is perhaps the most extensive of any country besides the United States. Even as China has had to deal with major domestic infectious disease threats—with two of the three most concerning coronaviruses (SARS and SARS-CoV-2) having originated within China—the nation has elevated health as a foreign policy tool from its early health-related international cooperation with Soviet bloc countries to expansive engagements around the world, particularly in Africa. Like all countries, China has its own reasons for its international engagements in health, related to its national self-interest in its economy, the apparatus of governance, and self-image. COVID-19 has caused fissures on the global health governance stage, particularly as it relates to the way the United States is positioning itself; even a partial U.S. withdrawal from global health security leadership effectively cedes leadership to China.

**Securitization of public health**

As the risk of outbreaks continues to increase globally, areas devastated by war, drought, poverty, and other drivers of fragility are disproportionately affected by localized outbreaks. One of the reasons that Ebola was able to gain such a strong foothold in DRC in 2018 was because of major instability in the affected region. Decades of conflict left poverty, political uncertainty, and institutional distrust in its wake. This severely undermined the security situation for responders, both governmental and non-governmental, such that some were forced to pull out entirely from areas where their health and aid workers came under fire.

The DRC Ebola outbreak is emblematic of a trend toward outbreaks in security-fragile areas. It speaks to the notion of a disordered world, which “spans chronic and emerging conflicts, humanitarian crises, fragile states, places with gross malgovernance, and stateless spaces. The disordered world is evolving swiftly and is generating new, destabilizing health security threats.”

A current point of discussion about the “securitization of health” seems to reflect an increase in the application of security features or funding to health problems. In some cases, this has created unease among stakeholders or commentators. The term is often used but less often defined, and may itself be a source of confusion. Its apparent meaning has shifted to allow for changing narratives and the framing of problems, and it often encompasses concepts that are sufficiently distinct as to warrant their own separate terminology. Some argue that treating global health issues as national security threats, while it may benefit global health budgets, may also disproportionately focus attention on those countries that pose security threats to wealthy nations. The tendency to do so may have at least some of its roots...
in an antecedent tendency toward a “human security agenda,”
one that broadened traditional notions of security beyond war
and peace between states into one that emphasized the security of
individuals within and between states, including against such threats
as pandemics, access to education, and access to safe water.15

The addition of the term “security” to “global health” implies
a reframing of the previous approach which was based more
narrowly on health concerns to one that imbues health efforts
with a security focus or angle. Yet defense, military, and security
had in fact been involved with global health long before the
renaming of the effort. Certainly, as the number of pandemics
and events with pandemic potential grew, it became clear that
infectious diseases could have unimagined yet dramatic impacts
on security—on national and global economies, on criminality,
on the stability of countries prone to instability, on force health
status, on geopolitical tensions. This altered some of the funding
streams and levels, possibly placing some health issues in
competition with others for funds. These kinds of issues should
be evaluated; there is no reason any important health issue,
whether tuberculosis, chronic illnesses, maternal and child health
challenges, or COVID-19 should cannibalize another’s funding.

In its most humble definition, “security” is a state of existence
free from threat, a definition not inherently incompatible with
constructs that would support global health in purely human terms.
It is not the intent of this evaluation to debate whether the merging
of health and security is the right approach or should be replaced
by a different guiding framework. Instead it offers a perspective
whereby all sectors that are affected by epidemic-prone diseases
understand the value they can bring to mitigating the threat and
the risk to their interests and to global populations. Pandemics are
an enemy to all of humankind—everyone can be impacted, and everyone who has a tool to counter pandemics can be enlisted to do so. We suggest that there is an important distinction between bringing security assets to bear on health problems—research and development for vaccines, intelligence gathering on outbreaks, understanding the criminality consequences of outbreaks, logistical support for establishing temporary treatment facilities—and an outright takeover of health or public health by the defense, military, or security communities. The former can and has been done in a way that not only enhances global health by corralling assets that exist in these sectors for the benefit of civilian public health, but also appeals to the particular missions of the sectors themselves. This can even be done under a different name or guiding framework.

The passage of United Nations Security Council Resolution 1308 in July 2000 on HIV in conflict situations elevated global health to a national security issue. At that time, experts were expressing concern about the HIV epidemic’s impact not only on the global civilian population, but on militaries, including those involved in international peacekeeping efforts. The increasing incidence of emerging infectious disease events led to a need for civilian acceptance of military health assistance for outbreaks when civilian public health was starved for resources, and a corresponding military recognition that responding to a bioterror incident required effective civilian public health systems. The introduction of the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (Global Partnership) in 2002, and then the Global Health Security Agenda (GHSA) in 2014, served to formalize the growing relationship between health and security, and in fact to recognize a new category of threat altogether—threats to global health security. Global health security efforts leave traditional global health implementers to tackle endemic diseases such as malaria, tuberculosis, and now even HIV/AIDS, and focus their own efforts on emerging and re-emerging infectious diseases and agents of bioterrorism or biowarfare. The lines become somewhat blurred for situations where diseases are endemic but surging and placing pressures on health and government systems in fragile areas.

In 2015, the World Health Organization (WHO) established a military-civilian collaboration initiative to expand the breadth of military stakeholder involvement, recognizing the pertinent and diverse roles they can serve, and the benefits they can contribute.

“The situation in the DRC is emblematic of widening global humanitarian crises, fragile states, countries prone to repression and gross malgovernance, and stateless corners of the world. This disorder is not abating, and it has deep health security and national security implications for the United States. Increasing numbers of infectious disease outbreaks occur in these contexts, along with increasing attacks upon vital health infrastructure and increased displacement of vulnerable populations, interrupting access to critical health services. Disease and disorder fuel one another, as terrorist groups and violent extremist ideologies stoke health crises and mass migration by attacking vaccinators and other health workers from Pakistan to Syria, Yemen, Somalia, Afghanistan, and elsewhere.”

– CSIS Commission on Strengthening America’s Health Security, 2019
(This came on the heels of prior WHO efforts over the decades to bring military and civilian sectors closer.) In 2017, the Indonesian government, in collaboration with WHO, hosted a meeting to promote defense and health collaboration to strengthen health security and advance implementation of the International Health Regulations (IHR). In 2019, global attendees at the Global Health Security 2019 conference in Sydney, Australia convened a Military Health Security Summit. For its part, the United States has recently produced its first National Biodefense Strategy as mandated in a 2016 defense law, as well as its first Global Health Security Strategy, both outlining DMS roles and responsibilities. In April 2020, the United Nations Secretary-General gave a speech to the U.N. Security Council delineating eight security risks created by COVID-19, from economic fallout to postponements of elections to the fact that the pandemic has revealed our vulnerabilities to potential bioterrorists. The Secretary-General called for an immediate global ceasefire of all warring parties amid the pandemic.

These sectors are not new to health engagement. A substantial body of literature describes the particular role of the defense and military sectors in global health. The United States military, for instance, has a storied history in combating tropical diseases for the purpose of force protection, and made significant strides in its efforts to do so in a way that has benefited civil society. Global militaries have also played an increasing role in humanitarian response and global biosurveillance. Militaries and public security agencies mobilized to support Ebola and Zika virus responses in partnership with governments, civil society, and humanitarian actors. With the introduction of the GHSA, roles for these sectors were formalized and institutionalized into global health security frameworks.
Purpose of this evaluation

Understanding whether there is a disconnect and what its nature is may reveal near-term opportunities for resolution. This report serves as an analysis and collation of ideas from the literature and from experts on the extent to which DMS participation is right-sized and targeted in ways that support global health security goals while also supporting its own goals. As we sought to further explore the notion that DMS is under-utilized, we aimed to be objective in representing the status-quo and identifying the pros and cons of altering it. We did this by identifying and evaluating literature related to DMS and global health security, and approaching experts from around the world with experience at the DMS-civilian interface. We aimed to cohere these publications, efforts, findings, and recommendations into a comprehensive picture of engagement past, present, and future.

Describing the role of the defense, military, and security sectors (hereafter abbreviated DMS, except where the distinction among them is important) in global health security is increasingly relevant at a time when outbreaks in fragile areas are growing, and the capacity to deal with them even in relatively secure regions is stretched. This distinguishes them from other sectors that are engaged in preventing and mitigating high-consequence communicable health threats, such as human healthcare, animal health, environmental health, humanitarian aid, or finance. They are security actors in the most traditional sense.

There are, of course, important differences among these sectors. Some are comprised of operational units (military forces, border protection, intelligence) while others offer policy and programmatic support. There are also relevant differences within sectors—e.g., the United States Army consists of National Guard units that operate under the orders of state governors, whereas active duty federal soldiers act under presidential orders. These differences may also reveal themselves from country to country, with broad variation across military capabilities, defense priorities, and other areas. Indeed, the missions of these individual sectors, and their particular roles in infectious disease, are sufficiently unique to justify dedicated treatments of each; much of this work has in fact been done, particularly in Defense and Military. Here we collate analyses and view the sectors collectively because, at their core, these are all security agencies in some form.

Some health security experts (including some of the authors of the present study) have publicly asserted that DMS equities today could be better integrated into global health security efforts across the spectrum of needed activity from prevention through recovery. “Better” may mean more money, greater political will and presence, or simply finding the right-sized level of engagement such that these sectors are leveraged where most appropriate to meet both global needs and their own mandates.

As the rate of emergence of infectious diseases increases, and with it the potential for rapid spread and the exacerbation of political tensions, governments are looking for ways to develop more concerted and effective strategies to manage the threat. Their ultimate goal is to reduce the disease burden, negative financial impacts, development drawbacks, security risks, and wide societal disruption that these outbreaks can cause. Optimizing the roles of sectors that can contribute meaningfully to that goal is an ongoing process to which this analysis intends to contribute.
CHAPTER 1:
HISTORICAL CONTEXT AND THE INTENTIONAL THREAT
As the threat from emerging infectious disease increases, the defense, military, and security sectors are being called upon to help nations and the world address the implications. Defense departments and ministries are being tasked to develop medical countermeasures such as diagnostics, vaccines, and treatments for biological threats. Military troops are aiding affected populations by building treatment centers, securing checkpoints, and providing peacekeeping forces to allow aid workers to do their jobs. Law enforcement agencies are protecting healthcare workers and enforcing public health measures such as quarantine. Border control agencies are working to identify infectious agents in goods crossing national borders, while intelligence agencies try to predict where the next infectious disease will emerge.

For many, identifying high-consequence infectious diseases as a national security (and by extension, a national defense) issue has become second nature. This report will explore some of the reasons why. First, it is worth considering another issue defined as national security imperatives in which leadership from security actors has been viewed as essential.

The relevance of the intentional biological threat

There has never been any question about the active role that the defense sector was expected to play with respect to defending against bioterrorism or biowarfare. The need for defense first meant that an actor was on the offense. Nation-states with known or possible offensive bioweapons programs in the 20th century included the United States, United Kingdom, Canada, France, Russia, China, Japan, Iran, and numerous other countries. In the United States, DoD was the prime implementer of the nation’s nearly 30-year-long offensive biological weapons program. The Russian program was housed in its Military Chemical Agency, although the civilian People’s Health Commissariat was also ordered to undertake R&D based on military interests. The United Kingdom’s program operated out of Porton Downs within the Chemical Defence Experimental Station, within the War Department.

One reason the defense and military sectors in the United States came to play a lead role in national biodefense was because it was a natural progression from their lead role in the offensive program. As they stood down bioweapons research, they stood up bioweapons defense research—the two so closely related that line-crossing between the two has been raised and evaluated as a concern. Thus, the governance mindset was in part based on continuity and practicality. The shaping of U.S. biodefense posture was also the result of the application of DoD’s extant chemical defense program onto a new biological program. Just before the United States entered World War II, it determined that biological weapons posed a threat. After investing in civilian research the offensive and defensive missions were given to the DoD Chemical Weapons Corps. The chemical program itself had been invented from an emergent need during World War I to develop novel offensive and defensive solutions tailored to this new threat to the warfighter. Congress has legislated DoD’s role in biodefense over the years, such as through the National Defense Authorization Act for Fiscal Year 1994, which assigned responsibility for overall coordination and integration of the DoD chemical and biological warfare defense program and medical defense programs into a single office within the Office of the Secretary of Defense (see 50 USC §1522).
A primary distinction between a natural outbreak of an infectious disease and a bioterrorist threat is based on a single quality: intent. A nature-made pathogen is a product of evolution; a human-made pathogen is a product of weaponization. Pathogens emerging from the natural world are not created with the intent of causing harm. This distinction has important implications in terms of preventive actions and interdiction/criminal justice.

The successors to offensive programs were not just defensive programs, but cooperative threat reduction engagements. These efforts were designed within defense and diplomacy spheres of influence, where the rhetorical triad was not “prevent, detect, respond” but “counterproliferation, nonproliferation, and consequence management.” The Biological Weapons Convention, an international treaty that entered into force in 1975, provided an international legal basis for an end to all offensive programs. In the United States, by amending a bill moving through the Senate at the end of the Cold War, the Soviet Nuclear Threat Reduction Act of 1991, Senators Sam Nunn and Richard Lugar helped create today’s Cooperative Threat Reduction Program at DoD. They developed this concept in response to specific concerns about nuclear risk proliferation among former Soviet bloc countries, although it was written to allow for chemical and biological nonproliferation activity as well. Today, the program remains active, including in its expanded mission space in biological threat reduction.

Dismantling of nuclear missiles and silos seems to fall squarely within the Defense Department’s defense mandates. Yet according to one of the experts we spoke with, at the time, the Pentagon was ambivalent about taking on a threat reduction mission; the leadership of Defense Secretary William J. Perry was necessary to advance the initiative:

“The election of Clinton to the Presidency in 1992 set a course for Nunn-Lugar that likely would have been quite different had George H.W. Bush been reelected. As the Clinton administration came to power early in 1993, the appointments of Les Aspin as Secretary of Defense, William Perry as Deputy Secretary, and Ashton Carter as Assistant Secretary with responsibility for the Nunn-Lugar program...
signaled the strong commitment of the new President to the objectives of Nunn-Lugar and allowed the cooperative threat reduction enterprise to become institutionalized in the Department of Defense.”

In a now-famous photo from 1996—five years after passage of the law—Secretary Perry is seen with Russian Minister of Defense Pavel Grachev and Ukrainian Minister of Defense Valery Shmarov planting sunflowers on land that was once a missile silo. Leadership is central when it comes to making policy priorities. The principle holds as we face a growing biological threat. A challenge to determining biological threat priorities is that they are not manmade; they have their origins in nature. A primary distinction between a natural outbreak of an infectious disease and a bioterrorist threat is based on a single quality: intent. A nature-made pathogen is a product of evolution; a human-made pathogen is a product of weaponization. Pathogens emerging from the natural world are not created with the intent of causing harm. This distinction has important implications in terms of preventive actions and interdiction/criminal justice.

The anthrax attacks of 2001—a deliberate event—became a pivotal moment for U.S. public health security policy. Although it was a domestic incident, it came at a time when the nation was expanding its global infectious disease activity, and facing foreign adversaries with bioweapons intent. Anthrax spurred biodefense activity across DMS to shore up domestic defenses to foreign threats. Still, the majority of funding for biodefense for the civilian population remained within civilian budgets. For the five-year period FY2001-2005, the Department of Health and Human Services’ (HHS) civilian biodefense spending was $14.9 billion; that of Homeland Security was $5.2 billion and Defense was $2.4 billion. Most of the HHS funds went to its agencies such as the National Institutes of Health, Centers for Disease Control and Prevention (CDC), and Food and Drug Administration. Over time, these relative expenditure levels held. The greater attention from the health sector that is still evident today was thus written into United States appropriation law twenty years ago. This may have partly reflected the substantial expense of the activities embedded within civilian health-related budgets—basic and applied research on infectious diseases, countermeasure research and development, and public health grant programs to states. Such programs are costly because preparedness is costly. But they may have also been a reflection of a choice to balance the scales in favor of that preparedness. On the heels of the 9/11 disaster, political leadership could not abide a situation in which thousands died because we simply were not ready. Efforts to prevent attacks were of course also ongoing through intelligence collection, troop deployments to nations suspected of harboring weapons of mass destruction (WMD), and cooperative threat reduction programs. But when it came down to it, increasingly unpopular wars abroad and WMD intelligence failures could not compete with the more publicly accessible achievements of U.S. science and medicine to keep Americans safe. Infectious disease, whether from weapons or nature, has always been about people. It is not surprising that health security and global health security efforts came to be led by the health sector.
CHAPTER 2:
THE ROLES OF
THE SECTORS
In countries the world over, defense, military, or police may be called on to assist in health disaster response. Their role may be to operate screening checkpoints at borders, deploy relief resources, or engineer treatment centers. Areas of engagement today can be construed across the Prevent-Detect-Respond-Recover spectrum:

- **Prevent:** e.g., threat assessment, biosafety, biosecurity, counterproliferation, deterrence
- **Detect:** e.g., intelligence, biosurveillance, early warning, reporting, forensics
- **Respond:** e.g., exercises, medical countermeasures, transport, logistics, military intervention, reporting, remains disposition
- **Recover:** DMS undertakes actions that may be construed as supporting recovery (such as capacity building that can support both response and recovery) but there is less published research to support delineation of its particular role in Recover

Table 1 outlines the core functions necessary to achieve competency in Prevention, Detection, Response, and Recovery for infectious disease outbreaks regardless of origin. These functions can frame any conversation about global health security, and the efforts needed to ensure the optimization of national and global abilities to prevent, detect, respond to, and recover from high-consequence infectious disease events.

We framed much of our review of the role of present-day DMS in the context of the activities shown in Table 1. This totality of functions required to optimize global health security surpasses the capability of any single sector. The health sector specializes in functions such as biosurveillance, healthcare surge, and case management, but is less well suited to threat identification and detection, logistics and transport, or bioweapons disposal functions. Based on literature review and discussions with experts, recent or current DMS activity in most of the functions in Table 1 is evident. In some cases, security activities or mission spaces are distinct for intentional versus natural outbreaks; for instance, Prevent can be subdivided to reflect the unique activities that comprise prevention of intentional outbreaks, such as threat assessment; hazard profiling and risk assessment; critical infrastructure protection; counterproliferation; deterrence and dissuasion, and disarmament. As one moves across the columns, however, those distinctions begin to disappear, with the exception of a small number of activities such as forensics and attribution, and bioweapons disposal and decommissioning. The common functions create a shared space for mutual effort, and even the uncommon functions may provide learnings across sectors.

“The Ebola epidemic might have been much worse if the U.S. and U.K. governments had not used military resources to fly people in and out of the affected countries. All countries could identify trained military resources that would be available for epidemics; in a severe epidemic, the military forces of many or all middle- and high-income countries might have to work together.”

### Table 1: Pillars and Supporting Functions for Global Health Security

<table>
<thead>
<tr>
<th>PILLAR</th>
<th>PREVENT</th>
<th>DETECT</th>
<th>RESPOND</th>
<th>RECOVER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAJOR ELEMENTS</strong></td>
<td>Awareness, Prevention, and Protection</td>
<td>Surveillance and Detection</td>
<td>Response</td>
<td>Recovery</td>
</tr>
<tr>
<td><strong>DEFINITION</strong></td>
<td>Systems, policies, and procedures to determine, assess, avoid, mitigate, and reduce threats and risks by reducing vulnerability and exposure</td>
<td>Systems, policies, and procedures to gather and analyze information, provide early warning, and inform strategies</td>
<td>Systems, policies, and procedures aimed at disease control and saving lives</td>
<td>Systems, policies, and procedures to restore and strengthen normal operations</td>
</tr>
</tbody>
</table>
| **FUNCTIONS** | • Identification of EID drivers  
• Threat assessment  
• Hazard profiling and risk assessment  
• Critical infrastructure protection  
• Biosafety  
• Pathogen security  
• Research governance  
• Counterproliferation  
• Deterrence and dissuasion  
• Interdiction and disruption  
• Screening and detection  
• Disarmament  
• Risk reduction of EID drivers  
• Prophylactic medical countermeasures  
• Hygiene and sanitation | • Security intelligence  
• Environmental and sentinel detection  
• Early warning  
• Case identification  
• Point-of-care diagnostics  
• Laboratory diagnostics  
• Indicator-based (including clinical/syndromic) surveillance  
• Event-based surveillance  
• Epidemiologic investigation  
• Event determination  
• Multi-level and multi-sectoral reporting  
• Sample movement logistics and tracking  
• Forensics and attribution | • Planning and response simulation  
• Command and control/emergency response operations management  
• Healthcare surge  
• Essential services surge  
• Laboratory services surge  
• Mental health services surge  
• Transportation and equipment  
• Diplomatic and military intervention  
• Case management  
• Cascading effects/crisis management  
• Medical countermeasures  
• Non-pharmaceutical interventions  
• Evidence-based control measures  
• Epidemiologic investigation  
• Event determination  
• Multi-level and multi-sectoral reporting  
• Disposition of remains | • Needs assessment  
• Health consequence management  
• Economic and societal consequence management  
• Socio-cultural sequela management  
• Health system (re)establishment  
• Decontamination  
• Remediation  
• Mental health  
• Bioweapons disposal and decommissioning |
| **CROSS-CUTTING FUNCTIONS** | • Governance: leadership, policy, statute, regulation, enforcement  
• Resource allocation and coordination  
• Community engagement and resilience  
• Risk communication and education | | • Workforce development and sustainment  
• Research and development  
• Data and information management | |

In general, “prevent” refers to components that thwart the introduction of the disease; “detect” includes those components that contribute to finding and identifying disease; “respond” comprises components that aim to contain and control disease; and “recover” addresses re-establishment of a disease-free status and normalized operations once a disease has been controlled. All functions may occur simultaneously and some functions may carry over from one pillar to the next during an outbreak. Functions should be addressed jointly by public health, healthcare, animal health, agriculture, environmental health, law enforcement/counterterrorism, and defense sectors. EID = emerging infectious disease. Source: Carlin EP, Machalaba C, Berthe FCJ, et al. Building resilience to biothreats: an assessment of unmet core global health security needs. New York, NY: EcoHealth Alliance, 2019.
Notably, the GHSA construct excludes “Recover” from the “Prevent-Detect-Respond” spectrum. This is as much a cause of continued insufficiency of recovery activity as it is a lack of appreciation for its importance. DMS might perform roles in Recover, but these are yet to be defined. One might envision militaries performing needs assessments for their own recovery planning from a pandemic that reduced their forces; sharing military and defense decontamination research and plans with civilian sector planners; and leveraging security sector intelligence assessments that forecast areas of likely continued instability in certain areas during post-pandemic recovery. Effective recovery can help increase understanding of the impact of threats and the capabilities needed to deal with them; it should thus be seen as a major contribution to prevention and preparedness.

While “health security” and “global health security” are terms that have gained prominence in the last decade, the reach of DMS into areas that we might now define as global health security long precedes that timeframe. To achieve an interdisciplinary vision of global health security, it is necessary to look beyond static or confining definitions of global health security and understand the ways various sectors have been contributing to its goals, in spirit if not in letter.

In some cases, roles have changed over time. The U.S. military’s historical role in solving “global health” problems as they pertain to force protection (e.g., yellow fever, malaria) broadened to include the defense sector in Cold War-era roles in areas such as biodefense and counterproliferation. They ultimately expanded into their Clinton-era role (continued through today) in emerging infectious disease, particularly in areas such as biosurveillance, intelligence, R&D, and capacity building.

The following discussion explores the roles of countries’ Defense, Military, and Security sectors in activities that contribute to their own health security and directly or indirectly to global health security.

**Defense**

Today, the defense sector consists of defense departments or ministries and the non-governmental actors that support them, such as private sector entities and academic researchers. At a governmental level, the defense sector sets policy and strategy, and implements and oversees areas such as R&D and intelligence collection. The sector is newer to the global landscape than militaries, which existed long before defense departments and ministries, but today often reside within them. The role of this sector in global health security is one that is still being defined, so we offer here a brief view, emphasizing U.S. Defense structure and efforts.

The U.S. Department of Defense was created in 1947 as the successor to the War Department and individual service departments (Army, Navy, and Air Force). Since then, the U.S. Defense sector has been a leader in global health security since before the advent of the term. DoD established cooperative threat reduction through the Nunn-Lugar initiative, a program that ultimately inspired the establishment of the Global Partnership, to which the United States has been a reliable founding partner and one of the top contributors along with Canada, Germany, and the European Commission.  

Through Nunn-Lugar, the U.S. DoD has played a central security role in the countries with which it has worked by helping to improve laboratory infrastructure, establish biosafety and biosecurity programs, and train scientists in modern techniques, with emphasis on biosurveillance and safe containment of
especially dangerous pathogens. While these programs are concerned with reducing the threat of biological weapons—and indeed this is among their mandates—they have also supported other activities. Kyrgyzstan, for instance, has partnered on numerous collaborative biosurveillance efforts, pairing local scientists with groups such as the International Science and Technology Center (ISTC), Civilian Research and Development Foundation (CRDF) Global, U.S. Department of State (US DoS), and the United Kingdom Ministry of Defense.

In general, Defense’s role in global health security is a relatively recent one. In 1996, a Presidential Decision Directive (PDD) expanded the mission of the U.S. DoD to support global surveillance, training, research, and response to emerging disease threats. This directive is largely responsible for the DoD scope of effort as it exists today. Follow-on directives and strategies built on this foundation. National strategies to address infectious disease, such as the 2006 national pandemic influenza plan, and numerous others in the years that followed, overtly assigned roles to the defense department and/or the military.

The 2018 U.S. Global Health Security Strategy delineates the functions most suited to each sector, citing DoD’s primary role in: 1) facilitating DoD programs that align with GHSA, “particularly biosurveillance, biosafety, and biosecurity, military-to-military or military-to-civilian capacity-building efforts”; 2) coordinating and communicating with defense ministries; and 3) providing emergency response in coordination with the Office of Foreign Disaster Assistance. During the West Africa Ebola outbreak, the DoD Defense Threat Reduction Agency (DTRA) deployed a container-based, state-of-the-art mobile laboratory to Conakry, Guinea to support Ebola diagnostic testing. DTRA, part of the DoD Cooperative Threat Reduction program, has supported many biosurveillance efforts, such as a tick surveillance study in Kazakhstan, and the building of human and animal health laboratories in Azerbaijan. DTRA’s investments provide baseline prevalence information and capacity building that benefit the host country, while also supporting situational awareness and threat reduction goals for DoD.

Experts we interviewed described coordination across several countries’ defense and security entities on medical countermeasure development, such as Australia, Canada, the United Kingdom and the United States. Many of these nations work together through memoranda of understanding on a variety of activities related to chemical, biological, radiological, and nuclear (CBRN) defense, such as medical defense R&D and procurement.

For many countries, the distinction between Defense and Military is artificial. The next section provides a more detailed treatment of the military’s role, which might also reasonably be deemed “Defense.”

**Military**

Historically, more military casualties resulted from infectious disease than from munitions. Military strategy has arguably been shaped through time by infectious disease concerns. Infectious agents pose an operational threat to militaries: recruits train in groups, deployed troops come into contact with pathogens against which they have no immunity, and they face the risk of intentional use of weaponized infectious agents. Investments in efforts to prevent infectious diseases have served both force preservation and humanitarian purposes through the development of extensive
disease surveillance and research programs beneficial to both the military and the general public.39

Militaries act strategically to minimize biological threats to their operations and to advance objectives through humanitarian action.40 Such involvement in local areas, however, may increase potential exposure to endemic disease, rendering military personnel vulnerable. The role of militaries in facilitated transnational spread is a documented concern. It can occur when infected personnel travel to areas with competent insect vectors, as documented when a U.S. soldier infected with malaria in Korea in 1952 brought the parasite back to California, which triggered a local outbreak.41 It can also occur when forces encounter antimicrobial-resistant pathogens that move with them throughout their deployment. To mitigate the threat of disease transmission, some national and multinational bodies instituted screening and quarantine regimens.40

National militaries have played a significant role in preventing the spread of infectious disease among and between their troops and others. The management of infectious disease through research, prevention and treatment has been an integral part of the development and success of the U.S. military. Today’s Army and Navy overseas research laboratories trace their roots to at least 1898, when Army Surgeon General George Miller established laboratories in Cuba and the Philippines to investigate outbreaks of typhoid and yellow fever during the Spanish-American War.42 DoD and its forebears have been actively engaged in developing health programs and epidemiological capabilities ever since. They pioneered preventive and therapeutic medicines, diagnostic capabilities, and new vaccines and drugs. These technologies have since been expanded and applied outside of the defense and military context to benefit civilians around the globe.

The U.S. DoD’s primary interest historically lay in “battlestopper illnesses,” diseases that had a direct negative impact on military operations.43 At the end of the 19th Century, military deaths were predominately attributed to infectious diseases. Yellow fever, typhoid, malaria, and dysentery were so rampant in camps during the Spanish-American War that “by the beginning of August, less than one-quarter of the Army that had gone ashore on June 22, 1898, remained fit for service.”44 Given the substantial health burden and major threat to military operations, a series of boards and commissions were created to investigate the diseases and uncover their etiologies and possible preventive measures. Their research led to the discovery of yellow fever transmission, the development of the first typhoid vaccine, and the first inactivated influenza vaccines. Major William Gorgas, chief sanitary officer in Havana, Cuba, applied these discoveries to create a mosquito eradication program that eliminated yellow fever in that city for the first time in its history. His follow-on sanitary work in Panama made the construction of the Panama Canal possible.44

Military contributions are diverse, and include medical innovations, vaccine research, and technical support and training. During World War II, the model for the modern blood banking system was established as part of a program for separating blood into plasma and transporting it to English war victims.45 In 1978, the U.S. military developed a patient transport capsule designed to contain an individual exposed to highly infectious diseases such as Ebola.46 Militaries have repeatedly supported healthcare reconstruction efforts in post-conflict environments, for example, U.K. forces in Rwanda in 199447 and the Australian Defence Force in Timor-Leste48. A number of discoveries and advancements in vaccine development
have been led by militaries, notably the U.S. military’s work with yellow fever and the Australian Army Malaria Research Institute’s efforts researching dengue and malaria.

Today’s militaries participate in many of the activities that comprise global health security functions as outlined in Table 1. Militaries operate at a large scale, with large assets, and the ability to move quickly. With infectious disease “increasingly manifesting as security, economic, development, and humanitarian concerns, military forces have faced new demands on their capabilities to support public health within and beyond the territories they protect.” The military sector brings substantial resources to bear on health security. This is true for the United States, as well as for many countries. In developing countries, militaries may not have research and development programs but they do have medical services, medical scientists, veterinarians in some cases, and a large workforce accustomed to dealing with crises. These capacities can be leveraged during an outbreak, not only for the military but also to support civilian needs.

Military engagement may be domestic or international, although few militaries are equipped to engage in major armed conflict or global health security roles beyond their national borders. Countries that are capable of this are outliers. The roles a military may play within its own borders are often dictated by national law. The specific nature of its participation depends on the country. Some nations have made efforts toward formalizing military-civilian compacts with respect to health emergencies. In Thailand for instance, military and public health are characterized by a longstanding collaboration in training, simulation, detection, decontamination, and healthcare support. In some countries, militaries are involved in biosurveillance, health security, laboratory safety, and response logistics. A 2011 WHO report cited the Jordanian military’s Royal Medical Services as providing mental health services to approximately 40% of Jordan’s population.

Civilian response is typically primary in health emergencies, but military support may supplement or complement it. Advancement of the WHO military-civilian collaboration initiative in Eastern Europe may help formalize currently informal or ad hoc arrangements. Indonesia and Thailand provide examples of relatively advanced civil-military coordination. Indonesia’s health security strategy is divided into a health cluster and a security cluster. Regulations and guidelines on public health emergencies help guide civil–military coordination, and joint coordination at regional or national levels is
supported under the National Agency for Disaster Management. In Thailand, military engagement in disaster prevention and mitigation involves military engineering, medicine, and the CBRN unit. In the United States, the National Guard does not normally provide civilian health services, but it can be called upon by state governors to assist with any variety of stressors, including outbreaks.

Propelled by the impact of disease on field personnel in foreign countries, the U.S. military’s efforts to understand infectious diseases continues at on a global scale. Its network of overseas laboratories and medical research facilities bolsters disease surveillance and support and builds capacity in partner nations to benefit the military and civilians.\textsuperscript{51} U.S. military branches are engaged globally, and global health engagement is embedded in DoD policy.\textsuperscript{52} The armed services branches engage in health diplomacy activities that support health security and help to develop improved relationships in the countries where they are working. In general, the Table 1 Response column (to include preparation for response) predominates among these military activities.

United States troops deployed to West Africa at a cost of about $400 million to aid in the response to the Ebola outbreak.\textsuperscript{46} Personnel assisted with transport of personnel and supplies, provision of equipment, construction of treatment units, and training and education in support of sanitation and mortuary affairs functions.\textsuperscript{53} DoD received emergency congressional funding to engage in international response as well as research and development, which included funding for Ebola vaccines, treatment, and diagnostics development and for clinical trials for vaccines and treatments.\textsuperscript{53}

As high-income countries reduced the size of their military forces in the 1990s, those of middle- and low-income countries continued to grow. These forces are deployed in multinational operations, including in U.N. peacekeeping operations. Middle- and low-income militaries have helped supply multinational missions such as the African Union Mission in Sudan, the Multinational Force and Observers in the Sinai Peninsula, and stability operations in Iraq.\textsuperscript{40} These forces are also drawn upon in disaster relief missions. Medical “train the trainer” programs have seen success, as was the case during the 2014 Ebola outbreak in West Africa with U.S. military training of Liberian military forces. (China has supported the development of the 14 Military Hospital in Liberia, designed for military and civilian use, reportedly providing US$3 million in drugs and equipment to the Ministry of National Defense.\textsuperscript{54}) Recently, Senegal and Ghana employed U.S. military medical training in their response to COVID-19. Both countries responded to the epidemic by utilizing the U.N. Level-2 mobile hospitals obtained through the African Peacekeeping Rapid Response Partnership with the U.S. State Department.\textsuperscript{55} Operated by the military, these mobile hospitals are equipped to perform medical and laboratory procedures in support of overflow from civilian hospitals and serve concentrated outbreak centers.

Militaries may draw on laboratory and epidemiological capacities in disease surveillance, especially in the context of humanitarian emergencies.\textsuperscript{40} Some forces will partner and share these capabilities with civilian organizations. Though militaries from middle- and low-income countries may deviate from those of high-income countries in public health infrastructure, they maintain the capacity to conduct surveillance, provide health services for civilians, and report diseases with pandemic potential to multinational bodies. In some countries, militaries provide at least one source of healthcare to civilian populations.
Years of armed conflict had resulted in a negative perception of the Armed Forces of Liberia (AFL) among the Liberian populace. In 2014, in the midst of a years-long process of rebuilding trust in the government, Ebola broke out. President Sirleaf requested international assistance from military organizations from the United States, China, and other African countries. Clearly defining the role of the military in the outbreak was essential to strengthening community support and ensuring cooperation, according to Major Joseph Kowo, the Commanding Officer of AFL Health Services (Medical Command). Liberia’s experience with Ebola was a health tragedy that occurred in a still-developing economy, but in a place that had regained its security and which was able to integrate assistance from military assets. According to Major Kowo, after the outbreak abated, the Liberian government determined that the bulk of the military’s institutional responsibilities should be focused on external threats and UN responsibilities rather than internal matters, and should play a support role to civil authorities in health matters, as it is doing during COVID-19.

The Democratic Republic of the Congo (DRC) faced Ebola in 2018 during a conflict of its own. As rebel groups periodically asserted themselves, often incited by widespread suspicions of Ebola responders having political motives, critical response interventions in the DRC were impeded. International and national responders found their ability to respond hindered by the threat of violence and a lack of cooperation by patients and communities. Early in the epidemic, scenes of armed agents forcibly bringing patients in for treatment or forced vaccination further traumatized local populations and caused patients to flee responders, sporadically resorting to violence. The outbreak finally ended in 2020.

Both outbreaks spread further and lasted longer than would have been expected—in Liberia, because few predicted West Africa could be subject to Ebola, and in DRC, because the nation had four decades of experience in dealing with Ebola outbreaks. Still, the Liberian military was able to play a positive and supportive role in its country’s outbreak, owing at least in part to better existing national security and to trust-building efforts on the part of the military. In DRC, insecurity, armed conflict, and distrust of government (military and health officials) helped seed the worst Ebola outbreak in DRC history.
In general, most countries’ military engagement in global health security tends to emphasize response, with less of a focus on prevention, detection, or recovery. Early Military and other DMS sectoral engagement at national levels in planning, needs assessments, readiness exercises, and implementation could mitigate the relative dearth of military incorporation into national planning processes as discussed in the next chapter.

Security

The security sector’s role in health security at both domestic and global levels is wide ranging, with prominent roles in border security, law enforcement, and intelligence. Important areas of synergy can be found throughout the work of the Security and Public Health sectors. While they are distinct operational sectors, they have developed areas of mutual interest and activity because it is the very purpose of each to promote safety and security. Both public health and law enforcement, for instance, are based on mandates that should ensure a deep level of collaboration to protect the health and safety of the public.57

Securing borders is a function typically performed by security agencies. While routine or emergency screening for signs of human infection—such as health interviews and tests for fevers—are often implemented by health agencies, the detection of potentially harmful pathogens or biological substances is often within the purview of other departments or ministries, such as agriculture, border security, or customs. Dirty bombs designed to disperse lethal biological agents could be smuggled through a port.58 The control of cross-border importation of active biological substances has long been a major effort in many nations’ customs agencies, particularly in island states such as Australia and New Zealand where the introduction of invasive organisms can have particularly disastrous consequences.58 Those efforts have tended to focus on interdiction at the macro level (prohibited food items, plants, and animals) because the detection of microbes themselves is a particularly challenging problem.

Other agencies assist with detecting, deterring, and interdicting biothreats beyond the confines of national borders. Intelligence agencies across the Five Eyes and other countries have long sought ways to assess foreign adversaries’ development of biological weapons, a problem that has proven far more difficult than the detection of prohibited chemical or nuclear development activities. Law enforcement agencies in some countries enforce laboratory security measures. While law enforcement is often viewed as a partner in mitigating deliberate events, a range of routine law enforcement and public health activities could benefit from integrated approaches. Law enforcement at national and especially subnational levels shares common ground with public health. An International Conference on Law Enforcement and Public Health in 2016—the conference itself a reflection of growing partnership between the communities—addressed infectious disease, as well as other areas that included mental health, violence, trauma, and drugs.57

In May 2012, the Iraqi government ordered the establishment of the National Biorisk Management Committee.59 The committee identified four priorities for strengthening Iraq’s capacity to counter biological threats: establishing a national pathogen list, building laboratory capacity, establishing a biorisk management law, and developing capabilities for joint law enforcement–public health investigations.
This last element has also been a priority of the U.S. Federal Bureau of Investigation (FBI). Working with the U.S. CDC, the FBI developed the Joint Criminal-Epidemiologic Investigations Handbook, which supports an understanding between the sectors as they investigate outbreaks whose origins—intentional, accidental, or natural—may not be known from the outset. Training is designed to foster collaboration between public health (whose goals are to identify the source of a disease and implement control measures to protect the public), and law enforcement (which works to protect the public via enforcement of risk reduction policies, and also to identify, apprehend, and prosecute individuals responsible for an intentional outbreak). Other countries also support a role for security or law enforcement in health-related matters. Finland’s whole-of-society approach to national security involves police and public health. The country’s approach is one of comprehensive security that “has evolved into a cooperation model in which actors share and analyse security information, prepare joint plans, as well as train and work together.”

The Global Partnership may be the most prominent multilateral security-oriented organization working toward biothreat reduction. Created in 2002, it is the primary international WMD threat reduction mechanism and a flagship effort of the security community to support biothreat reduction. It was created as a Group of Eight (G8) signature response to 9/11. It aims to support countries in their efforts to prevent terrorist acquisition of weapons or materials of mass destruction, including those biological in nature. While the Global Partnership precedes the advent of GHSA by a dozen years, it embodies the same principles of biosecurity now embedded in the GHSA. Its founding mandates to support states in countering WMD threats include assistance to:

- develop and maintain effective border controls, law enforcement efforts, and international cooperation to detect, deter, and interdict illicit trafficking;
- develop, review, and maintain effective national export and transshipment controls over items on multilateral export control lists or other items that may contribute to the development, production or use of biological weapons;
- and minimize holdings of dangerous biological pathogens and toxins.

In the decade following its founding, the Global Partnership, whose membership had grown well past its initial eight signatories, made a push for enhanced collaboration specifically on biothreat reduction. The group worked with multilateral organizations such as the WHO, the World Organisation for Animal Health (OIE), and the United Nations Food and Agriculture Organization (FAO) to help integrate them into an international security response on biothreats and building a health-security interface. Today, its efforts are in line with those of the GHSA and Biological and Toxin Weapons Convention.
Established in 2002, the Weapons Threat Reduction Program (WTRP) is Canada’s contribution to the Global Partnership. With an annual budget of more than $70 million to develop and implement tangible programming to mitigate global WMD threats, the program supports the mutual Canadian and global missions to strengthen biosafety and biosecurity for pathogens of security concern and improve capacities to prevent, detect, and respond to biological threats.

Housed within Global Affairs Canada (the nation’s foreign ministry), WTRP works in partnership with other government agencies (including the Canadian Food Inspection Agency, Public Health Agency of Canada, and the National Microbiology Laboratory), other Global Partnership countries, as well as with regional and international organizations such as the WHO, OIE, INTERPOL, and the Association of Southeast Asian Nations (ASEAN). Major initiatives currently underway include: projects to identify, secure, and/or destroy vulnerable samples of Ebola virus in Africa; support to the WHO and other international agencies to develop a new capacity to respond to the deliberate use of disease; and the development of new solutions to enhance sustainable biosafety and biosecurity in low resource settings.

The collection of intelligence around infectious health threats has become an important role for Security (and is also extant in Defense and Military) actors that have the tools to contribute to threat detection and identification. Biothreat intelligence may once have been viewed as that which alerts authorities to biological weapons programs or bioterrorist plots (clandestine intelligence), but it has evolved into information gathering and analysis of naturally-occurring threats as well. Open Source Intelligence and Signals Intelligence emerging from the clandestine intelligence sector are increasingly being used to detect unintentional infectious disease outbreaks. The WHO operates the Global Public Health Intelligence Network, a program that assists in collecting and analyzing open-source disease intelligence. Intelligence systems may be based on scanning published media for mentions of infectious disease, or satellite imagery that reveals shifting patterns of human movement. This kind of intelligence collection may play an important role in forecasting and situational awareness of outbreaks. Public sensitivities around intelligence collection—concerns over privacy and government overreach—necessitate ethical discussions, and the intelligence tools used should be corroborated to ensure the information is relevant and actionable.
CHAPTER 3: DOMESTIC ENGAGEMENT AS FOUNDATIONAL
There is a distinction between the involvement of a nation’s DMS sectors in that country’s health security, and their involvement in global health security planning. There are many examples of positive engagement at both levels. While this review is primarily concerned with the global level, there is value in identifying strengths and weaknesses at the national level. Without national-level success in and support for health security, it may be difficult for DMS to engage fully at the international level. This chapter looks at examples and indicators of domestic health security engagement, and explores the particular role of the United States Defense sector in health security.

Challenges with DMS engagement in domestic health security

One might look to assessments such as Joint External Evaluations (JEE) and plans such as National Action Plans for Health Security (NAPHS) for indicators that could reveal the nature or extent of DMS involvement in health security. These assessments and plans may be studied to assess the extent to which these sectors were involved in their development, reflect their contributions, or contain recommendations for them. To the authors’ knowledge, analysis of the JEEs and NAPHS for this purpose is limited to a single published paper (in preprint at the time of writing) that assessed these indicators for the military sector. That study found that for the 91 JEEs evaluated, 52% included military representative(s) in the evaluation process. Military was mentioned in 86% of the JEEs in at least one core section (Prevent, Detect, Respond, Other); mentions of military involvement were highest for Respond (73% of JEEs) and lower for Prevent (36%) and Detect (30%). Only 26% of JEE reports contained recommendations for the military in any of the core areas, and among these, Respond (63%) had the highest frequency.

One expert interviewed also noted that the JEE questions related to the DMS sector are very high level and may be poor indicators of capability. For instance, the public health-law enforcement cooperation questions assess detection and response indicators, with less of a focus on prevention, preparedness, and recovery. (A trend toward greater emphasis on detection and response functions in global health security efforts was a finding of a previous evaluation.) In addition, the indicators tend to be focused on deliberate and accidental incidents, with less of a focus on outbreaks from nature.

NAPHSs are intended to drive country-level global health security activities over multiple years. They focus on a country’s domestic actions, and tend to emphasize gaps rather than what is actually being done, or identified best practices. Among the NAPHS (only 11 of which had been completed at the time of the Forshey et al. study), military was mentioned in Respond in 73% of documents; Prevent in 27%, and Detect in 36%. The study authors note that most military mentions were cursory or included as a list of national institutions. Recommendations for enhanced military engagement were made infrequently.

The NAPHS process helps countries to act on the findings of their JEE and other assessments. Exercises that help countries assess the cost of implementing their ideal action plans create the potential for multi-sector resourcing that can bring finance ministers, agriculture, military, security, interior, environment, and other sectors to the table. Planned costing exercises, however, still remain largely in the health sector. Militaries are planners. The
ability to connect planning across these sectors—bringing health security issues beyond force protection into military plans and bringing military planners into health security planning—provides the opportunity for partnership that leverages one of the defining qualities of militaries.

While we do not have comparable data to place these results in context—for instance, parallel data for other sectors—they appear to demonstrate a medium level of participation on the part of the military sector in the JEE process. It is difficult to parse whether that level of participation was a function of the level of military interest or invitation. Nor is it clear whether the level of military participation drove the modest level of recommendations for the military, or there simply were not deemed to be major changes that needed to be made with respect to their function in health security. It could be a point of further research to unravel whether the relative dearth of military participants drives a subjugation of military involvement in health security; whether there is a fundamental lack of understanding among all parties of the role military could play; and whether there is a deficit in existing metrics against which the security sector could be assessed in terms of domestic health security engagement. The authors of the JEE study referenced above note that JEEs are largely qualitative and are not designed for direct comparison across countries; however, they do reflect the priorities of the country team that gathered to conduct it.

Defense, security, and law enforcement are reflected throughout the JEE tool, a reflection of the founding intent of the GHSA to include involvement of these sectors. The IHR core capacity requirements (which the JEE is designed to evaluate) include a requirement that countries link public health and security authorities, and establish formal platforms of communication between the sectors. Yet many countries face considerable gaps in these core capacities. Among the Five Eyes, scores for this area (R.3.1) as rated from 1-5 are high (4 for Australia and Canada; 5 for New Zealand and the United States; no published JEE for the United Kingdom). Even among those that rank well, however, it is difficult to assess with great confidence how well-linked these sectors are because the JEE evaluates at such a low bar: “Evidence of at least one response, in the previous year, that effectively links public health and law enforcement, or a formal exercise or simulation involving leadership from the country’s public health and law enforcement communities.” To the extent that such an assessment would be an actual reflection of the linkage, the indicator only exists within Respond, leaving Prevent and Detect without this assessed capacity.

Intra-governmental engagement among the health, defense, military, and security sectors is, of course, variable by country, and all nations face their own politics and bureaucracies. In Australia, five departments have major responsibility for some level of pandemic activity—Foreign Affairs and Trade, Home Affairs, Defence, Agriculture, and Health—while others, such as the Department of Science and Industry, also play a role. Coordinating large bureaucracies

“While DoD’s mission is to protect military personnel, many of its research and development efforts can be leveraged to protect the civilian population, both domestic and international.”

- National Academies of Sciences, Engineering, and Medicine, Global Health and the Future Role of the United States, 2017
toward common goals is a challenge regardless of the country’s location. In the United States, Operation Warp Speed (OWS) provides a U.S. country-level example of defense-civilian collaboration for health Security. OWS is an effort between HHS and DoD to rapidly accelerate COVID-19 vaccine candidates through basic research, clinical trials, and manufacturing. DoD was chosen to co-lead this effort because of its long history of expertise in vaccine development. Despite this very public example of collaboration, a theme we heard throughout interviews was that today’s DoD is relatively disinterested in playing a major role in GHS.

The role of the United States domestically and globally

The United States has been viewed as a global leader in health security, and we provide a brief but dedicated treatment of its programs and priorities here. The funding levels, capabilities, and expectations established for its DMS entities generally exceed that of other defense ministries globally. It is a central figure in terms of the magnitude of its funding of global health security activity, its establishment of structures that have been adopted globally, and its role as a global leader. For these reasons, we outline here important elements of the U.S. global health security activity as implemented by DMS, and perspectives on challenges to building out its global role.

Security organizations, such as the Department of Homeland Security (DHS) and its component agencies (such as Customs and Border Protection, Immigration and Customs Enforcement, and Countering Weapons of Mass Destruction Office) generally support domestically oriented activities, for example, preventing illicit or dangerous material from crossing national borders, or advancing technologies such as detection devices for emergency services. DHS operates the National Biodefense Analysis and Countermeasures Center, a laboratory located on a military base that supports intelligence assessments and bioforensic analyses. Other agencies, like the FBI, operate crime laboratories, investigate potential intentional biological incidents, and provide training to enable smooth coordination between law enforcement and public health. The Biological Incident Annex, part of the U.S. National Response Framework, describes the roles of security and law enforcement in a biological incident.  

President George W. Bush’s Homeland Security Presidential Directive 10: Biodefense for the 21st Century framed outbreaks (intentional or otherwise) as a national security threat and directed that the relevant capabilities of homeland security, intelligence, law enforcement, and defense be brought to bear on the problem.

DoD operates two primary global health security programs. DTRA’s Biological Threat Reduction Program (BTRP; formerly the Cooperative Biological Engagement Program) funds capacity-building efforts with partner countries toward strengthening biosecurity, biosurveillance, and response capabilities. Global Emerging Infections Surveillance (GEIS), part of the Armed Forces Health Surveillance branch, provides technical and funding support for DoD biosurveillance, R&D, outbreak response, and capacity-building in partner countries; it also supports the work of Army and Navy biomedical laboratories located abroad, many of which represent the only advanced laboratory capacity beyond a narrow scope of pathogens. Other elements support activities that, while not strictly categorized as global health security, offer certain benefits, such as the advancement of innovative detection devices and medical countermeasures. These include the Defense Advanced Research Projects Agency; the Army Medical Research and Development
Command’s Military Infectious Diseases Research Program; the Army Medical Research Institute of Infectious Diseases; the Naval Medical Research Center and Naval Research Laboratory; the Walter Reed National Military Center; and Congressionally Directed Medical Research Programs.

The BTRP is in fact the United States government’s highest-funded global health security program. Although it currently operates below peak levels, it has generally exceeded CDC and United States Agency for International Development (USAID) budgets for global health security (Figure 1).^{71}

![Figure 1: U.S. Funding for Global Health Security FY2009-2020](https://www.kff.org/global-health-policy/issue-brief/the-u-s-government-and-global-health-security)
DoD is one of the highest funded agencies in the United States government, and while the level of that support has waxed and waned over time, it has remained an agency with substantial resources. Its global health security budget is typically double USAID’s. DoD has both money and capacity, but the allocation of those resources can be subject to geographic and political assessments. DoD takes a somewhat piece-meal, country-by-country and pathogen-by-pathogen approach. This approach is in part based on the rankings of infectious diseases and the geographic areas of largest concern, but it may also reflect the lack of a broad mandate to support a more comprehensive or systematic effort. Many countries are not in DoD’s priority portfolio, creating some inconsistencies in coverage and continuity across countries. There is some unique utility to this approach, however, in that it allows engagement to be country-specific, responding to particular needs and contexts, and taking advantage of the opportunity to strengthen partnerships and meet health security needs.

DoD sits on a number of interagency groups that support health security and/or global health security aims. For instance, Obama-era Executive Order 13676 tasked the defense secretary, along with the secretaries of agriculture and health and human services, to co-chair the Federal Interagency Task Force for Combating Antibiotic-Resistant Bacteria. The Fiscal Year 2017 National Defense Authorization Act tasked the defense secretary to co-lead the development of a National Biodefense Strategy, along with the secretaries of agriculture, health and human services, and homeland security.

DoD also implements the President’s Malaria Initiative (PMI) and the President’s Emergency Plan for AIDS Relief (PEPFAR). The military has used PMI and PEPFAR to maintain relationships with militaries, allowing it to venture into other kinds of exercises and activities. DoD has also been one of the largest U.S. funders of tropical medicine; a 2009 evaluation ranked it fifth in the world, spending more dollars annually than USAID on neglected diseases. Health engagement can provide the opportunity to foster relationships when countries or militaries might not otherwise have had a basis to do so. DoD updated and codified long-standing global health engagement policy as recently as 2017.

DoD plays a role in enhancing advanced trauma care capabilities that could benefit civilian medical care. While this activity is not directly relevant to global health security, it can extend the benefits of technology transfer to the civilian sector, as well as the transfer of knowledge and technology to foreign forces.

The DoD Chemical and Biological Defense Program is charged with developing capabilities to enable the warfighter to deter, prevent, protect against, mitigate, respond to, and recover from chemical and biological threats and their effects. DoD’s Ebola diagnostic test was the first to receive an Emergency Use Authorization for U.S. citizens. Its early investment in the Ebola therapy, Zmapp, led to clinical trials. These products were in development years before the West Africa Ebola outbreak because of a warfighter requirement for MCM capabilities against filoviruses. DoD’s field-forward approach results in an emphasis on point-of-need or point-of-care MCM, which have been lacking on the civilian side. While the NIH budget receives the lion’s share of R&D funding for global health (about 80% of the annual federal budget), DoD is second (at 7%), marginally ahead of agencies like CDC and USAID; it also has the second-most diverse portfolio, covering Ebola, malaria, HIV/AIDS, and diseases like leishmaniasis and Dengue that can affect its deployed troops. Troop protection needs are often the
same as those of civilians in developing countries, creating the opportunity for collaboration among defense and civilian agencies.

The National Academies of Sciences, Engineering, and Medicine have recommended that DoD be among the U.S. departments to continue to invest in and accelerate the development of international capabilities to detect, monitor, report, and combat antibiotic resistance; work to increase the capacity of low- and middle-income countries to respond to public health emergencies; and enable innovative clinical trial designs.74

Some experts interviewed for this report expressed that DoD, despite its expansive activity, has not been sufficiently forward-looking; that a focus on short-term goals and a narrow emphasis on protection of the warfighter reflect a prioritization of DoD’s own security goals, not national security. That is, DoD has tended to focus on war stoppers, not war starters.

This distinction represents the central tension between those who want to see DoD take on a more forceful role in achieving global health security and those who view DoD’s role in narrower terms. Experts described a Pentagon in which health security threats are not viewed as strategic or existential, and where planning for health threats is therefore not a high priority. According to this view, what DoD leadership considers a support function is better viewed as a core function that directly addresses DoD’s national security imperatives. Some have argued that DoD leadership during the Trump Administration has emphasized a narrow definition of defense more in line with Cold War-era positioning than with present-day existential health threats. DoD has been focused on preparing to fight kinetic and nuclear war with peer-competitor countries such as China and Russia, a kind of “Cold War redux.” Its view of health security is similar to its view of combat care—success means continuity of operations to support other strategic missions. It is a support function, not a strategic mission unto itself. It is the difference between fighting the opposition in traditional wars in an infection-contaminated environment, and the identification of the infection itself as the opposition.

This view posits that the Trump Administration has tended to frame DoD’s mission in narrower terms than prior Administrations, terms that effectively marginalize its role in domestic or global health security. Not all experts agree; some commented that
DoD has continued its major role in areas like surveillance, threat identification, and medical countermeasure development, and that its focus is and should remain on winning wars, not protecting the United States from infectious disease threats. The 2018 U.S. National Defense Strategy (NDS) identifies central challenges to U.S. prosperity and security as the reemergence of long-term strategic competition by “revisionist powers” (Russia and China foremost) and a weakening of the post-World War II international order capable of holding rogue or fascist regimes (like North Korea and Iran) in check. The first of its three stated lines of effort is to build a more lethal force. The strategy’s concern with biotechnology is in its capacity for bioweapons development by malevolent actors, and DoD’s interest is in leveraging it to ensure the United States can “fight and win the wars of the future.”

The 2018 NDS is a kinetic-based strategy. In some ways, it is a reflection of a prior era’s priorities and actors. It does address the cyber threat as a major one, seeming to position it well above biosecurity and pandemics as a departmental priority. The NDS expresses deep concern with weapons of mass destruction, including bioweapons, from states like North Korea.

In general, the strategy reflects DoD’s comfort with conventional physical wars and increasingly with cyber wars. Physical and cyber wars, and bioterrorism and biowarfare, all begin with mal-intentioned actors. The elevated frequency of high-consequence emerging infectious disease events has placed pressure on DoD to be ever-more involved with solutions, given its history in the global health arena and myriad capabilities that could support this mission space. Despite the department’s century-long leadership in this area, it is showing increasing discomfort, or perhaps disinterest, in continuing to lead the effort, and a willingness to defer to health authorities. One might include this disinterest on the list of other areas of DoD disdain, such as for nation building and counterinsurgency operations. Its comfort zone is quick strikes, defeat/destroy the adversary, and return to strike readiness for the next threat. DoD’s current pursuits are focused on warfighting and preparation for armed conflict, with cyber as an exception, and less of a focus on dealing with or preventing emerging strategic threats. One DoD official reported to the Bipartisan Commission on Biodefense in 2019 that DoD does not execute any programs specifically in support of the GHSA. If U.S. Defense and Military are choosing to view their role in the traditional sense of military conflicts, and much less in supporting other national efforts to prevent conflict (or pandemics) by non-military means, DoD and White House leadership should carefully and deliberately evaluate that view based on all available evidence and interagency inputs, such as global risk assessments.

DoD’s preference is to confront the problems it was created to confront—not a surprising or even unreasonable response. This is expected bureaucratic behavior from any agency or sector. And a preference for speed of action is not unreasonable from a mission utility perspective and the necessity of retaining public support; both are somewhat antithetical to public health security practice, however, which is a longer game. A reticent DoD posture with respect to emerging infectious disease may be viewed as being at odds with national security assessments and strategies. Decades ago, HIV came to be viewed as a national security threat because it was seen as a potential destabilizer. More than a dozen years of Worldwide Threat Assessments from the Director of National Intelligence reflect growing biological threats from nature, noting their impacts on human populations, their causes in human activity, and their role as an effect or driver of destabilization (Table 2):
### TABLE 2: ANNUAL PUBLIC THREAT ASSESSMENTS FROM THE U.S. OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE THAT ASSESS INFECTIOUS DISEASE AS A NATIONAL SECURITY THREAT

<table>
<thead>
<tr>
<th>Year</th>
<th>Report title</th>
<th>Selected text</th>
</tr>
</thead>
</table>
| 2006 | Annual Threat Assessment of the Director of National Intelligence for the Senate Select Committee on Intelligence | “In the 21st century, our Intelligence Community has expanded the definition of bio-threats to the US beyond weapons to naturally occurring pandemics.”
“... The international economy, whole societies, military operations, critical infrastructure, and diplomatic relations.” |
| 2008 | Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee | “The international spread of infectious diseases and the increasing emergence of new ones remain challenges to US security.”
“The most direct threat to the US is the spread of infectious pathogens to our shores, or within areas where US personnel are deployed.”
“The most pressing infectious disease challenge for the United States is still the potential emergence of a severe influenza pandemic.” |
| 2009 | Annual Threat Assessment of the Intelligence Community for the Senate Select Committee on Intelligence | “Highly publicized virulent infectious diseases—including HIV/AIDS, a potential influenza pandemic, and “mystery” illnesses such as the 2003 outbreak of severe acute respiratory syndrome (SARS)—remain the most direct health-related threats to the United States. The most pressing transnational health challenge for the United States is still the potential for emergence of a severe pandemic, with the primary candidate being a highly lethal influenza virus.” |
| 2010 | Annual Threat Assessment of the U.S. Intelligence Community for the Senate Select Committee on Intelligence | “The current influenza pandemic is the most visible reminder that health issues can suddenly emerge from anywhere in the globe and threaten American lives and US strategic objectives. It also highlights many of the United States’ critical dependencies and vulnerabilities in the health arena.” |
| 2011 | Statement for the Record on the Worldwide Threat Assessment of the U.S. Intelligence Community for the Senate Select Committee on Intelligence | “It is unlikely that any country will be able to detect cases early enough to prevent the spread of another new, highly transmissible virus should one emerge during the next five years, despite pandemic preparedness efforts by the World Health Organization (WHO) and many nations over the past decade.”
“Declining health indicators are a harbinger of a nation’s inability to protect and promote domestic stability and security, and also pose a significant security risk on regional and global levels.” |
<table>
<thead>
<tr>
<th>Year</th>
<th>Report title</th>
<th>Selected text</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Unclassified Statement for the Record on the Worldwide Threat Assessment of the U.S. Intelligence Community for the Senate Select Committee on Intelligence</td>
<td>“The past year illustrates, again, how health threats and natural disasters can not only kill and sicken thousands of people and destroy homes and livelihoods, but also challenge—and potentially destabilize—governments, as they attempt to respond.”</td>
</tr>
<tr>
<td>2013</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community: Senate Select Committee on Intelligence</td>
<td>“An easily transmissible, novel respiratory pathogen that kills or incapacitates more than one percent of its victims is among the most disruptive events possible. Such an outbreak would result in a global pandemic that causes suffering and death in every corner of the world, probably in fewer than six months. This is not a hypothetical threat.”</td>
</tr>
<tr>
<td>2014</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community: Senate Select Committee on Intelligence</td>
<td>“If H7N9 influenza or any other novel respiratory pathogen that kills or incapacitates more than 1 percent of its victims were to become easily transmissible, the outcome would be among the most disruptive events possible. Uncontrolled, such an outbreak would result in a global pandemic with suffering and death spreading globally in fewer than six months and would persist for approximately two years.”</td>
</tr>
<tr>
<td>2015</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community: Senate Armed Services Committee</td>
<td>“The world’s population remains vulnerable to infectious diseases because anticipating which pathogen might spread from animals to humans or if a human virus will take a more virulent form is nearly impossible. For example, if a highly pathogenic avian influenza virus like H7N9 were to become easily transmissible among humans, the outcome could be far more disruptive than the great influenza pandemic of 1918. It could lead to global economic losses, the unseating of governments, and disturbance of geopolitical alliances.”</td>
</tr>
<tr>
<td>2016</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community: Senate Armed Services Committee</td>
<td>“Infectious diseases and vulnerabilities in the global supply chain for medical countermeasures will continue to pose a danger to US national security in 2016.”</td>
</tr>
</tbody>
</table>
### Table 1: Global Health Security Assessments

<table>
<thead>
<tr>
<th>Year</th>
<th>Report title</th>
<th>Selected text</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community: Senate Select Committee on Intelligence</td>
<td>“The emergence of a severe global public health emergency is possible in any given year and can have negative impacts on the security and stability of a nation or region. A novel or reemerging microbe that is easily transmissible between humans and is highly pathogenic remains a major threat because such an organism has the potential to spread rapidly and kill millions.”</td>
</tr>
<tr>
<td>2018</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community</td>
<td>“The increase in frequency and diversity of reported disease outbreaks—such as dengue and Zika—probably will continue through 2018, including the potential for a severe global health emergency that could lead to major economic and societal disruptions, strain governmental and international resources, and increase calls on the United States for support.”</td>
</tr>
<tr>
<td>2019</td>
<td>Statement for the Record: Worldwide Threat Assessment of the U.S. Intelligence Community</td>
<td>“Although the international community has made tenuous improvements to global health security, these gains may be inadequate to address the challenge of what we anticipate will be more frequent outbreaks of infectious diseases because of rapid unplanned urbanization, prolonged humanitarian crises, human incursion into previously unsettled land, expansion of international travel and trade, and regional climate change.” “The ongoing crisis in Venezuela has reversed gains in controlling infectious diseases, such as diphtheria, malaria, measles, and tuberculosis, increasing the risk that these diseases could spread to neighboring countries, particularly Brazil, Colombia, and Trinidad and Tobago. Similarly, the ongoing Ebola outbreak in the Democratic Republic of the Congo—the country’s largest ever—underscores the risks posed by the nexus of infectious disease outbreaks, violent conflict, and high population density, including large numbers of internally displaced person (IDPs).”</td>
</tr>
</tbody>
</table>

Source: Director of National Intelligence public annual threat assessments are delivered as congressional testimony typically in February/March each year. Testimonies can be accessed through a variety of courses including the Office of the Director of National Intelligence website and the Homeland Security Digital Library.

Annual threat assessments dating to 1996 cite the bioweapons threat (data not shown); since 2006, however, the annual threat assessment has added its concern with the potential for significant national and global security impacts of naturally occurring high-consequence infectious disease outbreaks each year with the exception of 2007. The 2011 threat assessment introduced the term “strategic health threats” with respect to infectious disease. It noted that such threats were resulting in a resurgence of vaccine-preventable diseases, and that declining health indicators like this foretell a nation’s inability to protect and promote domestic stability and security, and pose a security risk on regional and global levels.81

A variety of policies, directives, and strategies have shaped defense and military postures with respect to global health security. Table 3, while not comprehensive, displays major extant documents that have codified the role of DoD in domestic and global health security. It roughly divides domestic and global
activities outlined in the referenced documents, although in reality the lines between them are often blurred. The domestic and international capabilities support U.S. readiness for global emergencies and strengthen the position of the United States as a leader in health security. It reveals that DoD already has both authority and mandates to engage in many activities directly or indirectly related to global health security.

**TABLE 3: THE CODIFIED ROLE OF THE U.S. DEPARTMENT OF DEFENSE IN HEALTH SECURITY AND GLOBAL HEALTH SECURITY**

<table>
<thead>
<tr>
<th>Source</th>
<th>Year</th>
<th>Key domestic role(s) outlined</th>
<th>Key international role(s) outlined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presidential Decision Directive National Science &amp; Technology Council-7 (NSTC-7)</td>
<td>1996</td>
<td>Ensure availability of diagnostic capabilities at DoD domestic and overseas laboratories</td>
<td>Work with Centers for Disease Control and Prevention on surveillance and response activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Support global surveillance, training, research and response to emerging infectious disease threats</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strengthen global disease reduction efforts through centralized coordination, improved preventive health programs and epidemiological capabilities, and enhanced involvement with military treatment facilities, and U.S. and overseas laboratories</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ensure availability of diagnostic capabilities at DoD domestic and overseas laboratories</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Make available overseas DoD laboratory facilities to serve as focal points to support foreign training</td>
</tr>
<tr>
<td>National Strategy for Pandemic Influenza Implementation Plan</td>
<td>2006</td>
<td>Implement force protection efforts to provide sufficient personnel, equipment, facilities, materials, and pharmaceuticals to care for DoD forces, civilian personnel, dependents, and beneficiaries</td>
<td>Support partner nation surveillance, response, recovery, and capacity building through many activities such as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Help implement surge plans at federal medical facilities</td>
<td>- Conduct bilateral and multilateral assessments of avian and pandemic preparedness and response plans of the militaries in partner nations or regional alliances</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With other federal agencies, implement coordinated, complementary communication plans to reach constituencies with focused and consistent messages</td>
<td>- Develop active and passive systems for inpatient and outpatient disease surveillance at DoD global institutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Assist/participate in deployments of bilateral and multilateral rapid response teams (epidemiology, diagnostics, public health management, communications)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Assist in supplying testing protocols and deploying reagents and equipment to support diagnostic requirements for animal and human testing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Amplify laboratory-based and clinical surveillance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Activate logistical capability to transport samples to the United States or other key locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Assist with deployment of stockpile materiel</td>
</tr>
<tr>
<td>Source</td>
<td>Year</td>
<td>Key domestic role(s) outlined</td>
<td>Key international role(s) outlined</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td>-------------------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| Biological Incident Annex to the Response and Recovery Federal Interagency Operational Plans | 2017 | Participate in the Integrated Consortium of Laboratory Networks  
Participate in the Public Health Emergency Medical Countermeasures Enterprise  
Provide intelligence assessments of foreign health threats to prevent strategic surprise  
Provide comprehensive health surveillance of DoD forces  
Provide an immediate response, when requested, to save lives, prevent human suffering, or mitigate great property damage  
Provide response capabilities such as medical countermeasures research, diagnostics, emergency medical and lifesaving capabilities, logistics, and transportation support  
Provide medical logistic support and general support, such as transportation, to enable civil responders, and other logistical support to law enforcement or other authorities  
Support Domestic Emergency Support Teams and Consequence Management Coordination Units  
Provide biological forensics and technical analysis | Engage in biosurveillance to detect disease and to understand the threats from endemic and emerging infectious diseases relevant to DoD forces |
Oversee the Uniformed Services University of the Health Sciences, including the Center for Global Health Engagement  
Operate the Armed Forces Health Surveillance Branch and the DoD Veterinary Services Branch | Develop and implement human and animal health, force health protection, and agriculture-related DoD global health engagement activities  
Provide foreign military assistance  
Provide foreign humanitarian and civic assistance and contribute to foreign disaster response  
Provide veterinary public and animal health services  
Assist in developing capabilities and capacities of partner nations |
| National Security Strategy | 2017 | Strengthen emergency response and unified coordination systems to rapidly characterize outbreaks  
Support biomedical innovation | Incentivize information sharing to improve resilience  
Detect and contain biothreats at their source through international collaboration on detection  
Prevent nuclear, chemical, radiological, and biological attacks from reaching the homeland |
<table>
<thead>
<tr>
<th>Source</th>
<th>Year</th>
<th>Key domestic role(s) outlined</th>
<th>Key international role(s) outlined</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Health Security Strategy 2019-2022</td>
<td>2019</td>
<td>Participate in National Disaster Medical System</td>
<td>Support relevant research and development such as through Public Health Emergency Medical Countermeasures Enterprise priorities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collaborate with Department of Health and Human Services on medical countermeasure research programs</td>
<td>Facilitate implementation and coordination of relevant DoD programs and activities that align with the Global Health Security Agenda (GHSA) and other global health security goals, particularly in biosurveillance, biosafety, and biosecurity, military-to-military or military-to-civilian capacity-building efforts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coordinate and communicate with defense ministries on global health security and GHSA needs and priorities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Work with partner-nation defense ministries and others to increase defense-sector representation in the GHSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Advance global norms on the role of militaries and military-civilian collaboration in global health security</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Provide emergency response assistance and support in coordination with other agencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Help lead U.S. government research response to zoonotic diseases, including through implementation of a U.S. government agricultural research agenda</td>
</tr>
</tbody>
</table>

Note: This table is representative. It does not capture every codification of DoD activity, such as all DoD Instructions and Directives, and deliberately excludes those that have been replaced with newer or different directives. It also does not address U.S. statute. Because this report went to press before the presidential transition, this table does not reflect works created or rescinded by the Biden Administration.

U.S. Defense representatives presented to a public meeting of the Bipartisan Commission on Biodefense in 2019, citing growing asymmetric biological threats from terrorist organizations and lone wolves that create insecurity at a national and global level, and highlight the need for unity of effort.\(^8\) The extent to which global defense and health circles, from the North Atlantic Treaty Organization (NATO) to PEPFAR, if the United States withdraws from the global stage, even incrementally, this could alter the trajectory of decisions that will be made without the input of the United States, but which will still impact the nation’s security.
The United States has recently issued two major strategic documents, the National Biodefense Strategy (NBS) and the Global Health Security Strategy (GHSS). DoD has a legal mandate (via the Fiscal Year 2017 National Defense Authorization Act) to co-develop the NBS, and has supported its development, but has yet to develop its own internal biodefense strategy as part of that process. It is critical that DoD use this as an opportunity to determine how forward-looking and outward-reaching its global health security engagement should be. It is important that as the U.S. National Security Council and the Federal Interagency work to implement the National Biodefense Strategy and Global Health Security Strategy, they explicitly and publicly reckon with priorities, programs, and budgets.
from the defense, military, and security sectors that could be better optimized to support domestic needs and global goods.

We heard often when speaking with experts that where the United States leads, others will follow, including in global health security. The GHSS delineates the functions most suited to each sector, for instance, citing a role for DHS in global health security programs as they relate to ports of entry, real-time biosurveillance, emergency response, and risk communications. Effective implementation of the GHSS will require the White House’s acknowledgement of the ways in which U.S. equities—including its own defense equities—are insufficiently represented in global discussions. A more strategic approach to inclusion of defense and security equities globally could influence both domestic policy development and the official U.S. role in global health security priorities. DoD is a large organization with many elements relevant to this mission space—uptake of a more prioritized and strategic role for the Department in health security will require specific champions; as commander and controller of homeland defense for the DoD, U.S. Northern Command may be a top choice.

Each Administration must determine its own defense priorities. Congress mandated a national biodefense strategy (in a defense authorization act) as a catalyst for more strategic planning across the interagency. The defense and security risks of emerging infectious disease could ultimately drive some Defense and Military activity in the way that now-endemic infectious diseases like HIV and malaria once did. Political, policy, and budget decisions will reveal how the Defense Department and the military in particular view their roles in global health security.
CHAPTER 4: GLOBAL ENGAGEMENT AND MULTILATERALISM
Multilateral efforts to build a global construct capable of supporting transnational health security are central to achieving a global state of security from global health threats. This section highlights some key organizations and initiatives important to those efforts.

**Multilateral efforts**

The Global Health Security Initiative (GHSI) was established in 2001 as an informal international partnership to strengthen public health preparedness and the global response to CBRN and pandemic influenza. Its members include Canada, France, Germany, Italy, Japan, Mexico, the United States, the United Kingdom, the European Commission (EC) and the WHO. There is some overlap with the Group of Seven (G7) membership and with important regional (EC) and multinational (WHO) groups of relevance to global health security. The group is less actively engaged than other entities, but it does issue annual statements and has produced or contributed to reports and guidance.

The Proliferation Security Initiative is a global effort that aims to thwart the trafficking of weapons of mass destruction, their delivery systems, and related materials. Launched in 2003, more than 100 countries now participate, committing to interdict transfers, strengthen laws that support interdiction, and facilitate information exchange with other countries.

An informal (i.e., unofficial) WHO Health Security Interface Secretariat was conceptualized in 2018 and began work within the organization’s Health Emergencies Programme in 2019, theoretically acting as the focal point for all of WHO’s security-related activities. Its conceptual purposes are to: 1) advocate for the inclusion of public health in the security sector; 2) increase WHO preparedness and response measures to deliberate events; and 3) raise awareness of the health security interface as a vital component of WHO. Its focus is primarily on deliberate events, rather than biological threats from other sources, but it could nonetheless serve a helpful function for multisectoral coordination. Although it has been in existence for a couple of years, it is not yet part of WHO’s official structure and therefore is not yet viewed as fundamentally relevant to WHO’s health security mission. The WHO is also preparing to launch a Global Cities Network backed by Norway, France, Thailand, Zambia, Brazil, Indonesia, Senegal, and South Africa to support the interface of health and security at a municipal level.

NATO is a political and military alliance of 30 countries organized to foster the mutual security of member countries. NATO’s Combined Joint CBRN Defence Task Force is trained to deal with CBRN incidents or attacks against NATO populations, territories, or forces. NATO also sponsors a Rapidly Deployable Outbreak Investigation Team (RDOIT) for the investigation of outbreaks or incidents where the intentional use of bioagents cannot be excluded. The U.S. Army Office of the Surgeon General sponsored a tabletop exercise in 2013 to provide the NATO Military Committee Medical Standardization Board Chemical, Biological, Radiological and Nuclear Medical Working Group with a way to internalize new international disease reporting requirements under the 2005 IHR. Post-tabletop recommendations suggested that NATO needs to coordinate closely with WHO when developing guidance or policy with respect to IHR. They also stated that NATO should designate an IHR Focal Point for the Joint Force Commander at the outset of any operation. The recommendations respected that NATO’s reporting obligations under IHR (2005) do
not replace or supersede normal chain-of-command reporting. The read-out noted that WHO might call upon the RDOIT capability to support its investigations.

At an international level, the prime actor helping represent law enforcement interests and ensure it is best leveraged is INTERPOL, the International Criminal Police Organization. Although it is a founding member, INTERPOL is not a prominent or outspoken member of the GHSA. The 2024 GHSA Framework cites the role of INTERPOL:

“As the world’s largest international police organization with 192 member countries, INTERPOL is a neutral body that facilitates communication, mutual assistance, and capacity building for law enforcement authorities as well as operational support on priority crime areas. One INTERPOL focus area is Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE), and many of their activities in countering CBRNE directly contribute to the goals of GHSA. INTERPOL has been developing and delivering targeted training and resources for police and key response agencies across the areas of biosafety, biosecurity and response, and promoting national and regional approaches for managing and investigating biological incidents.”

During COVID-19, INTERPOL has provided law enforcement with recommendations to protect itself in the course of disease response duties, a role that not only supports law enforcement, but also the public health interests it aims to protect. Safeguarding INTERPOL’s place at the table helps to ensure that the Security voice is represented. INTERPOL can be an effective interlocutor for global security because it is an international organization without a political agenda that can correlate the mutual interests shared by law enforcement and public health. There has been unprecedented growth in collaboration between public health and law enforcement over the past few decades, especially in developed countries. The sectors remain politically and fiscally distinct, which presents the risk of returning to silos. Increased concerns about state security on issues like mass migration, terrorism, and economic insecurity could erode the ground gained in recent years. Notably, part of the GHSA’s structure is a team of Permanent Advisors which consists of representatives from the FAO, OIE, and WHO, however, the team lacks a representative from INTERPOL or another stakeholder within DMS.

In 2014, the GHSA was established to help coordinate global implementation of the IHR. GHSA has been a central intergovernmental figure in global health security since its establishment, but some experts questioned whether its role is diminishing as some of its envisioned functions have essentially been shifted to the WHO. GHSA is discussed in further detail throughout this report.

Who’s driving global health security?

The question is who is actually driving mission ownership of global health security. Ownership can be a positive force: it allows for priority setting and accountability, ensuring that someone or some entity is performing the needed activity. But ownership should result from a conscious and deliberate decision-making process. The anecdotal sense of a bias toward Health ownership of health security may be real, but determining the nature of any such bias requires a means of evaluating it.
In the United States, Congress appropriated to DoD $257.3 million in Fiscal Year 2019 for dedicated global health security programs (BTRP and GEIS); USAID received $138 million and CDC $108.2 million. The U.K. 2016-2021 strategic framework for global health threat preparedness was jointly developed by the Department of Health and the Department for International Development (DFID). The plan’s investment of £631 million includes allocations for Health’s global health security program and for DFID investment to promote rapid scale-up of activities addressing a range of global health threats. The Australian Government has funded a variety of projects and programs to support health security, notably contributing AU$300 million toward a five-year Health Security Initiative for the Indo-Pacific region, launched by the Ministry of Foreign Affairs in 2017. Notably, the initiative is led by Australia’s Ambassador for Regional Health Security, a position without a parallel in the U.S. Department of State.

If funding levels are the criteria, the U.S. DoD would be one of the most engaged global health security actors anywhere. Its expenditures in this mission space exceed those of the CDC or USAID (Figure 1). Absolute spending figures are revealing, but must be viewed in context (Table 4). In the United States, for instance, DoD spends more dollars on global health security than CDC or USAID, although DoD is also funded at levels that dramatically exceed CDC or USAID. As a proportion of its total budget (Fiscal Year 2019 figures), DoD spends approximately 0.04% on dedicated global health security programs (the number would rise if other programs beyond BTRP and GEIS, such as troop deployments to support humanitarian response to outbreaks, or medical countermeasure research and development, were included); CDC’s proportion of dedicated spending compares at 1.64% and USAID 0.34% (of its total fund balance, which exceeds direct appropriations). While these numbers could change depending on what is categorized as global health security spending, they paint a picture of very low dedicated funding levels across key agencies.

**TABLE 4: DEDICATED U.S. GLOBAL HEALTH SECURITY SPENDING – KEY DEPARTMENTS AND AGENCIES**

<table>
<thead>
<tr>
<th>Department/Agency</th>
<th>Total spending (USD)</th>
<th>Dedicated GHS spending (USD)</th>
<th>GHS as a proportion of agency’s total spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoD</td>
<td>$674,600,000,000</td>
<td>$257,300,000</td>
<td>0.038%</td>
</tr>
<tr>
<td>USAID</td>
<td>$36,000,000,000</td>
<td>$138,000,000</td>
<td>0.383%</td>
</tr>
<tr>
<td>CDC</td>
<td>$6,593,832,000</td>
<td>$108,200,000</td>
<td>1.641%</td>
</tr>
</tbody>
</table>


Another indicator is the extent of a country’s participation in key global health security meetings. If there is a bias, can it be measured by the extent to which countries’ DMS sectors participate at the global level? Publicly, experts have stated that health security meetings are not as populated with defense representatives as they might be. Dr. Beth Cameron, a former U.S. DoD official and former National Security Council staff advisor who helped develop the GHSA, reported to the Bipartisan Commission on
Biodefense, “Around the world you don’t often see ministers of foreign affairs or defense or their delegates at these meetings.”

Some of the work we reviewed and the experts we consulted for this assessment support this view, describing either a relative dearth of DMS representatives participating in important health security meetings, or the presence of mid-level representatives who are not in positions of advanced authority.

At a 2016 meeting of delegates from 15 Economic Community of West African States (ECOWAS) nations and other invited nations and groups, participants convened to explore continued challenges in the implementation of a multisectoral, One Health approach to public health threats. Of the 247 participants, only seven were from DMS—four from Senegal (Ministry of Armed Forces, Ministry of Interior and Public Security) and three from the United States (National Security Council, Defense Threat Reduction Agency). Even among security-oriented groups, DMS participation is low relative to other sectors. Among GHSA Steering Group Members (which rotate), the United States and Australia are the only countries that routinely send delegates to the regular group meetings, and the vast majority of delegates are from the Health sector (J. Fischer, personal communication). The GHSA annual ministerial meeting is one of the most prominent global health security meetings and is more likely to attract a wider range of delegates, although official delegations and assigned speaking roles are still observed. That is, even at these important annual meetings, there are limitations on who attends and who speaks. It is difficult to discern whether the source of any disinterest in more DMS engagement stems internally from countries, or is driven top-down by the WHO, which often seems to take on the role of prime coordinator of global health security. Unfortunately, the GHSA does not publish meeting minutes, which would enable an evidence-based analysis of participation at the GHSA annual ministerial-level and other key meetings.

The WHO has oversight of the IHR and supporting country ability to prevent, detect, and respond. Acknowledgement of security is much less evident in the IHR than in the GHSA, however. From its inception, it was the aim of the GHSA to address a range of biological threats, whether accidental, natural, or deliberate; this explains why groups like the FAO, OIE, and INTERPOL were early partners. The effort to encourage partnerships among previously distinct sectors was an important specific contribution of the GHSA. But over time, the GHSA began to transform into a narrower entity whose primary purpose was supporting country-level IHR implementation. Eventually, even that role came to be WHO-led, via implementation of the JEE, a WHO tool designed to align with IHR requirements.

From the perspective of enacting multisectoral global health security, the difference between the GHSA and the WHO is that the GHSA was a space in which all parties had—or could have grown into—a level of responsibility sharing that is less likely in a WHO-led initiative. A pervasive view of the GHSA as a U.S.-led project is also not conducive to achieving international multisectoralism.

Making the global health security table multisectoral

The need for a multisectoral approach to epidemics and pandemics has been acknowledged for some time, and was clearly reflected in the approach of the GHSA. The 2020 publication of the WHO Multisectoral Preparedness Coordination Framework was a WHO acknowledgement, albeit somewhat late, that the complexity of public health challenges precludes their resolution by any one
GLOBAL ENGAGEMENT AND MULTILATERALISM

sector alone.94 The framework notes that ministries of interior and defense can contribute significantly to strengthening health emergency preparedness and health security through the provision of “intelligence, expertise and resources for engaging local infrastructure and authorities, as well as assistance with logistical requirements for responding to complex public health emergencies. In addition, these ministries are crucial for the mitigation of such public health threats as chemical, biological, radiological and nuclear incidents, whether intentional or otherwise.”

Yet ambiguity surrounds the definition of who global health security stakeholders actually are. Constituencies like the Global Partnership, the G7, the GHSI, even the Biological and Toxin Weapons Convention (not an organization but a tool that signatory nations employ) and others like them could be more formally recognized as stakeholders—even as central levers to optimizing global health security. The GHSA’s Advocacy and Communications Roadmap has become increasingly specific as to what the roles of the stakeholders are or should be; the challenge is to link those stakeholders to more refined messaging and to the actions they can take to become more involved. The global health security mission would benefit from targeted and refined outreach to those specific stakeholders that can contribute to global health security.

It was the intent of the framers of the GHSA to incorporate multisectorality as a core tenet, and to include DMS among these. GHSA was not about global health but global health security which, while lacking a standardized definition, clearly differentiated it from other global health programs in areas like maternal-child health or malaria.3 The term “security” played a somewhat dual purpose in the GHSA framing: one with respect to securing human health from high-consequence pathogens, and the other to securing the pathogens themselves from misuse. These aims necessitated the involvement of other sectors in the GHSA that work in or toward security, such as defense, law enforcement, border control, customs, counterterrorism, and diplomatic corps.

The GHSA governance structure itself is characterized by this multisectoralism, led by a Steering Group that incorporates countries, international organizations, and non-governmental stakeholders; Permanent Advisors from the WHO, FAO, and OIE; and time-limited Task Forces, one of which is entitled “Multi-Sectoral Stakeholder Engagement.”

Experts cited challenges to achieving full mutual engagement of DMS in global health security. Some of the experts noted that the “S” in GHSA became lowercase over time as the public health sector assumed leadership. Defense and Military seemed almost willing to recede to the background. The public health sector drives the (lowercase) global health security agenda, so health concerns are primary. In general, we heard that there is a resistance—or at least a perceived resistance—on the part of the health sector to: 1) integrate DMS as an equal partner into global health security; and 2) consider deliberate misuse as part of global health security frameworks and functions. The latter warrants more deliberation by global health security actors as to the ways in which the deliberate misuse community might contribute more to the goals of the nature-based outbreaks community.

These communities are quite distinct in their disciplines and the mechanics of how they operate—such as in terms of classified versus open-source information—but that does not preclude the possibility of more synergy. The question is less about whether to bring bioweapon-focused efforts under the global health security umbrella and more about what the two cohorts
can learn from one another. For instance, does the intelligence community employ biological risk assessment tools that could work for public health? Could the diplomatic contours of successful cooperative threat reduction approaches that defense and security circles have built over decades be applicable to the kinds of political and technical collaborations needed to forge more trust among nations in terms of information sharing? Are there lessons available from the defense ethos on eliminating drivers of malicious use that might spur a rethinking about drivers in the public health community?

The OIE published a biological threat reduction strategy in 2015. Its website landing page features a number of thematic areas of importance to the organization, including “Biological risks.” It links to numerous resources on topics that include bridging epidemiology and forensics; guidelines for investigation of suspicious events; the Biological and Toxin Weapons Convention; the Global Partnership; and global cooperation in countering emerging animal and zoonotic diseases. The WHO’s approach is decidedly subtle in comparison, with no home-page linkages between health and security. The Global Partnership is working with WHO on an initiative to establish a health-security interface secretariat whose purpose will be to better enable the WHO and security partners (or potential partners) to join forces on the global stage. A WHO military-civilian collaboration is already well underway (Box 3), although it is viewed by some as a small effort within a very large organization with many other competing priorities.

---

**BOX 3: THE WORLD HEALTH ORGANIZATION’S MILITARY-CIVILIAN COLLABORATION INITIATIVE FOR HEALTH SECURITY**

In 2015, the WHO launched an initiative to advance coordination between the civilian and military sectors toward improved health security. The West Africa Ebola outbreak at that time revealed inefficiencies or lack of integration of military health as a contributor to the countries’ overall health systems. Yet optimizing health security requires a ready ability to leverage all available resources.

Whereas public health operates in a sphere of evidence-based analysis and civilian societal health impact, the military operates on the basis of security, stability, and defense mandates. Yet health is an aim shared by both. To identify mutualisms, the WHO initiative convened a meeting of public health and military health officials from 52 countries in Indonesia in 2017 to seek improved integration. Representatives from both sectors committed to developing guidance on how nations can better integrate health goals and operate in a response, and have developed a draft National Collaboration Framework for the Military and the Civilian Health Sectors. They see specific potential for the military health sector to contribute to outbreak response, and to achieve this, the military health sector in a given country needs to be part of emergency preparedness planning. As part of the process, the team is assessing which of the 13 International Health Regulations lend themselves to collaboration between the two sectors.
The WHO military-civilian collaboration is predicated on country-level efforts to improve their internal coordination and priority-setting. Progress at this level could ultimately foster improved military engagement at the global priority-setting table. Identifying health security as a specified mission with specific requirements within departments or ministries could allow, for instance, “appropriate prioritization across the range of military operations, stable funding, adequate training, and visibility hitherto not devoted to these threats.” The process could assess which of the 13 IHRs could lend themselves to collaboration between Health and Military and could support practical alignment, tangible implementation priorities, and more systematic assessment.

The Global Health Security Index could provide a further guide to focusing DMS on demonstrated areas of insufficient capacity. The 2019 ranking found that national capacity in areas most relevant to the prevention, detection, and response to global catastrophic risks is weak, with at least 75% of countries receiving a low score in biosecurity, dual-use research oversight, emergency response operations, linking of public health and security authorities, and medical countermeasure dispensing. Each of these is a function in which DMS has experience and capability. Organizing around areas of need at the country and global levels could provide obvious pathways for DMS support and engagement. While the Index itself was an inadequate predictor of country-level outcomes to COVID-19 based on indexed preparedness levels, it does offer entry points to deeper analyses of health system capacities and performance, including by performer.

A 2012 evaluation determined that the effects of military investment in global health and global health security have not been quantified. This remains true, and is also true for the defense and security sectors. GHSA has developed benchmarks for security and defense via development of the JEE evaluation tool, but they are limited in scope and do not address the question of impact. GHSI has helped to develop benchmarks for global health security, but none that specifically assess military involvement. Further investigation would help uncover the cost-effectiveness of military compared to civilian interventions and identify areas of potential synergy. The same could be said for the defense and security sectors.
CHAPTER 5: THE CHOICES AHEAD
There is room for reassessing the DMS role both domestically and internationally especially given the ways that countries and the world at large were overwhelmed by COVID-19. Lessons from countries that were able to flatten their epidemic curves should be taken into account and consider what role DMS played in the response. Initial points of engagement within countries for military-civilian engagement in particular may be focused on biodefense and risk reduction of particular pathogens, which could provide a foundation for further, broader health security engagement. Considering the value-add of optimized engagement, while outlining appropriate parameters and limitations, could improve planning and preparedness for the next pandemic.

**Benefits of engagement**

The authors of this evaluation have diverse backgrounds in animal health, public health, national security, and global health security. While multisectoral representation may not be necessary to solve every problem of modern human civilization, the rise of infectious disease is one that demands it. Infectious diseases arise from and impact a wide array of sectors. The question for any sector that is weighing the value of engagement is what can it contribute and, equally important, what is the value proposition that would justify its sustained and even increased participation?

**Value to human health and well-being**

Increased or enhanced DMS involvement in health security could reshape the trajectory of health security. The involvement of DMS has already demonstrated value to civilian health. The deployment of foreign militaries to West Africa in 2015 was key to convincing several NGOs to maintain or establish operations in the affected countries. The breadth of medical countermeasures available today for infectious pathogens like HIV, Ebola, and Zika virus is the result of sizeable contributions from defense departments and ministries.

Militaries the world over bring to the table an ability to plan, exercise, implement command and control, and support logistics. These are many of the same functions needed for civilian emergency response. Militaries can provide joint trainings and other capacity building options that would benefit the public health and humanitarian response. Many also provide health care for their civilian populations.

The value of multisectoral engagement to the effective implementation of global health security, whether through the IHRs, the GHSA, or other structures or activity, is substantial. The value proposition to the civilian sector to engage with the U.S. DoD has been described as follows:

“DoD’s intramural investment in its infectious diseases research and biological threat reduction programs is driven by the needs of military personnel, but these needs (e.g., vaccines for malaria and dengue) are often the same as those affecting populations in LMICs. This overlap provides a compelling reason for senior leaders from other USG agencies and from outside USG (across various sectors and organizations) to collaborate with DoD in global health R&D. The USG and broader global health community could do more to leverage DoD’s modest investment in global health R&D.”

DMS can contribute to many functions, regardless of the origin of the threat; by collaborating with sectors like environment,
agriculture, health, interior, and finance, it can also benefit its own operations. These partnerships can enhance DMS understanding of global threats, and help them to develop mitigation strategies and risk analyses that ultimately guide national and global biodefense priorities.

DoD is a primary implementer of U.S. biodefense investment; it is one of few agencies that has seen an increase in its proposed biosecurity budgets in recent years. Through its broad global reach, force protection dictates, global biosurveillance activities, humanitarian support mandates, and domestic role in managing responses to biological events that exceed the ability of states to do so, DoD is particularly well situated and incentivized to be an equal player with responsible health authorities for preventing, detecting, responding to, and recovering from high-consequence biological threats. DTRA investments in particular have long targeted cooperative biological engagement initiatives in areas like nonproliferation, laboratory biosafety and biosecurity, and bilateral epidemiological research toward understanding and reducing risk. This global work positions DTRA BTRP to inform domestic civilian and military preparedness via threat awareness, identification, and risk analyses that can support stateside response planning, training, and exercises, as well as to stabilize and reduce risk in other nations.

Value to DMS mission areas

DMS can benefit its own operations by collaborating with sectors like environment, agriculture, health, interior, and finance. Such collaborations might help DMS to better understand the dynamics and drivers of global threats, develop mitigation strategies, and inform risk analyses for its own sector and for national and even global health security priorities.

As the U.S. Government Accountability Office has stated, a pandemic has the potential to affect DoD’s ability to accomplish its mission, and would result in increases in requests for DoD assistance from civil authorities. The same is true for any country's defense sector and militaries, and also for nearly any security organization, intelligence, law enforcement or any other, as they, too, rely on personnel to undertake their missions. These sectors will need to be properly tasked, authorized, and funded if their role is to expand.

In 1997, the Institute of Medicine framed the value-add to the U.S. military: “While the amount used to fund international health activities directly is relatively small, it has a significant payoff through reduction in the numbers of military personnel and their families who need diagnostic and treatment services. Included is research on diseases that can affect the military personnel abroad, including tropical and parasitic diseases such as malaria and dengue fever, as well as HIV/AIDS. With technical expertise in U.S. facilities and bases located around the world, DoD has often been helpful in training local medical and health ministry personnel in epidemiology and research targeted to improve public health in areas where the United States has a national interest.”

Military engagement can thus be viewed not only in the context of force protection, but national security. Militaries can build capacity in partner nations where political stability and other geopolitical pressures may be national security concerns.
Security sector agencies are usually situated where health security threats are prevalent, such as borders and ports of entry, where prompt action may be able to curtail transmission risk. Public security agencies have untapped organizational, operational, and human resource potential that, if unlocked, could strengthen national and regional health security preparedness and response.

A natural fit for the Defense sector is to address the cybersecurity threat as it relates to biothreats, pandemics, and instability. A report from The Australia Institute’s Centre for Responsible Technology evaluated the misuse of cyberspace through bots promoting misinformation regarding the spread of SARS-CoV-2, the virus that causes COVID-19. They documented a coordinated campaign across nearly 6,000 social media accounts to spread disinformation about the pandemic for political purposes. The increasing intrusion of such activities into cyberspace is likely to remain a threat and has the potential to add to the inherent instability of a biological event. This growing trend is layered upon existing cybersecurity vulnerabilities related to pathogen security.

The defense departments/ministries of the United States and its key allies face similar challenges in their health security engagement and yet bring the same variety of responsibility and capability to the table. They each face the strategic imperative to reduce top-tier threats, and to do so by leveraging collaborative opportunities with international partners. At the same time, the public health sector has expressed strong interest in coordination with the defense and security sector, but engagement has largely been limited to scale-up of military-civilian health services for emergency response. This narrow focus does not consider critical threat reduction tactics, like surveillance and attribution, biosecurity operations, multi-sectoral logistical coordination, and other functions that are
opportunities for enhanced defense, military, and security sector engagement in global health security

often in place or can be rapidly activated through security sector channels. Law enforcement, military, immigration control, and other entities can assist with core functions, including protection of critical infrastructure, bioforensics and attribution, logistics of essential services surge, and medical countermeasure distribution and dispensing. The lack of attention to more strategic, threat reduction-oriented opportunities through the defense and security sectors undermines existing capacity and initiatives that could be broadened for epidemic and pandemic preparedness.

Appropriate limitations to engagement

Despite the many ways in which DMS does engage in health security functions, this evaluation reveals some of the limits of the extent of DMS involvement in health security. Fiscal competition, layered on the possibility of mission creep, added to a bureaucracy that can further slow things down, may make partnerships unattractive. Fears around engagement also stem from possible military influence over GHS missions redirecting global and national health resources away from areas like persistent health disparities, fragile public health infrastructure, and non-infectious disease epidemics and towards more traditional military priorities.

This is already an argument against the securitization of health—let health issues be dealt with by health authorities. In a similar vein, by staying a bit below the radar, DMS may feel more empowered to simply do what needs to be done. The sector may already be aware of the risk of full engagement. DMS is in many ways self-sufficient—they have veterinarians, human medical professionals, epidemiologists, environmental sanitation experts, and many other specialists.

It is of course possible that an overuse of the global health security narrative could perpetuate a security path dependency. It could then increase the likelihood of a securitized response as the first course of action. Global health security fatigue could also become a concern, limiting the acceptance of the security rhetoric and leading to a failure to endorse emergency measures. If the global audience tires of the security narrative, an increasing use of the “health security” discourse could prove detrimental to the very concept.

There are certainly areas in which the involvement of DMS can be counterproductive to the goals at hand. In extreme cases, military action, authoritarian enforcement, and criminal justice systems can fuel public health crises, as evidenced by military operations negatively affecting cholera outbreaks in Yemen, or incarceration exacerbating disease transmission. The security sector has at times thwarted public health objectives by targeting humanitarian and healthcare workers in conflict settings, and restricting the ability of NGOs to implement interventions. This can lead to distrust of such institutions even when positive regime change occurs.

DMS objectives and use of military medical assets can fail to align with the foundational principles of humanity, neutrality, and impartiality of non-military humanitarian missions. The blending of NGO humanitarian operations with those of DMS can degrade the image of neutrality that is key to building rapport between health workers and their patients’ communities. For outbreaks occurring in zones where the military is actively engaged in a more traditional war role, and/or in locations where international or national militaries have been recent combatants, as in the DRC, the risk for health workers is heightened. In situations where combatants are unable to distinguish between warring factions,
military forces, and aid workers, the significant risk of violence is such that international organizations and NGOs may be forced to suspend activities and evacuate. Especially with regard to U.S. DoD humanitarian activities, international organizations and NGOs are concerned that their staff will “become targets of violence in settings of conflict or where anti-American or anti-Western sentiment is high” or jeopardize the perception that they are impartial by working alongside DoD personnel.

DMS has successfully filled key gaps in health systems. As previously described, DoD research and development efforts in infectious disease, for instance have led to innovations in vaccine development and preventative measures that benefit disease-endemic regions outside of the United States. These efforts are occasionally met with criticism for allotting disproportionate funding for health research to diseases that most concern military personnel rather than the security and health of the local populations.

Military engagement with health-oriented initiatives has become increasingly complex. Concerns include public perception, political concerns, and limits on availability of funding from donors to foreign defense ministries. Civilian suspicion of military motives is not unfounded. During the 2014 Ebola outbreak in Liberia, the military- and police-enforced quarantine on West Point, the poorest community in Monrovia, escalated to a violent clash as several soldiers opened fire on residents, killing a boy and wounding several others. At the same time, intelligence operations can run counter to health needs. Since a Pakistani health worker collected DNA to identify Osama bin Laden for the CIA under the guise of a Hepatitis B vaccination campaign, polio elimination campaigns in the region have been greatly stymied and health workers have become the targets of kidnappings and armed attacks. Ambiguous objectives of those offering humanitarian assistance are particularly detrimental to the efficacy of programs in areas of insecurity and political unrest.

Concerns over military incursions into aid work driven by political imperatives rather than humanitarian need are reasons to consider the many other ways that the sector can be a key player. Tension between one-off or limited-scope DMS exercises and overall systems building can drive mistrust. An added concern is that the provision of direct, short-term care by military personnel on such missions may undermine the credibility and sustainability of the host nation operations or healthcare system. Cultural differences and communication gaps between military and civilian public health sectors may also limit military participation. The GHSA can help address these issues by creating a platform under civilian leadership that enables civilian and military representative discussion of common goals. Other cited downsides from military sector involvement in global health are the unintended negative impacts on the civilian sector from diversion of funds and brain drain following the macroeconomic “guns versus butter” theory of the relationship between investment in defense and civilian goods.

In many countries, communities and populations would benefit from a better understanding of the role of DMS in supporting public health. Such understanding could increase the acceptance of their involvement in public health response and make the work of groups like law enforcement laboring to support positive public health outcomes easier and more effective. These education efforts should run parallel to initiatives promoting transparency, accountability, and proper governance.
CHAPTER 6: CONCLUSIONS AND ROADMAP
The goal of this analysis was to evaluate the nature of and hurdles to optimal inclusion of DMS in global health security efforts. In all of the literature reviewed, among the global health security frameworks, and from each of the experts, the message was that the problem of pandemics and other outbreaks of international concern can only be solved through multisectoralism. A second theme was that DMS is not integrated to its fullest extent, although the perception of this as a point of vulnerability was not always consistent.

The totality of functions required to optimize global health security surpasses the capability of any single sector to provide it. DMS is already involved in many of the core functions needed to achieve global health security. The health sector specializes in functions like biosurveillance, healthcare surge, and case management, but is less well suited to functions like threat identification and detection, logistics and transport, or bioweapons disposal. DMS offers Prevent-Detect-Respond-Recover capabilities in any number of areas, such as intelligence, early warning, medical countermeasures, reporting, remains disposition, law enforcement, and capacity-building that supports recovery.

Addressing the infectious disease challenge through intersectoral partnerships was the purpose of the GHSA. Yet the notion of a problematic securitization of global health crept in. The manifestations of these concerns remain challenging to document, as they often live in the perceptions of individuals involved in global health and global health security. Some indicators described in this report, like JEE and NAPHS defense and military involvement, global health security spending on the part of DMS, and attendance at global health security meetings may help provide some structure to the question and offer entry points for change.

Harnessing untapped enablers of biothreat reduction across the Prevent-Detect-Respond-Recover spectrum could yield wide benefits across society. It is incumbent on health and security decision-makers at national and international levels to reach an understanding of what these enablers and benefits look like. The interests and objectives of global health and national security overlap, but they can also come into conflict, and the steps these communities have taken to identify the ideal contributions of each should be increased.

A more inclusive and dedicated system of partnerships could help the community of stakeholders move beyond ad hoc approaches, and instead operate as a more integrated and systematic global organization dedicated to global health capacity building. Organizing at the country and global levels around areas of need could provide obvious entry points for DMS support and engagement. At the November 2020 GHSA annual ministerial meeting, U.S. Indo-Pacific Command and the Australian Defense Force co-hosted a side event on how defense sector partnerships can contribute to GHSA objectives—an excellent venue for multiple sectors to convene and discuss optimizing the path forward.

Self-interest and national interest are the lenses through which the defense, military, and/or security sectors are likely to prioritize global health security within their strategic plans and budgets. Whether nuclear security, cybersecurity, climate change, or pandemics, once a threat becomes understood as an existential risk to the civilization these sectors are charged with protecting, it becomes easier for all levels, from leadership to operations, to accept it as a strategic priority. For example, the defense community has taken on climate change, albeit
OPPORTUNITIES FOR ENHANCED DEFENSE, MILITARY, AND SECURITY SECTOR ENGAGEMENT IN GLOBAL HEALTH SECURITY

quietly. Evidence of its accepted importance to U.S. DoD can be found in internal documentation and in an increasing body of legislative requirements. DoD seems to understand that climate change has the potential to dramatically alter the strategic landscape and become a direct security threat: “Risks to U.S. security include extreme weather impacting installations, increased resource scarcity and food insecurity, climate migration increasing the number of refugees and internally displaced peoples, and the Arctic as a new sphere of competition.”

In defense parlance, “strategic shocks” are events that “jolt convention to such an extent that they force affected institutions to fundamentally reorient strategy, strategic investments, and missions.” If the DMS community—and Defense in particular—formally acknowledges that high-consequence global infectious disease is a strategic threat and builds programs and policy accordingly, that could prevent the strategic shock that would emerge from an outbreak far worse than COVID-19. It would enable the development of policy and planning that prioritizes activity in the context of strategic context.

Contextual threats—disease, natural disaster, underdevelopment, chronic instability—are harder for the defense establishment to predict and combat, making it easier for decision-makers to default to what they know. Defense strategies have generally veered toward convention. It is very likely that future defense-related challenges will be a strategic shock that could take the form of any number of unconventional events:

“[T]he next exigent challenge for DoD is not likely to emerge from deliberate, cross border attack by an aggressive state. Nor, is it likely to arrive via sudden missile attack on an American or allied population. Finally, neither will it likely come from an organized insurgency against a friendly government. These are all now the stock and trade of defense convention, yet probably fail to adequately represent the likeliest defense-specific and defense-relevant realities.”

Instead, it will be a confluence of purposeful threat and threats of context, like “a rapidly expanding and uncontrolled transregional epidemic,” sideling the efficacy of traditional military approaches. To the Defense sector’s credit, it has led some innovative work to improve forecasting, such as DoD-funded work with the U.S. National Aeronautics and Space Administration to monitor weather patterns with an eight-month lead time before weather events like droughts or El Niño cause outbreaks of Rift Valley fever. Defense is demonstrating its ability to anticipate some of it when motivated to do so.

COVID-19 has shown nations and the global community that, to our detriment, we are more reactive than proactive. We expend much more effort responding and preparing to respond than we do preventing. Military, policing, and public health activity are often reactive. In global health security, we have seen a notable difference in the level of attention paid to the prevention of emerging infectious disease over response elements. Yet frameworks and technical approaches have emerged that are characterized by a preventive health agenda, such as social determinants of health and One Health, that outline upstream responsibilities across a range of sectors that can both contribute and benefit from that contribution. Indeed, the Defense and Security sectors’ preventive approach to proliferation of biological weapons and materiel has long supported global health security. Its methods and overall preventive vision incorporate security and health approaches that could be mined for best practices and other kinds of assistance in broadening that approach to emerging infectious disease.
Threat reduction is critical to prevention, a function identified as uniquely undervalued in global health security, but highly valued by the military establishment.\textsuperscript{3} The Bipartisan Commission on Biodefense has identified both biological intelligence of bioattacks and their attribution as weakness in health security capability; both of these are areas to which military experience, expertise, and operational capacity could be utilized.\textsuperscript{104}

Over time, many parties have recognized the value of bringing the animal health and environmental health sectors into the global health security fold. Much work needs to be done with these sectors, especially environmental health, to ensure that the capacities and expertise they could bring to the global health security mission are realized, and progress is visible. DMS participation should be at the same level as these other critical sectors. Indeed, DMS can help to incorporate more of the animal and environmental health concerns and capabilities from within its own ranks. DMS can even be a conduit for One Health by addressing livestock diseases that pose a major threat to societal wellbeing and resilience (OIE is formalizing a partnership with INTERPOL toward such a goal). OIE and FAO have drawn upon INTERPOL expertise in the course of an ongoing project to build resilience against agrocrime and agroterrorism, and strengthening law enforcement and veterinary cooperation toward improving management of biological threats to animal health, which may include zoonoses.\textsuperscript{115} With Defense already understanding and considering the impacts of climate change, this could be a powerful voice for the impact of climate change on vector-borne diseases, an area that has received next to no attention from the GHSA. DMS could be a major catalyst for aligning otherwise siloed agendas.

The potential for improved positive engagement between DMS and health, especially with an emphasis on prevention, could positively impact the state of health security within and among countries by appealing to many of the strengths of these sectors and avoiding some of the concerns related to militarization of public health response. We suggest that the roadmap for improved engagement offered here can be implemented with prevention at the forefront, drawing on significant preventive experience and expertise resident within DMS. New strategies, upcoming meetings, and a privately expressed willingness and desire to participate in such engagements create a basis on which partners can build toward improved participation and identification of mutualisms.

An integrated view of biological threats and threat reduction demands that governments identify and prioritize the threats, and apply resources toward them through the departments, organizations, offices, and channels best poised to address them.\textsuperscript{116} These channels are the medical, military, diplomatic, humanitarian, scientific, security and other programs “able to intervene in different ways and in different contexts to eliminate, reduce, or mitigate threats at the most opportune and effective stage of threat development. Strong interagency coordination must drive these prioritization and resource allocation efforts if the needs are to be addressed and unnecessary duplication of efforts and costs are to be avoided.”\textsuperscript{116}

The discrete set of ideas that follow could potentially enhance a mutual engagement useful for stakeholders looking for concrete actions within their countries to help guide decision-making and support outward-facing engagement (Figure 2).
The following figure combines the findings of this evaluation, along with suggested solutions and a strategy for implementing them through entities, venues, or other entry points, optimizing the use of existing channels. Fully optimized DMS engagement is an important goal, but one that depends on many factors, the most important of which is political will. With political will at the country and intergovernmental level, and engaged and supportive leadership and funding, full engagement is a feasible goal within the next five years. The roadmap is organized along a rough timeline, with solutions that could be implemented in the near term (1-2 years) listed first, followed by those that may take a few years longer to consider and execute. The recommendations can be grouped thematically by communication, representation, and institutionalization.

**Near-term (1-2 years)**

**Communication**

The global health security mission would benefit from targeted and refined outreach to the specific stakeholders that can contribute to global health security.

The United Nations General Assembly should resolve that each Member State’s commitments to prevent, detect, and respond to infectious disease threats engage the Defense, Military, and Security sectors toward reinforcement of International Health Regulations capacities and implementation. This would send the message that the Assembly views these sectors’ roles as critical, helping to lay the groundwork for further efforts as outlined below.

**Venue:** United Nations General Assembly

**Representation**

Part of the Global Health Security Agenda’s structure is a team of Permanent Advisors. These advisors include representatives from the U.N. Food and Agriculture Organization, World Organisation for Animal Health, and World Health Organisation. The team lacks a representative from DMS.

The Global Health Security Agenda Steering Group should appoint INTERPOL to the GHSA’s team of Permanent Advisors. Formalizing INTERPOL as a permanent representative advisor within the Steering Group would ensure a voice for the security sector.

**Venue:** Quarterly meeting of the Global Health Security Agenda Steering Group
### Near-term (1-2 years)

#### Representation

**Few Joint External Evaluations put forth recommendations for the military.**

To improve military-civilian engagement and DMS engagement at large, and to better standardize input into Joint External Evaluations, each country undertaking a JEE should appoint at least one DMS representative to its JEE team. In addition, the external mission teams should include at least one representative from DMS. Representation across all relevant sectors for these health assessments does not have to be equal, but a process for ensuring that their perspectives and capabilities are represented is likely to improve the utility of the assessments and the preparedness activity that can be built upon them.

**Venue:** Country JEE planners; World Health Organization

#### Institutionalization

**Potential DMS roles in recovery are poorly defined.**

In part because the Global Health Security Agenda construct excludes “Recover” from “Prevent-Detect-Respond,” recovery is poorly defined and planned for, including the DMS sectors’ role within it. This insufficiency could be mitigated by ensuring that the implementation of COVID-19 recovery funding and programs coming online at national and global levels integrates DMS personnel, assets, and capabilities. Ultimately, this could help institutionalize the ways that DMS can play a role in other infectious diseases.

**Venue:** National implementation programs, development donors, and drafters of COVID-19 recovery policies and plans
### Near-term (1-2 years)

**Institutionalization**

U.S. biodefense and global health security strategies could guide the United States toward further refining and institutionalizing the modern role of its defense, military, and security sectors in domestic and global health security.

It is the obligation of the U.S. government, per National Security Presidential Memorandum-14 (Presidential Memorandum on the Support for National Biodefense), to assess biodefense capabilities and capability gaps across federal entities. No such analysis has been made publicly available, stymieing congressional and public oversight that could help ensure efforts are correctly prioritized and funded. As the White House and U.S. interagency work to implement the National Biodefense Strategy and Global Health Security Strategy, they should explicitly and publicly reckon with priorities, programs, and budgets from the defense, military, and security sectors that could be better optimized to support domestic needs and global goods. The output from the analysis should articulate and define the DMS biodefense mission space in the context of U.S. global health security efforts and priorities.

**Venue:** U.S. National Security Council

### Medium-term (More than 2 years)

**Representation**

The impacts of DMS investment in global health and global health security have not been quantified. The dearth of data makes decision-making about the optimal nature and extent of DMS involvement difficult to base on evidence.

Metrics to evaluate optimal security sector involvement in global health security should be developed. These metrics should capture Prevent, Detect, Respond, and Recover functions. Once developed, the metrics can be utilized in joint assessments that include DMS and health sectors and can lead to better decisions about optimal level of representation of DMS sectors within global health security.

**Venue:** Governments or private foundations funding the private sector and academia
## Medium-term (More than 2 years)

| Representation | Military incorporation into National Action Plans for Health Security, particularly in the context of specific entry points, is limited. National Action Plan for Health Security costing exercises are largely confined to resource needs under the health sector.  
Military and other DMS representatives should be present during National Action Plans for Health Security costing exercises and be tasked to develop cost estimates for specific deliverables. Costing exercises are central to ensuring that countries can implement planned improvements; DMS representation would add value to the costed plans to reinforce their multisectoral nature in resource mobilization and implementation.  
**Venue:** World Health Organization |
| --- | --- |
| Institutionalization | The Military sector’s engagement in global health security tends to emphasize response; and prevention, detection, and recovery to a lesser extent. Early Military and other DMS sectoral engagement at national levels in planning, needs assessments, readiness exercises, and implementation could mitigate the dearth of military incorporation into National Action Plans for Health Security and other planning processes, and in turn support optimization and institutionalization of DMS into prevention, detection, and recovery functions that have to date been overlooked.  
National preparedness planners should consider extending DMS involvement beyond Respond and into Prevent, Detect, and Recover through improved early planning and engagement at national levels. Codification of requirements to integrate DMS into these processes can occur at national policy levels or global guidance levels.  
**Venue:** National preparedness planners; World Health Organization; Global Health Security Agenda |
### SUMMARY OF RECOMMENDATIONS BY CATEGORY OF ACTOR:

<table>
<thead>
<tr>
<th>International Organizations</th>
<th>All Nations</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The United Nations General Assembly</strong> should resolve that each Member State’s commitments to prevent, detect, and respond to infectious disease threats engage Defense, Military, and Security sectors to reinforce International Health Regulations capacities and implementation.</td>
<td><strong>Each country undertaking a JEE</strong> should appoint at least one DMS representative to its JEE team. In addition, the <strong>external mission teams</strong> should include at least one representative from DMS.</td>
<td><strong>As the U.S. National Security Council and the Federal Interagency</strong> work to implement the National Biodefense Strategy and Global Health Security Strategy, they should explicitly and publicly reckon with priorities, programs, and budgets from the defense, military, and security sectors that could be better optimized to support domestic needs and global goods.</td>
</tr>
<tr>
<td><strong>The Global Health Security Agenda Steering Group</strong> should appoint INTERPOL to the GHSA’s team of Permanent Advisors. Formalizing INTERPOL as a permanent representative advisor within the Steering Group would ensure a voice for the security sector.</td>
<td><strong>National preparedness planners</strong>, supported by the <strong>World Health Organization</strong> and <strong>Global Health Security Agenda leadership</strong>, should consider extending DMS involvement in health security through improved early planning, and potentially through codification of guidance or requirements.</td>
<td></td>
</tr>
<tr>
<td><strong>The World Health Organization and the Global Health Security Agenda leadership</strong> should support national preparedness planners in developing guidance and/or codifying requirements to integrate DMS into national planning processes for health security.</td>
<td><strong>National implementation programs, development donors, and drafters of COVID-19 recovery policies and plans</strong> should ensure that the implementation of COVID-19 recovery funding and programs coming online at national and global levels integrates DMS personnel, assets, and capabilities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Governments or private foundations</strong>, in their funding of the <strong>private sector and academia</strong>, should support the development of metrics to evaluate optimal security sector involvement in global health security.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Defense, Military, and Security representatives</strong>, supported by the <strong>World Health Organization</strong>, should be present during National Action Plans for Health Security costing exercises and be tasked to develop cost estimates for specific deliverables.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX A: PROCESS AND ACKNOWLEDGEMENTS

In 2019, EcoHealth Alliance published *Building Resilience to Biothreats: An Assessment of Unmet Core Global Health Security Needs* with the support of the Smith Richardson Foundation. This assessment identified central gaps confounding the ability of the international community and nations to adequately address the 21st Century challenges posed by biological threats. One of these was that defense and security equities are insufficiently utilized for meeting global health security aims. To better understand this assertion, the authors researched following questions:

What are the historical and current roles and priorities across defense, military, and security (DMS) sectors?

Is DMS engagement happening at an optimal level? If not, what activities and priorities should or should not be emphasized?

What is a viable pathway to optimizing inclusion of DMS in global health security planning and implementation? What are the governance, policy, or programmatic opportunities to support inclusion the defense/security sector?

The authors, who have decades of experience in researching and implementing multisectoral health security projects, undertook a desk review of journal literature, gray literature, guidance, frameworks, and other strategic documents. We also reviewed fiscal investments, primarily in the United States, to identify the ways in which DMS spending is already contributing to health security. We supplemented this information with interviews of subject matter experts from a number of countries and organizations, and shared a draft report with those and additional experts for peer review. (Plans to host a stakeholder side meeting at the World Health Assembly in May 2020 in Geneva, Switzerland were impeded by the COVID-19 pandemic. The purpose would have been to solicit specific feedback on our preliminary research findings and recommendations from stakeholders. In lieu of that, the interviews and direct feedback on the roadmap provided opportunity for outside input.) Using this information, we identified challenges to full engagement and developed a roadmap that outlines specific actions and entry points for the two sectors to better engage with one another and with global health security initiatives.

Expert consultations

The following individuals provided their expertise for this project through semi-structured interview participation, review of the draft manuscript, or a combination of these activities. Their participation does not constitute an endorsement of the findings herein. Some participants chose to remain anonymous.

**Lance Brooks**  
Chief, Wide Area and Infrastructure Decontamination Branch, Homeland Security Research Program, U.S. Environmental Protection Agency

**Risa Brooks**  
Allis Chalmers Associate Professor and Director of Undergraduate Studies, Political Science, Marquette University

**Donald S. Burke**  
Jonas Salk Chair in Population Health, and Distinguished University Professor of Health Science and Policy, Epidemiology, University of Pittsburgh
Jean-Paul Chretien  
United States Navy  

Kelley Evans  
Medical Doctrine Developer (CBRN), U.S. Army Medical Center of Excellence, Doctrine Division, U.S. Department of Defense  

Fanny Ewann  
Specialized Officer, CBRNE & Vulnerable Targets Sub-directorate, Bioterrorism Prevention Unit, INTERPOL  

Julie Fischer  
Chair, GHSA Consortium (2019-2020); Senior Technical Advisor for Global Health at CRDF Global, United States  

Robert Grenfell  
Director, Health & Biosecurity, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia  

Catherine Machalaba  
Policy Advisor and Research Scientist, EcoHealth Alliance  

Simo Nikkari  
Professor – Director (R&D Department), Centre for Military Medicine, Finnish Defense Forces Logistics Command  

Papa Serigne Seck  
Technical Advisor, Animal Health, Livestock and Fisheries; Global Health Security Agenda Focal Point, Presidency of the Republic of Senegal  

Trevor Smith  
Senior Program Manager, Biological & Chemical Security, UNSCR 1540 Implementation Weapons Threat Reduction Program, Global Affairs Canada  

Ludy Suryantoro  
Head, Multisectoral Engagement for Health Security, World Health Organization  

Andy Weber  
Senior Fellow, Council on Strategic Risks; Former Assistant Secretary of Defense for Nuclear, Chemical and Biodefense, U.S. Department of Defense  

Romina Stelter  
Technical Officer, Multisectoral Engagement for Health Security, World Health Organization
REFERENCES


105. Footer KHA, Clouse E, Rayes D, et al. Qualitative accounts from Syrian health professionals regarding violations of the right to health, including the use of chemical weapons, in opposition-held Syria. BMJ Open 2018;8:e021096.


