

USAWC STRATEGY RESEARCH PROJECT

U.S. STRATEGY FOR BIOTERRORISM EMERGENCY MEDICAL PREPAREDNESS AND RESPONSE

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## ABSTRACT

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The 2002 U.S. National Security Strategy (NSS) highlights the U.S. efforts in strengthening America's homeland security. The NSS specifically uses bioterrorism as the point of reference for improved emergency management systems and charges the medical system to strengthen and manage bioterror as well as all infectious diseases and mass casualty dangers. The 2002 National Strategy for Homeland Security includes numerous emergency preparedness and response initiatives as part of the overall homeland security strategy. Several of these initiatives will significantly affect roles and responsibilities for the Department of Defense (DOD) and the Department of Health and Human Services (HHS). Additionally, many strategic elements for bioterrorism emergency preparedness and response are in the congressional bioterrorism amendment acts. The purpose of this paper is to serve as a strategic analysis of the U.S. strategy for bioterrorism emergency medical preparedness and response. Specifically, the author will analyze national security strategies pertinent to emergency preparedness and response; examine the current and emerging roles of HHS and DOD in emergency medical preparedness and response; review current bioterrorism threats; and assess interagency collaborative planning. The author also recommends that federal agencies adopt a coherent bioterrorism defense strategic framework and makes other recommendations for DOD and HHS initiatives in bioterrorism emergency medical preparedness and response.



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## U.S. STRATEGY FOR BIOTERRORISM EMERGENCY MEDICAL PREPAREDNESS AND RESPONSE

Preparing for potential bioterrorist attacks involves unique considerations that are distinct from emergency and disaster preparations necessary for other forms of terrorism, such as those that use conventional, chemical, or, possibly nuclear weapons. Bioterrorism does not announce itself with large explosions. One cannot smell, taste, or see biological agents. The attack will not be known until sick patients begin arriving in hospitals and doctor's offices, usually days later—long after the terrorist has left the scene.

—Senator Bill Frist, 2002

The 2002 U.S. National Security Strategy (NSS) highlights the U.S. efforts in strengthening America's homeland security. The NSS specifically uses bioterrorism as the point of reference for improved emergency management systems and charges the medical systems to strengthen and to manage bioterror as well as all infectious diseases and mass casualty dangers. Furthermore, the 2002 National Strategy for Homeland Security includes numerous emergency preparedness and response initiatives as part of the overall homeland security strategy. Even more so, the 2001 and 2002 bioterrorism amendments to the Public Health Service Act mandate specific actions and authorize funding for specific bioterrorism related programs.

The purpose of this paper is to assess the U.S. national strategy for bioterrorism emergency medical preparedness and response and to review existing initiatives for implementing the strategy. While the U.S. changed forever after the 9-11 attacks and during the subsequent global war on terrorism, it is important to analyze relevant aspects of various national security strategies and the implications for a national strategy for bioterrorism preparedness and response. It is also important to discuss briefly the bioterrorism threat by examining the adequacy of existing implementation initiatives. Finally, the strategy implications of several legislative mandates and the nature of federal interagency collaboration merit further analysis.

Understanding the national strategy for bioterrorism emergency medical preparedness and response is critical to planning the future public health and military health services systems. The preparedness and response organizations have roles, missions, and capabilities that are already modified or may soon be transformed. The author acknowledges that any bioterrorism incident will first require a local response and that local officials will be accountable for the initial response in their communities.<sup>1</sup> However, a local bioterrorism incident is also a national incident and involves some degree of federal response. As the U.S. military undergoes a major

transformation and the U.S. public health system reorganizes and evolves, the DOD and HHS must collaboratively align or transform U.S. emergency medical preparedness and response systems.

## **ANALYSIS OF THE U.S. NATIONAL STRATEGY FOR BIOTERRORISM EMERGENCY PREPAREDNESS AND RESPONSE**

We must prepare to minimize the damage done and recover from any future terrorist attacks that may occur despite our best efforts at prevention. Past experience has shown that preparedness efforts are key to providing an effective response to major terrorist incidents. Therefore, we need a comprehensive national system to bring together and command all necessary response assets quickly and effectively. We must equip, train, and exercise many different response units to mobilize for any emergency without warning.<sup>2</sup>

Several national strategy documents specifically address expectations and requirements for emergency medical preparedness and response. There are several public law changes and many congressional initiatives that drive the national strategy for homeland security including many homeland security missions and initiatives related to emergency preparedness and response. The congressional mandates also have significant implications for bioterrorism emergency medical preparedness and response. The combined trend in the strategy documents presume that while there has been a lot of improvement in emergency preparedness and response, there still remains an overall state of under preparedness and a 'not-there-yet' posture. Nevertheless, what is the current national strategy for bioterrorism emergency preparedness and response?

The national strategies for several critical elements of national security do exist but appear in separate documents beseeching a coherent document that captures the national strategy for emergency preparedness and response. In addition to the NSS, there is now a National Strategy for Homeland Security (NSHS) and a National Strategy to Combat Weapons of Mass Destruction (NSCWMD). Besides the existing Public Health Service Act, there are now several major bioterrorism amendments. Additionally, there are significant increases in fiscal appropriations for bioterrorism emergency preparedness and response as well as increases in the current budget request and future budget estimates. The author will review relevant elements of these national strategy documents and the major legislative bioterrorism amendments.

The essence of a potential combined strategy for emergency preparedness and response is well articulated in the "National Vision" highlighted in the first-ever NSHS. The vision statement is so comprehensive and strategically coherent that it deserves quoting in its entirety

in Figure 1. This vision actually encapsulates many broad spectrum, multi-agency missions and on-going initiatives for preparedness and response. The NSHS vision statement can easily serve as a model for a national vision for bioterrorism emergency medical preparedness and response authored by the Department of Homeland Security or the Department of Health & Human Services.

We will strive to create a fully integrated national emergency response system that is adaptable enough to win any terrorist attack, no matter how unlikely or catastrophic, as well as all manner of natural disasters. Under the President's proposal, the Department of Homeland Security will consolidate federal response plans and build a national system for incident management. The Department would aim to ensure that leaders at all levels of government have complete incident awareness and can communicate with and command all appropriate response personnel. Our federal, state, and local governments would ensure that all response personnel and organizations—including the law enforcement, military, emergency response, health care, public works, and environmental communities—are properly equipped, trained, and exercised to respond to all terrorist threats and attacks in the United States.

FIGURE 1. VISION STATEMENT—NATIONAL STRATEGY FOR HOMELAND SECURITY<sup>3</sup>

By including it in his most recent assessment of our nation, the President elevated the significance of bioterrorism preparedness and response to the nation's highest levels. During the 2003 State of the Union Address, the President announced his plans to add to the future security of the nation by asking Congress to approve additional billions of dollars for bioterrorism preparedness and response. The President said that he wanted to increase the nation's security against bioterrorism threats by proposing Project Bioshield. He proposed adding \$6 billion to the budget to make vaccines available quickly and for other bioterrorism initiatives. The President's Project Bioshield assumes that enemies will use diseases as weapons, which the nation must prepare for now.<sup>4</sup>

It is clear that the full court press framed in the national security strategy stems from prior actual attacks against the U.S. and its friends and allies as well as reinvigorated [bioterrorism] threat assessments. It is important to outline some aspects of the bioterrorism threat to keep the strategy analysis in context. But first, reviewing several national strategy documents and congressional acts will clarify the national strategic framework for emergency preparedness and response.

## NATIONAL SECURITY STRATEGY

The U.S. national security strategy will be based on a distinctly American internationalism that reflects the union of our values and our national interests. The aim of this strategy is to help make the world not just safer but better. Our goals on this path to progress are clear: political and economic freedom, peaceful relations with other states, and respect for human dignity.<sup>5</sup>

The NSS is based on a changed threat and on the premise that terrorists are organized enough to export bedlam to U.S. soil. The NSS establishes a framed path encompassing all national strategic perspectives with direct implications and expectations for emergency preparedness and response from most government departments and agencies, especially the U.S. Public Health System, the U.S. Military Health Services System, and other national medical systems. Since the NSS, by construct, sets forth the strategic goals and objectives that shape the many initiatives elucidated in other national strategy documents, it warrants a more detailed review and analysis.

The NSS talks to a global environment where partnerships and/or coalitions are essential in promoting peace by preventing acts of terror and potential use of weapons of mass destruction by remaining proactively informed and prepared to respond. Acting preemptively is no longer an “if” but rather a “when”. The U.S. will improve integrated intelligence capabilities, continue coordinating closely with allies, and transform the military forces in order to ensure the preemptive options.<sup>6</sup> The U.S. will also develop active agendas within existing alliances and other main centers of global power to focus on peace rather than war.<sup>7</sup> The NSS objectives constantly address the notion of globalization.<sup>8</sup>

The path set by the NSS aims at achieving the necessary national security goals driven by the U.S. values-based national interests. The NSS reminds, “In the war against global terrorism, we will never forget that we are ultimately fighting for our democratic values and way of life.”<sup>9</sup> The NSS specifically outlines eight major objectives that form the core of the security strategy (Table 1).<sup>10</sup> Among these eight major objectives, three objectives (highlighted) have major implications and expectations concerning preparedness and response. The first of these relevant objectives addresses defeating global terrorism with strengthened alliances and preventing attacks against the U.S. and its friends. The second pertinent objective, preventing threats with weapons of mass destruction by enemies against the U.S., its friends, or allies, appears more directly linked to preparedness and response. The third germane objective involves the U.S. security institutions’ transformation in order to take on the challenges and opportunities of this new century. Understanding these three core objectives enables better

1. Champion aspirations for human dignity;
2. ***Strengthen alliances to defeat global terrorism and work to prevent attacks against us and our friends***
3. Work with others to defuse regional conflicts;
4. ***Prevent our enemies from threatening us, our allies, and our friends, with weapons of mass destruction,***
5. Ignite a new era of global economic growth through free markets and free trade;
6. Expand the circle of development by opening societies and building the infrastructure of democracy;
7. Develop agendas for cooperative action with other main centers of global power; and
8. ***Transform America's national security institutions to meet the challenges and opportunities of the twenty-first century***

TABLE 1. NATIONAL SECURITY STRATEGY CORE OBJECTIVES

appreciation of the national strategy implications for emergency medical preparedness and response.

First, the U.S. designed the campaign against global terrorism to disrupt and destroy the terrorist organizations through numerous actions facilitated by strengthened alliances. The aim of the campaign's actions is to use all elements of power and the focus is on global terrorists who attempt to use WMD or their precursors.<sup>11</sup> The global war on terrorism and WMD has brought about the largest government reorganization since the creation of the National Security Council and the Department of Defense. At the core of the reorganization are a new cabinet-level department, a new military command, and restructuring the FBI.<sup>12</sup>

The resulting history making reorganization will also lead to major changes in emergency medical preparedness and response organizations and strategy. For instance, these organizations are expected to have all-hazards response capabilities and medical systems should be better able to handle all infectious diseases and large numbers of casualties—not just bioterror.<sup>13</sup> Such expected outcomes from our medical systems imply major changes in the organizations structured to provide emergency medical preparedness and response.

Second, another major objective of the NSS most relevant to this strategy analysis is aimed directly at preventing the use of WMD weapons and being prepared to respond if prevention fails. This WMD objective is essential in dealing with one of the many complexities of today's security environment. The security dangers are a result of new adversaries with reinvigorated motivation and which, are more likely to use WMD against the U.S.<sup>14</sup> This

objective professes prevention and preparedness against WMD threats. The objective also points to taking an innovative advantage of U.S. military forces in the preparedness and response to WMD.<sup>15</sup>

Furthermore, within the WMD objective is a comprehensive strategy to combat WMD. The NSS essentially dismisses attacks through conventional means and predicts that the adversaries will "... rely on acts of terror and, potentially, the use of weapons of mass destruction – weapons that can be easily concealed, delivered covertly, and used without warning."<sup>16</sup> The embedded strategy for combating WMD centers on proactive efforts in counterproliferation, strengthened nonproliferation, and effective consequence management.<sup>17</sup> This strategy for combating WMD sets up tremendous expectations for a prepared and responsive national emergency medical system with its own comprehensive national strategy.

Third, another core objective of note, found in the last section of the NSS, bluntly concludes that the national security institutions must transform. This transformation objective mainly addresses the armed forces and the intelligence community. The NSS noticeably re-states that defending the U.S. is the military's highest priority and actually lists four imperatives for the armed forces. The imperatives include deter, defeat, assure, and dissuade.<sup>18</sup> The latter two imperatives are new and will likely add missions to the armed forces portfolio. As a key national asset for emergency medical preparedness and response, DOD must look deeper at its current transformation initiatives for opportunities and, perhaps, necessities in transforming its military health services system and the associated organizations.

Additionally, within this transformation objective, the NSS makes edicts for the military, which are likely to change the national *military* strategy from predicting the when and where of enemy action to how the enemy might fight. The transformed military must develop technologically advanced capabilities of global reach. The broad capabilities portfolio includes homeland defense as well as access to distant potential battlegrounds.<sup>19</sup> These NSS pronouncements for the armed forces should significantly influence military transformation and the associated homeland defense organizations.

Overall, as mentioned earlier, the framed path established by the NSS encompasses all national strategic perspectives with direct implications and expectations for emergency preparedness and response from most government departments and agencies. In this regard, there are extensive strategic implications for the U.S. Public Health System and the U.S. military health services system stemming from the NSS. Thusly, the NSS and other national strategies (discussed later) provide a good understanding of strategic initiatives and laid a foundation for a national strategy for emergency medical preparedness and response, including bioterrorism.

## NATIONAL STRATEGY FOR HOMELAND SECURITY

The *National Strategy for Homeland Security* is a beginning. It calls for bold and necessary steps. It creates a comprehensive plan for using America's talents and resources to enhance our protection and reduce our vulnerability to terrorist attacks. We have produced a comprehensive national strategy that is based on the principles of cooperation and partnership. As a result of this *Strategy*, firefighters will be better equipped to fight fires, police officers better armed to fight crime, business better able to protect their data and information systems, and scientists better able to fight Mother Nature's deadliest disease. We will not achieve these goals overnight... but we will achieve them.<sup>20</sup>

President Bush directed the Office of Homeland Security, as their first order of business, to produce the first-ever NSHS in order to provide Americans "a shared cooperation of homeland security for years to come."<sup>21</sup> Describing and analyzing the homeland security charter for emergency preparedness and response greatly assists understanding its strategic construct.

The NSHS is presented as a framework highlighting major initiatives within several 'critical missions' and 'foundations'.<sup>22</sup> Two of the six major missions—'defending against catastrophic terrorism' and 'emergency preparedness and response'—contain major initiatives with significant expectations for emergency medical preparedness and response.<sup>23</sup> These two missions warrant further analysis.

Defending against catastrophic threats is a major homeland security mission filled with initiatives that have direct implications for a national strategy for bioterrorism defense. Listed in Table 2 are the six major initiatives. The five author-highlighted initiatives are, in turn, critical missions for the emergency medical preparedness and response establishment.

1. Prevent terrorist use of nuclear weapons through sensors and procedures;
2. ***Detect chemical and biological materials and attacks***
3. ***Improve chemical sensors and decontamination techniques***
4. ***Develop broad spectrum vaccines, antimicrobials, and antidotes***
5. ***Harness the scientific knowledge and tools to counter terrorism;*** and
6. ***Implement the Select Agent Program***

TABLE 2. 'DEFEND AGAINST CATASTROPHIC EVENTS' INITIATIVES IN THE NATIONAL STRATEGY FOR HOMELAND SECURITY

Emergency preparedness and response is a homeland security mission containing significant initiatives, which strategists must incorporate into a coherent national strategy for emergency medical preparedness and response. Listed in Table 3 are the twelve major initiatives<sup>24</sup> in this NSHS mission. The six author-highlighted initiatives are critical for a national bioterrorism strategy and have direct implications for emergency medical preparedness and response.

1. Integrate separate federal response plans into a single all-discipline incident management plan;
2. **Create a national incident management system;**
3. Improve tactical counterterrorist capabilities;
4. ***Enable seamless communication among all responders***
5. ***Prepare health care providers for catastrophic terrorism;***
6. ***Augment America's pharmaceutical stockpiles***
7. ***Prepare for chemical, biological, radiological, and nuclear decontamination***
8. ***Plan for military support to civil authorities***
9. Build the Citizen Corps;
10. Implement the First Responder Initiative of the Fiscal Year 2003 Budget;
11. Build a national training and evaluation system; and
12. Enhance the victim support system.

TABLE 3. 'EMERGENCY PREPAREDNESS AND RESPONSE' INITIATIVES IN THE NATIONAL STRATEGY FOR HOMELAND SECURITY

Federal, state, and local agencies are already implementing many of these initiatives and made much-needed improvements but several initiatives warrant further review. For instance, while consolidating the federal response plans is a much-needed efficiency, it implied shifting of operational agencies from the HHS to the DHS. This is problematic since Congress directed their move from a functional department with great expertise to a department focused on security. For example, Congress should further review the decision to move the National Pharmaceutical Stockpile (NPS) and the National Disaster Medical System (NDMS) from HHS to DHS control. This decision does not have a functional purpose.

On the other hand, creating a national incident management system and preparing health care providers for catastrophic terrorism are two of several initiatives that will likely provide much needed improvements in the preparedness and response systems. The author will further address some of these initiatives during a later discussion of interagency collaboration and as

part of major recommendations for adjusting the azimuth on the U.S. strategy for bioterrorism emergency medical preparedness and response.

The NSHS is a strategy created around the four priorities of the President's Fiscal Year 2003 Budget proposal. The first two priorities are at the heart of emergency medical preparedness and response: "support first responders" and "defend against bioterrorism".<sup>25</sup> These two priorities alone drive and justify the myriad of initiatives outlined in the NSHS.

It is the author's assessment that the NSHS, even more so than other national strategies, outlines numerous major initiatives that collaterally move emergency preparedness and response capabilities and systems from barely adequate to the very much-needed heightened state of readiness. The NSHS initiatives combined with the directives and allocated resources (discussed later) in the Public Health Service Act bioterrorism amendments, if implemented as intended, will provide for acceptable levels of emergency medical preparedness and response.

#### NATIONAL STRATEGY TO COMBAT WEAPONS OF MASS DESTRUCTION

Our National Strategy to Combat WMD requires much of all of us...The requirements to prevent, deter, defend against, and respond to today's WMD threats are complex and challenging. But they are not daunting. We can and will succeed in the tasks laid out in this strategy; we have no other choice.<sup>26</sup>

The NSHS emphasizes the critical need for an integrated and deliberate strategy for the U.S. to be totally prepared for countering weapons of mass destruction. Concurrently, the National Strategy to Combat Weapons of Mass Destruction details a WMD strategy based the pillars of counterproliferation, nonproliferation, and consequence management response.<sup>27</sup> Together, these two national strategy documents provide guidelines for preparing and responding to incidents involving WMD.

However, as a stand-alone document, the NSCWMD should have further elaborated on the consequence management tasks for responding to WMD. Clearly, of these three pillars forming the NSCWMD, executing consequence management to respond to WMD is one of the key tasks associated with emergency medical preparedness and response. Nonetheless, this section of the NSCWMD is very brief and mostly references what the NSHS already detailed. Thus, the emphasis of the NSCWMD is on counterproliferation and nonproliferation tasks and integration of the three pillars. Even so, the existence of the NSCWMD is testimony for the seriousness of the U.S. strategies that set specific tasks for emergency medical preparedness and response.

This national strategy for combating WMD can serve as a template for a national strategy for bioterrorism emergency medical preparedness and response. Like the NSCWMD, the

national bioterrorism strategy must mutually support the NSS and the NSHS. A coherent bioterrorism strategy can address relevant gaps found in the broader national strategies.

#### NATIONAL MILITARY STRATEGY

The DOD has not yet published the FY 03 National Military Strategy (NMS) and the Defense Planning Guidance is a classified document. However, strategists can glean many aspects of the forthcoming national military strategy from published DOD priorities, top budgetary priorities, and guidance from DOD senior leaders. For the most part, the apparent national military strategy supports the national security strategy but leaves the author suspecting a lack of parallel priorities about homeland defense.

An example of the apparent lack of parallel priorities for homeland defense is the Department of the Army's FY 04 Budget that calls for a \$93.9 billion in Total Obligation Authority from the U.S. Congress. The Army budget attempts a balanced funding approach for its top priorities.<sup>28</sup> While the budget's self-proclaimed central theme is "meeting today's threats while preparing for tomorrow's challenges,"<sup>29</sup> there does not seem to be any specific funding request to defend the homeland. Funding requirements do not account for any new initiatives or transformed organizations for responding to terrorism missions. The Army's FY 04 Budget simply tagged on 'winning the Global War on Terrorism' to its number one priority of maintaining readiness. The nation's necessarily bureaucratic military budget process cannot accommodate for immediate major changes in funding priorities.

The author does acknowledge the role of supplemental funding requests for unexpected/unplanned military response to terrorism. Moreover, in fairness to the DOD, there are indications in unclassified Defense Planning Guidance and force structure documents that DOD homeland security is a major consideration for its Total Army Analysis 11 (TAA-11) planning. TAA-11 planning includes previously initiated force structure changes in National Guard units from combat arms units to combat support and combat service support units that are high demand/low density units. Some of these units include biological detection units.<sup>30</sup>

Furthermore, linked to preparedness and response are four of the top ten DOD priorities for FY 04.<sup>31</sup> The four linked priorities are: 1) successfully pursue the global war on terrorism, 2) counter the proliferation of WMD, 3) homeland security, and 4) improve interagency process, focus, and integration. The SECDEF issued the list as a guide for developing legislative priorities for FY 04. All ten priorities are shown in order of priority in Table 4. The SECDEF refers the Secretaries of the Military Departments and other senior key leaders to the top ten

priorities but cautions them that the war on terrorism does not unseat DOD's transformation imperatives.<sup>32</sup>

- |  |
|--|
| <ol style="list-style-type: none"><li>1. <b><i>Successfully Pursue the Global War on Terrorism*</i></b></li><li>2. Strengthen Joint Warfighting Capabilities</li><li>3. Transform the joint Force</li><li>4. Optimize Intelligence Capabilities</li><li>5. Improve Force Manning</li><li>6. New Concepts of Global Engagement</li><li>7. <b><i>Counter the Proliferation of WMD*</i></b></li><li>8. <b><i>Homeland Security*</i></b></li><li>9. Streamline DoD Processes</li><li>10. <b><i>Improve Interagency Process, Focus and Integration*</i></b></li></ol> <p>* Author emphasis for DoD priorities linked to emergency preparedness and response potential missions.</p> |
|--|

TABLE 4. DOD PROPOSED TOP TEN PRIORITIES FOR FY 04

Conversely, though, budgetary priorities did not even allude to the increased financial requirements expected from emergency preparedness and response missions for DOD. This inference is from a memorandum from the Secretary of Defense (SECDEF) to the Chairman of the Committee on Armed Forces following up on an earlier discussion “on the important issues at stake as the FY 2003 defense authorization conference continues.”<sup>33</sup> The SECDEF was placing emphasis on certain items in the President's budget. This is one indicator (albeit a small one) of the apparent lower priority that preparedness and response homeland security missions have for DOD.

Notwithstanding, the DOD has already made some major changes to the way it provides military support to civil authorities though it has not published the FY 03 NMS. For instance, the NSHS highlights the new unified combatant command, Northern Command (NORTHCOM), which became operational in October 2002 and DOD charged it with the defense of the U.S. The NSHS also briefly attempts to define the military support to civil authorities in the event of terrorism as taking “the form of providing technical support and assistance to law enforcement; assisting in the restoration of law and order; loaning specialized equipment; and assisting in consequence management.”<sup>34</sup> The DOD should incorporate these homeland security expectations in its NMS.

Federal and state officials often draw upon the military abundance of expertise, especially during crisis and consequence management situations. However, there do not seem to be many formal sharing agreements in the area of homeland security. For example, one of six recommendations made by a national committee on chemical and biological terrorism was to use available military products for the near term and support research for future commercial products.<sup>35</sup> The NMS should formalize goals for military-civilian combined research efforts, especially in homeland security initiatives like bioterrorism preparedness and response.

In addition, DOD leaders clearly know that new homeland defense and homeland security issues have brought on new or changed missions requiring updated assessments in both strategy and organization. For example, the Undersecretary of Defense for Personnel and Readiness recently challenged a large group of the Military Health Services System regarding military medical organizations in the context of transformation and biological threats by asking, "are we appropriately organized to make rapid changes?"<sup>36</sup> The author contends that the Undersecretary should already know the answer.

Now that DOD activated NORTHCOM, developed the role of JTF-CS, certified additional WMD response teams, and incorporated some homeland security preparedness and response into its priorities, it is time to move further in aligning its actions with the nation's number one priority of homeland defense. Some analysts have argued that the DOD role in homeland security is fraught with competing priorities and that they should not view homeland security as primarily a military task.<sup>37</sup> The author does not view homeland defense as primarily a military task but does strongly recommend that DOD take a closer look at reorganizing to take on many new homeland defense missions.

The *U.S. Interagency Domestic Terrorism CONPLAN* already tasks DOD as the supporting agency for both the crisis management and consequence management phases during domestic terrorist incidents.<sup>38</sup> Though establishing NORTHCOM is a major step towards homeland defense duties, DOD has thus far only re-shuffled the deck in terms of action organizations that would respond to a domestic terrorism incident. There are still a lot of unresolved significant issues with procedures for how NORTHCOM will interact with other federal agencies, especially DHS.<sup>39</sup> DOD should capture the essence of the homeland security strategy, including its coordination role for NORTHCOM, in its soon to be published NMS.

#### THE PUBLIC HEALTH SERVICE ACT AND BIOTERRORISM AMENDMENTS ACTS

Besides the critical national security strategies, most recent federal initiatives in bioterrorism emergency preparedness and response stem from the bioterrorism amendments of

the *Public Health Service Act (42 U.S.C. 201)*. Specifically, the *Frist-Kennedy Public Health Threats and Emergencies Act of 2000*<sup>40</sup>, the *Frist-Kennedy Bioterrorism Preparedness Act of 2001*<sup>41</sup> and the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002*<sup>42</sup> provide the public law mandates and authorizations for numerous federal initiatives. The latter two bioterrorism amendments are congressional acts enacted to improve the ability of the U.S. to prevent, prepare for, and respond to bioterrorism threats or attacks and other public health emergencies.<sup>43</sup> Corresponding appropriations acts provided significant funding for the bioterrorism preparedness and response mandates--\$3.0 billion in 2002 and \$5.9 billion in 2003.<sup>44</sup> These congressional mandates and appropriations form a clear foundation for a national strategy for bioterrorism emergency preparedness and response and merit a brief review.

The *Frist-Kennedy Public Health Threats and Emergencies Act of 2000* mandates a comprehensive framework for prevention, preparedness, and response, establishes a Public Health Emergency Fund, directs state/local core capacity grants, urges a federal coordinating working group, authorizes a CDC revitalization, and sets expectations for monitoring and researching antimicrobial resistance.<sup>45</sup> This act also mandated the General Accounting Office (GAO) to “describe federal activities related to public health and medical consequences of a bioterrorist attack against the civilian population.”<sup>46</sup>

Prior to the 9-11 events, congressional leaders saw the writing on the wall and set in motion major changes in the world of public health emergency preparedness and response. According to Senator Frist, the *Public Health Threats and Emergencies Act of 2000* provides the coordination framework for response organizations and the basic design for strengthening their capabilities.<sup>47</sup> This act established important new programs as a countermeasure to new health threats including bioterrorism.

The subsequent *Frist-Kennedy Bioterrorism Preparedness Act of 2001* specifically aims at improving bioterrorism preparedness and response. The act called for coordinating a national strategy for bioterrorism preparedness, assuring coordination and accountability, improving state and local preparedness, protecting the safety and security of the food supply, and developing new countermeasures.<sup>48</sup> This act specifically mandated increased federal interagency coordination of efforts and response by establishing within HHS, the new position of Assistant Secretary for Public Health Emergency Preparedness and expanded the authorities of the HHS secretary.

The *Bioterrorism Preparedness Act of 2001* clearly built upon the groundwork of the previous amendment and historically increased preparedness and response expectations and exponentially increased respective funding authorizations to over \$3.0 billion in 2002 (from \$0.5

billion in 2001). Anyone developing bioterrorism strategic concepts must be familiar with the language, mandates, and authorizations set forth in this pivotal congressional act.

Finally, the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002* comprehensively enhances the mandates and authorizations made in the previous bioterrorism act. This 2002 bioterrorism act re-authorizes or amends grant programs; sets new controls for controls on biological agent and toxins; provides more food, drug supply, and drinking water safety and security measures; and re-affirms priority countermeasures to bioterrorism.<sup>49</sup> Senator Bill Frist again labeled the new amendment as “a cohesive and comprehensive framework for improving our public health system and reducing our vulnerabilities.”<sup>50</sup> This act has many pronouncements important to the national strategy and initiatives for bioterrorism emergency preparedness and response.

In addition, among many other specific provisions, this last bioterrorism act actually delineates major duties for the new HHS Assistant Secretary for Public Health Emergency Preparedness and expands expectations for the National Disaster Medical System (NDMS). This act also outlines specific procedures for the National Pharmaceutical Stockpile (now referred to as the Strategic National Stockpile) and further directs actions to build up the smallpox vaccine in stockpile. As well, this act contains many requirements that are later found in the President’s Project Bioshield<sup>51</sup> discussed further later in this paper.

Senator Frist believes that America remains highly vulnerable and not ready to deal with bioterrorist attack but is emphatic that the U.S. is “*under-prepared*” as opposed to “*unprepared*”.<sup>52</sup> Senator Frist, the only physician in the Senate and ranking member of the Congressional Subcommittee on Public Health and Safety, wrote a book for the public on biological and chemical agent threats. His experiences in dealing with the response to anthrax-laced letters sent to government offices in the fall of 2001, led him to write a good primer for the general public seeking answers to bioterrorism related questions.<sup>53</sup> Senator Frist did a good job of answering many frequently asked questions and continued the dialogue urging major strategic changes to the U.S. Public Health system.

Renewed bioterrorism threats, the 9-11 attacks, and the anthrax letter attacks coupled with new emergency preparedness and response assessments prompted much needed federal legislation. The bioterrorism-focused amendments to the long standing *Public Health Service Act* enacted in the last two years provided an historic impetus to federal agency bioterrorism preparedness and response actions. Many of the mandates are already in place or close to implementation. Still, many of the mandated initiatives remain funneled within federal agencies. Some agencies, however, press on a daily basis to expand collaboration. They are also working

on better coherent strategic plans for bioterrorism medical emergency preparedness and response.

#### DEPARTMENT OF HEALTH & HUMAN SERVICES STRATEGIC PLANNING

The Department of Health & Human Services (HHS) and its operating divisions are at the strategic center of implementing the mandates of the bioterrorism amendments to the *Public Health Service Act*. An early leading point man for HHS commented, "The HHS bioterrorism preparedness began in earnest in FY 1999 with more than 155 cooperative grants from the CDC covering all fifty states for some component of laboratory science, surveillance, planning and preparedness, communications and information technology, and training."<sup>54</sup> The author acknowledges that the new Department of Homeland Security may supplant many of HHS's strategic health services roles but contends that HHS should remain the strategic center for bioterrorism preparedness and response.

HHS both recommends national strategy positions and promulgates implementation plans for presidential and congressional directives for emergency preparedness and response. As such, HHS should have a lead agency role in developing a coherent, overarching U.S. strategy for bioterrorism emergency medical preparedness and response. Again, the roles assumed by the DHS may change the landscape for developing national strategy but HHS must have the pivotal role given the overwhelming scientific and medical elements of bioterrorism.

Published national strategy on bioterrorism within HHS is mostly limited to strategic planning documents from many of its operating divisions though there is an on-going effort to publish a strategic framework for public health emergency preparedness. For example, in 1998, the CDC published a strategic plan for preventing emerging infectious diseases that outlined its strategy for the 21<sup>st</sup> century. The plan only briefly discussed bioterrorism response as an anticipated outcome of its major goals.<sup>55</sup> In 2000, the CDC published a more detailed strategic plan for biological and chemical preparedness and response. This plan focuses on recommendations to reduce the U.S. vulnerabilities to biological and chemical terrorism and relies on federal interagency relationships.<sup>56</sup> This latter plan actually contains a good strategic framework for preparedness and response.

HHS organization and capabilities briefing slides on the department's shared computer drive contain an outlined strategic plan. HHS does not seem to broadcast well its strategic plans. When fleshed out, the HHS strategic goals and objectives form a worthwhile strategic framework. HHS should combine this framework with major objectives from the other national

strategies to form the main content of a national strategy for bioterrorism emergency preparedness and response.

Admittedly, HHS has recently drafted a public health emergency preparedness strategic framework with a major goal of enhancing preparedness for bioterrorism and other public health emergencies.<sup>57</sup> The draft identifies five major objectives similar to those outlined in the *Bioterrorism Preparedness Act of 2001*. This forthcoming HHS strategic framework is overdue from a strategic perspective but looks promising.

On the other hand, HHS has led U.S. efforts in bioterrorism preparedness and response by coordinating specific bioterrorism policy and executing the billions of dollars of bioterrorism national funding. For example, the Secretary of HHS proudly cites the “procurement of enough vaccine against smallpox for the entire population, and the allocation of \$1.1 billion for improved public health facilities and \$1 billion for research into smallpox anthrax, botulism, plague, and other diseases.”<sup>58</sup>

The Project Bioshield, mentioned earlier, affects or involves several HHS operating divisions (OPDIVS) and will set the tone for many of their strategic plans objectives. Project Bioshield is a significant umbrella effort to proliferate ongoing initiatives in the nation’s bioterrorism efforts. The proposed new authorities allow HHS to reconcile federal bioterrorism initiatives with the federal law. The President further put his seal of priority on Project Bioshield by going to the NIH headquarters and speaking to key leaders and scientists on his bioterrorism initiative.<sup>59</sup> Such personal presidential endorsement of bioterrorism efforts enhances the HHS credibility and authority in enacting numerous preparedness and response initiatives. Note that the legislative bioterrorism amendments analyzed earlier already mandated many of the packaged initiatives in Project Bioshield.

The three major components of Project Bioshield give the Secretary of Homeland Security and, specifically, the Secretary of Health and Human Services new or expanded authorities. In the first component, the President’s proposal calls for spending authority (\$6 billion over ten years) for the delivery of next-generation medical countermeasures. Through the second component, the National Institutes of Health (an operating division of HHS) would have new authorities to speed up research and development of medical countermeasures. In addition, the third component gives the Food and Drug Administration (another HHS operating division) the authority to make quickly available promising countermeasures in emergency situations.<sup>60</sup>

Homeland security concerns may actually serve as a great conduit for bioterrorism initiatives. For example, homeland security reviews brought out differing views on how to control infectious diseases. Dr. DA Henderson, the Senior Science Advisor for the Secretary of HHS,

believes that disease control is the best strategy for responding to existing diseases rather than the “siren’s call” of eradication.<sup>61</sup> The author inferred from Dr. Henderson’s lecture that the Public Health strategy for bioterrorism preparedness and response should ride on the coat tails of the national security impetus. Henderson proposed, “National security might serve as an excellent vehicle to educate policymakers and global health officials about the wisdom of disease control and the folly of eradication.”<sup>62</sup> The national security bandwagon can carry many strategic messages.

Strategic initiatives from the DHS may, on the other hand, actually complicate the scientific and health based initiatives within HHS. For example, a DHS led multi-agency initiative of strategic note is the new national Bio-watch Program. The Bio-watch program is an advanced warning medical surveillance system using existing environmental monitoring stations across the nation with samples analyzed by the Laboratory Research Network (LRN). The Bio-watch program uses bio-aerosol monitors already employed in higher threat cities like New York, Washington, D.C., Chicago, and Los Angeles.<sup>63</sup> The new Department of Homeland Security using an existing Environmental Protection Agency (EPA) monitoring system initiated this program. The Bio-Watch Program seems to be, at best, an innovative bioterrorism deterrent rather than an effective early warning system since samples take days to analyze. This program is an example of an overstated tactical capability intended to meet strategic initiatives.

HHS knows that it must proactively collaborate with DHS on both the strategic and implementation fronts and realizes that there may be competing priorities. For instance, the author listened intently at a staff meeting where a senior HHS advisor stated, “Homeland security may be hazardous to your health.”<sup>64</sup> The advisor made the statement partly in jest but points to the concern over the impact of restructuring national organizations involved in security versus emergency preparedness and response. Actually, when kept in context, the senior advisor’s comments parallel the General Accounting Office’s concern “that transferring control of these programs, including priority setting, to the new department has the potential to disrupt some programs that are critical to basic public health responsibilities.”<sup>65</sup>

Still, along its responsibilities for the health of the nation, HHS continues to review potential strategic initiatives for preparedness and response. One significant initiative is the Medical Reserve Corps (MRC). In October 2002, HHS, under the auspices of the U.S. Surgeon General, launched the MRC as part of the President’s Citizen Corps initiative. Though part of the much larger USA Freedom Corps, the MRC is a community-based network of local healthcare provider volunteer units that provide their services to local communities during large scale emergencies.<sup>66</sup> Once fully implemented, the MRC can become a significant strategic

asset for emergency medical preparedness and response, especially in response to mass casualties in the advent of WMD attack.

Overall, HHS stands well positioned at the strategic center of emergency preparedness and response though the impact of the DHS is not yet clear. HHS has an excellent preparedness and response staff fully engaged with congressional mandates to improve bioterrorism preparedness and response driven by the Secretary of HHS and the new Assistant Secretary for Public Health Emergency Preparedness. HHS also has its OPDIVS on turbo-drive for bioterrorism planning and implementation efforts given the missions embedded in congressional mandates, presidential supported programs like Project Bioshield, and DHS initiated Bio-Watch programs, and HHS led prevention programs like the national smallpox vaccination program. HHS seems to be striking a good balance between the current and future needs for bioterrorism preparedness and response. On the one hand, HHS is carrying on strategic policy implementation and publishing executable plans. On the other hand, HHS is assessing, prioritizing, and developing future strategic initiatives in an intended collaborative environment. Through all its efforts for emergency preparedness and response, HHS continuously assesses all bioterrorism threats.

#### **BIOTERRORISM THREAT**

The [Defense Science Board] task force believes that there will be another, probably more extensive, biological attack within the next few years. It could take on any form—airborne agents; contagious agents; contamination of food, water, or medical supplies; or an agricultural attack, for example. The best defense against such a threat is to begin planning and practicing for response now.<sup>67</sup>

A 1970 World Health Organization (WHO) study estimated that 50g of *Bacillus anthracis* released over an urban population of 5 million would sicken 250,000 and kill 100,000 people, and a 1993 Office of Technology Assessment (OTA) study estimated that between 130,000 and 3 million deaths would follow the release of 100kg of *B. anthracis*.<sup>68</sup>

Threats from bioterrorism make national and international news on a daily basis and are the topic of discussion for many world leaders. Even at an international economics conference in Switzerland, the Secretary of HHS warned that countries must prepare for a bioterrorist attack that will occur at any time.<sup>69</sup> The Department of State frequently issues travel warnings for various countries cautioning travelers to be prepared at all times to take protective measures against terrorist attacks. For example, the Department of State (DOS) issued a worldwide caution reminding citizens to remain alert due to increased terrorists threats that may target U.S.

civilians. They further emphasized the chemical-biological threat contrasted with the use of conventional weapons.<sup>70</sup>

Shortly after the 2001 anthrax attacks, the Forum on Emerging Infections conducted a workshop to explore biological threats and, specifically, the “issues surrounding emerging opportunities for more effective collaboration as well as scientific and programmatic needs for responding to bioterrorism.”<sup>71</sup> The overall workshop focused on biological threats and participants included a ‘who’s who’ in the current federal key leaders of emergency preparedness and response.<sup>72</sup> A review of workshop presentation topics forms a list of current issues for bioterrorism preparedness and response. The topics included the threats, vaccines, research on countermeasures, the public health infrastructure, and the scientific and policy tools. Federal, state, and local agencies already implemented many of the initiatives discussed and assessed during the workshop that became public law. The biological threats assessed were smallpox, anthrax, plague, tularemia, and botulinum toxin. Of the bioterrorist scenarios presented, workshop members deemed aerosol attacks and food-borne bioterrorism involving the high priority agents the most likely threats.<sup>73</sup>

Numerous publications published well before the 9-11 terrorist attacks and the anthrax attacks recount the bioterrorism threat. For example, one of the military’s world-renowned biodefense experts published a primer on defending against biological toxins as early as 1994 and revised it in 1997. The manual provides basic information on biological toxins while postulating their existence as a threat and the knowledge of countries not complying with the Biological Weapons Convention of 1972.<sup>74</sup> Federal agencies need to be publishing bioterrorism preparedness and response measures as well as the documented bioterrorism threat.

The DOD is one agency keenly aware of the bioterrorism threat and other WMD threats from many perspectives. For example, the threat of WMD use is very high for military forces to the extent that the Assistant Secretary of Defense (Health Affairs) published a policy memorandum specifically designating protocols as “contingency investigational new drugs [IND] protocols for force health protection.”<sup>75</sup> Such prudent preparedness measures must continue to be proliferated across the U.S.

Speaking on threats recognized by DOD, the Undersecretary of Defense for Personnel Readiness told over 3,000 military and civilian healthcare professionals at a conference that “one of the most feared asymmetrical threats that we’ve confronted in the past years is ... biological warfare.” He added, “The Bush administration and DOD have acted decisively to begin to remove the threats of anthrax and smallpox against the armed forces and the American

public.<sup>76</sup> DOD certainly recognizes the bioterrorism threats and continues to develop appropriate measures.

In an article written by the U.S. Army Surgeon General on training for terrorism response, he briefly highlights a chronological listing of actual biological agent uses. He then begins the article by pointing out that although the threat of chemical, biological, radiological, nuclear or high-yield explosive (CBRNE) weapons is centuries old, “never before has the threat seemed as evident or as imminent.”<sup>77</sup> The Army Surgeon General’s accounting of numerous CBRNE training initiatives serves to indicate the seriousness of current and future threats.

Though a review of the infectious disease process is not the intent of this paper, it is important for strategic planning to know the top potential source agents. There are numerous lists of the most dangerous biological agents for policy and strategy considerations that vary depending on the perspective (research, intelligence, mortality, etc.) or the agency (FBI, CDC, DOD, etc.). However, the most commonly used list is the CDC’s Category ‘A’ Biological Diseases/Agents listed in alphabetical order in Figure 2.<sup>78</sup> Also listed in Figure 2 are the names of the disease and/or agent technical to avoid confusion with other similar agents.

FIGURE 2.  
CATEGORY  
‘A’  
BIOLOGICAL  
DISEASES/A  
GENTS  
Numer  
ous  
intelligence  
organizations  
forecasted  
the special

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- Plague (*Yersinia pestis*)
- Smallpox (*Variola major*)
- Tularemia (*Francisella tularensis*)
- Viral hemorrhagic fevers
  - Filoviruses [e.g., Ebola, Marburg]
  - Arenaviruses [e.g., Lassa, Machupo]

nature of bioterrorism and the growing threat of bioterrorist attacks from different perspectives. Most analysis of bioterrorism threat is by nature classified though there are several unclassified assessments. For example, as early as January 2001, the National Intelligence Council issued an unclassified warning about the growing worldwide biological warfare capabilities and the threat against the U.S. posed by state and non-state actors.<sup>79</sup> The bioterrorism threat is clear and well recorded.

## **INTERAGENCY COLLABORATION ON BIOTERRORISM EMERGENCY PREPAREDNESS AND RESPONSE**

In addition, we have noted a lack of coordination among programs with responsibility for public health emergency preparedness at the local, state, and federal levels...Our reports over the last 2 years have repeatedly found that coordination among federal departments and agencies that have a role in preparing for emergencies, including terrorist attacks, is fragmented.<sup>80</sup>

What is the extent of interagency collaboration for bioterrorism emergency medical preparedness and response? Interagency coordination and collaboration is perhaps the single most critical strategic element to bioterrorism preparedness and response. Yet such collaboration is perhaps the weakest link in the myriad of factors in national bioterrorism strategy development. It is clear that there is a broad distribution of tasks associated with the responsibilities of preparing and responding to bioterrorism. For example, the GAO cites earlier investigative work that found over 20 federal departments and agencies having bioterrorism responsibilities and that the efforts were "fragmented".<sup>81</sup> Given the earlier analysis of national strategies, how does the national strategy for bioterrorism emergency medical preparedness and response impact interagency collaboration? The author is convinced that interagency collaborative planning for bioterrorism medical preparedness and response is the most critical element for ensuring a coherent bioterrorism preparedness and response national strategy; yet, it is the most lacking.

Take for example the expected strategic coordination between HHS and the new DHS. Even the GAO expresses concern over coordination challenges that may face DHS and HHS after several preparedness and response agencies consolidate under DHS. The GAO believes that though DHS will potentially simplify funding and oversight responsibilities for emergency preparedness and response, key functions remaining at HHS will bring challenges in coordination.<sup>82</sup> Although the GAO expresses some optimism for public health preparedness and response, federal agencies must heed its warning about coordination and collaboration.

Moreover, while commenting on challenges facing the new DHS, the GAO points to the multiple purposes of science and technology activities. Specifically, a GAO report emphasizes that "...collaboration between and among federal agencies will be important to the success of missions that serve dual purposes."<sup>83</sup> Hence, the GAO already identified interagency collaboration for the multi-discipline activities required by bioterrorism preparedness and response as essential and it must be deliberate.

Even during the anthrax attack crisis in the fall of 2001, the Commanding General of the U.S. Army Medical Research and Materiel Command urged government leaders to improve

communications between agencies. He further emphasized that “we must clarify which agencies have the lead role in particular circumstances.”<sup>84</sup> This is quite a significant urging by such a key player in the midst of responding to an actual bioterrorist attack.

As briefly mentioned earlier, Congress recognized the haphazard interagency collaboration and directed that HHS establish a new Assistant Secretary for Public Health Emergency Preparedness and Response charged with all interagency coordination and collaboration. Conversely, DHS has disaster and emergency capabilities in two of its directorates. In a recent report on DHS challenges, the GAO expressed concern over separating the responsibilities and cited the likely challenges for the DHS undersecretaries.<sup>85</sup> The expected DHS and HHS coordination challenges dwarf the cited internal DHS challenges.

Some interagency collaborative efforts occurred only because of presidential or congressional mandates. Perhaps government agencies can only devote resources to collaborate on mandated initiatives rather on what is clearly in the best interest of U.S. citizens. It took Presidential Decision Directive 39 (PDD-39) to get six primary departments to develop U.S. Government Interagency Domestic Terrorism Concept of Operations Plan (CONPLAN) ratified by the government in 2001.<sup>86</sup> The CONPLAN outlines guidelines for agencies to support actions in the event of a terrorist threat and directs coordinated responses under the lead federal agency.<sup>87</sup>

Several government agencies often do not share bioterrorism research results, have no mandate to share the work, and have no direct funds to conduct the research that they are doing though it is important and should be collaborative. For example, the Defense Advanced Research Projects Agency (DARPA) conducts work on genetic sequencing that may lead to the capacity for identifying the presence of a biological agent and other identification capabilities. DARPA often shares research results with other agencies. However, according to a GAO report, DARPA does not receive funding to conduct this type of research.<sup>88</sup> DARPA's bioterrorism research is an example of the lack of mandated and funded collaboration amongst federal agencies supposedly following the same national strategy.

Many government officials observed on the record the need to enhance interagency coordination and collaboration. For example, Senator Frist vehemently points out that need to improve coordination between the agencies and departments. He further urges bringing together key leaders from HHS, DOD, FEMA, and others to coordinate bioterrorism countermeasures.<sup>89</sup> Such a specific calling for collaboration at the highest levels on bioterrorism countermeasures points to the gravity of failing to do so.

Another example of emphasizing collaboration needs comes from a DOD senior leader. That is, the Undersecretary of Defense for Personnel and Readiness told a group of senior military and civilian healthcare workers that they must increase collaboration and communication across the federal government and cited the example of interagency collaboration between DOD and DVA.<sup>90</sup> Perhaps the Undersecretary should have asked for examples of actual interagency collaboration or cited areas where DOD expects new or increased collaboration. The area of bioterrorism defense, beyond vaccines, is a fertile area for interagency collaboration.

However, interagency collaboration efforts do occur especially between HHS, DOD, DVA, and lately with DHS. Interagency working groups are emerging especially for crisis action planning and coordination. A great example of proactive interagency collaboration is the work of the Defense Science Board (DSB) Task Force on Homeland Defense Against Bioterrorism co-sponsored by DOD and HHS with additional participating members from other federal, state, and local agencies as well as academia and the private sector. Their collaborative efforts resulted in 14 specific recommendations stated as bioterrorism action items for DOD, HHS, and DHS.<sup>91</sup> The DSB Task Force identified four key elements for a comprehensive response to a bioterrorism attack<sup>92</sup>, which, the author later recommends, should become the framework for a national strategy for bioterrorism emergency medical preparedness and response.

Another good example of interagency collaboration is the national Smallpox Vaccination Task Force (SVTF) formed in 2002 to develop recommendations for the White House on a national smallpox vaccination program for pre-event vaccinations. Led by HHS, the SVTF consisted of members from DOD, DOS, DVA, and a core group from CDC. Though the task force convened over a period of several months, they approached most of the collaboration in a crisis action mode given the presidential attention and unpredictable political timelines.<sup>93</sup> Nevertheless, task force members worked diligently to develop viable pre-event smallpox vaccination options that later received presidential approval.

Generally, interagency collaborative planning is undoubtedly one of most critical elements for ensuring a coherent national bioterrorism preparedness and response national strategy. While there are examples of good coordination and collaboration between federal agencies, there is a lot of room for improvement. There is also a need to sustain the momentum for collaboration on bioterrorism preparedness and response emanating from congressional mandates, presidential emphasis, and the advent of a new department. Interagency collaboration on bioterrorism is essential and HHS and DHS should be its primary proactive leaders.

## **EMERGENCY PREPAREDNESS AND RESPONSE ORGANIZATIONS**

It would be prudent to anticipate that another, probably more serious [than the anthrax attacks of 2001], *biological attack will occur within the next few years...*For this reason, it is urgent that the nation focus resources now to prepare for such an eventuality.<sup>94</sup>

One must acknowledge the value of and be thankful for the daily service provided by emergency medical preparedness and response organizations. Especially noteworthy is the dedication of the national deployable civilian and military medical augmentation teams and all first responders. Having said that, how does the national strategy for bioterrorism emergency medical preparedness and response affect these medical response organizations? There are numerous civilian and military emergency medical response organizations in the U.S. capable of responding to bioterrorist attacks. These organizations range from local first responders to federal civilian and military response augmentation organizations already alluded to earlier. All national strategy documents and legislative mandates eventually affect the roles, missions, and capabilities of these organizations.

An analysis of actual medical preparedness and response organizations is beyond the scope of this paper since the author focused it at the strategic level. However, there are various such organizations specifically designed for WMD incidents. Congressional enactments mandated these organizations or they grew from implementation on of national security initiatives. A comprehensive review of all response teams may yield invaluable insight to strategic direction in bioterrorism preparedness and response. DOD or other federal agencies should seriously consider such an assessment as a future strategic research project.

## **RECOMMENDATIONS FOR THE U.S. STRATEGY ON BIOTERRORISM EMERGENCY PREPAREDNESS AND RESPONSE**

Countering bioterrorism requires that we enlarge our capabilities of research, think creatively, and educate doctors, healthcare workers, and the general public...we must advocate federal support for public health infrastructure.<sup>95</sup>

The 9-11 terrorist attacks, the anthrax bioterrorist attacks, and the subsequent global war on terrorism changed the U.S. and the world forever. National security strategies necessarily refocused on homeland security and homeland defense. In conducting the review and analysis of the national strategy for bioterrorism emergency medical preparedness and response, the author made several observations and recommendations. However, there are some recommendations that merit additional comment for clarity. Some merit a separate presentation to avoid getting lost in the overall analysis.

**1. Adopt a National Strategy Framework for Bioterrorism Emergency Medical Preparedness and Response.**

- a. Observation: The U.S. strategy for preparedness and response is comprehensive, proactive, and much improved. However, there is a need for a specific and more coherent national strategy for bioterrorism emergency medical preparedness and response. Even the editors of a brand new professional journal on bioterrorism question the collective sense of urgency for bioterrorism preparedness and response.<sup>96</sup> The author has already pointed out the congressional mandates to coordinate bioterrorism. The need for a strategic framework for bioterrorism national strategy is clear.
- b. Recommendation: The DSB Task Force’s “Elements of Detection and Response” for bioterrorism defense, mentioned earlier, provides an excellent framework for the key elements of a national strategy for bioterrorism emergency medical preparedness and response. At Figure 4 is an author-modified version to demonstrate clearly the interaction between the critical elements. The interdependent elements succinctly capture the broad areas integral to such a much-needed national strategy. The author added the block for emphasizing interagency collaboration across all phases and elements. The author also added downward arrows to crystallize the need for continuous situational awareness during all phases in a hand-in-hand mode. A future strategic research project should propose and describe a detailed U.S. strategy for bioterrorism defense using this framework.

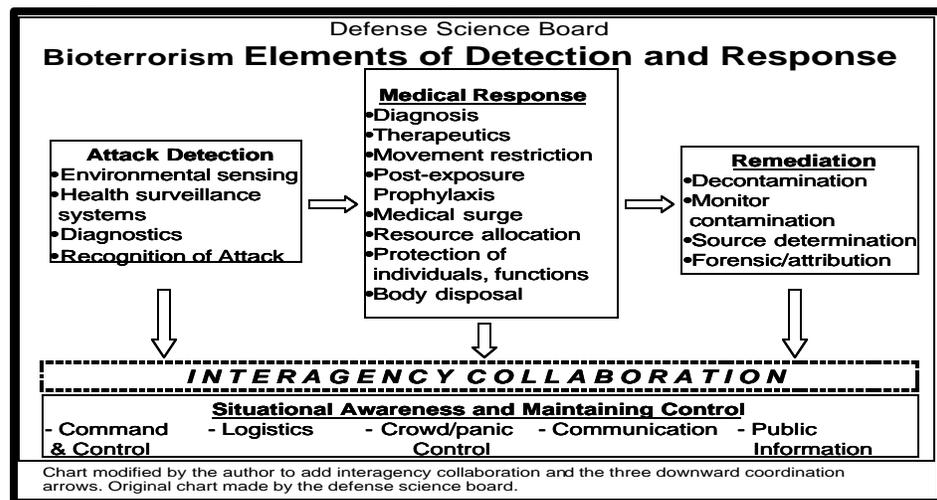


FIGURE 3. FRAMEWORK FOR BIOTERRORISM NATIONAL STRATEGY

2. ***Establish the Bioterrorism Interagency Collaboration Council (BICC).***

- a. Observation: Interagency collaboration is a critical strategic element of bioterrorism emergency medical preparedness and response. The author already pointed out the constant call by key federal leaders for interagency collaboration on bioterrorism efforts. There is also a tendency to collaborate mostly during crisis situations instead of proactively or during pre-event periods.
- b. Recommendation: The HHS and DHS should establish a high-level bioterrorism interagency collaboration council (BICC) to assess immediately all federal strategic capabilities and needs for bioterrorism emergency medical preparedness and response. Standing members should include, as the lowest level, the principal deputies to the assistant secretaries for preparedness and response from HHS, DHS, DOD, and DVA. The BICC can incorporate additional agency and OPDIV representatives depending on the specific collaborative effort. This BICC should meet at least bi-monthly and be modeled after the NSC Deputies Council but focusing on bioterrorism initiatives. Existing and new interagency working groups (IWG) would meet more frequently and report to the BICC during the bi-monthly session. One of the new IWGs should be an Interagency Science Board under the DHS whose charter is interagency R&D collaborative planning for emergency preparedness and response. The intent of the BICC itself is to be a powerful, collaborative decision-making council focused on full-spectrum strategic bioterrorism initiatives.

3. ***Establish a Joint Special Medical Augmentation Team (JSMART).***

- a. Observation: There are numerous civilian and military medical augmentation teams across the U.S. with special capabilities for responding to WMD incidents and other disaster related incidents. The DOD teams seem to be more specialized than most of the civilian teams. Though the author did not assess these operational and tactical teams, there is a pattern of service specific teams remaining from the DOD re-shuffling of missions and organizations as discussed previously. There are only a few multi-service or joint teams, which goes against the grain of DOD joint transformation efforts. DOD does not disperse well most teams across the U.S. and many would take days to respond given the current mission assignment construct of the Federal

Response Plan. Even before the events of 9-11, the Committee on R&D Needs for Improving Civilian Medical Response to Chemical and Biological Terrorism Incidents commended the Public Health Service Metropolitan Medical Strike Teams as the best federal organization for responding to medical consequence management. The committee also warned that the teams are less than optimal unless intelligence allows for their pre-deployment.<sup>97</sup>

- b. Recommendation: DOD establishes geographically dispersed joint special medical augmentation response teams (JSMART) aligned with every FEMA region. A pre-determined number of teams would remain on 24-hour alert status at all times depending on the homeland security level and other military threatcon levels. However, DOD would lock down, at known locations, the designated teams ready to deploy and employ. DOD could adopt the military's deployment ready unit concept of operations or use the Office of Emergency Response alert system. DOD could measure JSMART readiness by applying a balanced scorecard method. DOD would draw the JSMART teams from dedicated fixed facility organizations and from field-type organizations and apportion them to NORTHCOM on an actual time-phased deployment list. DOD (HA) or the U.S. Army Surgeon General, as Executive Agent, may want to use the DOD "rapid spiral transformation"<sup>98</sup> process under defense transformation to implement an experimental JSMART team. DOD (HA) should mission the JSMART with joint mission essential tasks for providing military support to civil authorities, specifically tasks associated with response to weapons of mass destruction. These recommended JSMART teams meet the criteria set out under the DOD's rapid spiral transformation and certainly meet the first pillar of transformation—strengthening joint operations.<sup>99</sup> The transformed DOD response teams would become part of the U.S. strategic arsenal for bioterrorism preparedness and response.

4. ***Prudently exploit unprecedented federal funding for bioterrorism initiatives.***

- a. Observation: Unprecedented funding decisions backed up congressional and presidential interests in bioterrorism. For example, biodefense funding infused almost a billion dollars for biodefense programs through CDC in FY 2002 and another billion in FY 2003 funds.<sup>100</sup> Additionally, the President's overall budget for HHS's plans and programs towards bioterrorism for FY 2003 is \$4.3

billion.<sup>101</sup> There are extraordinary opportunities to finance major bioterrorism preparedness and response initiatives.

- b. Recommendation: HHS, DHS, DOD, and DVA should make the most of near term federal bioterrorism funding for improving the nation's bioterrorism emergency preparedness and response programs now. A prudent full-spectrum spending plan that meets congressional and presidential intent for bioterrorism defense will require great foresight and parallel prioritization between current and future needs. Federal agencies should exercise stringent stewardship of bioterrorism funds. One pitfall could be spending huge amounts on information technology capabilities not supported by sound scientific nor long-term strategic needs. Nevertheless, key federal agencies at the epicenter of bioterrorism emergency preparedness and response should take advantage of the tremendous opportunities afforded by exceptional funding.

5. ***Encourage future strategy research in emergency preparedness and response.***

- a. Observation: Researchers should be further exploring several strategic research opportunities in the field of emergency preparedness and response.
- b. Recommendation: DOD and other academic institutions should strongly encourage strategic research projects in the below listed topics of national interest to fill potential gaps in baseline strategic concepts and framework.
  - i. What are the implications of CBRNE threat assessments on future national military strategy for homeland defense?
  - ii. Why should the U.S. Army be the DOD Executive Agent for medical support to civil authorities? What strategic guidelines should DOD adopt for medical support to civil authorities on the domestic front?
  - iii. Conduct a strategic analysis for forming a joint military-civilian medical command for homeland defense. Emergency medical preparedness and response is already a joint/combined civilian/military system of systems.
  - iv. What are the Department of Homeland Security (DHS) strategic ramifications for emergency preparedness and response perspective? The Department of Homeland Security may be dangerous to your health.

## CONCLUSION

There is an importunate need for a coherent U.S. national strategy for bioterrorism emergency preparedness and response. A review of the major national strategy documents beseeches a strategic framework to guide succinctly national bioterrorism efforts. Furthermore, the combined trend in the national strategy documents presumes that while there has been much improvement in emergency preparedness and response, there remains an overall state of under preparedness.

This analysis of the U.S. national strategy for bioterrorism emergency medical preparedness and response found an incoherent strategy mostly documented in the NSHS and the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002*. The NSHS vision statement easily serves as a model for a national vision for bioterrorism emergency medical preparedness and response that HHS or the DHS should author. Likewise, HHS or the DHS can also use the national strategy for combating WMD as a template.

The key players for strategic bioterrorism initiatives are HHS, DOD, DHS, and, to a certain extent, the DVA. Mostly, HHS positioned itself well at the strategic center of emergency preparedness and response though the impact of the DHS is not yet clear. On the other hand, as a key national asset for emergency medical preparedness and response, DOD must critically search its transformation initiatives for opportunities and, perhaps, necessities in transforming its military health services system and the associated organizations. Perhaps the recommended JSMART teams can be one of initial steps. The new DHS may supplant many of HHS's strategic health services roles. Nonetheless, HHS should remain the strategic center for bioterrorism emergency medical preparedness and response. The recommended BICC may solidify such a central role for HHS.

The national bioterrorism strategy analysis shows that it stems from well-documented bioterrorism threats and convincingly brings to the forefront the pivotal gap in interagency collaboration. Threats from bioterrorism make national and international news on a daily basis and many countermeasures ensue from the threat assessments. Interagency collaborative planning for bioterrorism medical preparedness and response is the most critical, yet most lacking, element for ensuring a coherent bioterrorism national strategy for emergency medical preparedness and response.

Public health emergency medical preparedness and response evolved tremendously and improved significantly, especially after implementation of numerous pre and post 9-11 initiatives. The military medical health system and its organizations dramatically increased terrorism response training and heightened its bioterrorism awareness but there are not many

organizational changes. Certainly, there are well-trained current organizations, which respond quickly, but there is a questionable mix of capabilities, locations, and their jointness. The U.S. strategy for bioterrorism emergency medical preparedness and response must be comprehensive, realistic, visionary, and, necessarily, deeply embedded in the national security strategy for homeland security. HHS and DHS should seriously consider using the recommended national strategy framework for bioterrorism efforts. However, most of all, a coherent national bioterrorism strategy framework must be adopted now and propagated immediately by all federal agencies.

WORD COUNT = 10,621

## ENDNOTES

<sup>1</sup> For an excellent primer on preparing for bioterrorism at the local level, see Michael R. Fraser and V. Scott Fisher, Elements of Effective Bioterrorism preparedness: A Planning Primer for Local Public Health Agencies (Washington, DC: National Association of County and City Health Officials, January 2001).

<sup>2</sup> George W. Bush, National Strategy for Homeland Security (Washington, D.C.: The White House, 16 July 2002), 1.

<sup>3</sup> Ibid, 42.

<sup>4</sup> George W. Bush, State of the Union Address (Washington, D.C.: The Capitol, 28 January 2003).

<sup>5</sup> George W. Bush, The National Security Strategy of the United States (Washington, D.C.: The White House, 17 September 2002), 1. Also available on the internet at <http://www.whitehouse.gov>.

<sup>6</sup> Ibid, 10.

<sup>7</sup> Ibid, 15

<sup>8</sup> For an extensive analysis and practical anecdotes on the concepts of globalization, see Thomas L. Friedman's book, The Lexus and the Olive Tree (New York: Anchor Books, 2000).

<sup>9</sup> Bush, The National Security Strategy of the United States, 6.

<sup>10</sup> Ibid, 3.

<sup>11</sup> Ibid, 5.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid, 8.

<sup>15</sup> Ibid, 9.

<sup>16</sup> Ibid, 10

<sup>17</sup> Ibid, 9.

<sup>18</sup> Ibid, 18.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid, iv.

<sup>21</sup> Ibid, iii-iv.

<sup>22</sup> Ibid, vii-xiii. The executive summary provides an outstanding description of the major missions and associated major initiatives.

<sup>23</sup> Ibid. The other four critical missions that align the homeland security functions are intelligence and warning, border and transportation security, domestic counterterrorism, and protecting critical infrastructure. All major missions have some implications for emergency preparedness and response but not like the two highlighted missions– defending against catastrophic terrorism and emergency preparedness and response.

<sup>24</sup> Ibid, x.

<sup>25</sup> Ibid, xii. The other two budgetary priorities for FY 03 are to ‘secure America’s borders’ and to ‘use 21<sup>st</sup>-century technology to secure the homeland’.

<sup>26</sup> George W. Bush, National Strategy to Combat Weapons of Mass Destruction (Washington, D.C.: The White House, December 2002), 2.

<sup>27</sup> Ibid, 6.

<sup>28</sup> Department of the Army, The Army Budget Fiscal Year 2004, (Washington, D.C.: U.S. Department of the Army, 3 February 2003), 1.

<sup>29</sup> Ibid, 2.

<sup>30</sup> Department of the Army, “Force Structure Current Events,” unpublished briefing from the Department of the Army Directorate of Force Management, Washington, D.C., 10 February 2003, 14.

<sup>31</sup> Secretary of Defense Donald A. Rumsfeld, “Legislative Priorities for Fiscal Year 2004,” memorandum for Secretaries of the Military Departments, Washington, D.C., 17 September 2002.

<sup>32</sup> Ibid.

<sup>33</sup> Secretary of Defense Donald A. Rumsfeld, Untitled memorandum for the Chairman of the Committee on Armed Forces [regarding FY 2003 Defense Authorization], Washington, D.C., 24 September 2002.

<sup>34</sup> Bush, National Strategy for Homeland Security, 44.

<sup>35</sup> Institute of Medicine and National Research Council, Chemical and Biological Terrorism: Research and Development to Improve Civilian Medical Response (Washington, D.C.: National Academy Press, 1999), 190.

<sup>36</sup> Rudi Williams, “Chu Challenges Medical Pros to Think about Military Medicine’s Future,” American Forces Information Service News Articles, 28 January 2003; available from

[http://www.defenselink.mil/news/Jan2003/n01282003\\_200301281.html](http://www.defenselink.mil/news/Jan2003/n01282003_200301281.html); Internet; accessed 7 February 2003.

<sup>37</sup> Steven J. Tomisek, "Homeland Security: The New Role for Defense," February 2002; available from <<http://homelandsecurity.org/journal/articles/tomisekdefense.htm>>; Internet; accessed 3 Mar 2003.

<sup>38</sup> Federal Bureau of Investigation, "U.S. Government Interagency Domestic Terrorism Concept of Operations Plan," January 2001; available from <<http://www.fbi.gov/publications/conplan/conplan.pdf>>; Internet; accessed 25 February 2003.

<sup>39</sup> Christopher Bolkom, Lloyd DeSerisy, and Lawrence Kapp, "Homeland Security: Establishment and Implementation of Northern Command," Congressional Research Service Report for Congress, RS21322 (Washington, D.C.: The Library of Congress, 23 January 2003), 1.

<sup>40</sup> Public Health Threats and Emergencies Act of 2000, Senate Resolution 2731, 106<sup>th</sup> Congress, 2d session, 14 June 2000, 1.

<sup>41</sup> Bioterrorism Preparedness Act of 2001, House Resolution 3310, 107<sup>th</sup> Congress, 1<sup>st</sup> session, 16 November 2001, 1.

<sup>42</sup> Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Public Law 107-188, 107<sup>th</sup> Congress, 2d session, 12 June 2002, 1.

<sup>43</sup> Public Health Threats and Emergencies Act of 2000, 1.

<sup>44</sup> Dean Rosen, "Bioterrorism Legislation in the 107<sup>th</sup> Congress," undated; available from <[http://www.kaisernetwork.org/health\\_cast/uploaded\\_files/rosen\\_presentation.pdf](http://www.kaisernetwork.org/health_cast/uploaded_files/rosen_presentation.pdf)>; Internet; accessed 12 February 2003, 3.

<sup>45</sup> *Ibid*, 2.

<sup>46</sup> General Accounting Office, Bioterrorism: Federal Research and Preparedness Activities, GAO-01-915 (Washington, D.C.: U.S. General Accounting Office, September 2001), 2.

<sup>47</sup> *Ibid*, 154.

<sup>48</sup> Bioterrorism Preparedness Act of 2001, 1-4.

<sup>49</sup> Public Health Security and Bioterrorism Preparedness and Response Act of 2002, 1-3.

<sup>50</sup> Bill Frist, "Public Health and National Security: The Critical Role of Increased Federal Support," Health Affairs 21, no. 6 (November/December 2002): 118.

<sup>51</sup> Office of the Press Secretary, "Project Bioshield," 3 February 2003; information paper available from <http://www.whitehouse.gov/news/releases/2003/02/print/20030203.html>; Internet; accessed 4 February 2003.

<sup>52</sup> Ibid, 159.

<sup>53</sup> William "Bill" H. Frist, When Every Moment Counts: What You Need to Know About Bioterrorism from the Senate's only doctor / Bill Frist (Lanham, MD: Rowman & Littlefield Publishers, Inc., 2002), 18.

<sup>54</sup> Scott R. Lillibridge, "Bioterrorism: Communicating an Effective Response," in Biological Threats and Terrorism: Assessing the Science and Response Capabilities/Workshop Summary, eds. Stacey L. Knobler, Adel A.F. Mahmoud, and Leslie A. Pray (Washington, D.C.: National Academy Press, 2002), 39.

<sup>55</sup> Center for Disease Control and Prevention, Preventing Emerging Infectious Diseases: A Strategy for the 21<sup>st</sup> Century (Atlanta, GA: Center for Disease Control and Prevention, October 1998), x.

<sup>56</sup> Center for Disease Control and Prevention, Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response, 21 April 2000; available from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4904a1.htm> >; Internet; accessed 3 Mar 2003.

<sup>57</sup> Office of the Assistant Secretary for Public Health Emergency Preparedness, Department of Health and Human Services, "HHS Program for Public Health Emergency Preparedness: Strategic Framework," draft document obtained from one of its action officers, 27 Jan 2003.

<sup>58</sup> Robert J. McCartney, "Nations Urged to Boost Efforts Against Bioterrorism," The Washington Post, 26 January 2003, section A, p. 18.

<sup>59</sup> Office of the Press Secretary, the White House, "President Discusses Measures to Protect the Homeland from Bioterrorism," 3 February 2003; transcript of remarks available from <http://www.whitehouse.gov/news/releases/2003/02/print/20030203-13.html>; Internet; accessed 4 February 2003, 1.

<sup>60</sup> Ibid, 2.

<sup>61</sup> DA Henderson, "Dreams and Realities in Disease Eradication," 31 January 2003; lecture video cast transcript available from <http://videocast.nih.gov/ram/fic012803.ram>>; Internet; accessed 6 February 2003.

<sup>62</sup> John T. Softcheck, "We Must Eradicate the Notion of Disease Eradication, Says Henderson," Washington Fax, 31 January 2003, forwarded in electronic mail message from Marc Wolfson <[marc.wolfson@hhs.gov](mailto:marc.wolfson@hhs.gov)> to Angel L. Lugo <[angel.lugo@hhs.gov](mailto:angel.lugo@hhs.gov)>, 31 January 2003.

<sup>63</sup> Judith Miller, "U.S. Is Deploying a Monitor System for Germ Attacks," New York Times, 22 January 2003; available from <http://www.nytimes.com/2003/01/22/national/22DISE.html?pagewanted=print&position=top>>; Internet; accessed 7 February 2003.

<sup>64</sup> A senior science advisor at DHHS made the statement during a discussion of the biological agent national surveillance program called “biowatch” at a routine staff meeting. The author recorded the non-attribution comment in personal meeting notes.

<sup>65</sup> General Accounting Office, Homeland Security: New Department Could Improve Coordination but May Complicate Public Health Priority Setting, GAO-02-883T(Washington, D.C.: U.S. General Accounting Office, June 2002), 2.

<sup>66</sup> Medical Reserve Corps, “The Medical Reserve Corps Frequently Asked Questions,” not dated; available from < <http://www.medicalreservecorps.gov/index.htm>> ; internet; accessed 10 February 2003.

<sup>67</sup> Report of the Defense Science Board Task Force on Homeland Defense Against Bioterrorism (Washington, D.C.: Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, October 2002), 78.

<sup>68</sup> David B. Levin and Giovana Valadares De Amorim, “Potential for Aerosol Dissemination of Biological Weapons: Lessons Learned from Biological Control of Insects,” Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science 1, no.1 (2003): 37.

<sup>69</sup> Brian Groom, “U.S. Warns That Bioterror Attack is Inevitable;” Financial Times, 26 January 2003; quote attributed by the author to the U.S. Secretary of Health and Human Services during a speech to the G20 Health Ministers in Davos, Switzerland; available from <<http://news.ft.com/servlet/ContentServer?pagename=FT.com/StoryFT/FullStory&c=StoryFT&cid=1042491219998>>; internet; accessed 5 February 2003.

<sup>70</sup> Department of State, “Worldwide Caution;” 6 February 2003; public announcement on terrorist threats; available from <<http://travel.state.gov/wwc1.html>>; internet; accessed 20 February 2003.

<sup>71</sup> Stacey L. Knobler, Adel A.F. Mahmoud, and Leslie A. Pray, eds., Biological Threats and Terrorism: Assessing the Science and Response Capabilities/Workshop Summary (Washington, D.C.: National Academy Press, 2002), x.

<sup>72</sup> *Ibid*, 287-317. Appendix L provides biographical briefs on all forum members, speakers, and staff. The majority of these participants still hold key staff positions at the highest levels of government, especially at DHHS, DOD, and the Office of the White House.

<sup>73</sup> *Ibid*, 43.

<sup>74</sup> David R. Franz, Defense Against Toxin Weapons (Fort Detrick, MD: U.S. Army Medical Research and Materiel Command, 1997), 2.

<sup>75</sup> William Winkenwerder, Jr., “Designation of Protocols as ‘Contingency Investigational New Drug Protocols for Force Health Protection’,” memorandum for the Assistant Secretaries (M&RA) of the Army, Navy, and Air Force, Washington, D.C., 3 Feb 03.

<sup>76</sup> Williams, 2.

<sup>77</sup> James B. Peake, "Training to Respond to Terrorism," U.S. Medicine, January 2003, Vol. 39, No. 1, p. 4.

<sup>78</sup> Centers for Disease Control, "Biological Diseases/Agents: Category A," undated; available from <<http://www.bt.cdc.gov/Agent/agentlist.asp>>; Internet; accessed 28 February 2003.

<sup>79</sup> National Intelligence Council, "The Biological Warfare Threat," (Unclassified memorandum, 2 January 2001); quoted in Bill Frist, "Public Health and National Security: The Critical Role of Increased Federal Support," Health Affairs 21, no. 6 (November/December 2002): 118.

<sup>80</sup> General Accounting Office, Major Management Challenges and Program Risks: Department of Health and Human Services, GAO-03-101 (Washington, D.C.: U.S. General Accounting Office, January 2003), 42 and 45.

<sup>81</sup> General Accounting Office, Homeland Security, 1.

<sup>82</sup> General Accounting Office, Major Management Challenges and Program Risks: Department of Homeland Security, GAO-03-102 (Washington, D.C.: U.S. General Accounting Office, January 2003), 30.

<sup>83</sup> *Ibid*, 31.

<sup>84</sup> Omar J. Jones IV and Kelley Reese, eds., National Security for a New Era: Focusing National Power, comments made by Major General John S. Parker, Commanding General of the U.S. Army Medical Research and Materiel Command during a panel discussion on homeland security and counterterrorism at the 2001 Fletcher Security Conference (Washington, D.C.: U.S. Department of the Army, 2001), 46.

<sup>85</sup> General Accounting Office, Major Management Challenges and Program Risks: Department of Homeland Security, 29.

<sup>86</sup> General Accounting Office, Bioterrorism, 34.

<sup>87</sup> Federal Bureau of Investigation, 4.

<sup>88</sup> General Accounting Office, Bioterrorism, 40-41.

<sup>89</sup> Frist, When Every Moment Counts, 164.

<sup>90</sup> Williams, 2.

<sup>91</sup> Report of the Defense Science Board Task Force, 79-86.

<sup>92</sup> *Ibid*, iv-v.

<sup>93</sup> The author was an initial action planner for task force's Evaluation Sub-committee. Information comes from personal notes from collaboration meetings during September-November 2002.

<sup>94</sup> Report of the Defense Science Board Task Force on Homeland Defense Against Bioterrorism, iv.

<sup>95</sup> Omar J. Jones IV and Kelley Reese, 46.

<sup>96</sup> Tara O'Toole and Thomas V. Inglesby, "Toward Biosecurity," Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science 1, no. 1 (2003): 2.

<sup>97</sup> Institute of Medicine and National Research Council, 188.

<sup>98</sup> John Hanley, "Rapid Spiral Transformation," Transformation Trends, (3 February 2003): 1.

<sup>99</sup> *Ibid*, 6-7.

<sup>100</sup> Bradie Metheny, "Gerberding Plans Strategically for CDC's Future While Preparing for Emergencies Now," Washington Fax, 24 February 2003, forwarded in electronic mail message from Monique Mansoura <[monique.mansoura@hhs.gov](mailto:monique.mansoura@hhs.gov)> to Angel L. Lugo <[angel.lugo@hhs.gov](mailto:angel.lugo@hhs.gov)>, 24 February 2003.

<sup>101</sup> General Accounting Office, Major Management Challenges and Program Risks: Department of Health and Human Services, 45.



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