

Biomedical Security Institute

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The Honorable James Gilmore
Chairman, Advisory Panel on Advisory Panel to Assess Domestic Response Capabilities for
Terrorism Involving Weapons of Mass Destruction
C/o RAND Corporation
Attention: Mr. Michael Wermuth, RAND Project Director

Dear Governor Gilmore:

Thank you for the opportunity to present these comments to the Panel on such short notice. After listening to Dr. Shine's verbal summation of the Medical and Health Sub-Panel and General Reno's summation of the Uses of the Military Sub-Panel today, it seems to me that there are several areas that need added emphasis in the Advisory Panel's considerations and report. These are (1) the ability to attain early warning of a disease outbreak, (2) the mental health ramifications of a biological terrorist attack, and (3) the integration of military capabilities (units or individuals) into roles supporting civilian response efforts.

First, research into the ability to attain early warning of a disease outbreak in real time, if successful, offers the opportunity to gain several days of early warning before the large numbers of casualties begin to besiege medical facilities. Such early warning provides time to energize hospital, public health and medical resources, activate contingency plans, call for assistance from State and federal authorities and initiate mutual aid compacts. This is a very complicated research challenge that government agencies are supporting at a number of universities. While BMSI has a vested interest in government funding in this area, the CDC and DARPA should be encouraged, strongly, to increase their support.

Second, the mental health ramifications of a terrorist attack using biological pathogens go far beyond affecting public health and medical clinicians and their ability to perform and effects on hospital organizations to function appropriately. Unlike other disasters known to most Americans, acts of bioterrorism pose a sudden, unanticipated, and unfamiliar threat to health that lacks sensory cues, is prolonged or recurrent, perhaps is contagious, and produces casualties that are observed by



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others. These are precisely the factors that spawn anxiety, fear, panic, and flight, whether the attack is real or a cleverly designed hoax, whether it is initiated by a lone sociopath, by a group of terrorists, or by a nation. Beyond the immediate psychological impact of a mass disaster on individual patients and groups of patients will be delayed and chronic psychiatric disorders, as psychological effects of the disaster or as sequelae of the pharmacology of the agent itself. Further anticipation of exposure to these agents, or the fear that one has been exposed, may be sufficient to induce behavior change and emotional distress.¹

Due to its unique psychological and behavioral effects, biological terrorism has a potential for consequences that could overwhelm existing disaster response plans and available medical resources and generally incapacitate the existing emergency response infrastructure. The need for informed and effective mental health support will be particularly urgent during this time. High numbers of psychiatric casualties will have to be recognized, diagnosed, and treated to facilitate triage and medical care. In addition, mental health specialists may be expected to advise local, state and federal civil and military officials about the management of a panicked population; provide crisis intervention to health care workers and first responders; and to treat, immediately and over the long term, persons with psychiatric disorders of whatever etiology that result from this incident.

Third, the integration of military capabilities (as units or individuals) into roles supporting civilian response efforts is a problem often discussed by State and local health authorities and within the Metropolitan Medical Response System elements. In a true mass casualty response, military individuals may be called up, only to have the State or local authorities ask that they be integrated into a hospitals or local medical organizations, to supplement existing, yet tiring and overworked staffs. The issue of such integration with civilian response capabilities has not, as I heard the verbal summation, been considered. Military medical units may conceivably be disaggregated to provide skills needed by a local hospital system. While this may be seen as outlandish in the normal course of crises, in the mass casualty scenarios most often portrayed, these extreme measures and uses of military personnel may be called for in a civil support scenario. Such individual and disaggregated support should not present integration difficulties to the individual soldier as many Guard and Reserve personnel with medical skills already work within medical systems. Military commanders may prefer to maintain unit integrity and have their units used to establish freestanding clinics, care facilities and long-term convalescent care facilities. This may not be the case.

Sincerely,

Samuel J. Watson, Director

¹ The section on the Mental Health Ramifications of a Terrorist Attack Using Biological Pathogens is based on a BMSI-RAND paper by Andrew Baum, Edmund Ricci, Harold Pincus, Kenneth Thompson and Samuel Watson.

Attached: Fact Sheet, BioMedical Security Institute

BIOMEDICAL SECURITY INSTITUTE

A collaboration between
Carnegie Mellon University and the University of Pittsburgh

The BioMedical Security Institute (BMSI) is currently funded by the Centers for Disease Control and Prevention (CDC), the Agency for Healthcare Research and Quality (AHRQ) and the Defense Advanced Research Projects Agency (DARPA). BMSI is addressing the national need to advance the capability to prepare for, and detect, analyze, prevent and respond to acts of terrorism and natural events involving biological agents. BMSI is a local, state and national resource located in Pittsburgh for research, development and solution application to scientific and operational problems posed by threats of bioterrorism.

BMSI has two purposes: *Improving public health* and *countering bio-terrorism*. BMSI represents a unique synergy of the cutting edge information technologies and biomedical research of Carnegie Mellon University and the University of Pittsburgh and the resources of Pittsburgh Supercomputing Center, and the applied public health and medical practices of Allegheny County Health Department, the Veterans Administration Hospital, and the University of Pittsburgh Medical Center (UPMC). BMSI is building on the existing public health and medical infrastructures.

BMSI has a two-pronged approach:

- 1. *Development of a prototype computer-based surveillance, analysis and communication systems infrastructure*** to provide early warning of naturally occurring disease outbreaks and terrorist attacks employing biological pathogens. It will perform continuing real-time data mining and analysis of selected data streams (such as electronic medical records and microbiology laboratory results) for sentinel events or situations. BMSI is working with local hospital systems and federal, state and local health departments to provide analytical results in an understandable format for decision-makers to select the most appropriate response to threats or events. This prototype system can serve as a model for implementation in other localities or can be scaled up for wider application.
- 2. *A research program*** that integrates the latest research and technology in public health, biomedical sciences and biomedical informatics, including:
 - ***Biosensors*** for diagnostics and surveillance
 - ***Biomedical research*** for the identification and characterization of etiological agents, genetic sequencing, immune system responses, therapeutics, and clinical care
 - ***Cognitive and behavioral factors***, investigating the mental health aspects of bioterrorism attacks such as panic avoidance, fear and stress management, risk communications, human system interfaces and post-traumatic stress disorder
 - ***Intelligent systems***, data mining, artificial intelligence, bioinformatics and early detection/early warning computer-based surveillance systems
 - ***Public health policy*** analysis and response and training

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