Center for Biosecurity of UPMC

Charting the Future of Biosecurity: Ten Years after the Anthrax Attacks

CONFERENCE REPORT

INTRODUCTION

Charting the Future of Biosecurity: Ten Years after the Anthrax Attacks was held in Washington, DC, on October 4, 2011. Jointly hosted by the Alfred P. Sloan Foundation and the Center for Biosecurity of UPMC, this invitational meeting brought together thought leaders from the federal government, the policy community, think tanks, academia, and media outlets.

The meeting provided a forum for leaders in the biosecurity community to reflect on progress made since 2001 and to consider priorities for the biosecurity policy agenda in the years ahead.

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This meeting was made possible with the generous support of the Alfred P. Sloan Foundation.

Conference Speakers

Richard Besser, Chief Health and Medical Editor, ABC News

Thomas M. Countryman, Assistant Secretary for International Security and Nonproliferation, Department of State

Richard Danzig, Chairman of the Board, Center for a New American Security

Senator Tom Daschle, Distinguished Senior Fellow, Center for American Progress

Thomas R. Frieden, Director, Centers for Disease Control and Prevention

Margaret Hamburg, Commissioner, Food and Drug Administration

Col. Randall Larsen, CEO, WMD Center

Nicole Lurie, Assistant Secretary for Preparedness and Response, U.S. Department of Health & Human Services

Jeanne Meserve, Senior Fellow, George Washington University Homeland Security Policy Institute

Paula J. Olsiewski, Program Director, Alfred P. Sloan Foundation

Tara O'Toole, Under Secretary for Science & Technology, Department of Homeland Security

George Poste, Chief Scientist, Complex Adaptive Systems Initiative

Senator Jim Talent, Vice Chairman, The WMD Center

J. Craig Venter, Founder, Chairman, and President, J. Craig Venter Institute

Andrew C. Weber, Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, Department of Defense

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Center for Biosecurity Speakers & Moderators

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Distinguished Scholar

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Opening Remarks by Thomas V. Inglesby

In his remarks, Thomas Inglesby, Director of the Center for Biosecurity emphasized the importance of preparing for the future of biosecurity given the looming threats of bioterrorism, pandemic flu, and other emerging infectious diseases. He acknowledged the difficulty of the mission but noted that there are reasons for optimism—including the breadth and depth of knowledge, experience, and dedication among those now in the field; the strength of American science and technology industries and the robust government programs now working to develop biodefense; and the notable progress to date. Dr. Inglesby also highlighted some significant gaps, such as early disease outbreak detection capabilities, post-event decontamination plans, and medical countermeasures. He emphasized that these pressing needs must be addressed

Speaker
Tom Inglesby

regardless of growing budget constraints. Dr. Inglesby closed by urging all present to remain persistent and persuasive in their efforts to draw attention and resources towards biosecurity.

Challenges of Reporting on the 2011 Bio-attack

Jeanne Meserve, former CNN Homeland Security Correspondent, presented a video montage of news coverage from the 2001 anthrax attacks. She recalled the difficulties of acquiring accurate information about the events surrounding the attacks, which she characterized as both a public health and a communications disaster. She described the press as feeling "whip sawed" by conflicting information from government and law enforcement representatives, and she noted that the unknowns and confusion about risk created fear among the public and among members of the press, who had trouble determining whether they were putting themselves and their families at risk by covering the events. Ms. Meserve recommended a policy of frank and proactive communication from government officials, and she suggested that members of the press improve both their communication skills and their scientific knowledge so they are better able to convey facts and evidence responsibly. She also emphasized that the press has an obligation to strike a tone that informs people without inciting fear.

Speaker
Jeanne Meserve

Present and Future Biothreats

Colonel Randall Larsen, D. A. Henderson, and Dr. Richard Danzig engaged in a discussion of present and future biothreats. As moderator, Col. Larsen first acknowledged that the panelists were visionaries in the field, and he asked them to comment about their experiences and to suggest priorities for the future.

Dr. Henderson replied by emphasizing the importance of continually asking and answering this question: "What would we do if there were a bio-attack tomorrow?" Dr. Henderson expressed concern that what he perceives as a lack of strong leadership in the federal government would hinder the nation's ability to coordinate and marshal an effective response. He noted that the responsibility for a federal response to a biological attack is dispersed across a number of agencies, and he worried that a long interagency process could be slowing decisive decision making. Dr. Henderson called for a response plan that will have broad public support so as to avoid conflicting advice.

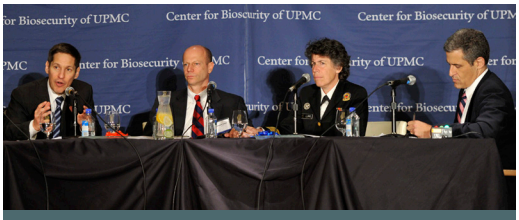
Panelists, L-R: Randall Larsen, D.A. Henderson, and Richard Danzig

Dr. Danzig expanded on that notion to remind the audience that, in the face of catastrophe, the public often looks to leaders outside of government to validate recommendations, and he noted the need to reach and educate known leaders outside of government in advance. He also discussed what he considers systemic issues that hinder our response capabilities, the most serious of which, he argued, is our federalist system. That the federal role in preparedness and response must overlay and complement state and local response systems complicates planning. Another systemic problem is that government planning frameworks are often too narrowly focused on the immediate and acute phase of a disaster. He argued for an expanded perspective on planning and response—one that accounts for the extended period of time and long term effort that will be required after an attack to restore normal functioning. Danzig contended that those working in biosecurity and biodefense should think beyond the casualty component of a biological attack, explaining that he has come to think of bioweapons not so much as weapons of mass destruction, but as weapons of *mass disruption*.

Both Drs. Henderson and Danzig acknowledged the uncertainty that attends the field of biosecurity, given the inherent difficulty in sound predictions about soundly predicting the outcome of a bio-attack. They encouraged the audience to acknowledge the potential threat of synthetic biology and other new pursuits in the biological sciences in preparing our defenses, noting in particular that our current focus on a finite set of threats may soon be an obsolete approach. Dr. Henderson closed by stressing the need for more biologists at high levels in the federal government who can raise awareness and help guide development of sensible, strategic defense strategies.

Looking Ahead in U.S. Health Security

As moderator of a panel discussion among Nicole Lurie, Andrew Weber, and Thomas Frieden, Richard Besser opened the discussion by asking panel members what threats keep them up at night. Dr. Lurie described the recent events in Japan as what haunts her—multiple, serial disasters coalescing to wreak unprecedented devastation. Dr. Frieden worries about unknown and unplanned-for disasters against a backdrop of shrinking public health infrastructure and resources. Mr. Weber's concern, from his DoD vantage point, is terrorists' stated interest in biological weapons and the advances in the biological sciences and technology that are making the tools needed to make bioweapons increasingly accessible.



Panelists, L-R: Thomas Frieden, Andrew Weber, Nicole Lurie, and Richard Besser

Mr. Weber suggested that efforts to strengthen interagency and international partnerships have made our capacity to detect and respond to threats more robust, and he cited as an example a recent drill that DoD conducted with the Republic of South Korea that included both South Korean authorities and senior members of DHS and CDC. Mr. Weber said that in more than 20 years in the federal government, he had never witnessed interagency coordination as strong as the coordination in effect in the current administration.

Dr. Besser then asked the panelists to address what he described as a popular perception that federal agencies spend too many resources on low-probability events and that they may even overreact to emerging biological threats, such asH1N1. In response, Dr. Lurie indicated that the H1N1 response underscored the need for a fully functional public health infrastructure capable of responding to all types of events, an assertion confirmed by Dr. Frieden, who also noted that a strong public health system is essential to both chronic disease response and emergency response. Cautioning that it is always better to overreact to emerging threats, Dr. Frieden pointed out that the H1N1 flu strain had probably been spreading in Mexico for months before it came to the attention of the United States, and that the lesson from H1N1 is that we could be more proactive in identifying infectious disease threats. Mr. Weber followed by adding that no country has a big enough "moat" to protect them from a communicable disease, and that a robust global disease surveillance system is an urgent need in the effort to improve biosecurity.

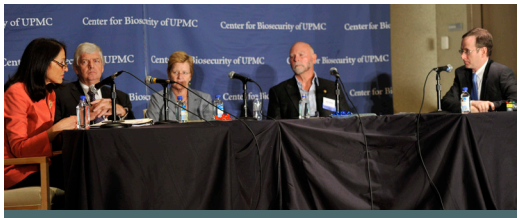
Dr. Besser pressed the panel members to explain international response efforts and their connections to homeland security. Pandemic and avian flu, according to Dr. Frieden, have catalyzed a partnership between the U.S. and Chinese CDCs, which now post weekly online updates about circulating flu strains in an effort to provide better awareness and advanced warning for emerging threats to homeland security.

Concluding with a discussion of domestic health security, panelists identified countermeasure distribution and resource allocation as pressing near-term challenges. Dr. Lurie promoted a federal approach that meshed with state and local infrastructures, but she cautioned that federal budget policies limit the ability to reallocate funds for immediate emergency use on the local level. Dr. Frieden pointed out that there is no broad plan for medical countermeasure acquisition and distribution and he suggested that a "quick and simple" answer to these complex problems is probably impossible. Instead, he suggested, the answer may be different strategies for different populations and circumstances.

Special Taped Interview of Tom Daschle

In a taped interview prepared for this meeting, Senator Tom Daschle, former U.S. Senate Majority Leader, shared a few of his memories from the morning of 9/11 and the anthrax letters of October 2001. He also offered his thoughts on what is needed to better educate America's leaders about the threat of bioterrorism.

Transformative Science in Biosecurity



Panelists, L-R: , Margaret Hamburg, George Poste, Tara O'Toole, Craig Venter, and Thomas Inglesby

Dr. Inglesby returned to the conference stage to moderate a discussion about advances in the life sciences and implications for biosecurity among Margaret Hamburg, George Poste, Tara O'Toole, and Craig Venter. Drs. Venter and Poste opened with their visions for the future: Dr. Venter asserted that automation of labor- and time-intensive processes would reduce the timeline for producing vaccines to days, if not hours. He cited his lab's recent experience in working with BARDA and Novartis to create a synthetic flu vaccine virus strain in 10 hours as a sign of medical countermeasure progress to come. Dr. Poste added that, in the future, proteins would be manufactured synthetically from cell-free systems, including vaccines, which would make regulating the vaccines significantly less burdensome. Dr. Poste also suggested that biosecurity challenges would expand in the coming years due to antibiotic resistance and as population growth creates added pressure on agriculture production due to population growth. He contended that synthetic biology would play a crucial role in revolutionizing the industrial ecology of modern society as it will help to secure food and energy resources.

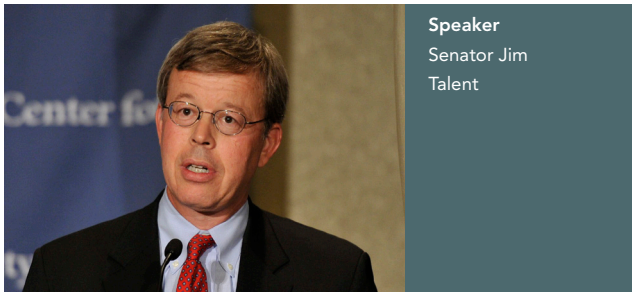
While acknowledging that advances in the life sciences are "imbued with potential to lessen human suffering," Dr. O'Toole cautioned that advances in science are dangerously outpacing the government's ability to organize and regulate to ensure that biology and new technologies are not being applied to dangerous purposes. She explained that the concepts described by Drs. Venter and Poste are complex and difficult to translate to government officials and members of Congress who do not have years of training and experience in the field. Dr. Hamburg described how the FDA is working to change its processes and the ways in which it engages with the scientific community; she noted in particular her efforts to undo long held perceptions of the FDA as an agency bogged down by bureaucracy (see Dr. Hamburg's remarks from the Center's March 2011 conference on the growing role of the life sciences for greater detail). Dr. Hamburg encouraged her colleagues in the scientific community to think about not only science, but also about the tools regulators will need to evaluate science.

Dr. Inglesby asked the panelists if they thought the U.S. is losing its competitive edge in math and science. Drs. Venter and Poste suggested that, although we have not yet lost our edge, there are problems in both our educational system and our immigration policy that threaten to degrade the pool of talent available to the biotechnology and pharmaceutical industries.

The panel concluded with an overall assessment of the threat posed by synthetic biology. Dr. Venter cautioned that there are many other threats, such as naturally occurring agents, which call for immediate attention. Dr. Poste contended that the beneficent potential of synthetic biology outweighed its destructive potential. The scientists' optimism was shared by Drs. O'Toole and Hamburg, but they reiterated that the threat potential certainly should not be ignored.

Talking Biosecurity with the Public

Senator Jim Talent spoke about the challenges of communicating the biological weapons threat to the public and to Congress. He acknowledged that it is difficult to raise consciousness without engendering fear. He also asserted that we are limited by our 18th century model of bureaucratic government, which is not well-positioned to respond to rapidly evolving threats, fast-moving disasters, and the attendant need to make decisions rapidly and to quickly communicate them to the public.

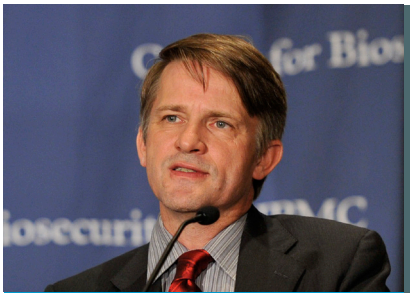


Speaker
Senator Jim Talent

Senator Talent agreed with earlier speakers that biological weapons represent an increasing asymmetric threat, particularly as barriers to weaponizing pathogens diminish as a result of progress in the life sciences. Senator Talent described the WMD Center's efforts to address this threat, in particular the Bio-Response Report Card on the state of U.S. preparedness for a biological attack. He emphasized the need to develop systemic resilience to a biological attack, which would reduce the high cost of last-minute preparations and response when a threat is actualized. He concluded by asserting that under current budget conditions, the U.S. government can no longer rely on a reactive approach to crisis.

The Next 5 Years of the Biological Weapons Convention

Thomas Countryman discussed the U.S. State Department's perspective on next steps in advancing the Biological Weapons Convention (BWC), emphasizing his conviction that this is an influential forum for demonstrating the constructive potential

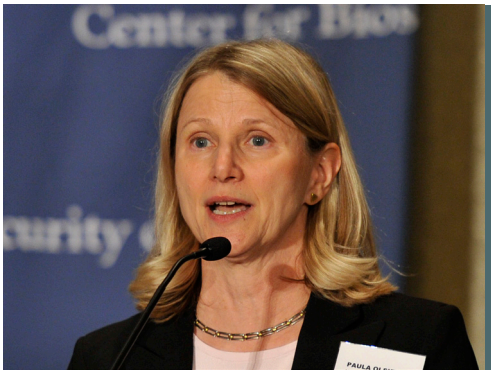


Speaker
Thomas Countryman

of the biological sciences while discouraging destructive applications. The BWC serves as a norm against malevolent application of the life sciences. He said that maintaining that norm requires frequent and proactive consultations with relevant government, academic, and commercial entities. In the future, he noted, the BWC will include the emergency response community for better understanding of the resources and capacities that will help to mitigate a disease outbreak. Acknowledging that these new efforts would cost more, Mr. Countryman reminded the audience that in order for the BWC to contribute more to our security, we need to contribute more to the BWC.

Biosecurity Achievement Award Presentation to Paula Olsiewski

The meeting concluded with the presentation of an achievement award to Dr. Paula Olsiewski for her leadership and support of the field of biosecurity. In presenting the award, Dr. Inglesby outlined the many accomplishments of Dr. Olsiewski and the Alfred P. Sloan Foundation and reminded the audience that the Foundation's support was in place well before the anthrax attacks. In accepting the award, Dr. Olsiewski thanked former Sloan Foundation president Ralph Gomory for his vision, and thanked current president Paul Jaskow and her colleagues, including her assistant Yolanda Wolf, for their support as well. Dr. Olsiewski concluded by thanking all of the grantees for all of their important work and contributions to the field.



Speaker
Paula Olsiewski

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