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**The Threat Of Bioterrorism And  
The Spread Of Infectious Diseases**

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Chairman Biden, Senator Helms, distinguished committee members, it is a privilege to appear before you today to discuss this important matter. I would like to commend you for squarely facing this complex challenge.

Although there is no way to predict with certainty the biological warfare threat to the homeland in the short-term or the long-term, it is widely accepted that unmatched U.S. power (economic, cultural, diplomatic, and military) is likely to cause America's adversaries to favor "asymmetric" attacks over direct conventional military confrontations. These strategies and tactics aim to offset our strengths and exploit our weaknesses. Against this background, military superiority in itself is no longer sufficient to ensure our nation's security.

A major terrorist incident on U.S. soil involving chemical weapons, conventional explosives or most glaringly, biological warfare (BW) agents, would put our emergency management response to the test at the local, state, and federal levels.

There is a real danger of being overwhelmed - two simultaneous bombings of the magnitude of Oklahoma City or a large-scale release of sarin or VX nerve gas - could strain our current system to the point of bursting. In both cases, if no advance warning was available, local and state emergency responders such as firefighters, police, and paramedics would arrive on the scene first. They would be followed by federal assets hours or perhaps days later. It would be a race against time to turn victims into patients. In the case of a chemical attack the window is likely small, the so-called "golden hour," to administer life saving antidotes. It may take months to complete decontamination, recovery and reconstitution efforts, and decades for the community to come to grips with the tragedy and begin healing. In both cases, however tragic, there would be an immediate explosive or toxic effect to respond to, not necessarily so for a covert attack in which biological weapons were used.

It could take days, or even weeks, for the symptoms of a biological agent to begin to manifest themselves. In the case of a BW attack, the first responder, the very tip of the spear, is likely to be a primary care physician, healthcare provider, veterinarian, agricultural services inspector, or perhaps an entomologist. Given the unheralded nature of these *silent killers*, it would fall upon the public health and medical communities to detect the attack, contain the incident, and treat the victims. The delayed onset of symptoms, coupled with the fact that it is difficult to discern a deliberate BW attack like small pox from a naturally occurring infectious disease outbreak, makes attribution and identification of the perpetrators exceedingly difficult. Moreover, this type of attack can wreak havoc with the public, which must confront fear of the unknown.

Biological weapons can be delivered through several, different means, ranging from using people as carriers of the disease (including person to person infections), covert dissemination such as aerosolization, or via missile.

As the recent "Dark Winter" exercise illustrated, a successful BW attack on the United States, could be a transforming event. Beyond the physical damage and the loss of life, a major BW attack could shake the confidence of our citizens in our government to the core. It potentially threatens our American way of life, tearing at the very fabric of our society. We must grapple with difficult issues such as whether we are protecting America or Americans. Ideally, we are defending both, but no matter how robust our defenses, we will never be able to protect everything, everywhere, all the time, from every potential adversary.

In a recent report on biological warfare by the National Intelligence Council, it is stated that over a dozen states are known to possess or are actively pursuing offensive BW capabilities. Perhaps not surprisingly, a majority of the "rogue nations" populate this list. States have a variety of reasons for developing biological weapons: to augment conventional war fighting capabilities, for blackmail, for deterrence/compellence, and/or for prestige.

By way of example, during the Gulf War, Iraq had warheads containing biological and chemical agents produced and ready for use. Also, according to a forthcoming book by arms control analyst Jonathan Tucker, the Soviet Union deployed warheads with small pox biological weapons on at least four ICBMs - the SS-11, SS-13, SS-17, and SS-18. These missiles were intended to kill off any American survivors in the aftermath of a nuclear attack.

One cannot over-generalize about state intentions and possible use and delivery of offensive BW capabilities (research and development vary greatly in terms of pathogen type and associated virulence, toxicity, stability, resistance to detection/treatment, quantity of weaponized agents, and sophistication of means of delivery), which differ from state to state. While the resources available to states to develop biological weapons are much greater than those available to non-state actors, they remain constrained to an extent by the possibility of retribution and retaliation.

For states not inclined to cause mass human casualties and with more discriminate aims, namely to cause economic havoc, we must also consider agricultural bioterrorism (agro-terrorism) against our nation's livestock and/or crops.

Imagine the consequences in your home state if wheat, corn, citrus fruit, potatoes, tobacco, or livestock (to list a few) were the target of a BW attack. As the recent European hoof-and-mouth outbreak demonstrated, pathogens that target agriculture not only cause massive losses to the cattle industry and farmers, but also impact a nation's ability to feed its citizens and disrupt the economy. In addition it upsets free travel and tourism, which are secondary effects, but equally costly. Certainly U.S. borders are porous to bacteria, fungi, viruses, and insects, all of which could be used to attack the nation's food supply.

While bullets and bombs, not bugs and gas, will remain the weapon of choice for most non-state actors or terrorist organizations, some have expressed interest in seeking to acquire from other states or develop their own offensive BW capability. In my eyes, this represents more of an evolving threat, and although much has been written on the subject, the scientific sophistication needed to sustain and deliver BW agents, if not insurmountable, is substantial, nonetheless the fabrication of a crude BW device and means of delivery, on the other hand is very realistic and difficult to detect or preempt at any time. Moreover, conventional explosives continue to become more lethal and for the most part have been effective in achieving their terrorist aims.

But unlike their state sponsored counterparts, non-state actors are much freer from the constraints of retaliation, making them more likely to use biological agents. After all it is hard to retaliate against an actor if there is no return address. Modern terrorism trends also highlight a propensity toward indiscriminate violence and greater casualties. For example, a **hamas training manual** expounds that it is foolish to hunt a tiger when there are plenty of sheep to be had. And

Usama Bin Laden has publicly pronounced that acquiring weapons of mass destruction, chemical, biological, radiological, and nuclear (CBRN), is a religious duty. Whereas traditionally terrorism was a political tactic, an attempt to get to the negotiating table, some of today's groups motivated by radical religious or nationalist beliefs, no longer seek a seat at the table, but rather want to blow the table up altogether and build their own in its place.

While the likelihood of a catastrophic BW attack on the U.S. homeland, whether committed by state or non-state actors, whether delivered covertly or by missile, remains relatively low in the foreseeable future, the consequences are too high to be ignored.

As a general matter, we need to approach this problem holistically. We must strike the proper balance between protecting our citizens and preserving our liberties and must not destroy our way of life in an effort to save it. Achieving this balance demands clear-headed prioritization of interests and resources, and thinking the unthinkable while we have the time to work out the problems that may arise.

While there is general consensus that the United States is inadequately prepared and underequipped and resourced to deal with bioterrorism, we are not starting from scratch. In determining how to proceed as a nation to defend against bioterrorism, we must ask ourselves what policies, programs, and procedures have worked to date (what are the centers of excellence that can be built upon)? What has not worked? And what are the major gaps and shortfalls that have not been adequately addressed? This in turn, lays the groundwork to proceed to the next step of crafting an effective national strategy for defending against bioterrorism.

Although federal, state, and local governments have made impressive strides to prepare for bioterrorism, regrettably the whole remains far less than the sum of its parts. Let me briefly explain.

The United States is now at a crossroads. While credit must be given where it is due, the time has come for cold-eyed assessment and evaluation, and the recognition that we do not presently have - but are in genuine need of - a comprehensive strategy for countering the threat of bioterrorism and the larger challenges of homeland defense. It is important to remember that defense against bioterrorism is but one plate in our counterterrorism armor.

As things presently stand, however, there is neither assurance that we have a clear capital investment strategy nor a clearly defined end-state, let alone a clear sense of the requisite objectives to reach this goal.

Make no mistake, though. The dimensions of the challenge are enormous. The threat of bioterrorism by states and non-state actors presents unprecedented planning challenges to American government and society.

Notably, no single federal agency owns this strategic mission completely. For the moment, however, many agencies are acting independently in what needs to be a coherent response, a goal that is not out of reach.

To the contrary, we now possess the experience and knowledge for ascertaining the contours of a comprehensive strategy, a coherent response, and a future year program and budget to implement the strategy. It also bears mentioning that strategy must be a precursor to budget.

In my view, effective organization is the concept that not only lies at the very heart of a comprehensive national counterterrorism strategy but also underpins it - from start (meaning pre-event preventive, preemptive and preparedness measures), to finish (meaning post-event crisis and consequence management, and response).

My vision of a comprehensive counterterrorism strategy incorporates a full spectrum of activities, from prevention and deterrence to retribution and prosecution to domestic response

preparedness. All too often, these elements of strategy are treated in isolation. Any strategy must incorporate both the marshaling of domestic resources and the engagement of international allies and assets. And it requires monitoring and measuring the effectiveness ("benchmarking") of the many programs that implement this strategy so as to lead to common standards, practices, and procedures.

In a recent CSIS report on combating CBRN terrorism that was developed from a panel I chaired, we set out a roadmap of near-term and long-term priorities for senior federal officials to marshal federal, state, local, private sector, and non-governmental resources in order to counter the terrorist threat. Our findings and recommendations speak not only to "the usual suspects" at each level of government but also to new actors, both public and private, that have taken on added salience in the current security environment.

In our view, a complete CBRN counterterrorism strategy involves both (1) preventing an attack from occurring (our first priority should always be to get there before the bomb goes off; or better yet, prevent it from being built in the first place), which includes non-proliferation, counter-proliferation, preemption, and deterrence, and (2) preparing federal, state, local, private sector and non-governmental capabilities to respond to an actual attack. In short, our counterterrorism capabilities and organizations must be strengthened, streamlined, and then synergized so that effective prevention will enhance domestic response preparedness and vice versa.

With respect to prevention, a multifaceted strategy is in order. The common thread underpinning all of these, however, is the need for a first rate intelligence capability. The breadth, depth, and uncertainty of the terrorist threat demands significant investment, coordination, and retooling of the intelligence process across the board for the pre-attack (warning), trans-attack (preemption), and post-attack ("whodunit") phases.

Several steps to strengthen the IC need urgent examination and may require significant changes to intelligence programs and budgets. These include:

- **Investing in all-source intelligence capabilities.** Multi-disciplinary intelligence collection is crucial to provide indications and warning of a possible attack (including insights into the cultures and mindsets of terrorist organizations) and to illuminate key vulnerabilities that can be exploited and leveraged to disrupt terrorist activities before they occur.

To date, signals intelligence has provided decision makers with the lion's share of operational counterterrorism intelligence. National technical means cannot be allowed to atrophy further. While a robust technical intelligence capability is important, enhancing our human intelligence capability is even more so.

- **Invest in intelligence analytical capabilities.** The intelligence community, including the FBI, must invest in expertise - linguists, BW experts, and regional specialists - to buttress and synthesize its analytical ability to track terrorists considering using biological weapons. This also requires tightening coordination among the non-proliferation, counter-proliferation and counterterrorism communities...not only interagency, but also intraagency.
- **Tap the scientific and biomedical research communities.** Develop relationships between the IC and the scientific and biomedical research communities, whose knowledge of emerging capabilities and of other information gleaned from the open scientific literature, international scientific collaborations, and conferences could prove invaluable to the IC with respect to the bioterrorism threat.

Indeed, some of the most critical intelligence related to bioterrorism may be derived through the ongoing and open-source practice of international public health and surveillance activities, such as those run by the World Health Organization.

In the same vein greater attention to nonproliferation and counterproliferation efforts provide the much-needed stitch in time. We need to think about ways to reassess arms control measures to limit the proliferation of BW agents, material, and expertise. This cannot be monitored like a START agreement or via traditional international conventions, but the United States should take the lead in building international support for multinational activities, while maintaining, and perhaps even codifying, the right to take action, including military action, against violators.

In so doing, though, it must be kept in mind that traditional arms control measures - which assume large state efforts with detectable weapons production programs - are less effective in monitoring smaller proliferation efforts, or even large efforts, as the development of BW capabilities lend themselves to covert production. These will also be more effective vis-à-vis state-sponsors of terrorism than non-state actors. However, by focusing on state actors, we may also capture non-state actors swimming in their wake.

Along with some foreknowledge of the actions of hostile parties, the U.S. should strengthen its partnerships with foreign countries. Bearing in mind the transnational characteristic of the threat, the U.S. would be remiss in trying to address the problem alone.

Diplomacy plays a major role in combating terrorism. Considering the shift away from political terrorism and towards ideologically based terrorism, many countries, the US included, find themselves more at risk. An international interest exists in learning about and dealing with terrorism and there are many states that have already acquired a breadth of knowledge on the subject. The US could draw on many of these countries' experiences, thereby flattening its learning curve.

Moreover, engagement with these nations is critical for antiterrorism and counterterrorism endeavors, where cooperation and understanding provide the keys to success. Most importantly, cooperation works. The Jordanian authorities saved countless American lives during the millennium celebrations by preventing planned attacks on American tourists in the region. Clearly our first line of defense should not be on our shores at the water's edge.

No matter how robust our intelligence capabilities and efforts, we cannot prevent 100 percent of the threat 100 percent of the time. Our emergency responders - those first on the scene of a "no warning" event - are state and local personnel: police, firefighters, and medics -- not federal workers. With that in mind, I want to focus on domestic response preparedness because that is where the matter of effective organization figures most prominently.

Organization must come from the bottom up as well as from the top down. This requires that policymakers address the current "crazy-quilt" of doctrine, legal authority, equipment, and training for emergency responders. Bridge-building also involves reaching out to relative newcomers to the national security field - in particular, the medical, public health, and human services communities - who need to be integrated into our counterterrorist effort and our (comprehensive) national strategy. This is simultaneously a national security and a public health concern. In addition, the value of training and exercising must not be underestimated. Hopefully, it will be the closest we get to the real thing. And if not, it allows us to make the big mistakes on the practice field and not on Main Street, U.S.A.

The medical, public health, and human services communities are especially critical to bioterrorism preparedness and response, as they would play a prominent role in detection, management, containment and medical treatment of victims. Here again, however, the need for effective organization stands in marked contrast to the present state of affairs, which is sub-optimal at best. Smart shoppers will want more accountability along the lines of defined core public health capacities for bioterrorism preparedness that deliver functional capabilities. This activity should be expanded and coordinated with other agencies involved in national preparedness.

Put bluntly, the biomedical, public health, and human services communities are under-equipped, under-informed, and ill prepared for a biological attack and for infectious disease in general.

Accordingly, our recommendations on the public health/medical side read like a veritable "laundry list."

Even without reiterating our full complement of suggestions, the extensive and sweeping character of what is needed is evident in but a partial list: capitalize the public health structure; develop a national bioterrorism surveillance capacity (epidemiological monitoring capability); develop and distribute rapid and more reliable diagnostic capabilities and systems; develop a comprehensive strategy for assuring surge capacity for healthcare; streamline national pharmaceutical stockpiling efforts; and increase research and development for new pharmaceuticals, vaccines and antidotes.

First we must capitalize the public health structure. Core public health functions (disease surveillance and laboratory capability) will form the foundation of detection, investigation, and response for bioterrorist threats. In implementing these solutions, we should focus on the terrorist threat. We need to ensure that we receive counterterrorism bang for our counterterrorism buck, and that we do not simply throw money at the public health sector.

This targeted approach would have valuable secondary and tertiary benefits. Strengthening the ability to deal with extraordinary, and especially catastrophic, events provides tools and capabilities that are equally valuable in dealing with "ordinary" situations, e.g. natural outbreaks. Thus preventive measures, designed for the stuff of nightmares, also have utilitarian, day-to-day, functions and benefits.

Second, we must develop a national bioterrorism surveillance capacity. Surveillance is the touchstone of public health and organizes the other capacities within the public health sector. An effective national bioterrorism surveillance system allows public health and emergency managers to monitor the general health status of their population (human, livestock, and crops); track outbreaks, monitor health service utilization; and serve as an alerting vehicle for a bioterrorist attack.

Third, we need to expand the provisions on biological terrorism in the Terrorism Annex of the Federal Response Plan. The current U.S. plan for an organized response must be updated to include preparedness for a biological attack, which presents a host of unique and complicated challenges and requires a re-examination of the lead agency roles and missions. For example, the National Disaster Medical System (NDMS), composed of FEMA, the Departments of Defense, Health and Human Services, and Veterans Administration, has no strategy to rapidly augment medical resources at the state and local levels in the event of a bioterrorist attack. The NDMS has never been properly resourced, or properly focused on the issue of bioterrorism response.

To these (and other) ends, the medical, public health and human services communities must work in greater partnership with each other - and must coordinate more effectively with the larger national security community. Instead, however, we currently have a series of "disconnects."

Within the federal government alone, for instance, we have yet to develop (for counterterrorist purposes) smooth channels of inter-agency and intra-agency coordination and cooperation. Many agencies have had little past experience working together, such as the intelligence community and the Departments of Defense, Justice, Health and Human Services, Agriculture, and Energy as well as the Federal Emergency Management Agency and the National Institutes of Health (NIH). Certainly, we need to envisage a better FEMA-HHS partnership, one capable of galvanizing the public health and medical sector in response to bioterrorism.

Indeed, the core capacity for public health and medical care needs to be greatly enhanced with respect to detection and treatment of infectious disease. Further, and with specific regard to the private sector, the expertise of the commercial pharmaceutical and biotechnology sectors has yet to be genuinely leveraged. This situation must change, and new funding strategies must be explored to "incentivize" engagement of the private sector as a whole in the task of preparedness planning and capability-building.

The United States needs to develop integrated surge capability for the entire health care system. We must first identify all existing assets and how they could be mobilized. Next, we need working strategies to be able to balloon care-giving efforts, at both the regional and national levels.

Again, the United States also needs to look internationally. The United States ought to work with the World Health Organization (WHO) to monitor global infectious disease trends and outbreaks of disease, strengthen international surveillance efforts, and provide advance warning for a bioterrorist attack. Here too is an example of where immediate strengthening of resources for national and international security purposes would have immediate secondary and tertiary benefits.

Once clear recommendations are made and a national strategy exists, the Defense Production Act of 1950 (DPA) provides policymakers with the means of marshaling and mobilizing the resources that would be crucial in the event of a terrorist attack with CBRN weapons. In addition to helping the United States prepare, the DPA provides some necessary authority to implement policies and procedures.

The act's two-fold objective is: to ensure the availability of national defense products, materials, and services that are required to maintain national defense and emergency preparedness requirements, without overly disrupting the normal course of business and to provide US industry with the necessary structure and framework to provide an inclusive response to a national security emergency. Thus the act facilitates both emergency and non-emergency preparation and planning.

It could provide the necessary tools to put programs and people in position to prevent disaster. While proper previous planning prevents poor performance, it may also deter malfeasants, preempting their plans and providing greater security.

However, the DPA must not be used to interfere with the free market and the ebb and flow of commerce. While our nation's security is of great importance to its citizens, fundamental principles of openness and freedom from restraint supersede even that. A dynamic balance exists between the need for defense preparedness and unfettered capitalism. This balance needs to be scrutinized before the government invokes the DPA to ensure that undue weight is not given to one side or the other, and avoid destroying what we hold dear in an effort to protect it.

Much of the foregoing discussion centers on the organization of the federal, state, and local governments. It is applicable whether the delivery of a biological weapon is delivered covertly by terrorists or by missile. Unfortunately, somewhere in the course of discussions these two distinct issues became mutually exclusive. The debate became a question of either defending against bioterrorism or missiles. We can and must defend against both threats. The United States does not have the luxury of treating these two threats as an either/or proposition. They must each be monitored, deterred, and defended against through different mechanisms. We cannot escape the reality that they both exist. The United States cannot be like the proverbial ostrich with its head in the sand, and be surprised when it is kicked in the most obvious place. Moreover, if we concentrate only on one method of distribution at the expense of another, we merely displace risk and may even encourage attack in the other areas.

The President and Vice President's laudable work in this area, creating the Office of National Preparedness and working towards formulating a national strategy, demonstrate that the administration understands the dangers and is actively working to lessen them. The President must never turn to the cupboard and find it bare. He should never be placed in a position where he must step up to the podium and address the American people to explain what he could have, should have, or would have done, but did not because of this or that. After all, policy without resources is mere rhetoric. Formulation of this strategy is a necessary first step in the process.

Despite the magnitude of the challenge, there is no doubt that our great country can rise to it. To do so requires not only vision but also political will. Presidential and Congressional leadership will

therefore be needed to marshal our wherewithal in order to turn concepts into capabilities. Developing, implementing, and sustaining such a strategy and plan must be one of the highest priorities for U.S. national security.

Thank you for the opportunity to share my thoughts with you today. I would be pleased to try and answer any questions that you might have.