

**BIOSCIENCE AND THE
INTELLIGENCE COMMUNITY
PART I AND II**

HEARING

BEFORE THE

**SUBCOMMITTEE ON PREVENTION
OF NUCLEAR AND BIOLOGICAL ATTACK**

OF THE

**COMMITTEE ON HOMELAND SECURITY
HOUSE OF REPRESENTATIVES**

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**BIOSCIENCE AND THE
INTELLIGENCE COMMUNITY
PART I**

Thursday, November 3, 2005

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON PREVENTION OF NUCLEAR
AND BIOLOGICAL ATTACKS,
Washington, DC.

The subcommittee met, pursuant to call, at 10:03 a.m., in Room 334, Cannon House Office Building, Hon. John Linder [chairman of the subcommittee] presiding.

Present: Representatives Linder, Shays, Simmons, Langevin, and Dicks.

Mr. LINDER. [Presiding.] The Homeland Security Subcommittee on Prevention of Nuclear and Biological Attack will come to order.

I want to thank our witnesses for being here today.

In 2001, America was awakened to the reality of bioterrorism when five individuals died across the country as a result of a still-unsolved terrorist attack involving anthrax. In addition to those tragic deaths, 17 others developed anthrax infections. Thousands were placed on a regimen of cipro and a number of businesses, as well as House and Senate office buildings, were closed for months for decontamination.

Our experience in 2001 was a wake-up call. Prior to 2001, the United States saw the threat of biological weapons was largely in strategic or military terms. At that time, no one seriously believed that this country would fall victim to a biological event due to the fear of nuclear retaliation. Our thinking, as we have since discovered, was 100 percent wrong.

One area that must be improved is our intelligence. In March of 2005, the report from the Silberman–Robb Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction recommended that the United States improve its biological weapons intelligence. The principal theme of the report was the need to increase interaction between the intelligence community and the national security professionals.

As chairman of the subcommittee, I can tell you that overseeing our efforts to prevent a nuclear event are relatively easy compared to the biological side, because scientists, federal agencies and the intelligence community and relevant international players all regularly talk with each other about nuclear security. We need a simi-

lar system for biological pathogens and technology, and we need it soon.

It is incumbent upon us to face a reality that dangerous organisms like anthrax and botulism toxin, which occur naturally in the environment, can easily be acquired or even grown by terrorists bent on using them against the American people. We need a robust communication link between the intelligence and bioscience communities, education for researchers on the dangers on the misuse of biotechnology, and more stringent guidelines for handling or shipping biological pathogens if we are to significantly diminish this threat.

I understand and appreciate the use of biological pathogens for scientific purposes, but we fail in our responsibility to nearly 300 million Americans if we do not ensure that those same dangerous organisms never fall into the hands of those who would release them on an unsuspecting and ill-prepared public. The focus of today's hearing should be on answering the question of how can the intelligence and bio communities best communicate toward that end.

PREPARED STATEMENT OF HON. JOHN LINDER

THURSDAY, NOVEMBER 3, 2005

I would like to thank our witnesses for appearing before this Subcommittee today. In 2001, America was awakened to the reality of bioterrorism when five individuals died across the country as a result of a still-unsolved terrorist attack involving anthrax. In addition to those tragic deaths, seventeen others developed anthrax infections, thousands were placed on a regiment of Cipro, and a number of businesses, as well as the House and Senate Office Buildings, were closed for months for decontamination.

Our experience in 2001 was a wake up call. Prior to 2001, the United States saw the threat of biological weapons in largely strategic or military terms. At that time, no one seriously believed that this country would fall victim to a biological event due to the fear of nuclear retaliation. Our thinking, as we have since discovered, was 100 percent wrong.

One area that must be improved is our intelligence. In March 2005, a report from the Silberman/Robb Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction recommended that the U.S. improve its biological weapons intelligence capability. The principal theme of the report was the need to increase interaction between the intelligence community and national security professionals.

As Chairman of this Subcommittee, I can tell you that overseeing our efforts to prevent a nuclear event are relatively easy compared to the biological side. Nuclear scientists, Federal agencies, the intelligence community, and relevant international players all regularly talk with each other about nuclear security. We need a similar system for biological pathogens and technology, and we need it now.

It is incumbent upon us to face a reality that dangerous organisms like anthrax and botulinum toxin, which occur naturally in the environment, can be easily acquired or even grown by terrorists bent on using them against the American people.

We need a robust communication link between the intelligence and bioscience communities, education for researchers on the dangers of misuse of biotechnology, and more stringent guidelines for handling or shipping biological pathogens, if we are to significantly diminish the threat.

I certainly understand, and appreciate, the use of biological pathogens for scientific purposes, but we fail in our responsibility to nearly 300 million Americans if we do not ensure that those same dangerous organisms never fall into the hands of those who would release them on an unsuspecting and ill-prepared public. The focus of today's hearing should be on answering the question of how can the intelligence and bio communities best communicate toward that end, and I look forward to the testimony of our witnesses on that topic.

I now recognize my friend from Rhode Island, Mr. Langevin, for the purposes of making an opening statement.

Mr. LINDER. I look forward to the testimony of our witnesses on that topic, and I yield 5 minutes to the gentleman from Rhode Island, Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman.

I would like to welcome and thank our witnesses for appearing before us today.

Today, we are going to discuss a topic that many of us might not have thought much about before, the idea of medical and biological intelligence. Now, we are fortunate to have three experts in this not-so-well-known field here today to help educate us.

I know from my service on the House Armed Services Committee the importance of the military place in medical intelligence. I know how crucial it is for the battlefield commander to have a clear picture of all the hazards that his troops may face.

Often this includes not only the capabilities of the enemy's weapons, but also the local epidemiology; the diseases in the local water supply that his soldiers should be aware of; or communicable diseases that he must protect them against. Does the enemy possess chemical or biological weapons capabilities? If so, what is the most effective countermeasure?

These are the kinds of questions that medico-and bio-science intelligence professionals in the military must answer. I think there are lessons that can be learned from the military's approach to help us protect not just our service men and women, but our civilian population as well.

Of course, there are also differences. If a military commander is told that his soldiers will be operating in an area where anthrax is endemic among animals such as Afghanistan, he can simply order his troops to be vaccinated. This does not always translate to the civilian population, however.

We know, for example, that 2 years ago the president pledged to vaccinate both the military and first-responder community against smallpox. The plan was to vaccinate 500,000 members of each community. While the program succeeded among the military, it failed miserably in the first-responder community, with only 40,000 vaccinated, less than 10 percent of the target goal.

So while I do believe there are many useful lessons that we can adapt from the military's experience, I know that we cannot apply all of the systems and procedures directly to the civilian side. I hope our witnesses will elaborate on where we should and should not be seeking to draw comparisons, and also I am interested to learn more about the similarities and differences between bio-weapons and naturally occurring diseases.

For example, will systems used to detect and defend against bio-weapons also be effective for naturally occurring diseases? From what I have seen, and I hope that the witnesses will correct me if I am wrong, the potential seriousness, for example, of an avian flu pandemic is much greater than any scenarios that have been seen for a possible bio-weapons attack.

So while this committee and the Department of Homeland Security are more focused on intentional attacks, rather than natural catastrophes, we hope that we can leverage our practices so that they will be helpful for either eventuality.

We have seen from the recent Gulf Coast hurricanes that the Department of Homeland Security, if it focuses purely on terrorism, will fail the American people. I look forward to an open and informative discussion today. Once again, I thank the witnesses for being here and I look forward to your testimony.

Mr. Chairman, I yield back.

Mr. LINDER. I thank the gentleman.

Our witnesses today are Dr. David Relman, associate professor of microbiology and immunology and of medicine at Stanford University; Dr. David Franz, vice president and chief biological scientist at Midwest Research Institute; and Mr. Michael Hopmeier, the president of Unconventional Concepts, Inc.

We welcome you all.

Dr. Relman? We would ask you to try and keep your statement to about 5 minutes. The entire statement, without objection, will be made part of the record.

STATEMENT OF DAVID RELMAN

Dr. RELMAN. Thank you. Good morning, Chairman Linder and members of the committee. It is an honor to be able to present my thoughts to you on a topic of substantial importance to the security of the United States.

I am trained both as a physician specializing in infectious diseases and as a microbiologist, and currently run a research laboratory in the academic sector. I have served as a professor of medicine and of microbiology at Stanford since 1994.

In 1997, I joined a newly formed advisory group for the Defense Intelligence Agency known as BioChem 2020. This group of academic, industry and government experts, which also includes Dr. Franz to my left, identifies and assesses current and future threats related to the potential misuse of the life sciences and advises the intelligence community on these matters.

Among other relevant activities, I am currently a member of the National Science Advisory Board for Biosecurity.

Today, we are blessed with a set of unprecedented opportunities in the life sciences, and with them a set of serious and formidable challenges. The pace of advance in the life sciences continues to accelerate at a rapid rate. These advances have become globally disseminated and widely accessible. While these advances enable broad and powerful new tools for improving health and treating disease, they also carry with them unavoidable inherent risks of misuse and possible harm.

One of the most important approaches for addressing these potential threats is to anticipate and interdict them before they cause harm. To do this, one needs a robust, experienced, agile and creative intelligence collection and analysis capability. So how does this need stack up against current capabilities?

Unfortunately, current intelligence community expertise in the life sciences is not sufficient to meet these challenges. Historically, most investments in science and technology expertise within the intel community have been in the physical sciences. Relatively few biologists have been recruited to work within this community.

Those that have been recruited are thinly and unevenly distributed across vast agencies. There are assigned huge portfolios. They

are frequently reassigned to entirely new areas of work or moved to new administrative positions, and they quickly become sequestered from today's life sciences workplace inevitably leads to ineffectiveness and irrelevance. In short, at the present time, bioscience expertise within the intelligence community is patchy and thin, inadequately coordinated, and rapidly outdated.

So let me offer some thoughts about two basic solutions, an internal approach and an external approach. First, in building a more robust, sustained and effective capability in the life sciences within the intelligence community, it is critical that state-of-the-art scientific expertise guide both intelligence collection and analysis. Additional researchers with doctoral degrees in the life sciences and working experience at the cutting edge of science need to be recruited in substantial numbers to the intelligence community. Significant efforts will also be needed to retain these individuals and maintain their intimate familiarity and connectedness with the state-of-the-art in their respective disciplines.

Second, efforts to create a robust external advisory entity to the intelligence community on current and future biological threats should be expanded, strengthened and accelerated. On this point, I support Recommendation 13.1 of the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, aka the Silberman–Robb Commission, which suggests the creation of a Biological Sciences Advisory Group.

DIA's BioChem 2020 illustrates some of the features that would be desirable. This advisory group should provide guidance on anticipating future technological and conceptual developments in the life sciences; provide guidance on intelligence targeting and collection requirements; provide expert analysis of relevant intelligence; and provide an independent reality check on technical assessments in the life sciences.

The group should operate under the auspices of the national security and intelligence community leadership and provide input at the highest levels of these communities. The group should operate independently and initiate its own analyses, as well as respond to requests. The group should also be composed of leading experts from academia, industry and government from a wide range of disciplines.

A core set of dedicated members should meet frequently enough to establish close working relationships with the intelligence community. This has been a particularly important and successful feature of DIA's BioChem 2020. It is my sense that many leading figures in the life sciences and technology communities would be more than willing to participate in this effort to establish a productive and effective working relationship with members of the intelligence community.

In conclusion, we face daunting challenges from rapidly accelerating advances in the life sciences and the inherent dual-use risks that they pose. Anticipating, recognizing and interdicting emerging biological threats will not be easy, but we cannot afford not to try. I believe that the time is now opportune for action.

I am happy to answer any questions. Thank you.

[The statement of Dr. Relman follows:]

PREPARED STATEMENT OF DAVID A. RELMAN

THURSDAY, NOVEMBER 3, 2005

Good morning Chairman Linder, Ranking Member Langevin, and Members of the Committee. It is an honor to have this opportunity to present my thoughts to you on a topic of substantial importance to the security of the United States. To begin, let me provide you with a few brief comments on my background and the expertise that I bring to the issues at hand today.

I am trained both as a physician and practitioner of infectious diseases, as well as a research microbiologist, and currently run a laboratory of basic investigation into the mechanisms of microbial disease and the discovery of novel microbial agents of disease. I have served as a professor of medicine and of microbiology at Stanford University since 1994. Through relationships forged in the mid-1990's as a research funding recipient and reviewer for the Defense Advance Research Projects Agency, I was asked in 1997 to join a newly-formed advisory group at the Defense Intelligence Agency, known as Biochem 20/20. This group of academic, industry, and government experts (which also includes Dr. Franz) identifies and assesses current and future threats related to the potential misuse of the life sciences and associated technologies, and advises the intelligence community. I have participated in a variety of studies at the National Academies of Science on future biological threats, served on biodefense advisory groups for the Departments of Defense and Energy, and am currently a member of the National Science Advisory Board for Biosecurity.

Challenges

Today, we are blessed with a set of unprecedented opportunities in the life sciences and with them, a set of serious and formidable challenges. The pace of advance in the life sciences and related technologies continues to accelerate at a dizzying rate. New insights and discoveries are arising in unpredictable fashion from the convergence of previously unrelated scientific disciplines. These advances in the life sciences have become globally disseminated, and made widely accessible due to the inherent openness of the life sciences enterprise. For example, biological engineering of microbes can now be executed in the home. While these advances enable broad and powerful new tools for improving health and treating disease, they also carry with them unavoidable, inherent risks of misuse and possible harm.

One of the most important approaches for addressing these potential threats is to anticipate and interdict them before they cause harm. (This concept is relevant to biological threats of both natural and man-made origin.) Prevention is far more cost-effective than response and recovery. To be able to anticipate future biological threats one needs a robust, experienced, agile and creative intelligence collection and analysis capability. How does this need stack up against current capabilities?

Reality Check

Unfortunately, current intelligence community capabilities and expertise in the life sciences and related technologies are not sufficient to meet these challenges. Historically, most investments in expertise within the intelligence community in the realm of science and technology have emphasized the physical sciences. (When referring to the "intelligence community", I mean to include the national security communities at large.) Relatively few biologists have been recruited to work within this community. Those that have been recruited are thinly and unevenly distributed across vast agencies, assigned huge portfolios, and quickly become sequestered and cut off from the daily buzz of communication, sharing and discussion that is the essential fuel of the life sciences. Separation from today's workplace in the life sciences inevitably leads to ineffectiveness and an inability to appreciate the cutting edge or to predict future trends. This problem is compounded when analysts and collectors are re-assigned to entirely new areas of work or moved to new administrative positions on a frequent basis. In short, at the present time, bioscience expertise within the intelligence community is too patchy and thin, inadequately coordinated, unsustainable, and becomes rapidly outdated.

In theory, an inadequate set of resources within the intelligence community might be partially offset by efforts to borrow or share resources (e.g., expertise) from outside the community. For example, groups of outside experts might provide a continuing, direct link to some of the most relevant, advancing frontiers in the life sciences, as well as assessments of future threats and current intelligence. Although efforts of this type have taken place, and are worth discussing in some detail as part of this hearing, the net result has failed so far to meet the community's needs. However, I believe that more can be done with this approach, as well as with complementary approaches to build the internal expertise of the intelligence community.

In particular, I am relatively optimistic that the traditional cultural barriers between this community and today's life sciences communities can be overcome.

Possible solutions

Let me offer some thoughts about two basic solutions: an internal approach and an external approach.

First, in building a more robust, sustained and effective internal capability in the life sciences within the intelligence community, it is critical that state-of-the-art scientific expertise guide both, intelligence collection and intelligence analysis.

—Researchers with doctoral degrees in the life sciences and working experience at the cutting edge in their respective fields need to be recruited in substantial numbers to the intelligence community.

—Significant efforts will also be needed to retain these individuals and maintain their intimate familiarity and connectedness with the cutting edge in their respective disciplines. Regular assignments to the scientific workplace may be necessary. Continuing advanced scientific education is essential. The intelligence community should avoid assigning these scientists to unrelated jobs and responsibilities.

Second, efforts to create an external advisory entity to the intelligence community on matters related to threats from the life sciences and related technologies should be expanded, strengthened, and given high priority. On this point, I support Recommendation 13.1 of The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction (Report, March 31, 2005; Silberman and Robb, Co-Chairmen) which suggests the creation of an advisory group, that they have named the "Biological Sciences Advisory Group". DIA's Biochem 20/20 provides some examples of features that would be desirable.

—This advisory group should provide guidance on anticipating future technological and conceptual developments in the life sciences, provide guidance on intelligence targeting and collection requirements, provide expert analysis of relevant intelligence, and provide an independent "reality-check" on technical assessments in the life sciences.

—The group should operate under the auspices of the national security and intelligence community leadership, and provide input at the highest levels of these communities. The WMD Commission suggestion that such a group report to the Director of National Intelligence should be strongly considered.

—The group should operate independently and initiate its own analyses, as well as respond to requests from the intelligence, national security, and policy-making communities. It should have access to any and all intelligence that is relevant to its work. The group should generate analysis products that are available to the broad outside scientific community, as well as products at the classified level.

—The group should be composed of leading experts from academia, industry, and government, from a wide range of disciplines. A core set of dedicated members should meet frequently enough to establish close working relationships between the outside experts and the intelligence community representatives. This has been a particularly important and successful feature of DIA's Biochem 20/20.

—Given that both, potential threats and solutions are globally dispersed, every effort should be made to share the output of this advisory group with its international counterparts.

It is my sense that many leading figures in the life sciences and technology communities would be more than willing to participate in a serious effort to establish a productive and effective working relationship with members of the intelligence community.

Conclusions

In conclusion, we face daunting challenges from rapidly accelerating advances in the life sciences and related technologies, and the inherent dual use risks that they pose with respect to potential future biological threats. Anticipating, recognizing and interdicting these threats will not be easy. But we cannot afford not to try. The critical elements of a meaningful effort in this regard will include 1) building a more robust and sustained expertise in the life sciences within the intelligence community, and 2) creating an external expert advisory group with a close working relationship to this and related communities. Given the similarity of my recommendations with those from other policy and review groups, and what I perceive to be receptive, relevant parties, the time is now opportune for action.

I am happy to answer any questions.

Mr. LINDER. Thank you, Dr. Relman.
Dr. Franz?

**STATEMENT OF DAVID FRANZ, VICE PRESIDENT AND CHIEF
BIOLOGICAL SCIENTIST, MIDWEST RESEARCH INSTITUTE**

Mr. FRANZ. Mr. Chairman, distinguished members, it is an honor to appear before you to address issues related to the interface between the intelligence and scientific communities and the potential benefit to be gained by bringing these communities more closely together to address biological threats to the nation.

My background is described in my written statement. I have attempted to provide my views in a submitted statement for the record and will summarize them here.

I believe that biological warfare is unique for several reasons. I highlight the fact that the facilities, equipment, procedures and human resources needed to develop biological weapons are dual-use. This means that they can be used to do good or bad things with biology. Therefore, it is in fact often impossible to understand the ultimate purpose of ongoing research simply by inspecting a facility and even having the opportunity to visit with scientists working there.

As an example, we learned relatively very little about the enormous biological warfare program in the former Soviet Union before the epidemiological studies of the Sverdlovsk anthrax accident and the defection of two key scientists in the early 1990s. At the end of the Cold War, as a result of the Trilateral Agreement, U.S.–U.K.–Russia, of 1992, we gained some access to Russian biological facilities, but very little true understanding of the programs.

More importantly, I watched personally as those negotiations and visits build walls of silence and suspicion and shut down communication until the trilateral negotiations failed and the Nunn–Lugar science-based programs stimulated dialogue directly between scientists. I believe there are important lessons to be learned from this experience.

Our more immediate concern today, biological terrorism, differs from biological warfare in that, one, the footprint of both the production capability and the weapon can be infinitely smaller; and two, attribution will typically be a great deal more difficult. The goals of the terrorist are different. Depending on the agent selected, I believe that disruptive deployment of a biological weapon of some kind is possible for almost anyone with intent. Furthermore, there is a broad range of potential threats presenting minimal to very significant technical barriers for the would-be terrorist, but intent is central to any attempt to abuse biology.

What does this mean for the intelligence community? One, what we learn about intent will be more valuable than what we know about capability. Two, even in this new small world, we will be forced to make high-regret decisions or responses with less information in the future than in the past. And three, we must constantly thrive, as Dr. Relman said, to bring deep biological science understanding to the IC.

What can we do? First, we must hire and retain the best people we can. The cultures of science and intelligence are in many ways antithetical. Science is about communication, collaboration, openness and flexible work schedules and getting lifetime credit for the work that one does. Intelligence, on the other hand, is about sensitive or classified information; about working with another's data

and publications and not sharing and not giving credit for one's analysis and thought, at least not widely. When we do succeed in hiring first-rate scientists into the IC, they too often become disenchanted with the culture in which they must work.

And two, we must attempt to benefit from the experience and perspective of the private sector. Biotechnologies, as Dr. Relman said, are both changing rapidly and spreading, with broad and diverse applications across disciplines around the globe. Science and business travelers today together cast a much wider net than can ever be formally assembled by our government.

Finally, I believe that a reasonable analogy to the problem we face in preparing the IC workforce to deal with science as squishy as biology is foreign language qualification for regional studies. The better my French, the richer will be my experience on a holiday in France and the more the French people will enjoy interacting with me.

Science is a common language. The better my understanding of the technologies and the vocabulary and the idiom, the richer will be my experience talking science anywhere in the world, and the more my colleagues will enjoy our time together. When scientists talk about scientists, transparency is enhanced and intent often becomes better understood. As I have said, I believe that intent is the key to discovering those who would mis-use biology today.

I thank you for this opportunity.

[The statement of Mr. Franz follows:]

PREPARED STATEMENT OF DAVID FRANZ

THURSDAY, NOVEMBER 3, 2005

Mr. Chairman, distinguished Members, it is an honor to appear before you to address issues related to the interface between the intelligence and scientific communities and the potential benefit to be gained by bringing these communities more closely together to address biological threats to the nation. I am currently Vice President and Chief Biological Scientist at the Midwest Research Institute in Kansas City, Director of the National Agriculture Biosecurity Center at Kansas State University and Senior Fellow for Bioterrorism at the Combating Terrorism Center at West Point. I served on active duty in the U.S. Army from 1971 to 1998, 24 of those years in the U.S. Army Medical Research and Materiel Command. I served for 11 years at the U.S. Army Medical Research Institute of Infectious Disease, which I commanded before my retirement. During my tour of duty at USAMRIID, I served as Chief Inspector on three UNSCOM biological warfare missions to Iraq and as technical expert on the Trilateral (US-UK-Russia) Agreement visits and negotiations to Russia. I have worked under the auspices of the "Nunn-Lugar" Cooperative Threat Reduction (CTR) Program in the Former Soviet Union (FSU) since 1994 and, since 1998, chaired the National Academies of Science standing committee which provides technical review to the CTR-supported research conducted there. I currently serve on senior S&T advisory biodefense panels for the Defense Threat Reduction Agency and for the Department of Homeland Security, Science and Technology Directorate and I chair the Working Group on International Collaboration of the National Science Advisory Board for Biosecurity (NSABB) within the Department of Health and Human Services. The myriad opportunities given me throughout my career in military medical research have led me to better understand and value the use of science as a common language to build relationships, understanding and transparency internationally.

This committee has asked that I provide thoughts on how the scientific community can be more effectively engaged by the intelligence community and some broad perspective on how to address the problem of intelligence regarding the biological threat(s). I have attempted to provide my views on a number of these issues below.

BACKGROUND:

Why is biology special? I believe that biological warfare is unique for several reasons. First, the facilities, equipment, procedures and human resources needed are “dual-use”. This means that they can be used to do good or bad things with biology. When attempting to understand what is going on within a state scientific program or the laboratory of a non-state organization, understanding the intent of those who control these dual-use resources is more important than our access to the facilities. It is, in fact, often impossible to understand the ultimate purpose of ongoing research simply by ‘inspecting’ a facility and even having the opportunity for typically-orchestrated, monitored and, therefore, stilted discussion with the scientists. Additionally, biology is special because, in contrast to a chemical attack, for example, we **cannot yet provide real-time warning** to effectively use personal protective gear. Thirdly, clinical disease resulting from biological exposure occurs hours or days after attack. Unlike most other weapons systems, the relatively **long latent period between attack and illness** provides opportunity for perpetrators to escape and greatly complicates both the medical care of victims and law enforcement activities.

Lessons from the cold war: We learned relatively very little about the enormous biological warfare program of the FSU before the epidemiological studies of the 1979 Sverdlosk anthrax accident and the defection of two key scientists to the west which occurred in the early 90s. Our intelligence failure may have been the result of a combination of the uniqueness of biology and a relatively lower concern for the biological threat than for the nuclear or chemical threats during those years. Coincidentally, there was much more interaction between nuclear scientists from the USSR and the US during this period than there was between biological scientists from the two countries. . .and we understood their nuclear program better during that period. At the end of the cold war, as a result of the Trilateral agreement of 1992, we gained some access to Russian biological facilities but very little true understanding of the programs. Confidently inferring intent from a formal facilities visit or inspection was the exception. More importantly, I watched as those negotiations built walls of silence and suspicion and shut down communication. . .until the Trilateral negotiations failed and Nunn-Lugar *science-based* programs opened dialogue directly between scientists. The CTR programs haven’t made us totally safe, but they helped both sides understand better what we did and didn’t know. In my experience, more good has come from the resulting personal relationships build around the science than from formal government programs calculated to control proliferation. There are important lessons to be learned from this experience.

Biological Warfare vs. Biological Terrorism: Dealing with the massive offensive biological programs of the FSU, frustrating as the process was during the “Trilateral Era”, will likely prove to have been easier than what we will face in the future. Biological terrorism differs from biological warfare in that 1) the footprint of both a production capability and the biological weapon itself can be infinitely smaller and 2) attribution will typically be a great deal more difficult. Finally, we need only look to the “anthrax letters of ‘01” to see how disruptive and costly a very small attack can be.

How to think about the threat: Today’s threat probably differs significantly from that during the height of the USSR’s massive offensive program. Because of strategic changes in centers of power and world politics, terrorists are believed to be a more likely threat than state-run programs. Whether state-sponsored or not, the magnitude of an aerosol attack launched by a terrorist group will likely be smaller and more primitive than what we would have expected from the USSR. We normally consider access to the agents, technical expertise, the need for facilities and equipment and the intention to use biology as a weapon as the key barriers to success for the would-be terrorist. Depending on the agent selected, I believe that disruptive deployment of a **biological attack of some kind is possible for almost anyone with intent**. To illustrate this point—the spectrum from “easy” to “hard”—I often use the following simplified model. Success on the “easy” end of the spectrum requires just a little more than intent.

Easy<-----		----->Difficult	
Few Technical Barriers			Many Technical Barriers
Highly Contagious (Animal)	Contagious (Human)	Traditional Agent	Genetically engineered
(Foot & Mouth Virus)	(SARS, Flu, Smallpox)	(Anthrax, tularemia)	(?????????)

Easy<----->Difficult—

Continued

Few Technical Barriers		Many Technical Barriers	
Highly Contagious (Animal)	Contagious (Human)	Traditional Agent	Genetically engineered
Simply Introduced	Introduced or Aerosol	Delivered as an Aerosol	Introduced or Aerosol
Available	(Available)	Available in Nature	Modified or de novo
Spread Naturally	Spread Naturally	Understanding	Significant Expertise
Safe to handle	Safety Hazard	Basic Equipment Safety Hazard	Complex Equipment Unknown Safety Hazard

Therefore, there is a broad range of potential threats presenting minimal to very significant technical barriers for the would-be terrorist. . .but intent is central to any attempt to abuse biology.

CONCLUSIONS:

What does all this mean for the intelligence community?

1-Although we definitely cannot ignore Soviet or Iraqi—like programs in the future, we must be able to discover a terrorist-size program now, if possible at the point of early intent.

2-The biological intelligence target of today will likely be harder to identify, let alone penetrate, than it was during the cold war.

3-What we learn about ‘intent’ will be more valuable than what we know about capability.

4-Even in this new, small world, we will be forced to make high-regret decisions or responses with less information in the future than in the past.

5-A “we only collect secrets” culture, sometimes fostered within the IC, will leave too much white space between the dots to build the real story regarding biology, unless we have a broad framework of scientific understanding on which to pin the relatively few science “secrets” which we do discover.

6-We must constantly strive to bring deep biological science understanding to the community. Analysts need to learn of the latest discoveries in biology, understand the newest technologies and appreciate their implications for intentional abuse.

RECOMMENDATIONS:

What can we do? As in any undertaking, the best people with the best leadership will provide the best outcome to this challenge. We must put the best people we can into the intelligence community and give them the best leadership and supporting infrastructure we can afford.

We must:

1. Hire and retain the best: The cultures of science and intelligence are, in many ways, antithetical. **Science is about** communication, collaboration, openness and flexible work schedules. Scientists love to publish and they love to tell people about their work. The currency of science is open, refereed publications and presentations at national and international meetings. Scientists are free to publish in journals and, once accepted, their work is forever credited to them. Scientist care more about discovery and publishing than about salary, fancy offices or in what part of the country or world they live. Scientists love to communicate with other scientists. **Intelligence is about** sensitive or classified information, about working with another’s data and publications, about not sharing and not getting credit for ones analysis and thought. . .at least not widely. A common task of the analyst might be to distill and simplify, often dated, often openly published literature and then to make giant leaps of interpretation regarding it’s meaning in unknown context. . .and then to speculate on the intent of a person or group. A “we only collect secrets” mentality—especially in the world of bioterrorism—might provide us historical intelligence but probably not actionable intelligence. A culture where knowledge is power, openness is not advocated and there are few checks and balances can draw second rate scientists who package speculation as hard evidence. Even the initial excitement of directly briefing key national decision makers gets old for real scientists. When we do succeed in hiring first-rate scientists into the IC (intelligence community), they too often become disenchanting with their work and the culture. We must find a way to hire and retain a quality, scientifically literate intelligence workforce. Traditionally, the community has put analyst expertise before science expertise; if that policy is to continue, every effort must be made to give biodefense analysts opportunities to interact with scientists, engineers and other relevant experts just as often as possible.

We might:

1-Encourage analysts to obtain joint appointments at universities or industrial research programs and collaborate with full-time scientists.

2-Allow analysts to spend as much as 1/3 of their time “off the clock”, working in academe, industry or other governmental laboratories. . .and make publication a part of their performance plan on which they are rated. In some cases, this might mean 2 days per week away from the job and in others it might be every third year away.

3-Develop true joint-appointment programs in which an academic or industrial scientist serves the smaller portion of a FTE within the IC with a primary career outside.

Fundamentally, it is much more critical today than during the cold war that the analyst continually interacts with the community of scientists, outside the IC. A non- or weak-scientist, analyst or collector briefed by scientists and sent into the scientific culture will fail to engage and learn. The stronger the scientist, the better the engagement, the understanding and the trust. . .and the transparency.

Making the best and the brightest interested scientists available to our analyst community has value. The DIA Red Team 20/20, on which both Dr. Relman and I serve, has demonstrated the enormous value of bringing together the security and the scientific communities. Dr. Relman and four or five exceptional colleagues from academe provide the rest of us a wealth of hard science against which we can evaluate our thoughts and concerns. Even in this setting, although the members of this committee are all US citizens and have common goals regarding understanding future threats to our nation, it took several years to build a sense of ‘team’ in this diverse group. The glue was, and is, the science.

2. Attempt to benefit from the experience and perspective of the private sector: Biotechnologies are both changing rapidly and spreading with broad and diverse application—across disciplines—around the globe. Electronic communication, ease of rapid travel, new opportunities for free enterprise and a generally more widespread openness in formerly closed societies have greatly increased integration and human interaction among scientists and business persons worldwide. These travelers, together, cast a much wider net than can ever be formally assembled by our government. We should seek opportunities for these traveling masses to provide interaction and feedback to the community on what’s “out there” in terms of technologies and capabilities. Discoveries and observations, regarding intent, gained from the private sector will obviously occur much more often by chance than by design, but the numbers and coverage could make it a very helpful tool, if we can harness it effectively. It is important that the intelligence community---or possibly the law enforcement agency to which someone might report an unusual incident---remain passive receptors of information from the private sector. Gaining such information from scientists, clinicians and other knowledgeable individual traveler-citizens is a slippery slope; abuse will do much more harm than good.

We should:

1-Encourage, not discourage, interactions between U.S. science and business and their counterparts around the world.

2-Sensitize this community, or parts of it, to the importance of informing **someone**, should they observe or hear of what appears to be malevolent intent. Education of the masses of scientists and biotechnology business person will have to occur indirectly, raising general awareness of the importance of controlling the misuse of biology, rather than tasking them to “hunt for bioterrorists”. Activities currently underway by non-governmental organizations, the National Academies of Science and even the World Health Organization, to educate and develop awareness regarding the misuse of biotechnology, (See “Biotechnology Research in an Age of Terrorism” 10@ www.nap.edu) may contribute to developing awareness that could result in gaining information from unlikely sources.

3-Outside the intelligence community, work together internationally on common, difficult problems in biology; leads to understanding, transparency and even trust that cannot be achieved through other means (See “Biological Science and Biotechnology in Russia: Controlling Disease and Enhancing Security” 10@ www.nap.edu). Chronic and emerging disease will be with us when the last bioterrorist retires. Working with colleagues to fight natural disease brings us into contact with biological activities and builds our network of trusted contacts around the world. Even in countries which are known to pose a threat to our biological security, more scientists and clinicians share our goals regarding health than share the goals of the would-be bioterrorist regarding the abuse of biology.

4-Understand that the intelligence community is just one of the tools we have to protect our citizens from those who would harm them. We must, obviously, conduct classified defense and intelligence programs to help protect us from threat states or groups and we must deal from a position of strength in this very dangerous world. However, we must remember that in the new, smaller world, perception is an ex-

tremely powerful tool and the masses of non-terrorists out there can, indirectly, help us fight this war on terrorism, if they think positively of America. Therefore, we must not only allow, but encourage and support, public health and other programs that both improve human security but build understanding, some trust and some transparency between individual Americans and individual citizens of other nations. Walls around our nation, be they of chain-link or invisible, will not necessarily make us safer anymore.

The Power of a Common Language: A reasonable analogy to the problem we face, in preparing an IC workforce to deal with a science as squishy as biology, is foreign language qualification for regional studies. The better my French, the richer will be my experience on a holiday in France and the more the French people will enjoy interacting with me. **Science is a common language;** the better my understanding of the technologies, the vocabulary and the idiom, the richer will be my experience “talking science” anywhere in the world and the more my colleagues will enjoy our time together. When scientists talk about science, intent often becomes better understood. . .and intent is the key to discovering those who would misuse biology.

Mr. LINDER. Thank you, Dr. Franz.
Mr. Hopmeier?

STATEMENT OF MICHAEL J. HOPMEIER, CHIEF, INNOVATIVE AND UNCONVENTIONAL CONCEPTS, UNCONVENTIONAL CONCEPTS, INC.

Mr. HOPMEIER. Thank you, Chairman Linder, Ranking Member Langevin and committee members. I would like to thank you for this opportunity to discuss today an issue of paramount importance to our nation, the application and use of intelligence concepts and techniques to the biosciences, including medicine and biotechnology.

As we have seen time and again, most recently when several problems have arisen, such as the anthrax incidents, the Chiron troubles of last year, and the anticipated difficulties of the H5N1 avian influenza pandemic now facing us, the need to anticipate events is tantamount to avoiding surprise and possibly disaster.

To put my comments in context, I would like to provide you with a brief summary of my background. I am currently president of a policy and engineering consulting firm, Unconventional Concepts, Incorporated. For the last decade, I have been involved in a number of senior policy positions as a government employee and a consultant. These have included chairing a membership on several different science studies.

I am currently special adviser to the United States surgeon general on homeland security and weapons of mass destruction; the senior science adviser to the deputy assistant secretary of defense for chemical and biological defense; and an adviser and consultant to numerous other agencies and organizations. Included in my written testimony is a fuller CV.

Today, I will use the term “intelligence” in my discussions, and I think it is appropriate to define it. “Intelligence” in this context is the product resulting from the collection, processing, integration, analysis, evaluation and interpretation of available information concerning the biosciences and factors affecting public health and medicine.

I would like to note at this point, however, that even assuming that we were to fix or improve the intelligence process associated with the biosciences, we must also be able and willing to act on what intelligence provides us. While action based on intelligence is

not the topic of today's testimony, please recognize that intelligence in and of itself is not a panacea. It is useless without the process, will and ability to act.

To come right to the point, there exist fundamental differences between, on the one hand, the medical and biotechnology communities and the intelligence community on the other. The differences go far beyond mere changes in goals and methods, but are in fact cultural and societal. Each of the two groups have vastly different ways of looking at the world, how they collect information and make sense of it, how they protect it and share it, and how they determine what actions to take based on their analysis and understanding of the information they collect.

These differences, however, are not mutually exclusive, but merely the result of different inclinations, training and time horizons. One key aspect of these differences deals with the fact that when we discuss intelligence, we are discussing a prospective technique, i.e. a part of the process that leads to predicting the future based on information concerning the past and the present. This is fundamentally different from most of the medical and public health communities wherein they deal primarily with the present in a response role. In the field of biotechnology, however, intelligence is most akin to what we see in the commercial world wherein we try to predict trends for guidance in business strategy.

That being said, it is absolutely vital to the safety and welfare of our nation that at some level these differences be overcome. As I alluded to earlier, two recent failures we have had or face now, the Chiron debacle and the avian influenza panic, are in large part direct results of failures in medical and biotechnology intelligence. The anthrax incidents highlighted many deficiencies as well.

I should note that while two of these cases, one dealing with biotechnology, Chiron, and one dealing with disease/medicine, influenza, fall in the realm of naturally occurring events, the lessons and the failings are equally applicable to terrorism or deliberate acts as we saw with anthrax.

I believe it is vital to recognize that there is no quick approach to improving the relationship between the intelligence and biosciences communities. We must change the mode of thought in the biosciences from observing what is to predicting what may be, and finally to how can we affect the future. The first step is intelligence in its broadest form.

With this as a starting point, the question now becomes what should we do. I believe it is vital to increase both the overall awareness of intelligence and the mode of thought it offers among our medical, public health and biosciences communities. An excellent model is that presented by the Epidemiologic Intelligence Service.

In the more extensive written testimony I have provided to the committee, you will find descriptions of a number of programs and agencies that touch on this important issue, as well as an outline for a program to leverage the capabilities of the Armed Forces Medical Intelligence Center, the CDC, and academia to create a cadre of trained, motivated and educated personnel who can raise awareness and knowledge throughout the bioscience community of intelligence and the role it can play.

We can create trained observers with skills and capabilities that allow them to view problems, and the world around them in a new and critical way, one which will lead to new insights, and ultimately to the ability to prevent medical disasters and surprise, not merely respond to them.

I would like to leave you with this final thought. The health and safety of our nation depends on our ability, not merely to respond to adversity, but to prepare for and hopefully to mitigate or prevent it. It has often been said with respect to disease that that which does not kill us makes us stronger. This, of course, is said by those who were made stronger, not those killed in the process.

We must become stronger, but we must also minimize the number of those who will die as a result of our failure in predicting, and effectively responding to biological attacks and disasters. The only way to achieve this is through accurate and effective prediction and prevention of disaster. The means to achieve this is intelligence, leading to action and the adoption of biomedical institutions and protocols that strengthen this new paradigm.

I am happy to answer any questions you may have. Thank you.
[The statement of Mr. Hopmeier follows:]

PREPARED STATEMENT OF MICHAEL HOPMEIER

THURSDAY, NOVEMBER 3, 2005

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With this as a starting point, the question now becomes “what should we do?” I believe that it is vital to increase both the overall awareness of intelligence, and the mode of thought it offers among our medical, public health and biosciences communities. An excellent model is that presented by the Epidemiologic Intelligence Service. In the more extensive written testimony I have provided to the Committee, you will find descriptions of a number of programs and agencies that touch on this important issue, as well as an outline for a program to leverage the capabilities of the Armed Forces Medical Intelligence Center, the CDC and academia to create a cadre of trained, motivated and educated personnel who can raise awareness and knowledge throughout the bioscience community of intelligence and the role it can play. We can create trained observers with skills and capabilities that allow them to view problems, and the world around them, in a new and critical way, one which will lead to new insights, and ultimately to the ability to prevent medical disasters and surprise, not merely respond to them.

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I am happy to answer any questions you may have.

Mr. LINDER. Thank you all. You give us a lot to think about.

You each have said that we must have more intelligence to anticipate and hopefully prevent an activity. We are spending about \$1 out of \$8 on homeland security, taking things away from people on airplanes. We spend \$4.2 billion taking things away from you. We spend less than \$700 million a year on intelligence.

Can the current intelligence community subsume this role? Dr. Relman?

Dr. RELMAN. I believe it has the pieces and certainly the will to do so. I do not think it has the resources to do so. I think what they desperately need is a more robust fundamental scientific expertise base, as well as much more productive relationships with the outside scientific community.

Mr. LINDER. Should that community be separate from the current intelligence agencies, a stand-alone bio intelligence community?

Dr. RELMAN. I think they can be in both places simultaneously, enhanced within and supplemented by accessory without.

Mr. LINDER. The biological community is an academic community, which instinctively is wide open. The intelligence community is a closed community. How do we get them to work together?

Dr. RELMAN. It is extremely difficult, and a good question. It alludes to the cultural differences that Michael Hopmeier described. I think in many ways the two are beginning to see the needs and realities of the other. For example, I think that there is now a slow change in the thinking of the academic community in that we recognize there to be problems that must be looked at with a different perspective, and an imperative, a need to do so.

Likewise, I think the intelligence community is beginning to see that in contrast to every other kind of threat they faced in past decades, this is one which today is large, tomorrow will be larger, and is inherently open. And they now realize that they, too, need to be in fact engaged out in the open-source world, in biology, but they are not there yet.

Mr. LINDER. I had the director of the CIA down at Atlanta at the CDC last Friday. He would agree with you.

Dr. FRANZ, how do you determine intent?

Mr. FRANZ. It is very, very tough. As I said, it is the core of the problem. My experiences both in Russia with the trilaterals and in Iraq with UNSCOM demonstrated it is very difficult to measure intent.

My subsequent experiences working in Russia with the Cooperative Threat Reduction Program, where scientists and clinicians worked together on difficult common problems demonstrated to me that that kind of an approach may be as good as it is going to get.

We can tear down walls and build this sort of culture of a little more openness if we are working together on these common problems. So I really like that approach. From my own perspective, I have learned more about intent that way than across a negotiating table.

Mr. LINDER. Mr. Hopmeier, are there enough analysts in the world to do this job?

Mr. HOPMEIER. Yes and no. I believe that there are a large number of analysts available. I believe the significant deficiency we have is that they are not sufficiently trained or focused. As I alluded to in my remarks, there is a cultural difference between the two communities, the intelligence and the biosciences/biomedical community.

It is my opinion that I think we would find it much more effective and practical to try and train portions of the medical and biosciences community in aspects of intelligence, critical thinking, collection of information and analysis.

And equally, if not more important, provide them an avenue and a vehicle to make that information available to those who can make use of it, interpret it, and take action, than it is to try and either create a whole new arm or capability or solely create that within the intelligence community, and try and train them in the biosciences.

One of the specific aspects, as Dr. Relman and Dr. Franz have both noted, the biosciences community is a community. It is not a

simple matter of blessing someone in the intelligence community and saying, you are now the czar of biosciences intelligence. You have to have people who have made contacts, worked in the community, understand the field, the discussions, can act one-on-one and be viewed as a peer to be able to be accepted. Otherwise, they will forever be on the outside of that.

I believe the answer is somewhere between the two extremes of converting spies to medical personnel and converting doctors into spies, but instead being able to train the medical community in intelligence, but also training the intelligence community into how to absorb and make use of information that comes out of the medical and biosciences community.

Mr. LINDER. If we did try to educate the spies in medical, what would you ask them to look for, since almost any agent they could use is dual-purpose?

Mr. HOPMEIER. I think the question really becomes when we talk about intelligence, how broadly are we defining it? I believe that we may be mixing two broad, but yet related terms. In one case, intelligence with the biosciences can be considered the environment, the pathogens that may spread through it, the way that they in fact can move through the community, which includes both natural and manmade diseases and pathogens.

There is a completely separate, yet related, category of the technologies, pharmaceuticals, diagnostics, ability to manufacture and distribute vaccines, our ability to put in place plans. Ultimately, I think that when we look at intelligence and we create the models and the infrastructure, it needs to actually be independent of either intentional release or naturally occurring epidemics. Both of them will have significant impact, and frankly on our ability to respond. To plan and predict their spread, develop counter-measures for them, apply them, and protect our society should be independent of the cause for the simple reason that in many cases, we may not know the cause at all.

I will remind you of well over a decade ago Legionnaire's disease. If we created the stereotypical perfect example of a terrorist-release of an agent, Legionnaire's disease was it, an unknown agent occurring in a very narrow period of time, affecting a very small and targeted population that occurred very rapidly and with very little ability to trace it. That was a completely natural event.

I will give you a counter-example, the Rashneeshi cult, also a long time ago, many years ago. In that case, what we thought was a completely natural outbreak, we found out a year or more later was in fact intentional. If we focus on trying to determine intent, it only really addresses one small aspect of the problem that we have to deal with, and the ultimate goal is protecting our society, our people. That is independent of intent.

Mr. LINDER. Thank you. My time has expired.

Mr. Langevin?

Mr. LANGEVIN. Thank you, Mr. Chairman.

Mr. Hopmeier, I would like to actually continue on with the question that the chairman raised. You have may have already addressed this, but I would like to explore this a little more. You recommend again that we train medical personnel in intelligence and

analysis. Are you suggesting that training intelligence personnel in medical and biosciences be equally effective?

You also discussed in some of your background materials the idea of putting doctors trained in intelligence at all U.S. embassies overseas. Can you elaborate on the benefit of such a plan?

I welcome the other witnesses to comment as well.

Mr. HOPMEIER. My pleasure.

First, let me note, there is a document that I provided to the staff, it is not available for public dissemination, I am afraid. It is a document from the Armed Forces Medical Intelligence Center titled "Medical Intelligence Tutorial." That document is specifically designed to train medical personnel on what is intelligence, how to collect data and information, and how to analyze it.

One of the most effective means our government has found in being able to collect and understand data, not only on emerging diseases, but also on endemic capabilities in different nations, are the different overseas labs that our Department of Defense maintains. We have labs throughout the world in a number of different areas, including Bangkok, Egypt and other regions, which were originally developed primarily to try and understand the diseases in those regions and how they affect military personnel.

One of the anticipated, but very valuable consequences of having those labs distributed in many regions of the world was the relationship that those researchers had developed with the local public health communities, local academic and industrial infrastructure. Dr. Franz can certainly address that much better. He ran many of those laboratories when he was in the military.

But I think the key benefit that came out was not just the short-term knowledge of what diseases were endemic in any given region, but more importantly the longer-term relationships that have been developed between our government, the Department of Defense and the research laboratories, and the local public health communities, their militaries, the health officers and personnel in those militaries, and the public personnel.

Ultimately again, we need to decide what is the best use of scarce resources. One of my recommendations, as you noted, was use of the embassies throughout the world to provide medical and public health advice, but more importantly interaction and expand the community of interaction worldwide, and not depend solely or almost solely on the World Health Organization and its other bodies, but be able to actively and aggressively reach out to these other communities through information sharing, identification of, in general, very open-source and public knowledge, but most importantly having a structure to be able to bring that back to those who can take action on it and make decisions based on it.

Mr. LANGEVIN. Would either of the other witnesses care to comment?

Mr. FRANZ. I would just add that the point that Michael makes about relationships and longstanding relationships and building trust is so important, and that happens easily in the medical and the scientific communities. There are a number of instances in history where because of lack of communication, our imaginations or our adversary's imaginations take over and they actually think bet-

ter than we do, and they were doing things that we were not really doing, and so on.

I think that can lead or be a component in a cycle of proliferation. I believe that because the threats of bioterrorism and the technologies related to bioterrorism are so grossly overlaid with those tools and human resources that are related to emerging disease and to panic disease, this is a real opportunity. I think we have to be a little bit careful in making doctors spies, because we are going to undermine the real role and undermine the relationships and the understanding and the building that goes on.

Secondly, the point I would make in the same context is that we sometimes I think within our intelligence community think about we are collectors of secrets. That may work in some technologies where we have this secret and this secret and this secret. The biological community is so complex that I think it is critical that we have an infrastructure or a framework on which to hang those occasional secret dots that we do have in order to connect the dots and bring them into context.

So I think that is another reason for the importance of this broad understanding within our intelligence community and a close relationship between the intelligence community and the biological community.

Dr. RELMAN. I would simply answer your question with a general question, which is what are the kinds of things we would like to observe in order to be able to anticipate biological threats that we face.

I would answer that by saying there are two kinds of things we would like to observe. One is the activities, the ongoing activities and behavior of those engaged in the life sciences, as well as the natural state of affairs in the natural world. We would like to, for example, in the latter, understand what is the diversity of naturally occurring organisms, both pathogens and beneficial organisms, in order to anticipate what might arise or what one might be able to do with those organisms.

Likewise, we would like to be able to know what are the normal kinds of activities that scientists engage in around the world? Because in both cases, what we are then looking for are aberrations. I think this was a question asked earlier. How do you recognize deliberate from natural? In both cases, you are looking for aberrations from the natural state. Until you understand this background, we cannot identify an aberration.

I think the way to do both, again, is to simply be out in those worlds talking with, getting to know, observing activities of people around the globe, as well as observing nature around the globe. I know that CDC, for example, has talked about deploying their epidemiologists to understand what is the natural background of the microbiological organisms of the planet.

Mr. LANGEVIN. Thank you.

Mr. LINDER. The gentleman from Connecticut is recognized.

Mr. SIMMONS. Thank you, Mr. Chairman, and thanks to the ranking member for sponsoring this very interesting and very significant discussion.

I want to refer to the staff document page four where they quote the Silberman–Robb report as follows: “The gap in collection on the

biological threat is largely attributable to the fact that the community," that is the intelligence community, "is simply not well-configured to monitor the large stream of information, much of it publicly available, relevant to biological weapons."

Page two, from Dr. Hopmeier, "To come right to the point, there exists a fundamental difference between on the one hand the medical and biotech communities and the intelligence community on the other hand."

Mr. HOPMEIER. Absolutely.

Mr. SIMMONS. To quote from Mr. Franz, "Intelligence is about sensitive or classified information. It is not about sharing and not about getting credit for one's analysis and thought. Openness is not advocated," et cetera, et cetera.

And then, Mr. Relman, you refer to the open-source world.

I worked for the CIA for 10 years as an operations officer, covert agent. I spent 35 years as a military intelligence officer. I just think we are barking up the wrong tree here. I do not think the intelligence community is capable of taking on this task.

I remind everybody that the Robb-Silberman report recommended an open-source intelligence agency, an open-source agency, an organization focusing on open sources, which they placed in the CIA. I would not place it in the CIA. I would put it in the Department of Homeland Security because I think it lends itself absolutely to the mission of the Department of Homeland Security.

When I go visit Pfizer in my district, their R&D center in Groton, several hundred million dollars of investment in R&D, and they tell me that advances in bioscience, for example treating diabetes with inhalants, as opposed to injections, but that that science and the development of that science, which is shared around the world, has tremendous applications for bioterrorism and bio-warfare.

I wonder why we are not simply stepping back and saying, look, scientists do not want to be spies. They really don't. If they did, they would have joined the CIA. They do not want to be spies, but they do want to protect their nation. They do want to protect their families. They do want to make their kind of contribution to the national security.

So why is it that we continue to try to get the intelligence community to do what it does not want to do? Why don't we step back and say it is time to develop a new organization which is going to be congenial to scientists, because it will not be a spy organization, which will contribute to the national security, which will use open sources of information for their analysis, and which will really be pertinent to the problem? Why don't we do that?

We have three very smart people. I would be happy to have it out.

Mr. HOPMEIER. I will take a shot at it, to begin with.

I believe first, sir, it is the idea that we are trying to create, make doctors into spies or more broadly the context, an analyst as a spy. I might point out that any reasonably competent industry analyst or stock analyst, especially in the biotechnology field, can probably answer 90 percent of the questions and issues that we all have on our mind today. What is the ability of industry to make

vaccines? How quickly can they ramp up? What are the inherent problems in producing those vaccines and distributing them?

There is an enormous industry-base today built solely around the business of collecting open source information on different fields, very specifically the biosciences, analyzing, interpreting and making predictions. Their purpose, frankly, is not national security. They certainly have an interest in protecting our nation, but their purpose more is they have many, many hundreds of billions of dollars to invest and the decisions that they make is to the effectiveness of industry. The ability to produce drugs is going to affect the investment portfolios of their customers.

I work with several of those companies. One that I am familiar with, for example, a company called Gerson Lehrman has nearly 160,000 medical and other technical professionals around the world that they ask questions to, funnel the information, and come up with conclusions, different conclusions that you gentlemen need, but the process is there and has been demonstrated. There is a large industrial base that has proven that possibility. I can tell you they certainly do not consider themselves spies, most of them, some may want to be. But for the most part, they do in fact do intelligence collection, analysis, and just simply based on the effectiveness of their portfolios, seem to be very effective.

Mr. FRANZ. I would add that what you describe is my experience as well, in dealing with the intelligence community as a customer during my time at the Army's Institute of Infectious Diseases, where we developed medical counter-measures.

What I see is that it is very, very difficult to retain good people in the culture, in which they are asked often to read what looked like historical information, historical intelligence, not actual intelligence, and try to commingle that with the open literature if they had time, and then sort of dumb it down for the decision-makers. That is just not a fun job for a bright young scientist. So I see them occasionally hiring good people, but they quickly lose them.

I think your approach with regard to the open approach to looking at the open literature is probably more effective. Dr. Relman mentioned the DIA Red Team. Our experience there I think has been very positive, where it is for the most part open communication between scientists and members of the intelligence community. I think they appreciate it a great deal. They learn a lot and we learn a lot in the process.

Finally, I would just add that in conjunction with your, or sort of in parallel with your thoughts, I think exploiting or taking advantage and using the private sector is something that we could do in that kind of a system. We could encourage, rather than discourage international communication and transportation and working together. We could also probably sensitize that community to help us in the intelligence community to just better understand what is going on out there. Not secrets, not classified things, just what is going on for example that you mentioned at Pfizer and others, where new and cutting-edge technologies are being used.

And then finally, I think also in accordance with your point, we need to understand that intelligence is just one of our tools in this process. It is an important one, but especially in the field of biology, I think it is just one wedge in our tool set.

Dr. RELMAN. I would echo and agree with many of the comments of my colleagues. I keep finding myself almost a hopeless optimist about what might be doable. It is based in part upon some good experiences with members of the intelligence community. I truly believe there are individuals buried within those agencies who truly understand what really is needed and the kinds of relationships that need to be created, and have tried their hardest to do so. I would hate to see them pushed aside or in any way marginalized.

But you are absolutely right. The nature of this problem is so immense that I do not believe any self-sustaining, self-sufficient agency or group can undertake what really is needed.

Just to put this in a different kind of context, I think one of the most likely threats we face in the next 10 years or 15 years is not necessarily the actions of a person hell-bent on doing harm. It is the inadvertent, irresponsible actions of someone who was tinkering in biology. It is the next-generation bio-hacker.

There are so many—I say this with some humility—there are so many kids out there who are so good at biological engineering because of kits, because of technologies. There are going to be people who are going to simply try doing interesting things for the fun of it.

That is where my concern is. How do you deal with that? You need the entire community so sensitized that they recognize when untoward or irresponsible behavior is taking place and know what to do about their sense of this, to which they should speak.

So given the nature of that problem, there is no one agency that is going to be able to place bounds on and take responsibility for this. There have to be bridges built. We have to take advantage of those individuals that are now in a variety of agencies who truly believe in this approach, and empower them, and knock down these walls, make all of these organizations and agencies talk together. Maybe it should be unified under one administrative entity, and Homeland Security might be a very good place for it, but it will have to be an integrative, expansive effort, not a single contained one.

Mr. HOPMEIER. Gentlemen, could I add one other comment please?

I think that it is telling to realize that if we went back 65 years ago, we could be sitting around having this discussion concerning physics and nuclear engineering. If we went back 20 or 25 years ago, we could be having the same discussion concerning computer science and the Internet. We have a new field that is evolving and developing. The intelligence community and the rest of our government adapted to the threat of nuclear war. It adapted to the vulnerabilities of the Internet and computer sciences have created. And today we are on the eve of biosciences. We may solve this problem today, but in 10 or 15 or 20 years, there may be another problem that we are sitting to deal with.

So I think it is instructive to note the technological surprise, changes, space, nuclear science, biology. All of these will continue to come up and we will have to address all of them in some way.

Mr. LINDER. The time of the gentleman is up.

The gentleman from Washington?

Mr. DICKS. The only thing I would say is, I served for 8 years on the Intelligence Committee. I can see certain circumstances when if you have like the Soviet Union, with a massive program, that you would have to have intelligence about that, especially since that program was kept in secret. Let's say a future adversary, maybe the future adversary might have a program that would require us to have intelligence on that program. I would think it would be helpful to have people with some scientific background in order to look into this.

Now, if I could just switch and go to what we have now, and get your comments a little bit on some of these entities. One is the Armed Forces Medical Intelligence Center, headquartered at Fort Detrick as a branch of the Defense DIA, and has the mission to provide all sorts of intelligence on foreign infectious diseases and environmental health risks, foreign military and civilian health care systems and infrastructures, and foreign biomedical development and life-science technologies of military-medical significance to the U.S. armed forces.

How would you rate that organization? Is this the one you have been talking about?

Mr. HOPMEIER. Yes, sir.

First, I think you need to realize AFMIC I happen to consider is a very good organization. They have a long and distinguished history, but their focus is exclusively on those issues related to the military.

Mr. DICKS. Right.

Mr. HOPMEIER. So they have the infrastructure and the capability, but they are funded, resourced and focused on issues directly of military importance and relevance. As a model and as a source of process for other entities and organizations, I think that they would be excellent.

If what you are asking is could they undertake this role for the broader homeland security mission, I do not believe so for two reasons. One, it would take a significant investment to expand and increase them to have that capability, more so perhaps than creating a new entity. Two, and more importantly, I am afraid it would unacceptably dilute their mission and their focus on protecting the military.

Mr. DICKS. But it is a model of an agency that has this mission of looking at these kinds of issues, both from a scientific and from an intelligence perspective. Isn't that correct?

Mr. HOPMEIER. Absolutely.

Mr. DICKS. Let me just move on. The Epidemic Intelligence Service, which is located at CDC headquarters in Atlanta, how would you rate that program? Any comments on that?

Dr. RELMAN. They are an outstanding group with, again, a somewhat different mission. Their mission is to describe and explain natural events of infectious origin and to understand the epidemiology of the world of infectious agents around the globe. They focus, of course, on the United States. They have excellent skill sets in understanding patterns and recognizing perturbed or aberrant patterns.

But their expertise is not, for example, in technology, in the future of the biological sciences and their impact on what might be now advanced or reengineered threats.

Mr. DICKS. If you were going to create a new entity at the Department of Homeland Security, what would you want it to be like? What kind of capabilities would you like it to have?

Dr. RELMAN. Again, I think it depends upon its mission. If it is to anticipate this enormous spectrum of potential threats—

Mr. DICKS. Right.

Dr. RELMAN. —it must have several features.

It must understand how we go about describing and understanding the natural world. So it would have to be epidemiologists of the CDC sort. It would have to understand the scientific basis for how we understand these entities. It would have to include academic and private sector scientists. And it would have to understand how to anticipate trajectories in technologies in sciences 10 or 15 years out. That, too, would include a wide variety of people with different expertise and disciplines from a variety of sectors. It is really a compilation of many kinds of agencies.

Mr. DICKS. And it would have to be able to relate, I assume, to the CDC, to the World Health Organization, to NIH, to all these entities that are out there following these issues on a day-by-day basis. I agree there with the gentleman that ought to be in the open, I think, and I think you could get a lot of information, just like we have been following the avian flu and watched what happened with SARS. It was not handled properly by the PRC.

It just seems to me that we this ought to be done at the Department of Homeland Security, and have it work with these agencies. It would develop and evolve, but it would be able to work with all these other existing entities, and that would be a great way to start, if we were going to do something.

Dr. RELMAN. If I could just interject, there is, of course, as you I am sure know, the Biological Threat Characterization Center as part of DHS. They have part of that as their mission, but in my humble opinion, it is a limited effort. It is a very limited and narrow effort right now.

Mr. DICKS. Dr. Franz or anyone else like to comment on this?

Mr. FRANZ. I would agree. These areas are so overlapping.

I often define “biological terrorism” as emerging infectious disease plus intent. Everything that David has said and that you have said I think is right on-target. We have go to integrate all this. Back in the mid-1990s or so, AFMIC, before it went to DIA, covered both the natural threats, which I think is its focus today, as well as the bio-warfare threats. We were not thinking about terrorism. I think that was very useful to have that kind of an integrated agency.

Today, the bio-warfare has sort of moved to DIA, and AFMIC has retained its mission primarily of looking at natural threats, and again to the force, as Michael said. So I think we need to, rather than separate, we need to integrate in all of these areas to bring the science and the intelligence, where possible, together.

Mr. DICKS. We have done these counter-terrorism centers, counter-proliferation centers. I could see a center on this issue that would be kind of the repository for all the efforts that are going on

in the government. They would pull it all together in this center at DHS. It seems to me that would be a very logical thing to do.

Mr. HOPMEIER. I would agree, with one addition, sir. AFMIC, unlike many of the other research centers, not only is able to collect and analyze data, but its output. Ultimately what comes out of a center, an agency has over many years evolved to actually be something useful, or what we would refer to as actionable. When AFMIC collects data, one of the things that comes out is information, reports, documents that a battlefield commander up through the Secretary of Defense or the President himself, if necessary, can look at, interpret and take an action on.

Part of the problem in the biosciences is I do not think that in the civilian community we have evolved to that point. If we take a look at the expedition of the current pandemic flu plan, it is a wonderful policy. It has vague guidelines, some specific data, but it is not something that a community, a police force, a different government agency can actually take specific action on.

So I would extend your observation to be that not only do we have to analyze and collect intelligence, we have to be able to produce something that is actionable and of value other than as an interesting academic exercise.

Mr. DICKS. To the first responders around the country?

Mr. HOPMEIER. At all levels. The first responders absolutely, but it may be CDC or HHS. DHS attempted with its 15 scenarios to prevent a baseline for planning at all levels of the government, whether you agree or disagree is immaterial.

But they provided a set of basic scenarios and threats to plan to, all the way from the very lowest to the highest level. If we embark on an area of doing intelligence for the biosciences, I think we have to keep firmly in mind what the goal is. The goal is to be able to do something with that data.

Mr. DICKS. Thank you.

Mr. LINDER. We will have another round, too.

Dr. FRANZ, does each American embassy have a medical officer?

Mr. FRANZ. I do not know.

Mr. HOPMEIER. There is a medical person. However, it is not frequently a physician. In many cases, I believe they actually use the indigenous personnel. They hire out to local personnel.

Mr. LINDER. Since each embassy has a lot of employees, many of whom are hired locally, and they are in the community at all times, if we focused on the medical personnel in the embassy to focus on open source information, would that be helpful?

Mr. FRANZ. I think it probably would to some degree. That would be part of the solution. I do not think it would be a really comprehensive solution because of the nature of the work. At least in the one embassy that I have been closely involved with, the medical person probably would not know as much about what is going on in that country as we might hope, certainly not as much as scientists or public health individuals who are collaborating with the population of that country. But it certainly could be a piece of the puzzle.

Mr. LINDER. The director of the CDC tells me that she has been approached by several international firms who are concerned about

these kinds of natural outbreaks because of the cost to their employees and the cost to their bottom line.

Would there be any interest, do you think, in approaching some of these people who have headquarters here, but who have thousands and thousands of employees in other countries? Could we train them to look for things, I guess is the question.

Mr. FRANZ. I have been involved in other initiatives, or am involved in another initiatives related to multinational companies and trying to get them involved in sort of undermining the popular support for terrorism by being good citizens and so on in other countries. You use the right word. The bottom line is what is really important in persuading or in discussions with these groups.

I think it depends a little bit on the culture of the specific organization you are going to. Some are much more interested than others. But that is part of this sort of loose, but very broad network that I am alluding to in my second point with regard to who we need to sensitive, who we need to work with. Integration is the key. We have to got to pull it all together.

Dr. RELMAN. There is an interesting initiative by Terence Taylor from the International Institute for Strategic Studies. He and his colleagues, he is based here in Washington as well as London, have been trying to get together groups of CEOs from large multinational corporations and talk about ways of sensitizing their workers to issues of biological security.

It has been I think very encouraging, the reception that he has had from a number of companies, not all, because they see it as part of their own self-interest to prevent something untoward from arising from their own collaborative activities or from their own people, as well as the consequences for their own people overseas. So I think that is, again, one piece of a network.

Another kind of network is the public health distributed global network. I will give you an example. The French have a long history of investment in their Pasteur Institute. The Pasteur Institute has satellites around the globe. They have one in Tehran. They have one in Dakar, Senegal. At each of these places, they have longstanding working relationships with local scientists. If I wanted to know what was going on in Tehran today, the first place I would go would be the Pasteur Institute in Tehran.

If we had that kind of satellite public health relationship with similar kinds of organizations around the globe, through our CDC for example, that would be immensely helpful.

Mr. LINDER. CDC is currently in 47 nations around the globe with very good relationships with the local health agencies.

Dr. Relman, you referred two or three times now to state-of-the-art technology in biosciences. Explain that to me.

Dr. RELMAN. The state-of-the-art, of course, is a moving edge, but it is an interface between multiple disciplines. It is an evolving kind of science and technology that is discovery-oriented, unpredictable and highly dynamic. But that frontier changes the way in which science and technology are executed, and it changes the way we think about the potential future threats. It is hard to operate at that frontier, at that edge, unless you are out there talking constantly with your colleagues and thinking about the thoughts that they have shared with you.

Mr. LINDER. Dr. Franz, would it be in our interest to follow some of these scientists who are very, very well trained in life science, microbiology or genetic engineering, who are trained in London and then moved to Pakistan? Would it be in our interest to know where these people were, or are there too many of them to know who they are?

Mr. FRANZ. The best example I am familiar with with regard to attempting to do that was the focus of the Nunn-Lugar Program in the former Soviet Union. I think it was very difficult to track individual scientists, at least down beyond a certain level.

One of my concerns related to that today is that if you go to any university in the U.S. and talk to the registrar or to the dean of the graduate school, you will find that we are not training as many people from overseas as we used to. They are now going to France or to Germany or other places.

I think that we are losing an opportunity there. Certainly, we have to be careful who we let into the country and so on, but I think in biology the situation is such that barbed wire fences and even paper fences that we put up do not always make us safer. So I think following scientists or working with scientists is, as you suggested, very important.

I am going to leave with the staff a recent report. It is actually just a pre-publication copy. I chair a standing committee at the National Academy on our scientific relationships with the former weapons programs of the Soviet Union, Biopreparat in the Ministry of Defense, which we are not in, but we are in Biopreparat and all over that.

I have come to a point of believing that, I call it bio-warfare in our rearview mirror. I think we need to be looking forward to ways of collaborating in disease surveillance, international disease surveillance, bringing their programs into the world community, reporting to the WHO; technologies, working together on technologies; working together on public health and infectious diseases. That is essentially the essence of this report, which is entitled Biological Science and Biotechnology in Russia: Controlling Disease and Enhancing Security.

I think as we have moved in that direction, I have seen a lot more openness. Now, it does not make us totally safe and it does not mean there is not a program within the MOD, but I think that I have seen a lot more openness as we have worked together on these common problems.

Mr. LINDER. Thank you.

The gentleman from Rhode Island?

Mr. LANGEVIN. Thank you, Mr. Chairman.

Your testimony today has been fascinating. I appreciate what you had to say.

I want to back to Dr. Hopmeier, if I could. You mentioned that you feel that the failure of the Chiron Company to provide flu vaccine last winter and now the avian influenza situation are examples of intelligence failings. With respect to avian flu, certain countries were not exactly forthcoming with information.

Can you elaborate on this as an intelligence failing and how would intelligence have helped weather the Chiron situation, in

particular, or aid us in dealing with avian flu and influenza issues now?

The other thing I will ask, on Tuesday the President announced his plan to combat the avian flu epidemic. One part of the plan was to enhance bio-surveillance, meaning worldwide epidemiology and providing detection in as near real-time as possible.

I will ask each of you, while everyone agrees it is a good idea, I am interested in how long it is actually going to take to build that worldwide bio-surveillance capacity.

Mr. HOPMEIER. To address your first question, the Chiron and the avian flu are examples of the two widely disparate applications of intelligence I mentioned earlier. In Chiron, it was a biosciences, a technology failing and problem.

To take an analogy, if we have a dependence on a key material, cobalt, for example, or oil, we would regularly and consistently track not only all of the producers and manufacturers and refiners of oil, as one example, but the sources of key materials, parts, trained personnel, whether they are following the plans and procedures one would expect for regular maintenance and ongoing operations. We would know well in advance if a problem were developing with a key oil refinery.

Mr. SHAYS. Could the gentleman just define what "we" means?

Mr. HOPMEIER. I am sorry; forgive me. The general community, the national security community, including the intelligence community.

If I were following a strategic material, for example, I would specifically look in oil to the Department of Energy and their tracking of key refineries and key sources of material; for another like chromium or cobalt, it would be one aspect of the intelligence community or the Department of Defense, if they have the key mission. I am using the broadest term of the U.S. government. I apologize for not being clear.

I think that that derives from the recognition that there are key materials that are considered strategic assets or strategic materials. We have never looked at that. That seems in pharmaceuticals to be a strategic asset key to our national security, so the infrastructure that has traditionally gone with those does not exist and is not there. If it had been, there have since, in retrospect, been many signs and indicators associated with Chiron and its inability to meet its obligations last year that would have told us early. Seeing that would have been one part of it; being able to take action would have been another.

In the case of the H5N1 or any other expanding strain of flu or pathogen for that matter throughout the world, surveillance, environmental monitoring, tracking of the changes of disease and disease patterns throughout the world give us early indications of potential problems of disease. We know that H5N1 has been known to exist for a number of years, "we," the academic community. We know roughly how it would be able to mutate. In fact, the current pandemic plan was under development for 5 or 6 years.

It has suddenly taken a trigger for us to realize that we need to look back at the signs and indicators we had in the past and come to the conclusion that yes, there was a warning many years ago, but we did not have the process or the ability to be able to exploit

and take action years in advance of the problem, so we are now forced back up against the wall to try and address the problem at the very last minute.

I think that answers your key question, sir.

Mr. LANGEVIN. Yes, thank you.

With respect to the timeframe, though, of developing a real-time bio-surveillance capacity. I would like each of you to step up.

Mr. FRANZ. A couple of issues there. I am very interested in that approach I think it is necessary. There are a couple of barriers that I see.

One is economic. If you recall in the early to mid-1990s, there was a plague outbreak in India. It was really hard to get information about that. It is not good advertising for tourism, for example, to advertise that you have a plague outbreak in your country.

The other one is sort of cultural. I think there is a key point that I would like to make with regard to this worldwide disease surveillance program. I think it needs to be a disease surveillance program. The best example I can give is our experience from West Nile, where we had sort of a smokestack or a siloed system. Crows were dying in New York City in June of 1999, I think it was, and humans were dying in New York City at the same time, but it took us until September to make a definitive diagnosis that it was West Nile, to some degree because we were looking for animal disease in crows and we were looking for human disease in humans, and it is very important to integrate that.

I work with both the Ministry of Health in Russia and the Ministry of Agriculture and just spent some time with both ministries about 10 days ago. They have now learned their lesson, I believe, with regard to integrating and looking for disease, and not for animal disease here and human disease there. We had the wakeup call in 1999, but those are cultures that are in silos that are very hard to break down.

It is a little bit like getting the intelligence community and the scientific community together. We need to get the ag community and the human disease community together and working very closely because about 75 percent of emerging diseases are zoonotic, that is diseases that are transmissible between humans and animals.

Dr. RELMAN. Just a few additional comments about your question. I agree with everything that has been said. The two challenges, of course, are both environmental and medical. We would like to know, for instance in this case, what the viruses are that are out there and how they are evolving. We also would like to know what disease activity looks like and its cause.

There is one additional technical barrier I will just bring to your attention. We are not very good at clinical microbiological diagnosis right now. We have a clinical definition of influenza or flu-like illness. It is very non-specific. We can detect the influenza virus in a person certainly, but there is an attendant delay. It is not rapid. The ability to then sequence and understand the nature of the virus is even longer.

I would suggest that to make the timeline a satisfactory timeline, we need to also put emphasis on early disease diagnosis. There are some technologies and science that would radically change the way

in which we recognize early disease as due to X, Y, or Z. So I guess in answer to your question, 1 to 2 years now for characterizing viruses in various sites, putting the political and economic issues aside. But for specific early clinical diagnosis, I think we are still 3 to 5 years away at best.

Mr. HOPMEIER. If I could add one comment on surveillance. I think there is frequently a very fundamental misunderstanding of what is medical surveillance versus environmental surveillance and how they come together. You, I believe, referred to it as real-time worldwide surveillance.

If I take a look at medical surveillance and the concept of real-time, is real-time determined from the point at which somebody is exposed to a disease, they become infected, sick, enter a laboratory, have a test done, have the result reported? Depending on the disease and your end-state of definition, that could be a difference of more than 2 weeks. We do not have a common understanding of terminology and what surveillance means.

Further, and even more fundamentally, I believe surveillance is used as a panacea, as a silver bullet without a clear understanding of why we have it or what we are going to do with the information we get.

An example I have used many times, set aside the technology question completely. Forget issues of privacy; forget how rapidly we can detect a piece of information. If I was able to do all of that perfectly in real-time, what does the information provide you? How do you plan on using that data? For the most part, surveillance has been very technology-driven. We have a new capability to measure the sale of over-the-counter drugs. Let's survey it and collect data. We have ICD-9 codes for syndromic surveillance. Let's collect all that data into one place or a number of emergency room beds.

Very, very little thought has been given to why do we do surveillance, how will we use that information, and using those requirements to drive the evolution of the capability.

Mr. LINDER. The time of the gentleman has expired.

The gentleman from Connecticut?

Mr. SHAYS. Thank you.

Mr. SIMMONS. Thank you, Mr. Chairman.

[Laughter.]

I do have a question about Plum Island, but because the distinguished vice chairman of the full committee has arrived, my colleague from Connecticut, I yield my 5 minutes to my colleague from Connecticut.

Mr. SHAYS. I am blushing.

First, to you, Mr. Chairman, I consider the work you have done, with your ranking member, outstanding.

I have been involved in this issue a long time, with my National Security Subcommittee. I consider this committee, its task dealing with nuclear and biological, hugely important. The likelihood of such attack is small, but the consequence is almost beyond comprehension, if attacks happen.

I want to side with what I believe my colleague from Connecticut has said, and that is that we need to know the private, basically, government data with the public data. If we do not, we are going to fail. I also think that he is headed in the direction of basically

saying it comes out of the intelligence community, and should be somewhere with DHS, which then gets me to my interest in getting your view of the World Health Organization. I first want to say to you that I feel like it is an underutilized organization. I feel like it is underfunded. The folks that I meet there are incredibly intelligent and dedicated. They will literally go to the deepest parts of the world with an outbreak, not knowing what the consequence may be.

So I would like you to speak more specifically as to how the World Health Organization plays a role in the intelligence-gathering. Is that something that has already been discussed? Okay.

Mr. HOPMEIER. I have done a good deal of work, in fact I am a senior advisor with the Office of Deliberate Epidemics within the World Health Organization. That office was set up about 3 years ago specifically to look at the issue of the changes, the differences that one would see in the issue of a deliberate epidemic, a bioterrorism or bio-warfare incident versus an actual outbreak.

The key difference, frankly, had nothing to do with response so much as who was in charge. In the case of a naturally occurring epidemic of one sort or another, it would almost be purely ministries of health or the public health organizations. In the case of a deliberate incident, suddenly it takes on national security overtones and involves intelligence and law enforcement and such.

The biggest problem within the WHO is again a cultural one. They are not used to thinking in those terms. They are an almost purely academic organization. I can speak from very personal and first-hand experience some of the difficulties we have had trying to get the management, Dr. Lee and the senior staff of ADGs there to understand and accept that this is a key issue.

Mr. SHAYS. Let me just put affirmation on that. A few years ago, my staff and I went to the World Health Organization and requested a meeting to understand how they were dealing with pathogens that may be incentivized by humans, in other words, weapons. They did not know what I was talking about. So we specifically requested, we went below management and set up this meeting, and then we invited the head of the World Health Organization to sit in. He had all his parts there. It was stunning what the people down below knew and were thinking about, and it was just like he was in a foreign country. He was shocked to see this. We were pleased that at least down below they were thinking about it.

Mr. HOPMEIER. I have observed that very directly. I believe that there are some changes for the better. Do you gentleman know Dr. Ken Bernard? He used to be the senior medical adviser on the National Security Council. He has since retired and is currently a special adviser to Dr. Lee, the director general of WHO. That indicates to me that there is some interest at the highest level.

Mr. SHAYS. Let me interrupt that. What do we do to, first off, is there a need? If you could just all three quickly. Is there a need to get the World Health Organization more engaged? The next question is, in the short answer, how do we do it, if the answer is yes? Is there a need?

Mr. HOPMEIER. Yes, sir, there is.

Mr. SHAYS. Okay. Let me just go through. Is there a need to get the World Health Organization more involved in this?

Mr. FRANZ. Yes. I would like to elaborate very briefly.

Mr. SHAYS. I will come back to you.

Mr. FRANZ. Okay.

Dr. RELMAN. Absolutely, yes.

Mr. SHAYS. Okay. Elaborate.

Mr. FRANZ. I, working again with the Russians, for example, or with other countries talking about international disease surveillance, they do not like to hear a "made in the USA" disease surveillance program. So I think it is very important, whether it is agriculture or human health that we go to an international body. That gives them a great deal of comfort. We are more likely to gain information about what is going on if it goes through the WHO than if we try to collect it.

Mr. SHAYS. Anybody else want to elaborate quickly as to how we can incentivize them to be involved?

Mr. FRANZ. I would just add that I also work, in fact I am going to be in Geneva, I will be meeting with Ken and with the people that do the deliberate epidemics next week.

Mr. SHAYS. First off, I envy you. Nice place to go.

Mr. FRANZ. It is.

What I find there is that it is one person and one program, like one riot and one ranger. They just are so under-resourced and they are dependent. The project I am working on them with is funded by the Sloan Foundation to do things related to what we are talking about. So resourcing is a huge problem.

Mr. SHAYS. Thank you. WHO needs resources and funds. Second, a much more productive relationship with the working life-science research community. They have tended to be somewhat separated from that big worldwide community.

Thank you.

Mr. HOPMEIER. Yes, sir. I believe resources are important, but more importantly is more than paying lip service to the importance of deliberate epidemics. I can tell you from personal knowledge and experience, while we have said at a very high level, the secretary level, that it is an important issue, WHO is then left to set its own internal priorities. And frankly, deliberate epidemics is a low priority. We do not enforce with other nations out belief of what is important, and it gets lost in the bureaucracy very frequently.

Mr. SHAYS. Thank you all very much.

Thank you, Mr. Chairman.

Mr. LINDER. The gentleman from Washington?

Mr. DICKS. Have you gentlemen been following the Bioshield Program at all?

Dr. RELMAN. Peripherally.

Mr. FRANZ. Yes, very much so.

Mr. DICKS. Okay. I am very concerned this program is not getting off the ground. For example, should we put into place deadlines for the DHS to finish material threat assessments on all 60 of the biological agents listed on the CDC Web site?

Mr. HOPMEIER. I personally do not believe putting in place arbitrary deadlines, no matter how well-founded, is the answer. I think the primary shortcoming is a lack of specific process and under-

standing. We have a vague mission: here are the threats, which are most important, how to address them. There is no specificity as to how to prioritize those threats or what we mean and define by addressing them.

Simply putting in place deadlines I do not think will answer the fundamental problem here.

Mr. DICKS. What concerns me is that only four of the material threat assessments have been done at this juncture.

Mr. FRANZ. I personally think that when you are talking about Bioshield, you are by definition talking about medical counter-measures.

Mr. DICKS. Right.

Mr. FRANZ. Specific medical counter-measures for emerging disease or for bioterrorism, there will be I believe a very small number of agents for which we can develop counter-measures. I have a set of outliers in my mind. I call them outliers, smallpox, anthrax and foot and mouth disease. Foot and mouth disease is not a human pathogen, but an animal pathogen and economic threat. Those I can see my way forward, developing vaccines for. There is a good reason to have a vaccine for anthrax. There is a good reason to have a vaccine for smallpox, technically and medically.

You get very far down that list and in our current system where it takes 6, 8, or 10 years in the tech base and 10 or 12 or 15 years in advanced development and production, it is just not feasible to use a prophylactic medical counter-measure to protect against a long list of threat agents. If you look at the concept of operation, there is just not a way to use them.

I think on the other hand, broad-spectrum antibiotics and broad-spectrum anti-viral drugs, which can be used therapeutically, are very useful. I do not know what the law says now with regard to dual-use. Initially, it said we can only spend this money on drugs that are not dual-use, orphan drugs that are useful only for terrorist incidents, and I am not sure whether that has been changed.

Mr. DICKS. Do any of you follow the radiation issues?

Mr. HOPMEIER. I have a little.

Mr. DICKS. That is one where there are companies out there that have tried to work with the DHS and with HHS, and they just have totally been frustrated by the approach that is being taken. They have spent millions of dollars. They have asked for a contract, assuming that they can get through the FDA procedures. And they have just struck out with the department.

To me, we are talking about hundreds of thousands of lives if we do not have some kind of medical thing you can take within a certain number of hours after an attack. For the department to do nothing about this is kind of shocking to me.

Mr. HOPMEIER. I would not say that they are doing nothing, sir. I think that the problem is that they are mired in a bureaucracy which is not applicable to this arena. The underlying premise for Bioshield was, one, that there was a problem in production and incentivizing the manufacture of limited-use counter-measures, orphan drugs, if you will. That is correct and I absolutely agree with it.

The second part of that was that the simple solution was let's set aside a pot of money and give them a little bit more money. That

I think is fundamentally wrong. It is not an issue of any level of funding that our government could actually appropriate and apply.

To put it quite frankly and bluntly, the entire United States of America is not a large enough market for these drugs to justify real economic interest within these industries. If we are going to try and incentivize them, we have to truly understand what drives them, the size of their market, and work with them, not try and artificially impose a requirement. Here is \$5.8 billion over 10 years. Frankly, gentlemen, that is nothing in the pharmaceutical industry, for everything.

We need to be more intelligent and more enlightened about how they work, what they need, and how to work with them. This is not the Department of Defense in the 1970s where it could call the tune for everything. The markets are just much, much larger than we are.

Mr. DICKS. From the military perspective, should the military have these shots that can be taken to protect people from radiation syndrome?

Mr. FRANZ. I do not know that topic very well to comment, sir.

Mr. DICKS. All right.

Thank you, Mr. Chairman.

Mr. LINDER. Mr. Simmons is recognized.

Mr. SIMMONS. Thank you, Mr. Chairman.

Again, congratulations.

Mr. SHAYS. Excuse me, Mr. Chairman. Isn't it my time?

[Laughter.]

I would be happy to yield to the gentleman.

[Laughter.]

Mr. SIMMONS. Boy, so congenial. Great. I thank the gentleman for yielding to me.

Mr. SHAYS. The gentleman is welcome.

Mr. SIMMONS. Thank you again, Mr. Chairman and the Ranking Member, for this very interesting and far-reaching discussion of a critically important issue.

I would like, if I could for a moment, to kind of bring it back down to an issue of particular interest to me.

Foot and mouth disease was mentioned. I believe one of the few areas of the country, maybe the only area in the country where we do extensive research on foot and mouth disease is at the Plum Island Animal Research Center on Plum Island, New York. This activity used to be supported by Agriculture. It was transferred to the Department of Homeland Security. The department is currently undergoing an examination of how it is going to be doing a lot of research.

There is some discussion of whether Plum Island will be closed; whether research on hoof and mouth disease should be moved to the Midwest somewhere. Ames, Iowa does not seem to be a good idea to me. That is where you have a lot of hogs and a lot of other cloven-hoofed animals. Whereas currently, Plum Island is surrounded by a moat of Long Island Sound, which is pretty safe.

Plum Island, the Animal Research Institute, should this become more of a center in the Department of Homeland Security for bioterrorism research and analysis? Can we build on this? Do you feel that the department really has a mission for this facility at this

point in time? Is there value in building around what we have already created at Plum Island, but enhance it based on the current mission of the Department of Homeland Security to defend us against a bioterrorist threat?

Mr. FRANZ. I have given some thought to the agricultural threat problem. I mentioned it in my short list of outliers.

Mr. SIMMONS. Yes, you did. One was foot and mouth disease.

Mr. FRANZ. When we are talking about agriculture, we are thinking about dollars not about people's lives, for the most part. These are not zoonotics. Foot and mouth disease is a disease of animals, and the estimates I have seen are \$40 billion to \$60 billion should we have an outbreak in this country. So you can measure it in dollars, not in human lives.

I believe that is one that we should do everything we can to deal with once we have an outbreak. It is so easy, if you see in my written statement, I talk about a spectrum of easy-to-hard for a terrorist group. Foot and mouth disease is this much material, pretty stable, carried across from Europe or Asia or Africa today, and wiped on the nose of a friendly dairy cow in Iowa and it takes off. It is the most contagious and one of the most infectious organisms that we know. So I think it is one that we really need to think about.

I do not think it has to be protected by a moat. As you may know, I ran USAMRIID, the Army's Institute of Infectious Diseases, where we have a lot of bad bugs. I believe we are capable of containing that organism within walls with appropriate handling systems and procedures and facilities and equipment. That is probably not the argument here today, but I think we can work it in other places within the country safely.

With regard to Plum Island's role as a bioterrorism threat evaluation center, I think it is part of that hub-and-spoke model that DHS has and will eventually have a building and will become the center of. I think that they need to work closely, but I would be concerned about taking the scarce resources that we have at Plum Island and focusing them too much on threat analysis and threat characteristics. I think they need to be working on counter-measures and let the threat people tell them what they believe the counter-measures are that need to be developed.

Mr. SIMMONS. I thank the gentleman.

I yield back.

Thank you all very much.

Mr. LINDER. Thank you very much for your time. Of all the subcommittee hearings we have sat through, this has been the most interesting to me. We may be talking to you again.

Without objection, the hearing is adjourned.

[Whereupon, at 11:38 a.m., the subcommittee was adjourned.]

**BIOSCIENCE AND THE INTELLIGENCE
COMMUNITY: CLOSING THE GAP
PART II**

Thursday, May 4, 2006

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON PREVENTION OF NUCLEAR
AND BIOLOGICAL ATTACK,
Washington, DC.

The subcommittee met, pursuant to call, at 2:50 p.m., in Room 2212, Rayburn House Office Building, Hon. John Linder [chairman of the subcommittee] presiding.

Present: Representatives Linder, Langevin, and Norton.

Mr. LINDER. The Subcommittee on Prevention of Nuclear and Biological Attack will come to order. We are here to hear testimony on "BioScience and the Intelligence Community (Part II): Closing the Gap."

I want to thank our distinguished panel of witnesses for being here today. Last November this subcommittee heard from academic experts about the continuous link between the Bioscience and Intelligence Communities. During that hearing the witnesses gave us an image of an intelligence community that is increasingly hard pressed to face the explosion of biotechnology, making it more difficult to identify and mitigate biologic threats.

The testimony highlights what I consider to be a very real problem. As we know, the science community is inherently open, and the free flow of ideas is key to developing new and innovative technologies. Their openness, however, has potential to provide sensitive information to individuals who wish to use that information for harmful purposes.

In fact, on Tuesday U.N. Secretary General Kofi Annan warned that although biotechnology advances could help eliminate infectious diseases, it could also bring incalculable harm and be put to destructive use by those who seek to develop designer diseases and pathogens.

This is where the Intelligence Community has to come into the picture. Their unique capabilities and understanding of bioterrorists and other threats can be strengthened by a better link to the Biosciences Community. As we heard in November, we must attract cutting edge bioscientists to the Intelligence Community and be able to retain their expertise on a continual basis.

This increase will facilitate an integration of knowledge held by the scientific community around new potentially hazardous devel-

opments in biotechnology with risks defined by the Intelligence Community. Intelligence, for example, is needed to either confirm or allay our fear that new biotechnology will create a super germ, as well as intelligence is crucial to guiding our assessment of risk and identifying those specific threat agents for which we need new drugs or new detection systems. Finally, intelligence is needed to find people.

I have said many times in this committee that the ways to harm Americans are infinite and the agents to do so are infinite. The people willing to do damage are finite. Perhaps we should spend more time and money looking for people rather than things.

Our perspective today comes from the U.S. Intelligence Community, which is tasked with strengthening the relationship between it and the Bioscience Community. If we are to prevent future bio-terrorist attacks on this country, we must develop a knowledge base within that community in the area of biosciences and guide the gathering of intelligence to evaluate it and assess its impact.

I look forward to hearing what our witnesses have to say about this issue today. We may learn more about what the U.S. Government is actually doing to bridge this gap and what Congress if anything could can and should do to help.

I recognize my friend from Rhode Island, Mr. Langevin, for an opening statement.

Mr. LANGEVIN. Thank you, Mr. Chairman, I welcome our witnesses here today and thank you for appearing before us. Today's hearing, BioScience and the Intelligence Community, is a continuation of a hearing this subcommittee held in November. At that time members of the subcommittee were introduced to a topic that many of us might not have thought of before, the idea of medical and biological intelligence.

Although it is not as widespread a practice as some other intelligence gathering, there are those within the Intelligence Community who are familiar with the collection and analysis of this type of information, and we are fortunate to have these experts here today to describe their activities and to help us understand how biointelligence capabilities might be improved.

I know from my service on the House Armed Services Committee the importance the military places on medical intelligence. It is crucial for a battlefield commander to have a clear picture of all the hazards that his troops may face. Often this includes not only the capabilities of the enemy's weapons, but also the local epidemiology. Commanders must know how safe the local water supply is. Should soldiers be aware of communicable diseases that he must protect them against? Does the enemy possess chemical or biological weapons capabilities? If so, what is the most effective counter-measure?

The medical and bioscience intelligence professionals in the military can answer these questions. There are lessons that can be learned from the military's approach to protect not just our military men and women, but also our civilian population as well.

Of course, there are differences. For example, if a military commander is told that his soldiers will be operating in the area where anthrax is endemic among animals, such as Afghanistan, he can simply order his troops to be vaccinated. While I am sure that

there are many useful lessons we can learn from the military, I also know that we cannot apply all of the systems and procedures directly to the civilian side.

I am also interested to know what these similarities and differences are between bioweapons and naturally occurring diseases. For example, will systems used to detect and defend against bioweapons also be effective for naturally occurring diseases?

From what I have heard, the seriousness of a potential avian flu pandemic is much greater within scenarios I have seen for a possible bioweapons attack. While this committee and the Department of Homeland Security are more focused on intentional attacks rather than natural catastrophes, we hope that we can leverage our practices so they will be helpful for either eventuality.

I am convinced that infectious diseases, both intentional and naturally occurring, present one of the most serious threats that this Nation faces. I certainly look forward to an open and informative discussion today, and I want to understand the activities of the Intelligence Community in this area, and I certainly hope that we can figure out a way to improve our national biointelligence capabilities.

Once again, I want to thank our witnesses for being here. I certainly look forward to your testimony.

Mr. Chairman, I yield back.

Mr. LINDER. Thank you. Our witnesses today bring us some information on this issue.

Ambassador Kenneth Brill, Director, National Counterproliferation Center, Office of the Director of National Intelligence. Charles Allen, the Chief Intelligence Officer of the Department of Homeland Security. Mr. Bruce Pease, the Director of Weapons Intelligence, Nonproliferation and Arms Control, for the Central Intelligence Agency, and Dr. Alan MacDougall, Chief, Counterproliferation Support Office with the Defense Intelligence Agency.

I will remind each of the witnesses that your written statements will be part of the record without objection. We would urge you to summarize.

Ambassador Brill.

**STATEMENT OF AMBASSADOR KENNETH BRILL, DIRECTOR,
NATIONAL COUNTERPROLIFERATION CENTER, OFFICE OF
THE DIRECTOR OF NATIONAL INTELLIGENCE**

Mr. BRILL. Thank you very much, Mr. Chairman and ranking member. I very much appreciate the invitation here today and I am pleased to discuss steps that the National Counterproliferation Center is taking to address some of the recommendations put forward on the intelligence capabilities of the United States regarding weapons of mass destruction on the BW topic, and thereby enhancing the ability of the Intelligence Community to meet the threat posed by the proliferation of biological weapons and related technologies.

Let me begin today by underscoring what role NCPC plays on issues like biothreats. Expertise and analysis and collection resides in CIA, DIA, DHS, NSA and other elements of the Intelligence Community. NCPC's role is to ensure that there is an integrated

effort throughout the community against key counterproliferation priorities and to promote partnerships among elements of the Intelligence Community, the non-Intelligence Community, government agencies and experts outside of government.

This role is critical as counterproliferation clearly requires a team effort, and nowhere is this more true in the area of biological threats to U.S. national security. Today I will discuss NCPC's efforts to better and strengthen the IC's work on biological threats. I will review steps we are taking to build partnerships within the U.S. Government and with biological experts outside of government and to discuss plans to strengthen the IC's life sciences workforce.

The major challenge for the IC in dealing with bio-related issues is research and development applications and technologies that are completely dual use. That is to say, legitimate research that might, and I emphasize might, be misused to cause harm to public health and homeland and national security. The IC has written numerous assessments so that the potential impact of existing and emerging technologies related to biological weapons proliferation, as these technologies are developed from or applied to the life sciences.

These assessments utilized the talented in-house scientific expertise of our IC analysts and scientists, and also drew on the advice of outside technical experts.

Although some believe that we will better understand the threats we face from the offensive use of biological agents only if we follow technological advances that have the potential to be misused and track those working in these areas. Our experience indicate that this is a strategy of looking for hay in a haystack.

The key questions for the Intelligence Community are primarily not highly technical in nature. We must determine if a state adversary has the intent to establish, maintain, or acquire a BW program, because a country of concern typically will also have dual-use capabilities in those areas.

Some nonstate actors such as al-Qa'ida have publicly stated they have the intent to have an offensive biologic capability, and the IC must constantly monitor the plans and capabilities of these groups in order both to block the acquisition of such a capability as well as determine their plans for using such capability as they acquire it.

Focusing on technology alone will not answer these questions. I agree with you, sir, it can lead to speculation based on nightmare scenarios that are not necessarily grounded in reality.

Another challenge facing the IC is that biological threat agents go beyond manmade substances. A global pandemic would have dramatically negative consequences for the national security interest of the United States. While such a pandemic would be largely dealt with by those U.S. Government agencies concerned with domestic and international public health issues, the IC would be looked to for actionable medical intelligence about the spread of pandemic diseases that would not be available publicly for one reason or another.

The IC would also be called upon to provide analysis to support the efforts of U.S. Government Public Health and other agencies. Thus, while the IC would not be a primary actor in dealing with

a pandemic situation, it needs to be prepared to play an important supporting role.

The National Counterproliferation Center is working with Intelligence Community agencies to establish new partnerships and relationships with the biologic and public health communities to ensure that it is prepared to meet the various challenges of biological threats to the United States.

Let me outline for you briefly now a few of the steps that we are taking in this regard. First, and consistent with the recommendations of the WMD Commission's report, NCPC has established the position of a senior adviser for biological issues. Dr. Lawrence Kerr has recently assumed this position and is accompanying me today. Dr. Kerr has been tasked to enhance the partnership of the IC with non-U.S. Government sectors, which, as you have noted, both you and the ranking member have noted, have incredible scientific and technical expertise to support and improve our overall intelligence of biological threats.

An important part of his partnership building efforts will be working with IC agencies and nongovernmental experts to establish the Intelligence Community's first broadly focused biological advisory group. This group will report to the Director of National Intelligence through me as being established to serve the Intelligence Community as a whole. NCPC shall convene this group of nongovernment experts to work with the Intelligence Community on a regular basis, and members of this group will have security clearances so they can address the most challenging biological threat problems with which the Intelligence Community is dealing.

NCPC has also begun an effort to improve information sharing within the Intelligence Community as well as with life science experts inside and outside of the U.S. Government. Our approach includes determining what types of traditional intelligence and scientific information the Intelligence Community needs to better answer questions posed by senior policymakers and how to ensure this information is distributed to all relevant parties within the Intelligence Community.

We initiated this effort in early April when we co-hosted, really, with the National Counterterrorism Center an IC conference that focused on community building, information sharing and defining the Intelligence Community's roles against the full spectrum of biological threats, natural to manmade.

The conference was well attended and included approximately 85 participants from 14 intelligence agencies, as well as senior representatives from four combatant commands. Participants in the conference were senior analyst, collectors and science and technology officers.

Feedback from this conference has helped us define areas where biological scientists and other experts from the broader U.S. Government and outside the U.S. Government could aid in technical evaluations. The conference also provided insight in ways to improve our intelligence regarding biological threat agents themselves.

In addition, we initiated an internal review of collection efforts associated with biological threat agents. This review, along with the engagement of the Intelligence Community through the con-

ference I mentioned previously, will result in recommendations that will address any gaps in our processes. The review will also identify ways in which we can better support customer needs for bio-related intelligence.

Mr. Chairman, the ability of our biodefense community to anticipate, eliminate, prepare for and, if necessary, respond to a biological weapons attack on the United States, as you noted, depends on improved intelligence collection analysis and proper dissemination of that information to relevant customers.

We recognize in the Intelligence Community that numerous, non-IC partners must be more fully engaged in these processes in order to improve biodefense infrastructure. We are working closely with all U.S. Government organizations involved in the biodefense mission to ensure our biodefense customers are part of the requirement-setting process, that they are fully aware of the IC's capabilities and limitations and that they are recipients of the intelligence analyses they need to perform their part of the biodefense mission.

In this regard, in July, we will cosponsor with the Department of Homeland Security and the National Counterterrorism Center, a second biothreats conference that will include all relevant USG agencies, not just Intelligence Community agencies, to expand awareness, address common concerns and identify ways to share information that is mutually beneficial. If this forum is anything like the first one, it will stimulate discussion on issues regarding the biological information most valued and already possessed within the U.S. Government and will identify gaps in our current systems of collection and analysis. Our goal will be ensuring these gaps are closed through a strategic planning and implementation of those plans across the Federal Government.

Following this conference, in the fall, NCPC, again with the Department of Homeland Security and the National Counterterrorism Center, will co-host a third conference involving representatives of the U.S. Government as well as representatives from academia and the private sector to explore how these sectors outside of government might help fill information gaps.

We are already engaging leading experts in certain designated fields who can add technical insight into current and emerging biological threats, and we continue to seek their counsel on how to most productively engage non-U.S. life scientists in that larger community.

Mr. Chairman, the National Counterproliferation Center is in the final stages of preparing a strategic counterproliferation plan with the Intelligence Community. This plan will, among other things, identify enhancements of the Intelligence Community's counter-BW capabilities as a priority goal and will stress the need for the Intelligence Community to fully integrate and coordinate the efforts it has under way against the BW threat.

It also acknowledges that the Intelligence Community's success in dealing with biothreat challenges is dependent upon having the skilled workforce needed to deal with these complex issues. The plan will promote the recruitment, the development and retention of the highly skilled and specialized workforce needed to sustain success in acquiring and using high value intelligence information

against each of the WMD threats we face, but particularly the BW target.

Mr. Chairman, in conclusion, we in the Intelligence Community recognize that we need to continue to integrate and focus our efforts internally, to actively seek partnerships externally and to attract and retain skilled life scientists into our workforce, if we are to be successful in dealing with the challenges to our national bio-threat security.

We know what we have to do in this regard, and have made a good start in achieving these goals in all of these areas.

[The statement of Mr. Brill follows:]

FOR THE RECORD

PREPARED STATEMENT OF AMBASSADOR KEN BRILL

THURSDAY, MAY 4, 2006

Mr. Chairman, Ranking Member, and distinguished Subcommittee members, I am pleased to appear before you today to discuss the steps the National Counterproliferation Center (NCPC) is taking to address some of the recommendations put forward by *The Commission on the Intelligence Capabilities of the United States regarding Weapons of Mass Destruction* (WMD) on the biological warfare (BW) topic, thereby enhancing the ability of the Intelligence Community (IC) to meet the threat posed by the proliferation of biological weapons and related technologies.

Let me begin by underscoring what role NCPC plays on issues like bio threats. Expertise in analysis and collection resides in the Central Intelligence Agency (CIA), the Defense Intelligence Agency (DIA), the Department of Homeland Security (DHS), the National Security Agency (NSA), and other elements of the Intelligence Community. NCPC's role is to ensure there is an integrated IC effort against key priorities and to promote partnerships among the elements of the IC, non-IC United States (U.S.) government (USG) agencies, and experts outside of government. NCPC's priority-setting and integrating role is critical, as counterproliferation requires a team effort, and nowhere is this more true than in the area of biological threats to U.S. national security.

Today, I will discuss efforts to strengthen the IC's life sciences work force, the creation of a biological science advisory group that NCPC's Senior Bio Advisor will establish and run, and our initiatives to make more effective links between biological experts throughout government and outside the government with the IC. In addition, I would like to take some time to tell you about a few other initiatives NCPC has underway to promote an integrated IC approach to the problem of biological threat agents, increase teamwork, and fill gaps in our knowledge about the biological threats posed from state and non-state actors.

The Challenges Facing Bio Threat Intelligence

A major challenge for the Intelligence Community in dealing with bio-related issues is research and development applications and technology that are completely dual-use—i.e., legitimate research that might (and I emphasize 'might') be misused to cause harm to public health and homeland and national security. The IC has written numerous assessments of the potential impact of existing and emerging technologies related to biological weapons proliferation as these technologies are developed from or applied to the life sciences; a major portion of the 2004 National Intelligence Estimate on worldwide BW programs was devoted to this issue. These assessments have utilized the talented in-house scientific expertise of our analysts and scientists and have drawn on the advice of outside technical experts as well.

Although some believe that we will understand the threats we face from offensive use of biological agents if only we follow technological advances that have the potential to be misused and track who in the world is working in these areas, our experience indicates that this is a strategy of looking for hay in a haystack. The key questions for the Intelligence Community are primarily *not* highly technical in nature.

- We must determine if a state adversary has the intent to establish, maintain, or acquire a BW program, because a country of concern typically will have a dual-use capability. Whether that capability is for legitimate medical purposes, developing defensive countermeasures, or is for offensive BW is closely guarded, non-technical information.

- Some non-state actors, such as al-Qa'ida, have publicly stated that they have the intent to eventually have an offensive biological capability, so the IC must constantly monitor the plans and capabilities of these groups in order to determine who, where, and under what circumstances they will actually use them.

Focusing on technology alone not only does not answer these questions, but it can lead people to speculate on nightmare scenarios that are not grounded in reality.

Another challenge facing the IC is that biological threat agents go beyond man-made substances produced by state programs or terrorist groups. A global pandemic would have dramatically negative consequences for the national security interests of the United States. While such a pandemic would be largely dealt with by those US government agencies concerned with domestic and international public health issues, the Intelligence Community would be looked to for actionable medical intelligence about the spread of pandemic diseases that would not be available publicly or that others might cover up for one reason or another. The IC would also be called upon to provide analysis to support the efforts of U.S. government public health and other agencies. Thus, while the IC would not be a primary actor in dealing with a pandemic situation it needs to be prepared to play an important supporting role.

Expanding Partnerships and Collaboration

NCPC is working with IC agencies to ensure the IC is prepared to succeed in meeting the various bio threat challenges to U.S. national security. In this regard, NCPC works to establish important new partnerships and relationships with the life science and public health communities. The following are some of the steps we are taking.

First, and consistent with the recommendations of the WMD Commission's Report, NCPC has established the position of Senior Advisor for Biological Issues. Dr. Lawrence Kerr has recently assumed this position and is accompanying me today.

Dr. Kerr completed his Ph.D. in Cell Biology from Vanderbilt University and undertook his postdoctoral work at the Salk Institute for Biological Studies in San Diego, California. Dr. Kerr has a wealth of expertise pertinent to the mission of the Senior Advisor. He ran a basic science laboratory devoted to the regulation of gene expression as faculty at Vanderbilt School of Medicine and now Georgetown School of Medicine. His political experience has taken him from developing policy and staffing senior officials of the White House (within the Office of Science and Technology Policy and most recently, as Director for Biodefense Policy within the Homeland Security Council) to the Congress (as a fellow on the Health subunit of the Senate Judiciary Committee). He remains actively engaged with the life science and public health communities writ large. His experience in fostering policy to meet national objectives has brought him the respect of the Federal Departments and Agencies, and individuals and groups from the private sector and academic communities with whom he routinely lectures at the national and international levels and works to coordinate policy and plans.

Dr. Kerr is tasked with promoting greater collaboration among the interagency, academic and private sector to improve intelligence related to biological threats. As part of this effort, Dr. Kerr is working to identify new partnerships that should be developed with entities outside the IC and outside the U.S. Government, to strengthen the IC's counter-BW capabilities.

An important part of Dr. Kerr's partnership building efforts will be working with IC agencies and non-governmental experts to establish the IC's first broadly-focused biological science advisory group. This group will report to the DNI through the Director of NCPC, but it will serve the IC as a whole. While the classified charter for this group is under review, we envision a panel of nationally recognized leaders in the life sciences, engineering, public health and medicine, veterinary medicine, pharmaceutical experts and many other disciplines. NCPC shall convene this group of non-government experts to work with the Intelligence Community on a routine basis.

This advisory group will draw from the best practices of existing IC advisory panels, which will require that the life scientists and associated experts possess security clearances, permitting their exposure to and understanding of our nation's current capabilities in collection, analysis, and the science and technology brought to bear in performing these missions. The group will complement, not duplicate, the work of the Defense Science Board (DSB), the Intelligence Science Board, the National Science Advisory Board on Biosecurity (NSABB), or the Defense Intelligence Agency's Jefferson Project and Biochem 2020 group. The new advisory group we will look across the broad horizon of known and emerging biological threat agents challenges for U.S. intelligence, ranging from man-made substance and state and terrorist programs to naturally occurring pandemics, and thereby support the fundamental mission of the NCPC, fulfill the commitments in the President's Homeland Security and

National Security Presidential Directives (HSPD-10/NSPD-33, “Biodefense for the 21st Century”) and build on recommendations from the Institute of Medicine’s (IOM) recent report and the advice of renowned leaders in the field.

We envision the new bio advisory panel will include a permanent advisory group of leading experts with access to a network of cleared scientists who are able to tap into the scientific and technical experts across the life sciences. We will encourage this group to partner with the existing life science-related committees in and out of the Federal government in order to prevent redundancy and augment on-going projects. NCPC, with input from the IC, will ask the advisory group to identify issue areas and cutting-edge technologies that might pose a future threat to our security.

Enhancing Collaboration through Information Sharing

NCPC has also begun an effort to improve information sharing within the IC as well as with life science experts inside and outside of the USG who can extend the breadth and depth of scientific understanding brought to bear on the issue of biological threat agents. The approach includes determining what types of traditional intelligence and scientifically grounded information the IC needs to better answer the questions posed by senior policymakers and how to ensure it is distributed to all relevant parties within the IC. We envision that existing working groups and policy coordinating committees will be asked to work on strategies to resolve key issues that are identified during this process.

We initiated this effort in early April when we co-hosted with the National Counterterrorism center (NCTC) an IC conference that focused on community building, information sharing, and defining the Intelligence Community’s roles against the full spectrum of biological threats, natural to intentional. The conference was well attended, with approximately 85 participants from 14 intelligence agencies (including senior representatives from 4 combatant commands). Participants in the conference were senior analysts, collectors, and science and technology officers. Each organization briefed its mission, goals, and needs. Participants told us these briefings provided valuable insights into the array of bio-related activities ongoing in the IC. In addition, we conducted smaller-group discussions on specific issues, including improving information sharing both within and outside the IC, and defining the IC’s role in covering natural disease outbreaks. Feedback from this IC conference has helped us define areas where biological scientists and other experts from the broader USG and outside of government could aid in technical evaluations and has given us insight in ways to improve our intelligence regarding biological threat agents.

In addition, we initiated an internal review of collection efforts associated with biological threat agents. This review, along with the engagement of the IC writ large through the aforementioned conference, will result in recommendations that will address any gaps in our current processes as well as identify ways in which we can better support our IC customer’s need for bio-related intelligence.

The ability of our biodefense community to anticipate, eliminate, prepare for, and if necessary, respond to a biological weapons attack on the United States depends on improved intelligence collection, analysis and proper dissemination of that information to the relevant customers. We recognize that numerous non-IC partners must be more fully engaged in these processes for an improved seamless biodefense infrastructure. We are partnering closely with all U.S. government (USG) organizations involved in the biodefense mission, such as the Departments of Health and Human Services (HHS), Homeland Security (DHS), the Department of Defense, the US Department of Agriculture, and others to make sure that all of our customers not only are part of the requirements setting process, but that they are fully aware of our capabilities and limitations—and are recipients of the intelligence analyses they need in order to perform their part of the biodefense mission.

In July we will co-sponsor, with NCTC and DHS, a second bio threats conference to expand awareness, address common concerns and identify ways to share information that is mutually beneficial to the Departments while maintaining their respective mission areas. We will discuss how to better identify, acquire, distribute, integrate, and utilize diverse streams of information within the US government so the threats posed by known and emerging biological agents are more effectively identified, characterized and addressed. If this forum is anything like the first one, it will surely stimulate discussion on issues regarding the biological information most valued and already possessed within the U.S. government and will identify gaps in our current systems of collection and analysis. Our goal will be to ensure that these gaps are closed through strategic planning and implementation of those plans across the Federal government.

In the fall, NCPC will co-host with NCTC and DHS a third conference involving key representatives from academia and the private sector to explore how these sectors might help fill our information gaps. We are already engaging leading experts

in certain designated fields who can add technical insight into current and emerging biological threats and we are seeking their counsel on how to most productively engage non-USG life scientists.

Building and Sustaining the Workforce Needed to Meet Bio Threat Challenges

NCPC is in the final stages of preparing a strategic counterproliferation plan for the IC. This plan will, inter alia, identify enhancement of the IC's counter-BW capabilities as a priority goal and will stress the need for the IC to fully integrate and coordinate the efforts it has underway against the BW threat. It will also acknowledge the IC's success in dealing with bio threat challenges is dependent upon having the skilled workforce needed to deal with these complex issues. The plan will promote the recruitment, development, and retention of a highly skilled and specialized workforce needed to sustain success in acquiring and using high value intelligence information against each of the specific WMD threats, including the BW target. The key initiatives will include, inter alia:

- Recruitment—in partnership with the Communities, a workforce mapping and assessment initiative will establish the current baseline; identify any expertise shortages or gaps; and then will work to develop an interagency process to promote candidate sharing and make recommendations for agency recruitment.
- Career Development—an initiative to identify career benchmarks for life science professionals across the Community; review training and improve communications and access to strengthen external linkages with experts; and will work to find new ways to increase the numbers of analysts, collectors and other life science and technology experts.
- Retention—we are reviewing agency retention strategies; communicating best practices; and working to establish a Community Rewards Program recognizing collaborative achievement.
- And finally, partnership is the key—partnering with the Office of the Director of National Intelligence (ODNI) and other Community members to leverage the best talent and expertise within the private sector.

Conclusion

Bio threats are among the most complex challenges facing the IC. The biological sciences are producing new findings and innovations at a remarkable pace. These innovations hold the promise to advance human health, but those also have the potential to be misused by state weapons programs or terrorists. At the same time, the possibility of naturally occurring pandemics is increasing. We recognize that significant challenges remain for the collection of traditional intelligence and other kinds of information to assist in attack warning, countermeasure development and strategic level policy-making related to biothreats to the U.S. NCPC is working with IC agencies to integrate the IC's work on bio threat challenges. In addition, NCPC is leading an effort to build partnerships for the IC with non-IC U.S. government agencies, as well as with the non-government life science communities. Finally, NCPC is also working with the IC agencies to ensure the IC has the workforce it needs in the future to deal successfully with bio threat challenges. We have much to do to realize our goals, but we have made a good start toward achieving our goals in all these areas.

Mr. LINDER. Thank you, Ambassador Brill.
Mr. ALLEN.

STATEMENT OF CHARLES E. ALLEN, CHIEF INTELLIGENCE OFFICER, DEPARTMENT OF HOMELAND SECURITY

Mr. ALLEN. Chairman Linder, Ranking Member Langevin, Congressman Norton, thank you very much for inviting me here to discuss a very important topic for the Department of Homeland Security intelligence and for the rest of the Intelligence Community.

The consequences of a high impact bioterrorist attack upon the homeland could be catastrophic, rivaling the casualties and the economic damage caused by the detonation of a nuclear weapon in a major city.

Because the potential consequences of bioterrorism are so great and the knowledge and materials for biological weapons development are likely to become more available in the future, the Depart-

ment of Homeland Security ranks the biological threat as among its highest concerns.

In this statement, I will first describe the bioterrorism threat we currently face as well as the prospects for terrorist-developed advanced biological agents. I will then describe efforts Department of Homeland Security intelligence is taking to make unique contributions to existing Intelligence Community efforts to combat bioterrorism.

The threat of bioterrorism is real. We know that al-Qa'ida since the late 1990s has sought biological weapons and progressed to the point of constructing a biological production facility in Qandahar, Afghanistan, before U.S. military action in 2001 brought down the Taliban regime which had protected al-Qa'ida. Although al-Qa'ida's BW efforts have been disrupted, we judge its intent to pursue biological weapons continues.

In addition to al-Qa'ida, I am concerned with like-minded extremist groups and lone wolves, both foreign and domestic, who could develop biologic weapons. The technology and knowledge that produced simple yet effective biological agents is readily available in the United States and overseas.

With the increase in radicalization worldwide, it is conceivable that some converts will have knowledge of the biosciences or engineering and will use their skills to present bioterrorism.

I understand the subcommittee is particularly concerned with the impact of biotechnology on the development of novel and engineered biological threats, those that are designed to evade our medical countermeasures and detection systems. In this area, we must exercise caution and not confuse the capabilities of terrorists with state level biological warfare programs.

There is no doubt that the knowledge and technologies today exist to create and manipulate agents. However, the capabilities of terrorists to embark on this path in the near to midterm is judged to be low. Just because technology is available does not mean terrorists can or will use it.

In general, we see terrorists in the early stages of biological capabilities, and we do not anticipate a rapid evolution to include sophisticated methods that will enable the creation of new organisms or genetic modification to enhance virulence.

That being said, we must not mistake unsophisticated weapons for those that are ineffective. Even crude biological preparations can cause significant health and economic damage if well disseminated.

The Department of Homeland Security intelligence is working closely with the Bioscience Community and our Intelligence Community partners to make unique contributions to ongoing counter-bioterrorism work. Our role is to analyze potential, domestic and international biologic threats and to ensure that the homeland perspective is represented in threat analysis and collection.

We also augment and enhance bioterrorism-related programs and activities that benefit the homeland mission. To this end, my Office of Intelligence and Analysis, has established a dedicated bio-threat section in our Threat Analysis Division. The officers in this section provide intelligence support on bioterrorism and naturally occurring biological threats such as influenza to our DHS compo-

nents, Intelligence Community colleagues and to our Federal, State, local, tribal and international partners.

The Office of Intelligence and Analysis leverages 24 by 7 the technical reachback to the Department of Energy's national laboratories, sponsored by the Department of Homeland Security Science and Technology Directorate. We also partnered with the Science and Technology Directorate on the first national bioterrorism risk assessment, which connotatively evaluates 28 biothreat agents based on threat, vulnerability and consequence.

The Office of Intelligence and Analysis last year established a biological advisory panel of bioscience experts from academia and industry. This panel assisted the Department of Homeland Security with forecasting trends in biology that could manifest as homeland threats in the next 5 years. We will continue to work with these and other experts on the biological threat.

The Department of Homeland Security intelligence officers collaborate with the National Counterterrorism Center and the Federal Bureau of Investigation at the State and local level in providing first responders with WMD threat briefings and in providing indicators and warning so officials in the field know how to identify and report potential bioterrorist activities.

Before I conclude, I would like to emphasize the crucial importance of collection in our intelligence efforts to combat bioterrorism. As the WMD Commission last year identified, the Intelligence Community has significant intelligence gaps with respect to bioterrorism and biological weapons. Any effort to enhance biointelligence must focus on targeting and collection first.

Without current specific information, any analysis is merely an educated guess. While integrating scientists, physicians and other specialists into intelligence analysis has merit, and we have such personnel in the Office of Intelligence and analysis and obviously across the Intelligence Community, it alone is not the solution to biointelligence. We simply must have more collection.

Thank you again for inviting me here today. You have my commitment that the Department of Homeland Security intelligence will continue to partner with our Science and Technology Directorate, the Department of Homeland Security components and the Intelligence Community at large to target, collect and analyze information on foreign and domestic biological threats.

[The statement of Mr. Allen follows:]

PREPARED STATEMENT OF CHARLES E. ALLEN

THURSDAY, MAY 4, 2006

Introduction

Chairman Linder, Ranking Member Langevin, Members of the Subcommittee: Thank you for inviting me here today to discuss a very important topic for the DHS Intelligence Enterprise and for the rest of our Intelligence Community.

The consequences of a high-impact bioterrorist attack upon the Homeland could be catastrophic, rivaling the casualties and economic damage caused by the detonation of a nuclear device in a major city. Because the potential consequences of bioterrorism are so great, and the knowledge and materials for biological weapons (BW) development are likely to become more available in the future, the Department of Homeland Security ranks the BW threat among its highest concerns.

In this statement, I will first describe the BW terrorist threat we currently face as well as the prospects for terrorist-developed advanced BW, followed by a brief discussion of the importance of collection to BW intelligence. I also will describe ef-

forts DHS Intelligence is taking with the Intelligence Community to combat bioterrorism.

Defining the Bioterrorist Threat

We know that al-Qa'ida in the late 1990s began developing a biological weapons program and constructed a "low-tech" facility in Qandahar, Afghanistan, for BW production before US military forces disrupted this activity. Even though subsequent US intelligence and military operations in the region have further damaged al-Qa'ida's leadership and operational capabilities, we believe al-Qa'ida's intent to develop biological weapons likely continues.

We know that domestic actors involved in acts of bioterrorism over the past 20 years have exhibited increasingly lethal objectives. A review of more than 120 cases of domestic bioterrorism and biocrimes reveals that more than two-thirds of these perpetrators were motivated by political or ideological goals—the same motivations that drive many terrorists. Although the object of these attacks were individuals or small groups, extremist ideology has been the genesis for mass casualty terrorism and the potential exists for this type of small-scale actor to scale-up their efforts and pose a more significant problem.

Perhaps the most difficult target—and potentially the most significant and likely to succeed on some scale—is the "lone wolf." An individual with training in the biosciences and operating alone could use small-scale production to yield an effective biological weapon. One does not need a significant infrastructure or multiple personnel to produce an effective biological weapon and this activity could go on undetected in the Homeland. We are especially concerned that small, loosely affiliated cells or individuals within the United States could conduct biological attacks. Such groups or individuals may not be affiliated with al-Qa'ida but merely subscribe to its ideology, similar to the small cell that conducted the July 2005 suicide bombings in London.

I understand that the Subcommittee is particularly concerned with the impact of biotechnology on development of novel and engineered biological threats—those designed to evade our medical countermeasures or detection systems. In this area we must exercise caution and not confuse the capabilities of bioterrorists with state-level BW programs. There is no doubt that the knowledge and technologies today exist to create and manipulate bio-threat agents; however, the capability of *terrorists* to embark on this path in the near—to mid-term is judged to be low. Just because the technology is available does not mean terrorists can or will use it.

It is vital that we keep in mind that all the equipment and knowledge to create highly-effective biological weapons is openly available today and can be remarkably low-technology. In general, terrorist capabilities in the area of bioterrorism are crude and relatively unsophisticated, and we do not see any indication of a rapid evolution of capability.¹ It is, therefore, unclear how advancements in high-end biotechnology will impact the future threat of bioterrorism, if at all. All it would take, however, for advanced BW development is one skilled scientist and modest equipment—an activity we are unlikely to detect in advance.

With respect to the evolution of bioterrorism, we would expect to see use of traditional biological agents (anthrax, plague, tularemia, and others) before the appearance of advanced BW agents. Therefore, we would consider the use of traditional biological weapons more frequently or on a large scale to be a trigger that may indicate movement towards more advanced biological weapons.

For all we know about the bioterrorist threat today, I am more concerned with what we do not know. As the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction (WMD) last year identified, there are significant gaps and obstacles to our current knowledge of BW capabilities and even more so with respect to specific plans, methods, and targets.

Developing Bio-Intelligence

Targeting and Collection are Critical Components

The Intelligence Community has significant intelligence gaps with respect to bioterrorism and biological weapons and any effort to enhance bio-intelligence *must* focus on targeting and collection first. Without current, specific information, any analysis is merely an educated guess. Human intelligence is absolutely essential for identifying plans, intentions, and targets of bioterrorists domestically and overseas. Analysis of how the Intelligence Community handled the former Soviet Union's BW program, the Iraqi BW program, and al-Qa'ida's BW efforts clearly demonstrate that human source reporting is vital; signals, imagery, and measurement and signatures

¹ It is important that we do not confuse sophistication with effectiveness. Even a crude biological weapon can cause significant casualties and economic impacts.

intelligence can only take one so far—plans and intentions are revealed through insider information.

While integrating scientists, physicians, and other specialists into intelligence analysis has merit—and we have such personnel in the Office of Intelligence and Analysis and across the Intelligence Community—it alone is not the solution to bio-intelligence. Our difficulties do not come from analyzing scientific information, but in obtaining credible, relevant information to analyze. To this end, the IC should look to more than just relying on scientific and technical specialists only for analysis, it should also partner with science and academia to contribute to the targeting and collection of information on the bioterrorist threat. This does not mean training physicians as spies, but there is a great amount of overt, public, or semi-public information that medical and scientific personnel come across that is of value to us.

Targeting: Materials or People?

Past targeting of BW activity has focused on dual-use equipment. This was somewhat possible when tracking large-scale state BW efforts, but it will be increasingly difficult to track, forecast, and control such materials and knowledge, especially on the smaller scale of bioterrorism. The equipment that terrorists would need has a multitude of legitimate uses as that can be found in a variety of legitimate entities worldwide. While tracking potential bioterrorism materials will remain important, we may be better off focusing primarily on tracking persons with the motivation, intent, and capability to become bioterrorists.

We need to focus our intelligence efforts on developing better intelligence about the plans and intentions of those who would carry out an attack. Toward this end, my Office of Intelligence and Analysis is managing an effort to fuse all-source intelligence, including open source, to identify individuals with technical training and credentials who interact with foreign persons of concern. The interaction of these individuals can give early indications of intent to develop biological weapons and other WMD for use against the Homeland. These indications, when identified, serve to focus collection and monitoring through intelligence means in order to characterize and assess potential developing threats.

There are specific legitimate entities which could be major sources of information about individuals or groups who may be seeking to develop expertise in new technologies for malicious purposes, yet there is no effective process for collecting and analyzing this information. DHS' Office of Intelligence and Analysis is investigating how we may partner with these entities to keep informed on developments and suspicious activity.

Bioterrorism Intelligence within DHS Intelligence

Within the Office of Intelligence and Analysis' Threat Analysis Division, we have established a dedicated section for Bio-Threats with the mission to conduct all-source intelligence analysis on both bioterrorism and naturally-occurring biological threats, such as avian influenza. This section also seeks to identify new bio-threat information through programs with US Government partners, and it performs outreach and liaison with DHS components, Intelligence Community partners, non-Title 50 agencies, and State and local partners.

Our Bio-Threat Section is staffed with four officers—two of whom are PhD-level experts—and we have two vacancies for which we are recruiting. In addition to our in-house staff, we have a reachback capability to subject-matter experts at several Department of Energy National Laboratories. Although most bioterrorism issues are dealt with in-house, it is essential that we have 24/7 reachback for technical information such as agent production methods, dissemination device efficiency, and agent virulence data that we then apply to our analyses and finished intelligence products.

Collaboration

DHS' Office of Intelligence and Analysis does not conduct its analysis and production alone; we are well-integrated with the key BW analysis and operational elements of each Intelligence Community member as well as with the science and technology centers within the Federal government. We have no stronger partner in the bioterrorism field than the National Counterterrorism Center's (NCTC) Chemical, Biological, Radiological, and Nuclear (CBRN) Terrorism Division. On an almost daily basis, we confer with our NCTC colleagues on BW issues as well as other WMD topics. We also have close relationships with the Federal Bureau of Investigation's (FBI) WMD Countermeasure Unit, the Central Intelligence Agency's (CIA) Counterterrorist Center (CTC) and its Center for Weapons Intelligence, Non-proliferation, and Arms Control (WINPAC), and the Defense Intelligence Agency (DIA).

In addition, we work closely with the DHS National Biodefense Analysis and Countermeasures Center (NBACC). The NBACC has provided us with technical information on bio-threats and, in return, we supply the NBACC with relevant intelligence reports and assessments relating to biological weapons threats. The Office of Intelligence and Analysis last year partnered with the NBACC to produce the first Bioterrorism Risk Assessment under Homeland Security Presidential Directive 10 (Biodefense for the 21st Century).

Beyond the Federal government, our Bio-Threat Section has made in-roads to academia and industry. In 2005 we sponsored two well-received workshops to explore current issues in bioterrorism by hosting national experts from outside government. There were:

- “Emerging Technologies: Assessing the Future Bioterror Threat” brought together a panel of leading biotechnology and biological weapons experts to discuss their projections for the bioterror threat to the United States over the next five years. This panel was created as part of a broader DHS effort to establish relationships with key experts in biological fields.
- “Terrorism and Chemical, Biological, and Radiological (CBR) Weapons: Outlook, Intent, and Constraints” involved terrorism experts discussing the factors that shape terrorist interest in, and potential use of CBR agents. Key topics discussed include, how recent changes in the nature of Islamic terrorism might affect terrorists’ intent to acquire or use CBR agents, how terrorists would measure “success” for CBR agent use, and the psychological, social, and operational factors that might affect terrorists’ attitudes towards CBR agents.

The Office of Intelligence and Analysis also is developing relationships with our close allies in Australia, Canada, and the United Kingdom. For the past two years, we have shared WMD terrorism information and technical studies with the United Kingdom, Canada, and Australia. This year we will provide the intelligence and threat scene setter for the Consequence Management Group—a US, United Kingdom, Canada, and Australia working group that shares WMD preparedness and response best practices and policies based on the worldwide WMD threat.

We also engage in bilateral relationships to discuss bioterrorist threats. The Office of Intelligence and Analysis recently sent an officer to engage the Russian Government on bioterrorism information sharing, law enforcement cooperation, and a joint US-Russia bioterrorism exercise. We will continue to form international partnerships to tackle the threat of bioterrorism as it is impossible for one agency or one government to cover adequately such a diverse and rapidly advancing field.

Examples of the Office of Intelligence and Analysis’ Work in the Area of Bioterrorism

The Office of Intelligence and Analysis has been productive in its bioterrorism analysis and program development. Although some of our efforts are classified and cannot be discussed in this forum, we have been engaged in a number of endeavors, such as those listed below:

- The Office of Intelligence and Analysis founded and chairs the **Bio-Threat Intelligence Support Working Group** (BTISWG) in partnership with the NBACC in order to provide Intelligence Community-wide intelligence expertise on BW issues. The BTISWG is chaired by the Office of Intelligence and Analysis and vice-chaired by NCTC and includes 12 senior BW officers from CIA, DIA, FBI, the National Security Agency (NSA), and other Intelligence Community members.
- Through the BTISWG, the Office of Intelligence and Analysis contributed intelligence information to the first **Bioterrorism Risk Assessment** called for by HSPD-10. This risk assessment serves as the first quantitative, comprehensive analysis of threat, vulnerability, and consequences of each of 28 bio-threat agents..
- The Office of Intelligence and Analysis, in partnership with NCTC and FBI, has conducted dozens of **WMD terrorism threat briefings** to state and local officials in order to provide them with awareness of the threat and to provide indicators and warning information so they may appropriately report any suspicious events.
- The Office of Intelligence and Analysis is co-sponsoring with the National Counterproliferation Center, the NBACC, and the Department of Health and Human Services a **Bio-Threat Information Sharing Conference series** to match US Government and non-US Government threat-related information to customers in Intelligence Community. We already have had an Intelligence Community-only meeting and plan to have a federal government-wide meeting this summer with similar events for the private sector and state governments in the fall.

- We are the integrator and supplier of threat and intelligence information to the **National Biosurveillance Group**—an interagency body that analyzes environmental and health data to provide early warning of a natural or deliberate biological event.
- The Office of Intelligence and Analysis supports development of BioShield **Material Threat Assessments and Determinations** by ensuring that the baseline threat information and adversary capabilities are accurate.

Conclusion

The Office of Intelligence and Analysis will continue to partner with DHS' Science and Technology Directorate and our DHS components to focus strongly on targeting, collecting, and analyzing information on foreign and domestic bioterrorist threats. To maintain close contact with the scientific community, we will continue our workshop series with academia and industry. We also plan to have a satellite Office of Intelligence and Analysis office within NBACC at the Interagency Biodefense Campus at Fort Detrick to ensure that we have direct access to what will be the hub of US biodefense work. My Office also is reviewing several initiatives to enable the DHS intelligence enterprise to function more cohesively against the bioterrorist and WMD threat and to leverage our state and federal partners to develop tactical intelligence while maintaining our strategic support to the science and technology communities.

Mr. LINDER. Thank you, Mr. Allen.
Mr. PEASE.

STATEMENT OF BRUCE PEASE, DIRECTOR, WEAPONS INTELLIGENCE, NONPROLIFERATION AND ARMS CONTROL, CENTRAL INTELLIGENCE AGENCY

Mr. PEASE. Mr. Chairman, Ranking Member Langevin, Congresswoman Norton. Good afternoon.

Let me start by endorsing the comments you just heard by Mr. Allen and Ambassador Brill. I will amplify this a bit and try to summarize, but focusing on the role that bioscience plays in our biological warfare analytic efforts.

Let me start by emphasizing that outreach is an effort we take very, very seriously and have focused considerable time and energy to strengthen over the past few years. I realize that probably few of the outside experts who have spoken to you fully understand our capabilities, our intelligence capabilities, the nature and scope of our job, or the extent of our efforts to continually improve our expertise.

Let me begin by explaining why we value their expertise so highly. We have a broad mission in WINPAC, the office that I direct at CIA, to do all we can to protect America from the strategic threat of foreign weapons that you have already mentioned.

We are concerned about the states that may develop or enhance their biological warfare capabilities, and we are concerned about the nexus between biological warfare and terrorism. The rapid emergence of new technologies is something that we are very seized with and we do try to keep our eye on the cutting edge of biological science that could be applied to biological warfare.

Clearly the scientific expertise that we can talk to and has made itself very available to us, experts across America are very willing to help us, offer us material, insights, and approaches that jumpstart some of our thinking, and help, frankly, spur our thinking in areas that are very beneficial.

We also are trying hard to bring experts into our own workforce and our recruiting is very much aimed at that. We have in our workforce world class biological warfare experts, some at the doc-

toral level, some the at the master's level, some at the bachelor's level, that are trained intelligence professionals applying their skills to biological warfare.

But this expertise together, attached to the biological and biotechnological experts that we can talk to from the outside, help us focus on all aspects of the development of the biological warfare threat. No matter how many people we put together in a room, there is an extra person who is willing to offer their services and worth hearing from. We try to do that.

Having said that, I will repeat, I think, something that you heard from both Mr. Allen and Ambassador Brill, which is this is not the hard part of the biological warfare threat and keeping ahead of the biological warfare threat, especially when you are talking about that threat in the hands of terrorists. The hard part is getting the information on where that threat is actually being developed, what they are developing, how they are doing it, and what they intend to do with it.

That is one of the hardest collection intelligence targets that there is in the world. I have in my career spanned many intelligence collection targets and intelligence priorities. This is the hardest of the hard. The work that needs to be done there, as Mr. Allen says, needs to be both relentless and creative. Outside experts can help us on both the collection front and the analytic front.

Let me stop it there and turn it over to my colleague, Dr. MacDougall.

[The statement of Mr. Pease follows:]

PREAPRED STATEMENT OF BRUCE PEASE

THURSDAY, MAY 4, 2006

Chairman Linder, Ranking Member Langevin, Members of the Subcommittee: Good afternoon (morning). Thank you for the opportunity to speak to you today about issues we consider critical to our ability to combat the threat posed by biological weapons. Specifically, I would like to address the role that bioscience plays in our biological warfare (BW) analytic efforts, and describe for you how we have reached out to biological experts and resources beyond and Intelligence Community.

I should emphasize that outreach is an effort we take very seriously and have focused considerable time and energy to strengthen over the past few years. I also realize that probably few of the outside experts who have spoken to you fully understand our capabilities, the nature and scope of our job, or the extent of our efforts to continually improve our technical expertise.

Let me begin by explaining why we value biological expertise so highly.

We have a broad mission to do all we can to protect America from the strategic threat of foreign weapons, including biological weapons. We are concerned about States that may continue to develop or enhance their biological warfare capabilities, and we have assigned a high priority to looking for a possible nexus between biological warfare and terrorism.

- The rapid emergence and spread of new technologies—most of which have legitimate applications in biology and medicine—may accelerate the rate of BW agent development; we worry about the possibility that this will lead to future biothreats that may be even harder to detect and thwart.

Clearly scientific expertise must go hand-in-hand with analytical expertise in assessing current and future biological warfare threats. For example, to analyze the threat posed by foreign offensive programs, we must have the technical know-how to evaluate all aspects of the BW cycle—from research and development through agent production, characterization, formulation, weaponization, testing, and dissemination.

- Strong bioscience skills are needed to understand, among other things, the mechanism by which a given biological agent causes disease, how genetically al-

tering an agent might change its structure or function, the feasibility of combining different in a single weapon, possible scenarios for using specific BW agents, the behavior of various agents under adverse environmental conditions, delivery options, routes of exposure, prevention and treatment options, and the clinical effects in exposed victims.

The information we receive from our collectors, more often than not, is not highly technical. However, we often are faced with technical, BW-related questions, and for those we rely on in-house expertise as well as outside bioscience experts.

How exactly do we do this?

We have implemented a two-pronged strategy to ensure that we develop and maintain a critical core of bioscience expertise.

1. The first part of our strategy is the expansion and strengthening of our analytic workforce by **recruiting and hiring** the best and the brightest candidates with strong technical credentials, and providing them with **advanced technical training** on BW-specific topics.

- Over the past several years, we have more than doubled our number of BW analysts. *94 percent* of our total BW and CW analysts have degrees in relevant technical fields such as Biology, Microbiology, Biochemistry, Pharmacology, Epidemiology, Biomedical Engineering, Chemistry, and Chemical Engineering. *57 percent* hold Master's or Ph.D.-level degrees.
- Not only has this increased our depth on substantive BW issues, it has created numerous opportunities for analysts to go off-line periodically for technical training and to attend scientific meetings and exchanges.
- We also encourage and pay for analysts to pursue advanced technical degrees.

2. Secondly, we have **institutionalized outreach to scientific experts**, including some of the highest caliber researchers in the United States. We have done this through senior scientific advisory groups, partnerships with world-class outside experts, bioliterature workshops on cutting-edge research, IC-sponsored conferences on pressing technical issues, formal technical alliances with commercial and industry partners, national and international scientific meetings, and ad hoc consultations with a wide range of technical experts. Let me give you a few examples.

- Under the auspices of the National Intelligence Council, the Science and Technology Expert Partnership (know as STEP) as established to ensure that scientific and technical analysis in the intelligence community reflects the considered judgment of leading US experts. A primary mission was to find highly qualified outside experts to help intelligence analysts reach judgments in specific areas—which our analysts identify. In 2005, the STEP organized 11 two and three day conferences on topics related to BW. Top researchers spoke to our analysts about subjects such as Microbial Engineering and Synthesis, Integrated Global Disease Surveillance, Bio-Enable Nanomaterials, DNA Sequencing and Polymerase Chain Reaction Analysis, and the Applications of Biotechnology Advancements.
- Over the past few years, we sponsored two highly technical conferences with invited academic, industry, and government experts on Aflatoxins, and Orthopoxviruses. We tailored these conferences so that leading US bioscientists could address very specific BW-related questions from our analysts, and share their insights on some complex and complicated issues.
- We want our analysts to stay current in relevant areas of science. One way we do this is through quarterly bioliterature reviews—sponsored by the IC's Intelligence Technology Innovation Center—at which leading bio-researchers present state-of-the-art briefings in areas of interest to our analysts. Speakers in the past have addressed topics such as aerosol technologies, host-pathogen relationships, and synthetic biology.
- In addition to these more formal mechanisms, we have significantly expanded our outreach to US biotechnology and pharmaceutical companies, and to academia to develop an informal cadre of expertise we can consult on an as-needed basis. Our goal is to increase and strengthen such relationships to help us assess and respond to complex technical issues.
- You have heard from previous speakers about the value of initiatives such a BioChem 20/20, so I'll only say that we strongly support and are helping to guide this effort. This kind of forward-leaning approach-driven by some of the best minds in our bioscience community—is essential in helping us prevent future technology surprise.
- Along these lines, the Intelligence Science Board—Chartered in 2002 to advise senior intelligence leaders on emerging science and technology issues of importance to the Community—has been invaluable in creating linkages

between intelligence and expert S&T communities outside the government, including bioscientists.

Let me say a few words about our fight against BW and bioterrorism. Our biological warfare analysts face some unique and formidable challenges. First of all, there are few, if any, clear indicators of biological weapons development, BW research and legitimate bioscience look the same and require much of the same equipment, expertise, and infrastructure. It is difficult and rare to find the “smoking gun.”

- You can think of BW analysis as a 1,000 piece puzzle. Each bit of information is a piece of the puzzle, but alone, these pieces probably do not reveal much. Understanding the science of BW is a critical part of what we do, but still, it is only a *piece* of the puzzle.

- Our analysis goes beyond the bioscience to consider other factors that may shed light on suspected BW activities. In the case of a State BW program, we consider factors such as motivation and intent, regional security, military and industrial infrastructures, cultural and religious issues, leadership, and political stability, to name a few.

- We spend significant effort working hand-in-hand with collectors to identify approaches for obtaining high-value information on BW programs—which typically is among a country’s most tightly held secrets.

Our goal, and that of others here today, is to obtain better information fill the critical knowledge gaps about biological threats worldwide. We have taken a number of specific steps toward that end, and will continue to look for outside experts may help us further our understanding of the BW threat.

In closing, I would like to say we fully support the efforts of Ambassador Brill and the NCPD to strengthen our work force and create more effective links to outside expertise. We look forward to working closely with the new biological science advisory board in the future.

I thank the Subcommittee for its interest and assistance.

Mr. LINDER. Thank you, Mr. Pease.

Dr. MACDOUGALL.

STATEMENT OF DR. ALAN MacDOUGALL, CHIEF, COUNTERPROLIFERATION SUPPORT OFFICE, DEFENSE INTELLIGENCE AGENCY

Mr. MACDOUGALL. Thank you, Chairman Linder, Ranking Member Langevin and Congresswoman Norton. Thank you for the opportunity to speak with you today on this very important issue. I will be very brief and summarize my statement on one of the activities that DIA has ongoing designed to help strengthen our outreach to the scientific community to support our analysts who are responsible for understanding the biological weapons threats for the U.S. military.

First, let me say, as was so well emphasized by my colleagues here, an assessment of the foreign biological warfare threat very clearly requires the biological sciences and technical expertise as a core discipline of our intelligence activities. Our goal and approach is quite similar to our sister agencies in building internal expertise through the recruitment of analysts with the technical degrees in the biological sciences and ensuring that they have available to them the means to sustain the outreach to the scientific community.

As mentioned earlier, there are many interagency programs and activities that outreach to the scientific community, including DIA, a program called BioChem 20/20. We believe that the establishment of the National Counterproliferation Center will not only further these ongoing efforts in the Community to build upon them with an eye toward greater integration, the sharing and leveraging of expertise across the board, thereby enabling our defense and

homeland communities to better prepare and deal with the biological threat.

Let me very briefly describe and review the program. DIA established the ChemBio 20/20 program in the late 1990s as a core activity in our Directorate for Analysis. It engages a group of leading scientists from across academia, industry and the government. Its purpose has been to support Defense and Intelligence Communities by looking at and anticipating a potential impact of advancing technologies on the biological and chemical warfare fronts. It engages analysts, scientists, technical personnel from across the Community, in the Department of Homeland Security, EPA, Department of Agriculture and many others.

A key element of that program has been the establishment of a committee of 20 leading experts in the scientific and technical fields from biology, microbiology, engineering and the like. This experts committee has been given secret level clearances and asked to work very closely with our analysts, now to help us in our threat assessments, including looking at technologies and processes, in particular, that may impact our threat assessments.

A number of studies have been completed by this program, with an emphasis on the potential threat technologies looking out over the next decade. Since 1999, we have published over 30 of these papers on several topical areas.

These publications are the result of this collaboration with our analysts, the Intelligence Community and government counterparts and the external experts. Within the Department of Defense, we are particularly interested in understanding how foreign offensive biological warfare programs may exploit emerging technologies and concepts in their research and development programs, their attempts to weaponize agents and their means of delivering or disseminating them.

We share these assessments with collectors across the Community to further enable them to identify foreign efforts to take advantage of emerging scientific and technical development. All of these papers are classified and designed to alert the policymaker on possible trends and developments and to support the acquisition community. We widely distribute them, including to key allies.

On that I would like to summarize.

[The statement of Mr. MacDougall follows:]

FOR THE RECORD

PREPARED STATEMENT OF ALAN MACDOUGALL

THURSDAY, MAY 4, 2006

INTRODUCTION

Thank you Mr. Chairman, Mr. Vice Chairman and members of the Committee for inviting me today. I would like to briefly address the role of bioscientists in our intelligence processes and, in particular, the BioChem 20/20 initiative and other Agency outreach efforts to the bioscience community designed to help us accomplish our mission.

Many longstanding challenges exist today, such as integrating the science and intelligence communities on biological warfare (BW) issues, increasing communication between the intelligence and the life science and chemical communities, and improving the interactions between technical experts and intelligence analysts in defining and assessing the current and future threat. US Intelligence faces the continuing task of rapidly identifying, prioritizing, and addressing the wide variety of technical

knowledge gaps facing BW analysts. Emerging threats such as avian influenza and the potential for biotechnology surprise or genetic engineering of BW agents pose significant additional challenges for intelligence analysis and collection.

Based on the WMD COMMISSION report's recommendations, the DNI proposed to take several specific measures aimed at better collaboration between the intelligence and biological science communities. DIA has focused its attention on the BW threat and has been engaged with a group of leading life scientists academia, industry and government in an endeavor referred to as BioChem 20/20.

BACKGROUND

By way of background, on 25 November 1998, Defense Intelligence Agency established BioChem 20/20 as an ad element within DIA's Counterproliferation Support Office, the leading analytic element in the Directorate for Analysis. The mission of BioChem 20/20 is to lead and focus the Defense Intelligence Community's assessments to anticipate the impact of advancing technologies on the biological-chemical warfare threat. BioChem 20/20 focuses on evaluating new technologies that nation-states or terrorists could exploit to present an array of potential threats to harm humans, plants, animals or materiel.

BioChem 20/20 initiative consists of A Committee of Experts (ACE) of more than 20 leading scientific and technical (S&T) experts and a select team of DIA and CIA biological warfare analysts. These scientific experts work closely within the BioChem 20/20 in assessing cutting-edge technologies that could be used to produce unique and deadly agents, write papers and assessment on technology and bio-science developments as well as lead and participate in discussions on these topics with our analysts.

The ACE members on BioChem 20/20 serve as experts identifying critical technologies and processes that are not usually considered as part of the emerging threat. Studies generated by BioChem 20/20 emphasize potential threat technologies looking out over the next decade and not previously available or understood by US Intelligence. BioChem 20/20's composition consists of scientific and technical personnel from US Intelligence and government entities such as Department of Homeland Security, Environmental Protection Agency, Department of Agriculture, United States Army Medical Research Institute of Infectious Disease, National Institute of Health, Chemical and Biological Center, Lawrence and Los Alamos National Laboratories, National Science and Technology Council, and the Defense Advanced Research Projects Agency.

Since 1999, the BioChem 20/20 group has published over 30 papers in categories including: emerging infectious diseases and technologies; delivery mechanisms (conventional and innovative); novel agents; scenarios and proliferation of BW related items. These publications are the result of collaboration among our chemical and biological analysts and the ACE, and they attempt to identify and characterize dual-use technologies and concepts that could enable an adversary to develop unexpectedly effective new CBW agents. These analysts and the ACE assess the potential for foreign offensive programs to exploit the identified technologies and concepts, including developing, weaponizing, delivering, and disseminating biological and chemical warfare agents. We share these assessments with the collection community to enable them to identify foreign efforts to take advantage of emerging scientific and technological capabilities. BioChem 20/20 papers are classified and designed to alert policymakers and the research and development and acquisition communities to possible trends and developments in biological and chemical warfare. The papers are widely distributed to include allied countries.

The ACE members on the BioChem 20/20 are compensated only for their travel, meals, accommodations, and related expenses while participating in the quarterly BioChem 20/20 executive meetings as well as being available for consultation and support year round. The initial BioChem 20/20 meeting was held on the 16 December 1998 at the DIAC. Our last meeting was held at Patrick Air Force Base, Florida on 17 and 18 January 2006. While ACE members currently hold a secret collateral or higher clearance, we are in the process of upgrading all ACE members to carry Top Secret clearances.

BioChem 20/20 was requested to help organize and participate in a workshop sponsored by the National Academies' National Research Council addressing the impact of biotechnology on the future of bioterrorism.

BioChem 20/20 drafted the futures section of the 2003 BW NIE and produced an Emerging Technology Capstone Threat assessment.

BioChem 20/20 was specifically called out in the WMD Commission report as a valuable US Intelligence program.

The Jefferson Program, another DIA initiative, was established to mitigate technological surprise in the area of bioweapons, toxins, advanced biochemicals, and re-

lated activities resulting from emerging developments in offensive chemical and biological warfare programs. This program evaluates and characterizes agents, technologies, and foreign infrastructure. In addition, an expert forum meets periodically to discuss future threats. The Jefferson Program maintains an online unclassified repository containing CBW related information that is shared throughout US Intelligence. All tasks under the Jefferson Program have an intelligence basis and are intended to address analytic intelligence shortfalls. The key focus areas are:

- **Chemical and Biological Agents:** The potential of foreign agents and weapons is assessed through analysis of known or suspected infectious organisms, toxins, or advanced biochemical agents. The distribution of known BW pathogens is assessed to assist in differentiating naturally occurring outbreaks from accidental releases a state program or intentional use such as in a bioterrorism event. An Avian influenza study will provide a baseline of scientific information which analysts will be able to identify gaps, drive collection requirements and better assess threats.

- **Technologies:** The capabilities of foreign countries to convert existing conventional weapons or dual-use devices for CBW use and potential advances in CBW agent delivery are evaluated. These assessments enable analysts to obtain a reliable and secure technical evaluation of foreign material. Current activities include BW analyst training and scientific seminars taught by leading scientists outside US Intelligence and visits to biotechnology-related facilities.

- **Infrastructure:** The biotechnological production potential of select foreign countries with known, suspected, or potential offensive BW programs is characterized.

- **Biological and Chemical Warfare Online Repository and Technical Holdings System (BACWORTH 2):** A searchable online database containing agent information and full text scientific and technical documents pertaining to CBW related materials is maintained by DIA and shared throughout US Intelligence, Department of Defense, Defense Threat Reduction Agency, Military Commands, Department of Health and Human Services, and the Department of Homeland Security.

- As part of core knowledge and threat assessment, we have initiated several efforts to help close intelligence gaps including:

- Augmenting select DIA HUMINT field operating elements with analytic personnel who are Bio Science subject matter experts that can guide and focus collection activities against the highest priority BW targets, improve source vetting, and develop new leads and sources better HUMINT targeting;

- Establishing a DIA HUMINT WMD/Counterproliferation Issue Management division to oversee HUMINT collection issue related to the CBW functional are and to further analyst-collector integration, as well as CIA/DIA coordination;

- Assigning DIA HUMINT targeteers to select DI analytic elements as well as DIA field activities to enhance collection against CBW target sets;

- Promoting greater collaboration between analyst and collector; and among analysts, law enforcement, and scientific experts in academia, industry, and the US Government;

- Collaborating with the National HUMINT Collection Requirements Tasking Center, US intelligence experts and scientific experts in academia and industry to develop technical collection support guides on avian influenza and other bio-threats;

- Expanding liaison relationships with our close allies;

- Establishing liaison relationships with friendly countries that are not currently engaged on a scientific and technical level;

- Developing more forward-looking analyses to understand scientific trends that may be exploited by adversaries to develop BW and to position collectors ahead of the problem;

- Defining the relationship between US Intelligence (IC), the Department of Homeland Security (DHS), and the Federal Bureau of Investigation (FBI) to help create and maintain a national technical BW database;

- Improving capabilities to collect and analyze global medical intelligence by engaging with scientific experts in academia and industry to acquire data on natural distribution of known BW agents, characterize bio-threats risk distribution, database information on foreign medical and veterinary pharmaceutical capabilities, model foreign nations' medical response capabilities, and provide in-depth technical guides to assist in intelligence collection against bio-threats.

Considering the future, DIA will need to:

- Consider how best to partner with other entities to directly serve customers for BW intelligence, including information on research, development, and acquisition elements outside of OSD and the combatant commands.

- Exploit the long-term collection opportunities with greatest potential to provide insight regarding foreign BW capabilities and intentions

CONCLUSION

The Defense Intelligence Agency's BioChem 20/20 project and similar initiatives are helping to provide US Intelligence with a cleared panel of external technical experts in the life sciences and associated fields to assist our analysts and collectors to more fully understand indications of emerging biological threats. BioChem 20120 is probably the Intelligence Community's most effective initiative for collaboration between analysts and external world-class experts.

Building on the BioChem mission 20/20's, we believe, can further enable US Intelligence whether that be for a greater level of in-depth external experts review of our products, development of methodologies and assessments, support to "red teaming" or seeking creative approaches to helping us discover advances in the biological and chemical sciences that may facilitate foreign/hostile offensive CBW programs.

Ultimately, as a result of close and sustained interaction with the bioscience and technical communities through programs like BioChem 20120, US Intelligence can better address underlying challenges facing its counter CBW mission.

I look forward to your questions.

Mr. LINDER. Thank you, Dr. MacDougall.

Ambassador Brill, does your agency determine or make any judgments as to what is the largest threat to us? Nuclear, biological, chemical?

Mr. BRILL. Let me say that the National Counterproliferation Center does not do analysis, but I think it is fair to say that as we look at the WMD challenges facing this country, I would say the first greatest threat of course is in any WMD in the hands of a terrorist, whether it is nuke or bio, each of which would have a greater impact than a chemical, probably.

Beyond that, I think it is fair to say that we are particularly focused on nuclear threats to the United States, in state programs and biological threats to the United States and state programs.

Mr. LINDER. But you are dealing with the Russians and their former programs?

Mr. BRILL. I think it is fair to say that the Intelligence Community has, and I would defer to my colleagues to my left, but the Intelligence Community has a very broad interest in people who are engaged in those kinds of activities.

Mr. LINDER. Is there any agent in the biology area that is not dual purpose, or able to be used both for good and for ill?

Mr. BRILL. Well, part of the issue, and I will encourage my colleagues to jump in as well, it is not so much agents but it is processes, producing things that are inherently dual use and then what comes out of that process can be tweaked. But the process itself is inherently dual use. But I would encourage my colleagues to elaborate on the point.

Mr. PEASE. I think Ambassador Brill had it right. The dual use comes from the question of whether the people that we are looking at, the potential foes, are looking for a cure for a pathogen or looking to spread the pathogen.

Mr. LINDER. To do that you would have to have human intelligence?

Mr. PEASE. Human intelligence is irreplaceable in that arena. It is certainly not the panacea.

Mr. LINDER. If you are seeking HUMINT in the biosciences, do you have to have biological and technical expertise to recognize it?

Mr. PEASE. I will answer that as best I can in the unclassified arena. Forgive me if I get too cryptic here. Technical expertise helps. If you have to choose between the two, to choose somebody

who can speak to somebody in their own language. In their own language may include their own technical language. That is a pretty precious skill to come by. You will never get enough of that.

We will never be able to look under every rock we like for that HUMINT approach, but it is the one that is most likely to yield the kind of intelligence that is actionable.

Mr. LINDER. Mr. Allen, we have had Secretary Chertoff before us saying that the greatest catastrophic risks in this country are nuclear and biological. The only way to intercept that is to have intelligence to prevent it from doing damage.

We spent \$108 million in Homeland Security on airlines. What percentage of security is spent on op intelligence?

Mr. ALLEN. Out of the entire Homeland Security budget on intelligence, my budget of course is classified. But it is a very small amount of the entire open budget of Homeland Security.

Mr. LINDER. It may be classified to you, but it has been discussed openly in these hearings.

Mr. ALLEN. I understand that, but I am sworn to support Ambassador Negroponte. He of course controls sources and methods, and he classifies my budget. My budget is approved by Secretary Chertoff but it reflects the priorities of Ambassador Negroponte, and he submits this budget to you.

Mr. LINDER. Is it your judgment that most of the biosciences technology out there can be got through open sources? Are we doing a lot on open source examination?

Mr. ALLEN. I don't want to go into details about that, but, yes, I think we can say, and it has been said repeatedly by many specialists, that there has been a great deal of information dealing with how to use bioscience for nefarious purposes, and it goes back to literature that has been available for many years. It goes back probably to 1960s and 1970s.

So there is, even though we worry, as I said in my statement, about advanced biotechnology, my worry with terrorists deals with, as I said, those who may have some knowledge of biotechnology and may be able to use somewhat cruder methods. But the results, Mr. Chairman, could be very devastating to our country, to our homeland security.

Mr. LINDER. You said that we knew factually that al-Qa'ida was seeking to develop BW weapons, and we have disrupted a significant part of their network, but we said we judge its intent to develop BW continues. Is that based upon a presumption, or do we have more information?

Mr. ALLEN. I do not want to speak on specifics here but based on what has been publicly released and based on the statements that we have just seen from the leadership of Osama bin Laden, Dr. Zawahiri and others, their intent is to attack and destroy the United States and its interests worldwide.

I think we have every reason to believe that Osama bin Laden has never changed his opinion. As you recall, I believe there was a fatwa issued back in February of 1998, which said it was okay to use nonconventional weaponry in attacking the United States and the West.

I don't believe we have any evidence to suggest that they are somehow becoming benevolent in their attitudes towards the United States.

Mr. LINDER. Mr. Pease, the biological community is a scientific community. Scientists have spent their entire academic career going through wide open processes, publishing everything, sharing, traveling to seminars in various countries, a wide open environment. That is not the Intelligence Community's environment.

Are those two circumstances antithetical?

Mr. PEASE. Antithetical, perhaps not cross-cultural, certainly, and you will see the intelligence professionals in this room twitch that it is an open room. We know that they can learn things in that open environment that we are interested in. We know that there is much that they learn in that open environment that they are not in a position to judge. Is it illicit activity that they are hearing references to completely legitimate activity.

We know that we have got to sift through much low grade ore in those kinds of conferences to get the kinds of nuggets that are of an intelligence interest and are actionable in the intelligence channel.

We are willing to put up with the cross-cultural communication that I referred to to get at some of that knowledge. It is a slow, frustrating process to do that.

Where we do best is where outside biological experts have worked with us for long enough that they get a sense of what we can use and what is just a distraction to them.

Mr. LINDER. Why is any of this life sciences information even necessary to be classified?

Mr. PEASE. The life sciences information I would suggest overwhelmingly needs to be unclassified if we are talking about healing diseases for people. You would not find me arguing that we need to lock down that knowledge or that if we wanted to we could. In that knowledge is an inherent threat, and that is part of the threat that we live with, and we are all seized with just how very real that is.

Mr. LINDER. That is for analytical people?

Mr. PEASE. Indeed.

Mr. LINDER. Dr. MacDougall, have our BW programs that we used to have in the 1950s and 1960s ended?

Mr. MACDOUGALL. Yes.

Mr. LINDER. Have they been helpful to us in learning about other proposals, or are they so old with such refined agents that they are not applicable to today?

Mr. MACDOUGALL. No, sir. Actually, we continue to draw on the knowledge that was developed during this program, activities, and, indeed, I would make sure we catalog the amount of that, making it available to the analytic community, indications of the kinds of activities we might otherwise expect foreigners to pursue. So that is a valuable resource on behalf of the analytic community.

Mr. LINDER. Mr. Allen, would it be helpful for us to have security clearances for State public health leaders so that they could be more involved in the information and be more engaged in seeking what might be threatening?

Mr. ALLEN. As I indicated in my statement, one of our responsibilities of the Department of Homeland Security is to serve as a conduit to get information and to share that information with State and local governments and with the private sector, and we try to do that right across the board on all threats.

Obviously at some levels, in some issues, it is helpful, and, of course, we have the ability and the responsibility on a select basis to clear people who may need Secret-level clearances. This is not a big issue. I sponsor clearances at State and local level and obviously with the private sector as well.

Most of our information though is advisory and is out there at sort of—at a sensitive but unclassified level for their purposes. We have a growing and developing rich relationship at the State and local level.

Mr. Langevin and others, and I have talked about this. We have all been up to—he asked us to talk to some people in Massachusetts about sharing some information.

Mr. LINDER. Thank you all.

Mr. LANGEVIN.

Mr. LANGEVIN. Thank you, Mr. Chairman. Thank you all for your testimony. It has been very helpful.

I would like to turn our attention, if I could, to the area of study of the life sciences and cultural exchanges. One of our best defenses, I guess an interesting conundrum, you might say, one of our best defenses is to bring people here to see the United States, to experience freedom and democracy themselves, as opposed to just getting information about what the United States stands for from Al Jazeera or other networks.

Yet if a student comes here to study life sciences, I am told, that even at the basic science 101 levels they learned quite a bit and could actually—the studies could actually turn out to be dangerous, they could choose to use it against us. What are your recommendations in the field of managing that relationship, who comes here and studies, and your thoughts on it?

Mr. BRILL. Well, I would be happy to take an initial crack at it. I will defer to Mr. Allen.

Mr. ALLEN. I will speak as well.

Mr. BRILL. Speaking as someone who worked in the diplomatic realm and who is now in the intelligence realm, I think your characterization of people coming to America, learning about America is useful. Building those bridges is very important for our national security.

When it comes to studying technical issues, the issue is not so much at the basic level. You can study basically almost any place in the world now. In fact, the United States higher education is competing with a number of other countries, higher education institutions.

So knowledge is rapidly dispersed in the age of globalization we live in. I think what is important is that when people come to this country we would like to make sure when they are doing advance studies they are working in areas that are constructive. I think that when they study in the United States they tend to study in an environment that promotes constructive use of technology as op-

posed to destructive use of it. Generally it is good. We have to be careful in some specific areas.

Mr. ALLEN. Congressman Langevin, it is a very good question. We have to do the balance. Of course, part of the responsibilities of the Department of Homeland Security is to ensure that as we look at visas and how they are issued for students by the Department of State, that these are handled in a very careful way.

Of course, as you know, we have various checklists, and I think, from what I see, prior to 2001, what we see today, we encourage foreign students from across the world to come and study in the United States. I think it is absolutely crucial. But there is greater care as visas are issued and students come here. We are doing this in a number of visa areas, including religious workers where we had a very *carte blanche* approach one time and now it is much tighter.

Mr. LANGEVIN. In Part I of our hearing, the witnesses were all very impressed with the sophistication of the biological and medical and intelligence capabilities of the Armed Forces Medical Intelligence Center, AFMIC. Of course this is an open-ended unclassified hearing, if you could please describe the major activities of AFMIC and how we might describe that as a model beyond military mission of force production and apply these techniques to military technology activity.

Mr. MACDOUGALL. Sir, if you will beg my indulgence, we have with me today the chief scientist for the Armed Forces Medical Intelligence Center, Dr. Miller. I would like her to respond to that question.

Ms. MILLER. Thank you. I am honored to speak with you this afternoon. The Armed Forces Medical Intelligence Center is part of the Defense Intelligence Agency. We have been part of the Defense Intelligence Agency since the early 1990s, but we have been part of the medical intelligence since the 1900s, as part of the Army.

We have a long history of doing medical intelligence. Our primary role is to look at foreign infectious disease, environmental health threats, medical infrastructure, health systems and biotechnology trends. We do that in support of the White House, the Secretary of Defense and other Federal agents. So our role is to look at foreign infectious diseases and how they might impact forces being sent overseas.

But we also now have a role of looking at those foreign infectious diseases and what impact they may have on the health or welfare of the United States in our role partnering with the Department of Homeland Security, Health and Human Services, and the USDA.

So we are actively engaged in improving our scientific expertise by having rotations of our partner agencies. We use as a model a foreign example for you this afternoon. Our military members that are staffed at AFMIC come from the medical services of the Army, Navy and the Air Force. They are medical professionals. They come to AFMIC for a 3-year tour, and we train them in intelligence. So they have scientific and technical expertise in their various fields, virology, environmental health, industrial hygiene, toxicology. I could go on.

Mr. LANGEVIN. Could I ask, in that respect, that is an interesting issue because it raises another question I was going to ask. I was

going to get back to how we could apply these to these techniques, to nonmilitary intelligence activities. But the other thing is, is it better to train medical personnel in the area of intelligence and analysis or is it better to do it the other way around?

Ms. MILLER. Let me answer the first question first, then I will get to the second one. I use that military medical professionals as a model, because that is a model that I think is relevant across the Community. With other agencies, to have them come and do a 3-year tour at AFMIC I think would be beneficial, not only to AFMIC, because it gives us reachback to their agencies, but also to their agencies it gives them training and understanding of intelligence and how to apply intelligence in their decisionmaking. That is why I gave that example.

I think I forgot your second question, if you will forgive me.

Mr. LANGEVIN. If you want to expand on what you were saying originally, whether it is better—

Ms. MILLER. To train medical professionals or intelligence professionals. I think you will get a different answer if you looked across the table. For medical intelligence, I totally agree that you have to have a multidisciplinary team, that intelligence is not just about the science, it is about the threat. The threat, if it is counterproliferation, may be intent, and my colleagues can talk more eloquently about that.

But in the medical arena, it is contextualizing the intelligence. Just because you are a scientist does not necessarily mean that you are trained in analysis and can contextualize the intelligence. It is really important to have a multidisciplinary team.

Mr. LINDER. Would you yield?

Mr. LANGEVIN. Of course.

Mr. LINDER. I would like to ask you a question on that. We have medical personnel at all of our embassies, and we have undercover people at many embassies for the CIA. Would it be helpful for them in our program to have a 10-week course in epidemiology to recognize some of these problems?

Ms. MILLER. Well, you are speaking to an epidemiologist so I guess my answer would probably be—epidemiology is a multidisciplinary field. It trains you to look at the question. My background is, I am a former epidemic intelligence, foreign intelligence officer from the CDC. So I have been trained to look at what is the question.

That is the bottom line for intelligence, too. You have to use the evidence that you have from your science background, but you also have to answer the question in an actionable form.

Mr. LINDER. Which you did not do. The question was, would it be helpful to have some epidemiology training for—

Ms. MILLER. Well, I am not sure I should tell the Department of State what to do with their medical officers, but, yes, I do believe it would be helpful.

Mr. LINDER. Thank you.

Mr. LANGEVIN. Can you touch upon the Armed Forces Medical Intelligence Center's real-time monitoring that you do, and is that a robust system in terms of being able to know rather quickly if there is an outbreak somewhere? Or if there is something that doesn't look like something naturally occurring or a bioweapons at-

tack or something that would happen, would you know that real-time or after the fact?

Ms. MILLER. In this forum I would say it has to depend. We are focused on specific diseases of concern to military operations at this time. If we are talking about real-time warning, I don't think there is such a thing within the Public Health Community or the Intelligence Community on infectious diseases.

We need to improve public health infrastructure so that we can detect events early. That, I think, is part of our Nation's goals in partnering with other foreign nations, with health and human services and their efforts overseas with the Department of Defense overseas laboratories.

Mr. LANGEVIN. I asked the question, because one of the things that we have a concern about is our ability to monitor public systems as policymakers, or at the top levels of health, and enhancing our ability to respond more quickly if there were an outbreak or something to that effect. Is there something you wanted to share with us in that respect?

Ms. MILLER. Well, I think we need to continue to be vigilant. We need to continue to improve. But intelligence is one of the many tools that we use in monitoring the world globally.

Ms. MILLER. And our role is to try to identify those events that may be gaps where the Health and Human Services or others don't have access to that information and to contextualize those. So we do focus very clearly limited resources on key countries that perhaps are non-permissive. We do get information in the public health community through the WHO and through Health and Human Services from many countries directly, and that perhaps we should be focused in intelligence where are the gaps. That is what we are looking at with our partners.

Mr. ALLEN. Congressman Langevin, could I just add to her comments. Under the Department of Homeland Security, we have the National Bio-Surveillance Integration System that has just been standing up under the Chief Medical Officer. This group looks worldwide, globally at any kind of early warning, looking at open material around the world to see if there are any indications of a natural outbreak, or maybe something that would be more nefarious. My office provides intelligence in support of the National Bio-Surveillance Integration System. And we certainly—this group works with AFMIC very closely.

Mr. LANGEVIN. My last question, if I could, in our last hearing it was mentioned that the failure of the Chiron Company to provide flu vaccine for the 2004–2005 flu season, and now the Avian flu influenza situation are example perhaps of intelligence failings. For example, the intelligence community would have been well aware of a pending oil shortage or other substance considered important for national security. AFMIC would know, for example, if the Pentagon had enough vaccines or other protective health measures for their soldiers.

So the question is do you think the intelligence committee should include the threat of infectious diseases, whether intentionally or naturally occurring, as a threat that must be cracked?

Ms. MILLER. Yes, sir, I do.

Mr. ALLEN. I think we have no choice, because we have to make certain that when we see an outbreak, I think AFMIC does it very well, to make certain that this is natural, that it is nothing something being spread by bioterrorists. It is incumbent on the intelligence community to look at it very hard.

Mr. LINDER. Ms. Norton.

Ms. NORTON. I want to thank you for your important work and with the new configuration post-9/11, you are the real start-up people. I really want to—I have a couple of questions, but I want to build on what the ranking member has just indicated, because if you were to ask the average American today what bio threat concerned her, you would probably come back with something that perhaps is not normally understood in the intelligence community so much as a quote bio threat, and that is, of course, Avian flu. And the President or the administration has just rolled out some plans on that with some controversy, but it obviously is trying to get ahead of that.

My question really goes to what the 9/11 legislation was trying to do, and one of the things was to deal with the stovepiping. Of course, my district is the district which had the anthrax matter and was, I think, dealt with well, largely because it never spread in the way it might have. But obviously with Avian flu, that kind of pandemic that the public has been hearing so much about, there is a great concern about whether or not this really could be passed to humans, whether it could make it here. Indeed, there is some view that yes, it could, it is when will it make it here.

I don't understand and would like to know from you what—in some of the other committees, we have talked to CDC. I don't understand what, if any, role you play in matters like predicting whether or not this kind of pandemic is making its way to our shores.

When you talk about foreign diseases, that is the first thing I think the average person would think about, would be this flu, and particularly given the fact that it is new, we have no vaccine, we don't have any effective drugs, we are told that there are very limited—I am not sure if it is 5,000 doses of what drug we do have. The plan that was rolled out yesterday didn't even say who should get those drugs, limited as they are, as a priority. That is, at the very least, it seems to me what I would have wanted to know.

As far as I am concerned, I hope it would go to health care workers to handle the rest of us.

In any case, I am really interested in here is something right on the front pages. There you are. Are you relevant to it? Do you help predict whether or not it is coming and when? What is your relationship to the CDC and others are charged with working on this matter?

Mr. BRILL. Let me take a crack at a little bit of an umbrella statement and turn to Mr. Allen for more detailed comment. As I mentioned in my statement, the challenge of pandemics for the intelligence community is that we are there to help. It is principally a public health issue. And you have to think, I think, about information on bio threats running across a continuum of publicly available information, medically available information, intelligence kinds of information. I think the role of the intelligence community

in something like a pandemic is to make sure that U.S. authorities have available to them information relevant to a pandemic that may not be publicly available for one reason or another. One can imagine a variety of reasons people might try to cover up information about it. Our job in that case would be to find information that should be available to people.

Ms. NORTON. For example, everybody is looking for a bird to fly in, and that is how we might, in fact, find it on our shores. Well, could somebody bring in a bird deliberately and weaponize, as it were, some bird or other—

Mr. BRILL. That would be clearly an intelligence-related activity to be keeping—being alert to those efforts of people to take advantage of a nationally occurring disease and to turn it into something that would be applied as a weapon. There is a role for the intelligence community in that.

Ms. NORTON. Would that be your role, from what I just described. CDC is supposed to look for the bird flying up there. Who looks for somebody bringing in a bird?

Mr. BRILL. Let me defer. What NCPC does is what you referred to as post-9/11, is breaking down stovepipes. We are part of the OD&I, bringing people together. The second conference of U.S. Government officials, as I mentioned in my opening statement, is about bringing the intelligence community together with the rest of the U.S. Government agencies that are involved in issues like international public health questions to make sure that information the intelligence community generates would be relevant to what they do and information they generate would be relevant to helping the intelligence community in its mission. It is two different kinds of communities, one dealing with basically unclassified information, the other dealing with classified.

Ms. NORTON. Do you deal with CDC, for example, now, as I speak?

Mr. BRILL. Not personally. The intelligence community does, yes. Let me defer now to our Department of Homeland Security.

Mr. ALLEN. Thank you very much, Ambassador.

Congresswoman, obviously, I am speaking from an intelligence perspective, and the part of Homeland Security works very closely with Health and Human Services, including obviously the Center for Disease Control.

Ms. NORTON. Which, of course, is not even in the intelligence community, not in homeland security.

Mr. ALLEN. I think the Ambassador has described very well the intelligence responsibilities, that is to look and try to track the spread of the avian flu, and of course, this has been detected in Asia and parts of Europe. As you know, the H5M1 virus, it has not it has not spread here to the United States, and it is very rare and very difficult for either poultry or migratory birds to spread this disease to humans. It has not been—there has been no cases of human to human transmission.

But, at the same time, and I don't want to speak about all the preparations that health and human services and the rest of the Department of Homeland Security are undertaking, that was, of course, what Ms. Townsend spoke about yesterday from the White House. There is an extraordinary effort underway. Our role is to

look at the intelligence to make sure that we have good information and that countries abroad are not hiding the extent and spread of that disease.

Part of our responsibility, of course, is to work with our chief medical officer and keep him and Secretary Chertoff briefed, and to also work with the National Bio-Surveillance Integration group which is under the chief medical officer. So it is an effort to ensure that all information, including classified information, is brought to bear to Secretary Chertoff, to Ms. Townsend and to other leaders in the Secretary of Health and Human Services.

Mr. Pease may have some comments on this about the analytic side.

Mr. PEASE. The nexus of disease and use of the disease as a warfare tactic, maybe I can illustrate with some cooperation that we did with CDC during the West Nile virus—"scare" is the wrong word—but when that was on the front pages of the papers. And we had allegations that West Nile was being intentionally spread by one of our foreign folks.

There were allegations in intelligence channels of that. That would have been an event and was indeed an event where we were very quickly in touch with the Center for Disease Control looking for any signs that this is unnaturally spreading. In this particular event, it did not play out as a biological warfare tactic, it played out as a natural spreading event. But that kind of dialog between the intelligence community and the Center for Disease Control is what you would expect to happen, and what indeed did happen very quickly.

Ms. NORTON. That is exactly the kind of information I was looking for, particularly since CDC is not in Homeland Security and not in the intelligence network.

One more question, if I may, Mr. Chairman.

Ambassador Brill raised an issue that is of great importance to me in another of my committees. There is a huge issue involving the Federal workforce that has—could be depleted tomorrow, frankly, because of early retirement, huge issue of competing with the private sector and highly specialized personnel. Ambassador Brill, in his testimony, alluded to this issue as part of what you see as the mission to build a workforce. And I take it it is a Governmental workforce. We have got to have folks on the inside and, of course, use what is available to us in the private sector.

But my question really goes to where the exciting things are happening. Exciting things are happening in science in the private sector. Nobody can put in an amendment to keep them from looking at this, that and the other. If you are one of the young people, and there are far too few of them, who are graduating, particularly with a Ph.D. from one of our universities today, one is really left to wonder what it is that would draw you to the Federal Government and where we are going to get a workforce that is of the quality we need when we are competing with the private sector where all the innovation and where all the discovery is taking place.

It is very worrisome to me because I don't see that we are able to get workforce in areas that are far less specialized and far less skilled than the workforce we will need if the biological areas that have been under discussion here today.

I appreciate how you think we can do that and what we could do, what kinds of extra incentives we need.

Mr. BRILL. Let me speak from the perspective of the ODNI and urge my colleagues to jump in as well. What it takes, I think, is a strategic approach for this very important issue across the intelligence enterprise, not one agency at a time. In the past, the intelligence community didn't have really the authorities to operate personnel issues across the enterprise the way it does now with the establishment of the Office of the Director of National Intelligence.

In the counterproliferation area, we plan to take full advantage of these authorities to think strategically about how we hire and retain the people to do the important work that needs to be done at WMD.

I think, quite frankly, as someone who is not from the intelligence community, from the foreign service, I am not a scientist, I am one of those classic liberal arts types, but what is happening now in the intelligence community and the challenges that the intelligence community is dealing with in the S&T areas, science and technology area, having been briefed in recent months on this, is some of the most exciting and challenging science you can imagine a bright young person might want to take on. The question is how do we get that word out to people, set up a career structure that is attractive and get people in to do it. Because we can't go into details in an open session, but we want physicists to bend the laws of physics, chemists to do remarkably interesting things for us in order to deal with the challenges we face in counterproliferation and the intelligence community.

So we have the work that can excite and attract people but we have to think as an enterprise about how do that so we don't compete with each other and set up a system of incentives that will work.

Mr. PEASE. If I could throw in a ray of hope here. The last recruiting trip that I went on was last October, in this case, out to the west coast. Because of my office, I am trying not to recruit technically trained people from academic institutions when I go to an academic institution to recruit. Every day that I was out there recruiting, I had a full day with people lined up wanting to talk to me about working in the CIA. I had not anticipated this. I have done this 2 years in a row, the same universities, and I expected that because of the increase in bad press about CIA that the lines would disappear. Lot of lines of people wanting to see whether their skills would be suitable to our work, wanting to see if they could launch a career where they can make a difference in working against the bad guys. It was one of the most invigorating things that I have done in the last year, but it is echoed by what I hear from my other recruiters that have gone all over the United States.

Ms. NORTON. Yes.

Mr. MACDOUGALL. We have no shortage of good resumes coming into the community of the highest caliber technical folks and the percentage of Ph.D. and advance degrees in our workforces.

Ms. NORTON. In what fields?

Mr. MACDOUGALL. All kinds of fields. Microbiologists, technical experts in bioengineering and the like, critical to this problem set for us. As I think was emphasized earlier by my colleagues, build-

ing the expertise within the community is our first and most important job. We must have experts looking at the critical data that help us unlock the secrets in order to assess the threats. And that starts with our cadre. We echo and we champion the National Counterproliferation Center's strategy in this because it is fundamental in my opinion to the future of this workforce. So I share my colleague's ray of hope. It has been very invigorating. Extraordinarily talented folks coming to us.

Mr. ALLEN. Congresswoman, I would like to speak also. We are just standing up my Office of Intelligence, we are very new, and we are standing up a bioterrorism section. We have four people working in it and we have two that more we are hiring. Two of those officers currently have their Ph.D. We are getting good applications. I just reclassified some of my positions that are yet to be filled for entry level students off the universities. We also sent a small recruiting team to a number of universities and the response has been really astounding. There are a lot of good, bright young Americans out there wanting to work for their country.

Ms. NORTON. The novelty of it should be very helpful to you. We have got some of the best and brightest during the new deal and people saw new agencies and things the government hadn't done before. I had read about what the CIA has done. I don't care if it is from CSI or whatever kinds of movies, I was very encouraged by that.

What really encourages me and gives me an understanding that I did not have before is your discussion of the enterprise. If you want to compete with someone really, really juiced up about something about something that a particular private sector scientific corporation is doing, one way, and I am particularly interested in science, one way might be the enterprise nature of the Federal Government, the notion that you could, in fact, get work in various aspects, bio threats, for example, you could work across the agencies.

You could get the kind of experience you could never get in any one private corporation. Seems to me that would be exciting, and maybe even exciting enough to take the pay that you have to take or the pay cut that you have to take by coming to work for the Federal Government.

Thank you very much, Mr. Chairman.

Mr. LINDER. I thank you all. This hearing is adjourned.

[Whereupon, at 4:04 p.m., the subcommittee was adjourned.]

