Statement by
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Chairman Langevin, Ranking Member McCaul and Members of the Committee, I appreciate the opportunity to testify today about the Department of Homeland Security National Biosurveillance Integration Center (NBIC).

My name is Dr. James Wilson, Chief Scientist and Chief Technical Officer of Veratect Corporation, a privately funded company with offices in Seattle, Chicago and Alexandria, Virginia. For more than ten years now, I have been pursuing a mission of early disease detection and tracking. I have had the privilege to have worked with and for the World Health Organization, NASA, NOAA, US Army, DHS-NBIC and several other Federal organizations, all with the intention of developing the art and science of timely, accurate, sensitive and specific detection and warning for disease – early enough to do something about it before it enters the global transportation and commerce grid. Perhaps the most relevant points in my career, for this discussion today, are my role as the first Chief of Operations at NBIC, Principal Investigator of Project Argus, founding member of the Biosurveillance Indication and Warning Analysis Community (BIWAC) and my current role at Veratect.

Today I would like to cover five things;

1) A quick review of biological threats past to present.
2) What our Nation's response has been to date.
3) Speak to NBIC's mandate as it stands today, and what will be required for it to succeed.
4) Share with you the next generation in early detection methodologies that we have developed, and are improving at Veratect.
5) Suggest how Veratect can support NBIC and the National Biosurveillance Integration Mission.

<u>Brief History of Biological Threats, 1918 to Present</u>

I would like to begin by sharing some historical context as we review past and present diseases. In the late 1990's, I worked with the World Health Organization and NASA to examine environmental and climatic phenomena in Africa potentially associated with the emergence of the Ebola virus. This work led to the first model for rapid identification of "conditions favorable" for Ebola epidemics using satellite imagery. It was during this time period that WHO and its partners initiated the Global Outbreak Alert and Response Network (GOARN), the Canadians created the Global Public Health Intelligence Network (GPHIN), and ProMED was started; indeed it was the birth of what we would later refer to as a new professional discipline in monitoring publicly available global

information.

In 2003, several colleagues and I applied this idea to West Nile virus, utilizing the concept of "graded alerting" married to "graded response", where clues of the emergence of a biological event sensitize a network of biosurveillance analysts to begin actively searching for more information that may ultimately yield a response action. That work evolved into the National Library of Medicine (NLM)-sponsored Project Sentinel, which examined the role of syndromic surveillance in biodefense. The most substantial realization of Project Sentinel was the possibility of connecting a global biosurveillance system seamlessly to hospitals in America using information technology so that patients would not be seen by American healthcare workers without access to immediate situational awareness of what that patient might have been exposed to while traveling overseas. This was a poignant note when considering the vulnerability of Toronto's hospitals in 2003 when they unknowingly admitted suspect and confirmed cases of SARS that prompted quarantine and closure of their facilities.

One of the things that history is teaching us now is that, in the context of influenza season, the impact on the medical grid is considered substantial, but brief. However, in the case of a pandemic, the possibility of a "medical blackout" becomes a serious consideration. America's hospitals are not linked to near real time situational awareness, which is a serious issue given biological hazards can easily translocate undetected and un-forewarned in hours through the air traffic grid from Africa to New York and Asia to Los Angeles.

Clearly, globalization and more specifically the transportation grid (as it has become more developed) has heightened the risk of transnational spread of disease. Just last week we saw a case of Marburg hemorrhagic fever transferred by flight from Uganda to the Netherlands. Currently, the US is experiencing the worst measles epidemic in ten years, which has spread to 15 states thanks to foreign introduction by returning travelers to the US. Of course, the Members are aware of the current national salmonella food contamination event that CDC and FDA are struggling to investigate, courtesy of our globalized commerce.

According to the US Department of Transportation, the total bi-directional exchange of direct, non-stop air traffic between the US and the rest of the world was 81.4 million passengers in 1990. By 2005, bi-directional air traffic between the US and the rest of the world increased by 182% to 148.6 million. In 1990, bi-directional exchange between China and the US was 84,308 passengers with 3 Chinese cities connecting to 7 US cities. By 2005, this had increased to 1.5 million passengers, which is an increase of 1,819% with 9 Chinese cities connecting to 27 U.S. cities.

It is obvious that international air traffic to and from the United States is steadily increasing. However, translocation of disease by aircraft has been reported with community exposures. Historically, the influenza pandemics of 1918, 1957 and 1968 and the HIV/AIDS pandemic were brought to the US through transoceanic ships and airplanes. Pathogens such as adenovirus, Chikungunya virus, the cholera bacterium,

dengue virus, Ebola and Margburg hemorrhagic fever viruses, hepatitis A virus, human metapneumovirus, legionella bacterium, the malaria parasite, measles virus, mycoplasma bacterium, norovirus, parainfluenza virus, respiratory syncytial virus, rhinovirus, salmonella bacterium, SARS-coronavirus, both seasonal and pandemic influenza virus, shigella bacterium, smallpox virus (historically), treatable tuberculosis as well as Multi-Drug Resistant (MDR-TB) and Extensively Drug Resistant (XDR-TB) forms of the bacteria, West Nile virus, and yellow fever virus have all been documented to have been vectored by aircraft.

But no historical review of disease threats would be complete without some understanding of the 1918 Spanish influenza-H1N1, which infected 1/3 of the world's 1.5 billion citizens and killed over 50 million of them. This pandemic took almost a year to spread from its origin to full global involvement. A contemporary 1918-like public health disaster could kill 1.9 million Americans and spread by passenger jets in as little as three to four weeks from source to global involvement. Our team has serious concerns that such an event may result in sustained "medical blackouts", critical infrastructure failures and acute, overwhelming socioeconomic social disruption. Further, economic research suggests a possible 8 to 10 year global economic depression in a multi-trillion cost to the world economy. Such a scenario would have serious implications for our ability to project our military might, maintain our homeland security, and our national security, economy and society.

So where are we today – what have we done?

The U.S. stands at ever-present and increasing risk for further introductions of exotic infectious disease with potentially serious consequences to the nation. From my perspective in a near real time operations environment (which will be described below), we have hours or at most a few days to respond to an emergent threat. In other words, while consideration of intentional release or bioterrorism is important and key to national security, naturally occurring threats are more likely and have occurred regularly throughout history. Time-sensitive public health response is the best counter measure we have for both. Early detection is the key to early response and early containment.

My initial work to anticipate the emergence of Ebola, explore graded surveillance for West Nile Virus and connectivity to hospital-based disease surveillance made evident the significant limitations of situational awareness relating to emerging global biological threats among our medical, veterinary, public health, and homeland security communities. We concluded that, particularly with regard to highly communicable diseases, there was a critical need for identifying the earliest possible indications and warnings of foreign biological threats to enhance our ability to proactively implement effective countermeasures. Again, early detection coupled with early response means early control.

From 2004 to 2005, I volunteered my services as the Biodefense Technical Advisor of the US Army Medical Research and Material Command's Telemedicine and Advanced Technology Research Center (USAMRMC-TATRC) to serve as a member of the

National Biosurveillance Integration System (NBIS) Concept Design Review panel. In late 2005, I actively canvassed the Department of Homeland Security and the Homeland Security Council to assist with the operational activation of the National Biosurveillance Integration Center (NBIC). As its first Chief of Operations, and in conjunction with the talented people on the NBIC team, we drafted the first concept of operation.

Except for BioWatch, we did not have access to operationally relevant biosurveillance information, because it simply did not exist at that point. While at DHS-NBIC, I interacted with representatives of Customs and Border Patrol, Immigrations and Customs Enforcement, the Transportation Security Administration, and the US Coast Guard who all told me stories of passengers and immigrants who presented with illness at the border. It was my impression that the coordination of situational awareness for these issues with CDC's Division of Quarantine and Population Migration would be a powerful adjunct within NBIC's mission of biosurveillance. It was in these early days we realized the need for a novel professional analytic discipline for integrated biosurveillance. With time, we came to understand that additional funding in a different setting was essential to develop the analytical methodology and discipline that would be so crucial to this historically unprecedented capability.

Up to this point, NBIC had configured itself operationally in the manner of a military operations center not unlike the North American Aerospace Defense Command (NORAD). This included mission analysis, concept of operations and an operations plan that was implemented using information feeds from sources such as BioWatch, BioSense, Argus (further addressed below) and other sources of information. This was a historically unique operations center in my opinion in that we were now beginning to function with integrated and prioritized reporting requirements across the federal agencies. Unfortunately, the structure of the program was not optimal for its federal partners because it needed to be established in a neutral environment that brought federal agencies together as equals.

After my departure, NBIC focused heavily on building formal relationships with the Federal Community. I did not see much support for detection subsystems nor substantive improvement in their early warning capability. I found there to be limited operational, routine, near real-time engagement between NBIC, their federal partners and state and local authorities. However, NBIC's continued participation as a member of the Biosurveillance Indication and Warning Analysis Community (BIWAC) was an excellent step in the right direction. I will explain BIWAC in more detail below. It is my opinion the formal relationships needed for NBIC's success will take years to develop, meanwhile the threat space continues to increase in complexity.

<u>Response to Date, The Creation of the Argus Prototype</u>

Due in part to the emergence of SARS in southern China in 2002 and 2003 and the recent Highly Pathogenic Avian Influenza-H5N1 pandemic concern, DHS and the Intelligence Technology Innovation Center (ITIC) supported the activation of Project Argus in late 2004. Project Argus was established as a prototype research effort to explore the use of

indicators to detect and track biological events, crises and disasters. I served as the Principal Investigator while serving as a faculty member of the Division of Infectious Disease, Department of Pediatrics, Georgetown University Medical Center. It was during the research and development phase of Argus that I also volunteered by services to the NBIS Concept Design review and later as the first Chief of Operations of the NBIC. Therefore, the design of both NBIC and the Argus prototype became synergistic.

While at Georgetown University (we were housed at GU for convenience with little interaction with the rest of campus and no independent support from the University), we applied established proven methodologies to what would become a new analytic and professional discipline in biological event detection and tracking with a full time staff of cultural and linguistic and subject matter experts and analysts based upon state of the art technology provided by the MITRE Corporation. The approach is based on one of the recommendations of the 9/11 Commission to collect, analyze and correlate data from the world wide web as a source for information about indicators of social disruption caused by illness and disease. Although simple in concept it was an extremely complex system. The sponsors of our work deserve the nation's thanks for having the courage to back our idea – which in retrospect is one of the most powerful national security ideas to have emerged from the post 9/11 period. We benefited from the enthusiastic intellectual support of many parts of the US government including CDC, USDA, DoD combatant commands around the world, and many others.

In 2006, Congress supported activation of the Argus Research Operations Center, which was to be a prototype operations center for infectious disease event detection and tracking based on the methodology that we developed. Our mission was to monitor the world for the emergence and spread of H5N1 Avian Influenza. We later voluntarily expanded this mission to include 140 diseases the effect both animals and humans globally at no additional cost to the federal government.

At this point I became Chief of the Argus Research Operations Center (AROC), but remained in strong support of NBIC and the National Biosurveillance Integration mission. It was my opinion that NBIC would not be able to achieve its objectives without an adequate detection subsystem; therefore I chose to focus my efforts on Argus and support NBIC from Argus.

At our peak capacity, we estimated we were accessing over a million pieces of open source information daily covering every country in the world (except the United States) that resulted in the production of, on average, 200 reports per day. Using a disease event warning system modeled after NOAA's National Weather Service, we issued Warnings, Watches, and Advisories in accordance with guidelines agreed upon by our research partners in the federal government. On average, we maintained 15 Advisories, 5 Watches, and 2 Warnings active on our Watchboard at any given time, with 2,200 individual case files of socially disruptive biological events maintained and monitored daily in over 170 countries involving 130 disease entities affecting humans or animals. We reached a maximum load of 3,300 individual case files maintained and monitored daily during the winter of 2007.

This information, as provided to our mostly federal user community, sensitized them to be vigilant for the most concerning biological events in the world; this vigilance occasionally resulted in proactive requests for more information by our partners such as CDC and USDA. This in turn, contributed to the United States' participation in the International Health Regulations through proactive information sharing with WHO and our international partners. Since the program had begun, we logged over 30,000 biological events in varying stages of social disruption throughout the world involving pathogens such as H5N1 avian influenza, other influenza strains, Ebola virus, cholera, and other exotic pathogens. Of note, while the majority of these events were naturally occurring, this capability identified several laboratory accidents and occasionally allegations of intentional use of biological agents.

Upon invitation by CDC, we presented the results of our efforts to the G8 Health Security Advisory Group in February 2008. To the best of our knowledge, our approach achieved unprecedented operational milestones in comparison to the leading global biological event detection and tracking systems such as ProMED, the Global Public Health Intelligence Network (GPHIN), HealthMap and MedISys. One of the key observations by the G8 members was a unanimous desire for there to be a human interface between the raw data and elicited warning information; there was strong support for nurturing a new professional discipline devoted to near real time operational biosurveillance.

The following examples highlight some of our achievements:

- The operations team at Argus, the majority of whom are now working for Veratect, served the country as the lead tactical global event detection team for H5N1 avian influenza and were the first group in the world to detect the expansion of H5N1 from southern China to Russia and then Eastern Europe. During the winter of 2007, we filed over 12,000 reports of events possibly related to H5N1 avian influenza.
- In late 2004 and early 2005, we participated in the tsunami response by providing daily situational awareness reports to humanitarian responders. In commenting on our operations, the US Pacific Command wrote, "Information is power only when it's shared. The situational awareness that portions of Argus provided during tsunami relief efforts was an impressive attention step. We see some tremendous opportunities and value added for this capability within our area of operational responsibility, which literally covers half the globe. Thanks for keeping our situational awareness up during difficult times."
- On August 3, 2007, this team was the first to notify the US government of undiagnosed vesicular disease in cattle in Surrey, United Kingdom that later was diagnosed as hoof and mouth disease (FMD). Of additional interest, this event was later found to be the result of a laboratory accident, and intentional release was explored as a possible etiology but later discounted. The Members may recall the tremendous economic damage observed during the last epidemic of FMD in the UK in 2001.
- On August 27, 2007, we were the first to report indications of the Ebola epidemic

in Kasai, Democratic Republic of the Congo. This information was made available immediately to CDC, and other members of the Federal user community. CDC's collaboration in rapid access to ground verification information through its partnership with WHO and other international partners was impressive, as it highlighted the potential reduction of the time between initial event detection to ground verification to hours and days as opposed to weeks or months. Again, early detection plus early response equals containment.

H3N2 Vaccine Drift

Influenza kills an estimated 250,000 to 500,000 people globally each year. While monitoring the current pandemic threat of H5N1 avian influenza, the team also monitored all influenza strains in support of global influenza disease monitoring. During the winter of 2006 and 2007, the team issued nearly 3,000 event reports across 128 countries and 27 languages, which included 181 Advisories, 58 Watches, and 38 Warnings. Our team identified hundreds of reports of a type A / H3N2 influenza virus that appeared to have drifted away from the current vaccine strain of H3N2 beginning in early January 2007 in Beijing, China, six weeks prior to the WHO Consultation on the Composition of Influenza Vaccine for the Northern Hemisphere. We later found similar reports in a multitude of countries and collaboratively worked with CDC to track this important finding. The value of this information was validated when the World Health Organization and its partners recommended a change in the southern hemisphere influenza vaccine to include an updated H3N2 strain.

The most important lesson from the H3N2 vaccine failure is not just the need for a robust comprehensive early detection system, but open and ongoing information exchange between government agencies and other global health organizations. The lack of transparency to the vaccine development process has resulted in unnecessary deaths here in the United States.

During the subsequent 2007 and 2008 influenza season in the US, the northern hemisphere vaccine for the type A H3N2 virus provided suboptimal coverage at 58% effectiveness. This does not mean the vaccine was not helpful in terms of reducing the severity and burden of disease. However, although the vaccine achieved some degree of coverage, it was less effective than vaccines used in previous years due to the strain mismatch. The 2007 and 2008 influenza season was severe, with pneumonia and influenza-related mortality above epidemic threshold for 19 consecutive weeks compared to an 11 consecutive week maximum documented in the prior three seasons. This represents a 170% increase in seasonal deaths seen since the 2004 and 2005 season. Forty-nine states ultimately reported widespread transmission. In February, one physician commented in ProMED, "I have not seen in my 30 years of practice such a relatively large number of patients presenting with documented influenza vaccine 'failure'."

Shortcomings of the Prototype

Unfortunately, by operational design, the prototype was not able to monitor what occurred with that strain of influenza here within the United States. From CDC, we

learned that there had been an increase in H3N2 clustered initially around regions of the United States connected directly to China by international air flights. Later laboratory reports from CDC indicated this virus had drifted away from the existing vaccine strain. We noted that the very same week we became concerned about reports in Beijing of an unusual strain of H3N2, vaccine-drifted H3N2 isolates were reported in US cities connected to Beijing by direct air traffic. We did the best we could do with the prototype, but it was not adequate. If precise surveillance of influenza "hot spots" was acted upon with vigorous sampling, we believe history might have been different.

Let's be clear here. As illustrated in the July 10, 2008 issue of Nature magazine, the northern hemisphere, including the United States, missed an opportunity for anticipating a bad season of influenza because, 1) information was not used proactively to acquire influenza samples from suspicious event/areas in the world, and 2) our most mission critical surveillance was blinded at home. This was one of the biggest difficulties with the prior system as it was set up at Georgetown.

NBIC Mandate and the BIWAC

For NBIC to successfully execute its mission, it needs to leverage the experience of its federal partners. One of the early examples of this was the working relationship of NBIC and BIWAC.

To facilitate operational validation, my colleagues and I initiated the creation of the unofficial, federal Biological Indication and Warning Analysis Community (BIWAC). As mentioned above, it was BIWAC that reviewed our reporting requirements with us on a quarterly basis to ensure proper product alignment with the user. BIWAC currently includes CDC's Global Disease Detection team; USDA's Centers for Epidemiology and Animal Health (CEAH); DHS' National Biosurveillance Integration Center; the Armed Forces Medical Intelligence Center; other Intelligence Community organizations; the Defense Threat Reduction Agency; and the US Strategic Command Center for Combating Weapons of Mass Destruction.

The BIWAC created a central clearing base where each member contributed what he or she knew about emerging disease and to quickly determine coordinated next steps that included event verification and, in some cases, actual ground response. To enhance this process, we activated Project Wildfire, which was an experimental information sharing system that enabled near-real time, unclassified dialog among the BIWAC partners. Wildfire, although experimental, attracted a substantial amount of federal use; for the first time, we saw the power of the National Biosurveillance Integration Mission in the daily activities of the BIWAC.

The success of BIWAC and the Wildfire experiment was tempered by the observation that ground verification of biological event information was severely limited both in terms of types of disease covered as well as geographic coverage. We realized that the actionability of the information was therefore impaired without near real time interaction with such international partners as NGOs (who are often on the front lines as diseases

emerge) and UN organizations. One key implication was a requirement for a near real time functioning global network. Another implication was the realization that there will be times when we will be unable to verify warning information in the face of daily, non-stop air traffic. A recent example of this would be SARS in 2003, where by the time a global alert was issued, the disease was already present in eight countries, including the United States.

The Committee is already familiar with the fact SARS was present in China many months before WHO awareness and the Global Alert was not issued until eight countries (including the US) were already affected. It took four months to interrupt all chains of transmission that ultimately affected 27 countries on all continents except Antarctica. I would point out the same phenomena has occurred in the past including the 1957 and 1968 pandemics. Local authorities in Hong Kong reported unusual respiratory disease that inundated multiple urban sectors of their city nearly a month in advance of WHO's public acknowledgement of a global threat referred to as a "pandemic". By then the disease was already in the air traffic grid.

I will note here there was evidence in both pandemics that Mainland Chinese public reporting of unusual respiratory disease preceded reporting in Hong Kong by at least several weeks. In summary, the 1957 and 1968 pandemics and 2002-2003 SARS all were reported at the local level well in advance of national Ministries of Health and WHO awareness or the issuance of a warning to the world. Again, near-real time global disease detection and tracking is essential for our nation.

Veratect and the Future of Biosurveillance

The Argus program, although a successful prototype, had two critical flaws. First, we were unable to extend our process to include domestic biological event detection and tracking. Second, we were unable to build global partnerships with organizations whose missions could be greatly enhanced with this information. This was concerning as we realized other natural hazard warning systems such as tornado forecasting in the 1950s came under public scrutiny and criticism when it was discovered that a successful forecast of a deadly tornado was not shared by the military with the local community that received the onslaught of the storm. What was more important was not the high false positive rate but that a successful forecast could have provided hours of lifesaving warning beforehand. We saw the Argus program coming under similar scrutiny some day; our team felt we had an ethical and moral responsibility to address this concern.

Because of these mission-crippling limitations, all the founding members and many of the most skilled analysts from the original Argus team decided to leave the prototype program and begin anew in a private industry environment, the Veratect Corporation.

Veratect's mission is to provide the earliest detection of threats to human, plant and animal life while empowering corporations, government organizations, NGO's and global citizens with trusted and actionable information.

Our domestic capabilities and global partnerships, together with Veratect's new ForeShadow™ operating environment and VeraSight™ interface represent a significant step forward in the early detection and 24x7 tracking of biological events that empowers early warning and response from a broad range of private and public stakeholders that share these same risks. Our team of cultural and linguist interpreters with deep domain experience in recognizing pathogens at their earliest emergence represent 230+ person years of international experience and nearly 100 person years of experience in this new and proven professional discipline.

With nearly five times the sources of the prototype, we have an estimated coverage of 82% of the world's population now, in near real time. By the end of 2008, we will have expanded this coverage to more then 90%. Additionally, we are in discussions to have access to more than a quarter-million correspondents on the ground globally to support near real time ground truth verification. We stand ready to not only meet the needs of DHS and other federal agencies, but also local, tribal, and territorial governments in all 50 states. We currently monitor over 200 diseases that affect humans or animals, and our methodology is being expanded to include monitoring for biothreats to food security and crop disease.

For this approach to be successful, there is an absolute requirement for human analysts who serve as the intermediary between the raw data and the interface with those who may take further action like CDC or USDA. Having a close relationship with these users ensures we maintain a proper level of sensitivity and specificity, as well as conduct continual quality assurance and reviews of our standard operating procedures. This distinguishes our efforts from that of other systems that produce raw data outputs such as HealthMap. As mentioned earlier, the G8 Health Security Advisory Group, it was clear the G8 members were more interested in humans serving as an interface with the data versus being shown raw, unmediated data outputs.

Veratect, NBIC and the Global Mission

The team at Veratect has a unique perspective of what NBIC should do to meet the congressionally mandated mission objectives. Members of our team at Veratect have worked closely with DHS-NBIC from the very beginning. For the last two years, our team has been an important source of information for the entire federal government in the support of our Nation's biosecurity.

NBIC is chartered to collect and consolidate near-real time information on biological events using in part, resources within the Federal government and make those consolidated resources available to the Federal user community charged with meeting biological threats.

We believe in this mission, and we look forward to working with DHS-NBIC again, and this time with far greater resources and capabilities. Veratect has offered to provide our analytical early warning system to NBIC and protect the US from the threat of infectious disease, it should also be noted that this will also provide significant benefits to the rest of

the world. Disease is the common enemy of every human on the planet.

NBIC's mission (as outlined in HSPD-7, -9, -10; NSPD-33; and Public Law 110-53), is a valid and critically needed function for both the United States and for the support of our international partners through the International Health Regulations, the World Animal Health Organization (OIE) Terrestrial Animal Health Code, the Biological Weapons Convention, and safety monitoring for biotechnology.

For the United States, a large number of biological crises and disasters are mostly imported events, as exemplified by the introductions of HIV/AIDS; West Nile virus; monkeypox; SARS and all four of the major influenza pandemics of the past 100 years. Influenza pandemics are generally believed to start outside the US; the next pandemic will most likely come from a foreign location. Our best defense is based on early detection.

The current concern of an H5N1 influenza pandemic highlights this concern as well. As stated in the 2007 World Health Report, "It cannot be over-emphasized that a truly effective international preparedness and response coordination mechanism cannot be managed nationally. Global cooperation, collaboration, and investment are necessary to ensure a safer future. This means a multi-sectoral approach to managing the problem of global disease that includes governments, industry, public and private financiers, academia, international organizations and civil society, all of whom have responsibilities for building global public health security."

We can support the role of NBIC to protect our country by facilitating early recognition of biological events that may pose threats to our nation's security, food production systems, and citizens' well being. The spirit of NBIC's mission may be seen across other public emergency warning systems. As with those systems, a critical requirement for NBIC is reliance on detection subsystems that include not only the information they provide but the subject matter expertise behind it.

Veratect is also able to support a turnkey portal for foreign and domestic biological event detection and tracking with extensive ground truth validation that can be shared with NBIC's federal, state and local partners. The benefits of immediate access to this portal will include access for CDC, USDA, FDA, DOD and other federal partners who can then engage in more effective coordination of disease surveillance and response.

By the nature of our business, we can assist NBIS by working in collaboration with other stakeholders in global health including transnational corporations, NGOs and friendly foreign governments. US corporations are increasingly concerned about how emerging diseases might affect their own employees and indigenous workers, production partners and supply chains. Foreign corporations operate in areas of interest to the US and include oil, mining, manufacturing and food production. Their partnership is key to NBIC's mission success.

We are prepared to support NBIC's implementation of its mission objectives by the end

of August 2008. Our team and portal is available immediately and we stand ready to support a user community that is well known to us.

There is an opportunity for the US to lead the world by example once again. The US has been the one to lead that development of many other societal warning systems over the years. Here we can be the leader in supporting implementation of the new International Health Regulations along with our international partners. We can demonstrate to the world our moral and ethical strength by assisting NGOs in saving lives. We can support our domestic industry competing in the global marketplace. And most importantly, we can finally support our local city, county and state officials in biosurveillance. In the end, we are here to ensure the US maintains technical supremacy in global biosurveillance in these uncertain times.

I have three closing comments that speak to where we go from here:

1. It is in the national and global interest for the NBIC charter to be implemented immediately. This envisioned system will help protect human, animal and plant life, the national food supply and critical infrastructure against the common enemy of disease. The first step is early detection. We are doing that today.
2. Veratect provides a superset of capabilities, resources and global relationships with private and non-profit organizations that can be of the greatest value to NBIC in meeting its mission. What we do is not reliant upon the NBIC system. We can provide NBIC with a fully operational early disease detection and tracking system today.
3. The disease risks are real and we are on borrowed time. We are fortunate that the SARS epidemic and this year's H3N2 vaccine mismatch were not more disruptive. And we remain very much exposed to an influenza pandemic. My colleagues and I at Veratect are eager and ready to support the national mission today.

I would like to thank the visionaries in the federal government and Congress who supported the research and development that led us to this point, the courageous men and women of the BIWAC for their partnership and the Veratect Team for their hard work in operationalizing this critically important national asset. While none of us feel that we are, as a nation, where we need to be in terms of addressing the risks I have covered here today, I believe that Veratect can uniquely assist NBIC in rapidly achieving its goals.

Once again, I am grateful for this opportunity to testify, and I stand ready to answer any questions you might have.

Thank you.