

**DEFENDING THE HOMELAND FROM
BIOTERRORISM: ARE WE PREPARED?**

HEARING
BEFORE THE
SUBCOMMITTEE ON
EMERGENCY PREPAREDNESS,
RESPONSE, AND RECOVERY
OF THE
COMMITTEE ON HOMELAND SECURITY
HOUSE OF REPRESENTATIVES
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DEFENDING THE HOMELAND FROM BIOTERRORISM: ARE WE PREPARED?

Thursday, October 17, 2019

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON EMERGENCY PREPAREDNESS,
RESPONSE, AND RECOVERY,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:15 a.m., in room 310, Cannon House Office Building, Hon. Donald M. Payne, Jr. (Chairman of the subcommittee) presiding.

Present: Representatives Payne, Rose, Underwood, Green, King, Crenshaw, and Guest.

Also present: Representatives Langevin and Jackson Lee.

Mr. PAYNE. The Subcommittee on Emergency Preparedness, Response, and Recovery will come to order.

Before we start discussing today's subject matter, I would like to take a moment to acknowledge the passing of Congressman Elijah Cummings. Mr. Cummings was a mentor to me on my arrival here in Congress, as this gentleman next to me was. It is a very emotional day for quite a few of us. Elijah Cummings was truly a diplomat and a statesman. Irrespective of what side of the aisle you sat, he had respect for you. He went through a lengthy illness. I had an opportunity to speak to him on many evenings and occasions because we had some of the same health issues.

But this country has lost a great leader today, and I would ask if we give a moment of silence in his honor.

[Moment of silence.]

Mr. PAYNE.

Thank you. I yield to the Ranking Member, Mr. King, for any statement he would like to make.

Mr. KING. Thank you, Mr. Chairman.

I want to join with you in mourning the loss of Elijah Cummings. He was a true gentleman, a very distinguished person to work with. Again, he somehow managed to transcend the politics that too often drags us all down.

So, again, it is a great loss to the country, great loss to the House of Representatives, and I think all of us are proud to say that we served with him.

I yield back.

Mr. PAYNE. Thank you. The subcommittee is meeting today to receive testimony on "Defending the Homeland from Bioterrorism: Are We Prepared?"

Good morning. I want to thank all of you for coming to today's hearing about the state of bioterrorism preparedness in the United States. I also want to thank the witnesses for testifying on this important topic.

Bioterrorism represents a real and persistent threat to this Nation. Biological weapons are relatively inexpensive, simple to deliver, and can cause mass casualties. Gram for gram, they are among the deadliest weapons created by humans. Even with a small quantity of biological weapons, a terrorist can cause massive harm to our society.

The Department of Homeland Security's Countering Weapons of Mass Destruction Office has an important role in strengthening the Nation's ability to prevent terrorists from using such weapons of mass destruction.

Formed nearly 2 years ago, the Countering Weapons of Mass Destruction Office, or CWMD, is the focal point for the Department's efforts to counter WMD threats.

CWMD was created to centralize and streamline DHS's countering weapons of mass destruction programs into a single office that could enhance our defenses, share best practices, leverage shared resources, and unify command.

However, there have been several recent reports that raise concerns about CWMD. Even before these reports, our committee had concerns about the creation of the office. We were concerned that the reorganization would hurt employee morale, shortchange biological defense programs, and impact DHS's ability to carry out its important countering WMD terrorism mission.

Recently, issues were raised about the technology behind CWMD's new biodetection system as well as with cuts being made to several WMD counterterrorism programs. In 2018, the Federal Employment Morale Viewpoint survey ranked CWMD as the lowest-scoring office in the Federal Government. Previously, the office had been ranked in the top 20 percent of the Federal Government in terms of morale. Such a precipitous decline in the morale over the course of 2 years is an extremely concerning trend.

Furthermore, the assistant secretary of CWMD Jim McDonnell, recently resigned, leaving CWMD without a permanent leader during this precarious time.

I should also add that, just days ago, Acting Secretary Kevin McAleenan announced that he was resigning. DHS is suffering a serious leadership drought and undoubtedly complicates the Department's ability to execute its mission.

That said, providing oversight to DHS is an important and timely function of this committee. We must assure that DHS is adequately executing its mission to protect Americans from weapons of mass destruction.

Today, we will hear from witnesses who are on the front line of keeping the Nation safe from bioterrorists. We will hear their perspectives on the threat posed by bioterrorists, the state of National bioterrorism preparedness, and what DHS can do better to protect this Nation from bioterrorists. This is an important topic, and we need to make sure that we are doing all we can to protect our Nation from the threat of bioterrorism.

I would like again to thank the witnesses for participating in today's hearing. I look forward to learning more about these topics and to hearing their testimony.

[The statement of Chairman Payne follows:]

STATEMENT OF CHAIRMAN DONALD M. PAYNE, JR.

OCTOBER 17, 2019

I want to thank you all for coming to today's hearing about the state of bioterrorism preparedness in the United States. I also want to thank the witnesses for testifying on this important topic. Bioterrorism represents a real and persistent threat to this Nation. Biological weapons are relatively inexpensive, simple to deliver, and can cause mass casualties. Gram for gram, they are amongst the deadliest weapons created by humans. Even with a small quantity of biological weapons, a terrorist can cause massive harm to our society.

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Recently, issues were raised about the technology behind CWMD's new bio-detection system as well as with cuts being made to several WMD counterterrorism programs. In 2018 the Federal Employment Morale Viewpoint Survey ranked CWMD as the lowest-scoring office in the Federal Government. Previously, the office had been ranked in the top 20 percent of the Federal Government in terms of morale. Such a precipitous decline in morale over the course of 2 years is an extremely concerning trend. Furthermore, the assistant secretary of CWMD—Jim McDonnell—recently resigned, leaving CWMD without a permanent leader during this precarious time.

I should also add that just days ago Acting Secretary Kevin McAleenan announced that he was resigning. DHS is suffering a serious leadership drought that undoubtedly complicates the Department's ability to execute its mission. That said, providing oversight to DHS is an important and timely function of this committee. We must ensure that DHS is adequately executing its mission to protect Americans from weapons of mass destruction. Today, we will hear from witnesses who are on the front line of keeping this Nation safe from bioterrorists. We will hear their perspectives on the threat posed by bioterrorists, the state of National bioterrorism preparedness, and what DHS can do to better protect this Nation from bioterrorists. This is an important topic and we need to make sure that we are doing all we can to protect our Nation from the threat of bioterrorism.

Mr. PAYNE. With that, I now recognize the Ranking Member of the subcommittee, the gentleman from New York, Mr. King, for an opening statement.

Mr. KING. Thank you, Mr. Chairman.

As you know, our districts are very close. In fact, we are basically one terror target, I would say. So, again, thank you for this hearing. It is very central. It is unfortunate that the witness for the Port Authority had to cancel at the last minute because it is literally the Port Authority that connects our States.

Mr. PAYNE. Absolutely.

Mr. KING. So, anyway, with that, I will read part of my statement and ask that the entire statement be included in the record.

Mr. Chairman, since the horrific attacks of September 11, the terrorist threat against the United States continues to grow and to evolve. In recent years, the desire to use nonconventional weapons

has increased. Nation-states as well as terrorists groups, including ISIS, have sought to employ not only chemical and nuclear materials into their attacks but have also shown growing interests in using biological warfare.

The President's 2018 National Biodefense Strategy states that biological threats are, "among the most serious threats facing the United States and the international community." Not only can biological weapons sicken, disable, and kill innocent people on a massive scale, they can also inflict tremendous economic and social disruption. For example, pathogens directed against crops to induce crop failure could significantly cripple our agricultural system.

The Federal Government has recognized the need to enhance the Nation's abilities to counter against certain terrorist threats. Following 9/11, several programs were created to prevent terrorists from using weapons of mass destruction. The Department of Homeland Security's CWMD office was authorized in December 2018 to elevate and streamline these efforts.

Unfortunately, recent reports have indicated that the CWMD office has significantly scaled back or eliminated the specific programs put in place to help protect the country. According to these reports, one eliminated practice included the work to update a formal, strategic, and integrated assessment of chemical, nuclear, and biological-related risks. This assessment provided guidance on the purchasing of detection-related technologies and medications following an attack.

The CWMD office has also been heavily criticized regarding the BioWatch program, a monitoring system that collects and tests air samples for biological agents likely to be used in a bioterrorism attack.

From numerous false alarms and delayed notifications of lethal pathogens to a questionable roll-out of the second iteration of the program, Biodetection 21, BD21, it is clear that the CWMD office needs to do better. The bioterrorism threat is increasing and should be a priority.

In 2015, I was the House sponsor of the First Responder Anthrax Preparedness Act, which requires DHS, in coordination with Health and Human Services, to carry out a pilot program to provide eligible anthrax vaccines from the strategic National stockpile to emergency first responders who may be at high risk of exposure to anthrax should an attack occur.

While this is a step in improving WMD preparedness, there is a litany of threats beyond anthrax facing DHS and our State and local partners. It is imperative that our communities and first responders are well-positioned to detect, protect, and decontaminate biological warfare agents. As the sophistication of biological weaponry improves, we must be ready.

I look forward to hearing from our witnesses today on their perspectives on the growing threat and how well we are positioned to thwart any attack.

As I mentioned, Mr. Parrino, the director of preparedness for the Port Authority was supposed to be here today. He cannot attend, unfortunately. I would ask unanimous consent to insert his written statement into the record.

[The statement of Mr. Parrino follows:]

STATEMENT OF ROGER L. PARRINO, SR.

OCTOBER 17, 2019

INTRODUCTION TO THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

The Port Authority conceives, builds, operates, and maintains infrastructure critical to the New York/New Jersey region's transportation and trade network. These facilities include America's busiest airport system, including: John F. Kennedy International, LaGuardia, and Newark Liberty International airports, marine terminals, and ports, the PATH rail transit system, 6 tunnels and bridges between New York and New Jersey, the Port Authority Bus Terminal in Manhattan, and the World Trade Center. For more than 90 years, the Port Authority has worked to improve the quality of life for the more than 18 million people who live and work in New York and New Jersey metropolitan region.

I. Port Authority Transportation Infrastructure

The Port Authority builds, operates, and maintains critical transportation and trade assets that fall under our 5 lines of business:

Aviation.—Our aviation assets include 5 airports: John F. Kennedy International Airport, LaGuardia Airport, Newark Liberty International Airport, Teterboro Airport and Stewart International Airport. The Port Authority airports move an estimated 125 million passengers annually.

Rail.—Our rail and surface transportation assets include the: Trans-Hudson Rail System (PATH). We move an average of 282,000 passengers each weekday.

Tunnels, Bridges, and Terminals.—George Washington Bridge, Bayonne Bridge, Goethals Bridge, Outerbridge Crossing, the Port Authority Bus Terminal, George Washington Bridge Bus Station, Journal Square Transportation Center, Holland Tunnel, and Lincoln Tunnel. Over 115 million vehicles travel over PA's bridges and Tunnels annually.

Ports.—Port Authority also manages ports that transport vital cargo throughout the New York and New Jersey region. The Port of New York and New Jersey is the largest on the East Coast and the second-largest port in the United States and moves over 3.6 million cargo containers annually.

Commercial Real Estate.—The Port Authority also owns and manages the 16-acre World Trade Center (WTC) site, home to the iconic One World Trade Center.

II. Historic Terrorist Target

The Port Authority has experienced multiple terrorist threats which reflect the ever-changing global terrorist threat—from large-scale, well-funded organized attacks to self-radicalized self-initiated lone actors. These acts are an ever-present reminder that we must always remain vigilant and continue to maintain a strong security posture.

February 26, 1993, vehicle-borne improvised explosive device (VBIED) detonated below the North Tower of the World Trade Center. The 1,336 lb. (606 kg) urea-nitrate-hydrogen gas enhanced device killed 6 people and injured over 1,000.

June 1993, less than 4 months after the first World Trade Center bombing, the FBI infiltrated a terrorist group who were planning on attacking 6 well-known landmarks in Manhattan. Three of these landmarks were Port Authority infrastructure: The George Washington Bridge, the Lincoln Tunnel, and the Holland Tunnel. The planned attacks were to create chaos in transportation between New Jersey and Manhattan. They intended to drive VBIEDS into the tunnels, stall the cars in the middle, and detonate them. The plotters were arrested before the plan could be carried out.

September 11, 2001, 2 planes were flown into the twin towers of the World Trade Center as part of a coordinated suicide attack including the Pentagon and possibly the White House. Almost 3,000 people were killed including 343 firefighters and 72 law enforcement officers, 37 of which were members of the Port Authority Police Department.

December 11, 2017, improvised explosive device (IED) pipe bomb partially detonated in a pedestrian tunnel the adjoining the Port Authority Bus Terminal in Manhattan, injuring 4 people including the suspect. This event occurred in a passageway roughly 100 feet from the Port Authority Bus Terminal, a building through which roughly 250,000 commuters traverse daily. It was the courageous acts of our Port Authority police officers who subdued the suspect.

III. Multi-Layered Approach to Securing Assets and Protecting the Public

The Port Authority maintains security as a top priority as evidenced by the investments in resources it makes to that purpose. Currently, agency-wide, 28 percent

of personnel and 22 percent of the operating budget are allocated to security. Additionally, since 2002, more than \$1.5 billion dollars has been spent on capital security projects and another \$700 million in capital security projects have been identified for the coming years.

To protect the region's economic stability, the Port Authority's customers, the general public, employees, and critical infrastructure, the Office of the Chief Security Officer (OCSO) utilizes a robust multi-layered security approach which allows for the development, implementation, and management of programs that preserve life and property, increase safety and security, and support the Agency's business objectives by strengthening our resilience and continuity of operations. With these measures in place—there is no single point of failure. Our multi-layered approach is explained in detail below.

Intelligence-Led.—The Port Authority Police Department (PAPD) implements intelligence-led policing to ensure our resources are effectively deployed to prevent potential threats to our customers, employees, and facilities. The PAPD has presence in 28 Federal, State, and local law enforcement task forces, to include: The Federal Bureau of Investigation Joint Terrorism Task Force (FBI JTTF) in New York and New Jersey; the New York and New Jersey High-Intensity Drug Trafficking Areas (HIDTA) taskforce and the New Jersey State Police Regional Operations Intelligence Center (ROIC) this allows for the immediate exchange of important, timely, and actionable intelligence for both sides of the Hudson.

Additionally, we have a dedicated Intelligence Unit that is responsible for preparing and distributing intelligence bulletins related to transportation and security, producing daily reports specific to domestic and global transportation issues, and participating in the New York Police Department's Lower Manhattan Security Initiative, which is a key provider of day-to-day actionable intelligence relative to routine conditions like large events and demonstrations to current and emerging threats.

These combined resources result in the agile, flexible, effective, and efficient deployment of security and law enforcement resources that are responsive to current and developing threats and conditions.

Risk Assessments.—The protection of critical infrastructure is driven by all-hazards risk assessments which are performed on a regular basis to better understand changes in threats and vulnerabilities related to our facilities. Our periodic multi-hazard assessments look across all agency assets and prioritize our risk so we can guide our security investments accordingly. This risk-based approach allows for efficient and effective allocation of human assets and financial resources.

Police Interdiction Activities.—The PAPD is comprised of over 2,100 uniformed police officers operating across 13 Port Authority facilities. The department also includes a Criminal Investigations Bureau, Special Operations Division, which includes an Emergency Services Unit and a Canine Unit (K-9), and an Aircraft Rescue and Firefighting component at the Port Authority airports.

Through visible uniformed police presence and in partnership with other law enforcement agencies, the PAPD suppresses crime and utilizes counterterrorism measures to thwart potential adversaries seeking to cause harm or disruption by way of an attack. PAPD also deploys high visibility patrols (THREAT Teams) and specialized services to enhance basic patrol functions utilizing intelligence-led policing concepts.

Operational Security Measures and Security Agents.—The Port Authority implements civilian security programs to supplement our police department activities and increase the levels of protection at our facilities. These programs safeguard Port Authority facilities from threats to physical infrastructure, unauthorized access to restricted areas, cybersecurity attacks, and breaches of protected security information. The Port Authority employs over 1,400 unarmed Uniformed Contract Security Agents to guard our facilities and keep our employees and customers safe.

Technology.—A critical element of a robust multi-layered approach is the development and maintenance of advanced technology systems to support both security and resiliency. Significant investments have been made in the areas of Closed-Circuit Television (CCTV), access control systems, and our perimeter intrusion detection system (PIDS). We are engaged with several Federal agencies to develop and pilot new and emerging technologies that show promise in addressing the security challenges of today.

In addition, we have created a new cybersecurity program to better monitor and respond to suspicious activities occurring on our network, therefore strengthening our capability to protect our critical information and industrial control systems. The Port Authority operates a 24/7 cybersecurity operations center that can receive and respond to threats to our network and equipment.

Engineered Hardening Solutions.—Since September 11, 2001, we have made over \$1 billion in asset hardening investments. Although faced with the challenge of retrofitting security features into existing facilities, we have implemented a multitude of hardening solutions such as bollard placement, fencing installation, tunnel and guard post hardening, floating barriers, facade glazing, flood mitigation systems, and no trespassing signage. Prospectively, these protective measures are built into new developments or the renovations of existing assets.

Office of Emergency Management.—The Port Authority enhances resiliency, response, and recovery through our Office of Emergency Management (OEM). The OEM champions programs that provide the Port Authority with the resources, support, and capabilities to prepare for, respond to, recover from, and mitigate against all-hazards. The OEM is organized into three core mission areas:

Emergency Management.—Supports the Incident Command response structure at Port Authority during events or incidents. Additionally, responsible for all-hazard planning and training for agency personnel and regional partners who will support our response activities to emergencies at our facilities located in New York and New Jersey. Through tabletop and full-scale exercise, over 30,000 Port Authority staff and regional partners have been trained on such topics as Active Shooter response, PATH rail emergencies, terror attacks, and other hazards.

Grant Management.—Administers and manages all Federal and State Homeland Security Grants that allows us to harden our assets, invest in technology, initiate new programs, and provide for enhanced police protective services. This funding source is essential to help us in continuing the security mission.

Grant programs including but not limited to the Transit Security Grant Program (TSGP), Urban Area Security Initiative (UASI), and the Port Security Grant Program have long supported Port Authority security initiatives, including: Counter Terrorism Initiative, Police Training and Equipment, WTC Transportation Hub Security Initiatives, Cybersecurity Programs, Protection of the PATH Under-River Tunnels, Protection of Columns at the Port Authority Bus Terminal (PABT), Bollard Protection Initiatives, Installations of CCTV and Access Control Systems at PATH, Ports, and the PABT, Maritime Resilience Planning.

Risk Management and Resiliency.—Responsible for coordinating and implementing the agency-wide all-hazard risk assessment and oversees the Port Authority Business Continuity program.

These programs are regularly adapted to meet the needs of the Port Authority with an impact range that stretches from individual employee preparedness to agency-wide, corporate-level resiliency.

IV. Countering the Chemical, Biological, Radiological (CBR) Threat

The Port Authority recognizes the unique nature of a potential CBR threat to our region and our critical transportation infrastructure.

The Port Authority has worked with the Department of Homeland Security (DHS) and Department of Defense (DOD) on developing and testing some of the most advanced CBR detection and response equipment used throughout the world today. Additionally, the Port Authority has prioritized the acquisition of CBR detection and response equipment and ensure the most advanced levels of training for our police officers.

The Port Authority also actively follows the procedural guidance and best practices established by the Secure the Cities Program and the National BioWatch program. These programs provide best practices related to CBR operational response, and also provide technical guidance for CBR equipment and operations for post-event response.

Currently, the Port Authority provides a tiered response to radiological detections. We rely on assistance from our Federal partners and National laboratories for technical expertise—to confirm or adjudicate real-world detections of radiological material.

Response assignments for biological events are coordinated through the New Jersey State and New York City Department of Health and Mental Hygiene through their respective public health laboratories.

The Port Authority also participates in the National BioWatch which is an early warning defense program that seeks to prevent acts of bio-terrorism by strategically placing Portable Sampling Units (PDUs) in pre-identified areas of high significance. We have several PDUs strategically placed throughout the Port Authority.

Furthermore, PAPD Emergency Service Unit (ESU) members are trained as Hazardous Material Technicians; Commercial Vehicle Inspection Unit (CVI) police offi-

cers are trained as Decontamination Operators; and PAPD patrol members of the service are trained in Gross Decontamination operations.

V. Training and Exercising for Chemical, Biological, Radiological (CBR)

The PAPD includes a cadre of highly-specialized members called the Emergency Service Unit (ESU). ESU members receive in-house training for HazMat certification. In addition to this baseline certification, members of the PAPD ESU through our partnerships with DHS-FEMA's National Domestic Preparedness Consortium, are trained in advanced response techniques via the following programs:

- Louisiana State University—National Center for Biomedical Research and Training (LSU-NCBRT) for Biological Response.
- National Nuclear Security Administration for Radiological Response.
- Energetic Materials Research and Testing Center (EMRTC) at New Mexico Tech for Explosive Response.

The Port Authority also actively participates in Federal, State, and local exercises related to CBR scenarios; some examples include:

- *Radiological*—Macro-level exercises for city-wide or regional—Improvised Nuclear Devise attacks.
- *Radiological*—Functional exercises on response to radiological incidents on Port Authority facilities, that includes multi-tiered response from local command, Special Operations, through National reach back.
- *Biological*—Biological Functional exercises on Port Authority facilities.
- *CBR*—Post-event technical decontamination training.

THE IMPORTANCE OF COLLABORATION WITH OUR FEDERAL PARTNERS IN COUNTERING THE CHEMICAL, BIOLOGICAL, RADIOLOGICAL (CBR) THREAT

The Port Authority understands the importance of maintaining strong relationships with our Federal partners. The Port Authority has partnered with the DHS on several initiatives to study and analyze CBR threats to Port Authority facilities and infrastructure and determine the optimal placement of CBR detection sensors. Such programs/initiatives include:

- *World Trade Center Complex Detection Optimization and Analysis Project.*—This project was completed in 2014. The project included modeling studies and analysis conducted in order to optimize the detection of chemical, biological, and radiological (CBR) threat agents on the World Trade Center (WTC) campus. This project was led by DHS—National Protection and Programs Directorate (NPPD), Sandia National Lab, Argonne National Lab, and Los Alamos National Lab.
- *Chemical Detection Program—Port Authority.*—This is an on-going project in coordination with Federal partners to test and install chemical detection technologies at Port Authority facilities.
 - *PATH*—Supported by DHS Science & Technology (S&T).
 - *PABT*—Supported by DHS S&T, Transportation Security Administration (TSA), Argonne National Lab.
 - *WTC*—Supported by DHS S&T and Argonne National Lab.
- *Chem/Bio Advanced Capabilities Test (CBACT).*—This is an on-going project to further advance the study of chemical/biological dispersion in NYC metro area. The Port Authority provides infrastructure to install test sensors.
- *BioDetection 21 (BD21).*—This is an on-going project conducted between the Port Authority and the National BD21 initiative to advance the next generation of biological threat detection capability. We are also working with DHS-Countering Weapons of Mass Destruction (CWMD) on performance characteristics to include in this new capability.
- *Future CBR Program/Capability/Study.*—The Port Authority is working with the Defense Advanced Research Projects Agency (DARPA) and DHS's CWMD on developing the next generation of detection technologies for CBR threats called SIGMA plus. The SIGMA plus program is a collaboration between our Federal partners and the Port Authority to research and develop new and emerging CBR detection technologies in a real-world environment on some of the Nation's most critical transportation infrastructure. This builds upon the foundations established under the SIGMA program. One of the fundamental goals of SIGMA plus is to recognize efficiencies in CBR detection architecture and consolidate the detection of CBR threats into a unified system. The technological development and lessons learned from SIGMA plus can provide a new state-of-the-art CBR detection suite for utilization by jurisdictions across the United States.

All of these partnerships are critical to information sharing regarding emerging security technologies and have led to the development and piloting of a variety of

programs at Port Authority's vast array of multi-modal facilities. These research arms of the Federal Government need adequate funding to support the development and testing of future technologies which aim to increase the efficiency and effectiveness of detection devices, screening devices, and police personal safety devices.

Furthermore, the ability for Federal entities to provide guidance and recommendations regarding CBR products will greatly aid agency decision makers in their selection of reliable and proven technologies and equipment that would best protect the our officers, our infrastructure and the traveling public.

VI. CLOSING REMARKS

The Port Authority operates the busiest and most important transportation infrastructure in the region, as such, we own the tremendous responsibility of policing and maintaining safety and security. The Port Authority will continue to enhance its security programs and systems to stay current and adapt to the ever-changing threat environment.

I would like to thank the Members of the Subcommittee on Emergency Preparedness, Response, and Recovery of the House Committee on Homeland Security for inviting me to testify on behalf of the Port Authority of New York and New Jersey regarding "Bioterrorism."

I would like to thank our Congressional delegation for their continuing support that allows us to better serve our employees, customers, the region, and better protect our critical transportation infrastructure.

Mr. KING. With that, I yield back.
[The statement of Ranking Member King follows:]

STATEMENT OF RANKING MEMBER PETER T. KING

OCT. 17, 2019

Since the horrific attacks of September 11, 2001, the terrorist threat against the United States continues to grow and evolve. In recent years, the desire to use non-conventional weapons has increased. Nation-states, as well as terrorist groups such as ISIS, have sought to employ not only chemical and nuclear materials into their attacks, but have also shown growing interest in using biological warfare.

In 2001, we witnessed first-hand the grim reality of bioweapon use when anthrax powder was delivered through the mail, ultimately killing 5 people, sickening 17, and shutting down much of the Capitol Complex. In 2014, a laptop reportedly recovered from an ISIS hideout contained general information on the benefits of using biological weapons and included instructions on weaponizing the bubonic plague. Earlier this year, a couple in Germany who bought large quantities of ricin were charged with plotting Islamist-motivated attacks using a biological weapon. Additionally, many have speculated on North Korea's rapidly advancing biological weapons capabilities.

The President's 2018 National Biodefense Strategy States that biological threats "are among the most serious threats facing the United States and the international community." Not only can biological weapons sicken, disable, and kill innocent people on a massive scale, they can also inflict tremendous economic and social disruption. For example, fungal plant pathogens directed against crops to induce crop failure could significantly cripple our agricultural system.

While advances in science bring faster cures, better medicines, and improved quality of life, they also bring new security risks. The rapid evolution of new biological techniques, like the gene editing process, CRISPR-Cas9, can pose significant threats if used by bad actors. A 2018 ODNI threat assessment stated that biological technologies "move easily in the globalized economy, as do personnel with the scientific expertise to design and use them for legitimate and illegitimate purposes."

The Federal Government has recognized the need to enhance the Nation's abilities to counter against certain terrorist threats. Following 9/11, several programs were created to prevent terrorism using weapons of mass destruction. The Department of Homeland Security's (DHS) Countering Weapons of Mass Destruction Office (CWMD) was authorized in December, 2018 to elevate and streamline these efforts. Unfortunately, recent media reports have indicated that the CWMD office has significantly scaled back or eliminated the specific programs put in place to help protect the country. According to reporting, one eliminated practice included work to update a formal, strategic, and integrated assessment of chemical, nuclear, and biological-related risks. This assessment provided guidance on the purchasing of detection-related technologies and medications following an attack.

The CWMD office has also been heavily criticized regarding the BioWatch Program—a monitoring system that collects and tests air samples for biological agents likely to be used in a bioterrorism attack. From numerous false alarms and delayed notifications of lethal pathogens, to a questionable roll-out of the second iteration of the program, Biodetection 21 (BD21), it is clear that the CWMD office needs to do better. The bioterrorism threat is increasing and should be a priority.

In 2015, I was the House sponsor of the First Responder Anthrax Preparedness Act, which requires DHS, in coordination with the Department of Health and Human Services, to carry out a pilot program to provide eligible anthrax vaccines from the Strategic National Stockpile to emergency first responders who may be at high risk of exposure to anthrax should an attack occur. While this is a good step in improving WMD preparedness, there are a litany of threats beyond anthrax facing DHS and our State and local partners.

It is imperative that our communities and first responders are well-positioned to detect, protect, and decontaminate biological warfare agents. As the sophistication of biological weaponry improves, we must be ready. I look forward to hearing from our witnesses on their perspective on the growing threat and how well we are positioned to thwart any attack.

Additionally, I ask unanimous consent to insert into the record written testimony from Mr. Roger Parrino, director of preparedness, intelligence, and inspections for the Office of the Chief Security Officer at the Port Authority of New York and New Jersey. Mr. Parrino was supposed to attend today's proceedings but was unfortunately called away at the last minute.

Mr. PAYNE. Thank you, Mr. King. Reminder that other Members may submit a statement for the record.

[The statement of Chairman Thompson follows:]

STATEMENT OF CHAIRMAN BENNIE G. THOMPSON

OCTOBER 17, 2019

I would like to thank the Emergency Preparedness, Response, and Recovery Subcommittee for holding today's hearing. I want to also thank the witnesses for joining us to lend their expertise to this important discussion. Through the years, the Department of Homeland Security has consistently struggled with its biodetection capabilities. BioWatch, the Department's biological weapon detection system, was developed in the wake of the anthrax attack on 2 U.S. Senators that followed the 9/11 attacks.

Nefarious actors developing and using biological weapons on American citizens is a huge threat. That is why this committee has led significant oversight efforts of the Department's challenges with developing adequate biodetection capabilities, and I am pleased that this topic continues to be a priority for this subcommittee. Through our oversight, we have learned that BioWatch has not performed as it should. Specifically, the operation process of BioWatch is expensive, detection time is too long, and the system has difficulty distinguishing between normally-occurring biological agents and those used by terrorists.

The criticism of BioWatch prompted the Department to develop Biodetection 21 (BD21), the biodetection apparatus that is intended to replace BioWatch. BD21 is expected to be deployed within the next few years, though it is still unclear as to whether it will address the biodetection capability gaps of its predecessor. We have also heard concerning reports that highlight the shortcomings of BD21's technology, like triggers may be less accurate, and handheld equipment used to investigate warnings prompted by the triggers are not mature enough to be operational. Further, the Department's Office of Countering Weapons of Mass Destruction (CWMD) has received criticism for its limited stakeholder outreach. Considering that State and local public health officials will be the first to respond in the event of a biological attack, it is troubling that they do not believe the CWMD Office has shared enough information on the BD21 technology before being asked to adopt the new system.

Stakeholders have also indicated that because BD21 trigger prototypes are likely to have a much higher false positive rate than BioWatch, it is probable that the expense of the program will increase. Since 2013, the Department has attempted to reorganize its chemical, biological, radiological, and nuclear mission spaces, the latest of which established the CWMD Office in 2017. This office was intended to elevate the Department's efforts to counter weapons of mass destruction, but since its establishment there have been serious operational concerns like low morale and the lack of meaningful stakeholder engagement.

These concerns were also highlighted in a 2016 Government Accountability Office report (GAO-16-603). I am interested to hear from the witnesses about the extent to which the Department engages with them on biodetection-related concerns associated with the CWMD reorganization. I also look forward to hearing from the witnesses on whether the CWMD reorganization has affected the Department's ability to carry out its biodetection mission. I am interested to hear from our witnesses about how this change will impact State and local biological preparedness.

Mr. PAYNE. I want to welcome our panel of distinguished witnesses.

Our first witness is Dr. Asha George, who is the executive director of the Bipartisan Commission on Biodefense. Dr. George is also a former staffer with the committee, and we are excited to see her here today. Welcome back.

Next is Dr. Jennifer Rakeman. Dr. Rakeman is the assistant commissioner and laboratory director at the New York City Department of Health and Mental Hygiene. Welcome.

Last, we have Dr. Umair Shah, who is the executive director of Harris County Public Health in Texas and the past president of the National Association of County and City Health Officials. Welcome.

Thank you all for being here today. I look forward to hearing your testimonies on this important topic.

Without objection, the witnesses' full statements will be inserted into the record.

I now ask each witness to summarize his or her statement for 5 minutes, beginning with Dr. George.

STATEMENT OF ASHA M. GEORGE, DR. PH., EXECUTIVE DIRECTOR, BIPARTISAN COMMISSION ON BIODEFENSE

Ms. GEORGE. Thank you, Chairman Payne.

Mr. Chairman, Ranking Member King, Mr. Crenshaw, Mr. Guest, and the other Members of the subcommittee, thank you very much for having me here today. I appreciate the opportunity to talk with you. Certainly, as former professional staff of this committee, I am particularly glad and honored to be here and recognize the Congressional staff for their hard work to pull this hearing together.

On behalf of former Senator Joe Lieberman and former Governor and Secretary of Homeland Security Tom Ridge, who are the co-chairs for our Commission, I am pleased to be here to talk about a terrible topic, bioterrorism preparedness and our ability to defend against biological attacks.

Our other commissioners are former Senate Majority Leader Tom Daschle, former Representative Jim Greenwood, former Homeland Security Advisor Ken Wainstein, and former Homeland Security Advisor and Counterterrorism Advisor Lisa Monaco.

I mention Senator Daschle, of course because 18 years ago this week was when his office received an anthrax letter in the Hart Senate Office Building. That letter shut down that building for 3 months and certainly had a wide-ranging impact on all of the offices here on the Capitol.

Homeland in particular wound up having to change its security protocols and continues, I know, to receive the occasional terrible white powder package or letter. It is still an issue for Congress, and it is still an issue for the Nation.

In October 2015, we released our first report, a National Blueprint on Biodefense. That report contained 33 recommendations to cover the span of biological defense activities. So we address everything from prevention and deterrence through preparedness, detection, response, attribution, recovery, and mitigation, so all of it. All of the Federal departments and a number of our independent agencies have a role to play and responsibilities for biodefense. We tried and address as many of them as we could.

One of our recommendations was for a National Biodefense Strategy. Congress put that in the NDAA for fiscal year 2017, President Obama signed it, and the Trump administration released it last year.

Unfortunately, the Federal Government hasn't been able to get its act together quite yet to implement that strategy. But it is on its way. At least we have a strategy for them to work from.

I think it is important to remember that the Nation is not adequately prepared and has not been adequately prepared for more than a decade now. The hearings that this committee has held numerous times demonstrate that.

Worse, current efforts to develop new technology to detect the threat are insufficient and are going in the wrong direction. We often talk about the threat—and I know, Chairman Payne, you are very interested in hearing about the threat. We have nation-state and terrorist threats to worry about. Russia, China, North Korea, and Iran are all suspected now of maintaining their biological weapons programs. Al-Qaeda, ISIL, and other terrorists organizations continue to be very vocal about their pursuit of biological weapons and have gone as far as to put training materials up on the internet to train others on how to execute such an action.

So we need to do something about this. The threat is still with us, and it requires an active biodefense program, particularly by the Department of Homeland Security.

So the Department recognizes this, and nobody disagrees with this. As you know, we put in place a BioWatch program back in 2003 of biological detectors throughout the Nation. That system has not worked particularly well, as many of your hearings have demonstrated, and so the Department decided to create a new program called Biodetection 21, BD21.

We are not particularly supportive of that particular program. We would like to see its goals be achieved to replace the BioWatch system with much better detectors, but their approach is flawed. They are not utilizing state-of-the-art technology to test. They are not using standard acquisition procedures. Frankly, they are not seeking the input of State and local folks who are actually going to have to respond to whatever happens with these.

So, of course, in conclusion, I think there are a number of solutions, and they don't require tons of money or huge amounts of new legislation. I would be happy to talk with you about those further.

[The prepared statement of Ms. George follows:]

PREPARED STATEMENT OF ASHA M. GEORGE

OCTOBER 17, 2019

Chairman Payne, Ranking Member King, and Members of the subcommittee: Thank you for your invitation to provide the perspective of the Bipartisan Commis-

sion on Biodefense. On behalf of our Commission—and as a former subcommittee staff director and senior professional staff for this committee—I am glad to have the opportunity today to discuss our findings and recommendations with respect to biological terrorism and National defense against biological threats.

Our commission assembled in 2014 to examine the biological threat to the United States and to develop recommendations to address gaps in National biodefense. Former Senator Joe Lieberman and former Secretary of Homeland Security and Governor Tom Ridge co-chair the commission, and are joined by former Senate Majority Leader Tom Daschle, former Representative Jim Greenwood, former Homeland Security Advisor Ken Wainstein, and former Homeland Security and Counter Terrorism Advisor Lisa Monaco. Our commissioners possess many years of experience with National and homeland security.

In October 2015, the Commission released its first report, *A National Blueprint for Biodefense: Major Reform Needed to Optimize Efforts*. Shortly thereafter, we presented our findings and recommendations to this committee. We made 33 recommendations with 87 associated short-, medium-, and long-term programmatic, legislative, and policy action items. If implemented, these would improve Federal efforts across the spectrum of biodefense activities—prevention, deterrence, preparedness, detection and surveillance, response, attribution, recovery, and mitigation.

Since the release of the *Blueprint for Biodefense*, we have presented additional findings and recommendations in *Defense of Animal Agriculture (2017)*, *Budget Reform for Biodefense: Integrated Budget Needed to Increase Return on Investment (2018)*; and *Holding the Line on Biodefense: State, Local, Tribal, and Territorial Reinforcements Needed (2018)*. We also continue to assess Federal implementation of our recommendations. We issued our first assessment, *Biodefense Indicators*, in 2016, 1 year after we released the *Blueprint for Biodefense*, and found that events were outpacing Federal efforts to defend the Nation against biological threats.

Our third recommendation in the *Blueprint for Biodefense* called for the development and implementation of a National Biodefense Strategy. The goal was for the Federal Government to take existing Presidential directives, public laws, and international treaties, partnerships, and instruments that address biodefense, as well as all of the many Federal policy, strategy, and guidance documents that address bits and pieces of biodefense, and create one comprehensive strategy that subsumes them all. Required by Congress in the National Defense Authorization Act of Fiscal Year 2017, signed into law by President Obama, and produced by the Trump administration in September 2018, the National Biodefense Strategy now exists to guide defense against biological threats to our country.

Substantial participation is required by non-Federal partners to help implement this strategy. State, local, Tribal, and territorial governments, and non-Governmental stakeholders respond to the immediate impact of biological events. There is no guarantee that Federal support will arrive within the first few hours after a biological event occurs. The Federal Government must greatly strengthen non-Federal capabilities and capacities by increasing support to them. Collaboration, coordination, and innovation are all needed—for Government policy, public and private-sector investments, advancing science and technology, intelligence activities, and public engagement. We also need to foster entrepreneurial thinking and develop radically effective solutions.

We are greatly concerned about intentionally-introduced biological threats. Four years after the release of our initial report, the Nation remains unprepared for bioterrorism and biological warfare with catastrophic consequences. Worse, current efforts to develop needed technology to detect the threat are insufficient and going in the wrong direction.

Biodefense is not a new requirement for our country. At one time, the United States developed both biological weapons and the ability to defend against them. We collected intelligence on our enemies' activities (although admittedly, we missed the continued activities of the Former Soviet Union after we ceased our own offensive biological weapons program). We rightly feared the specters of horrific diseases like smallpox and worked hard to eradicate them with vaccines, antibiotics, and other medicines. But over time, as our public health and health care systems improved and we decided not to engage in biological warfare, we reduced our National emphasis on, and fiscal support for, biodefense.

The biological threat has only increased since the anthrax events of 2001. We suspect North Korea and other countries of continuing or creating biological weapons programs. Al-Qaeda, the Islamic State of Iraq and the Levant, and other terrorist organizations have been quite vocal about their active pursuit of biological weapons. We are not alone in expressing our concerns. The United Nations, as well as France, Germany, the United Kingdom, and other European countries; Russia; and other nations have also articulated their suspicions and apprehensions.

Letters containing anthrax spores were received in the Hart Senate Office Building 18 years ago this week, shutting the building down for 3 months. One of our commissioners, former Senate Majority Leader Tom Daschle, was the target of one of those letters. More were sent to other locations. Anthrax killed 5 people, made 17 others sick, reduced business productivity, and forced us to engage in costly decontamination, remediation, and treatment after the fact. Clearly, the Nation was not adequately prepared.

Today, the biological threat has not ebbed. No Federal department or agency disagrees with this assessment. The Department of State believes that Russia and North Korea continue activities to develop biological weapons, and is unsure whether China and Iran have eliminated their biological warfare programs. Nation-states such as China and Russia hardly bother to hide their efforts to drive high biotechnology, much of which is dual-use and could be easily turned to produce large quantities of biological agents and weapons. China alone will invest about \$12 billion to advance biotechnology innovation from 2015 to 2020. Terrorist organizations continue to place training materials on-line for conducting biological attacks with anthrax, botulism, and other biological agents. Ebola was never fully eradicated and defies control to this day. And the U.S. Army Medical Research Institute of Infectious Diseases, one of the Nation's most important laboratories for research on biological agents and deadly diseases for which we have no cure is currently shut down because it failed to meet biosafety standards.

The Director of National Intelligence again testified about the biological threat before Congress this year, expressing the intelligence community's growing concern about the increasing diversity of, and ability to develop, traditional and novel biological agents; ways in which they can be used in attacks; ability to produce biological weapons; and the risks they pose to economies, militaries, public health, and agriculture of the United States and the world. The National Intelligence Council also made similar statements in its latest Global Trends report, focusing on the risk associated with synthetic biology and genome editing, and how advances in biotechnology are making it easier to develop and use biological weapons of mass destruction.

Given the severity of the threat, the Federal Government has spent, and continues to spend, millions to develop, improve, and deploy technology in hopes of rapidly detecting biological attacks. Effective environmental surveillance should assist with pathogen identification and provide early warning. Unfortunately, as this committee is well aware, the equipment designed to detect airborne biological contaminants do not perform well and have not progressed significantly since their initial deployments. The Federal Government has also failed to efficiently and comprehensively integrate and analyze human, animal, plant, water, and soil surveillance data.

The United States launched the BioWatch biodetection program in 2003, but its potential remains unrealized. As of 2019, BioWatch uses the same technology (e.g., manual filter collection, laboratory polymerase chain reaction testing) as it did 6 years ago. The Department of Homeland Security Office of Countering Weapons of Mass Destruction oversees the BioWatch program of Nationally-distributed detectors that sample the air for a select number of pathogens. Non-Federal public health laboratories then analyze the samples. Technological limitations of the system include: (1) Reliance on wind blowing in optimal directions; (2) taking up to 36 hours to provide notification of the possible presence of a pathogen; (3) inactivation of specimens, preventing determinations of whether live organisms were released; and (4) inability to differentiate between normal background and harmful pathogens. Additionally, Federal agencies involved in determining what to do with BioWatch-related test results often disagree as to what course of action should be taken and do not always consult non-Federal public health and other leaders, even though they often must make many response decisions.

Late last year, the Department of Homeland Security announced a new initiative—Biodetection 21 or BD21—to replace existing, inadequate BioWatch technology. This effort has already seen its share of problems. The Department is not testing state-of-the-art technology. The Department has not established requirements for new platforms. The Department has not sought comprehensive input from relevant stakeholders. Instead, BD21 is testing old Department of Defense technology for domestic use, rather than evaluating more current and advanced Department of Defense candidates. Some of the technology under evaluation may itself be flawed, lacking sufficient validity and reliability data. State, local, Tribal, and territorial partners have been left almost entirely out of the loop. They are unsure if they can support the system, because no vision for it has been communicated to them, other Federal partners, and Congress. These characteristics do not provide a good basis for success.

The Bipartisan Commission on Biodefense supports efforts to develop, deploy, and maintain effective biodetection technology. We support efforts to replace poor and nonfunctioning BioWatch technology. We support Congressional efforts to ensure that the \$80 million in taxpayer funds spent annually on BioWatch is used wisely going forward.

The Department of Homeland Security must engage in good Government by identifying requirements with non-Federal Governmental representatives, testing candidates with scientific and organized processes, and utilizing standard acquisition procedures in awarding contracts. We continue to recommend that the Department of Defense transfer more advanced, far-better-performing biodetection technology to the Department of Homeland Security for domestic testing. We also recommend that the Department of Homeland Security reengage its Science and Technology Directorate, as the problem is now, and has always been, one of basic, applied science. It may also be time to reach back to the National laboratories that worked on biodetectors in the late 1990's and which continue to conduct research in this arena for assistance.

Finally, Congress needs to reexamine authorization of, and appropriations for, this program and that of the National Biosurveillance Integration System and Center. The biological threat is increasing, our Nation grows increasingly vulnerable to this threat, and the catastrophic consequences are far too great to ignore.

Once again, thank you for this opportunity to address biodefense. We appreciate the committee's interest in our Commission since its inception. I also thank Hudson Institute, which serves as our fiscal sponsor, and all of the organizations that support our efforts financially and otherwise. We look forward to continuing to work with you to strengthen National biodefense.

Please see our bipartisan report, *A National Blueprint for Biodefense** and our other reports for more details regarding the following 33 recommendations:

1. Institutionalize biodefense in the Office of the Vice President of the United States.
2. Establish a Biodefense Coordination Council at the White House, led by the Vice President.
3. Develop, implement, and update a comprehensive National biodefense strategy.
4. Unify biodefense budgeting.
5. Determine and establish a clear Congressional agenda to ensure National biodefense.
6. Improve management of the biological intelligence enterprise.
7. Integrate animal health and One Health approaches into biodefense strategies.
8. Prioritize and align investments in medical countermeasures among all Federal stakeholders.
9. Better support and inform decisions based on biological attribution.
10. Establish a National environmental decontamination and remediation capacity.
11. Implement an integrated National biosurveillance capability.
12. Empower non-Federal entities to be equal biosurveillance partners.
13. Optimize the National Biosurveillance Integration System.
14. Improve surveillance of, and planning for, animal and zoonotic outbreaks.
15. Provide emergency service providers with the resources they need to keep themselves and their families safe.
16. Redouble efforts to share information with State, local, Tribal, and territorial partners.
17. Fund the Public Health Emergency Preparedness cooperative agreement at no less than authorized levels.
18. Establish and utilize a standard process to develop and issue clinical infection control guidance for biological events.
19. Minimize redirection of Hospital Preparedness Program funds.
20. Provide the financial incentives hospitals need to prepare for biological events.
21. Establish a biodefense hospital system.
22. Develop and implement a Medical Countermeasure Response Framework.
23. Allow for forward deployment of Strategic National Stockpile assets.
24. Harden pathogen and advanced biotechnology information from cyber attacks.
25. Renew U.S. leadership of the Biological and Toxin Weapons Convention.

*The document has been retained in committee files and is available at <https://biodefensecommission.org/reports/a-national-blueprint-for-biodefense/>.

26. Implement military-civilian collaboration for biodefense.
27. Prioritize innovation over incrementalism in medical countermeasure development.
28. Fully prioritize, fund, and incentivize the medical countermeasure enterprise.
29. Reform Biomedical Advanced Research and Development Authority contracting.
30. Incentivize development of rapid point-of-care diagnostics.
31. Develop a 21st Century-worthy environmental detection system.
32. Review and overhaul the Select Agent Program.
33. Lead the way toward establishing a functional and agile global public health response apparatus.

Mr. PAYNE. Thank you very much.

I now recognize Dr. Rakeman to summarize her statement for 5 minutes.

STATEMENT OF JENNIFER L. RAKEMAN, ASSISTANT COMMISSIONER AND DIRECTOR, PUBLIC HEALTH LABORATORY, DEPARTMENT OF HEALTH AND MENTAL HYGIENE, NEW YORK, NEW YORK

Ms. RAKEMAN. Thank you.

Good morning, Chairman Payne, Ranking Member King, and Members of the subcommittee. I am Dr. Jennifer Rakeman, assistant commissioner and laboratory director of the Public Health Laboratory at the New York City Department of Health and Mental Hygiene.

On behalf of Mayor Bill de Blasio and Health Commissioner Dr. Oxiris Barbot, thank you for the opportunity to testify on New York City's biothreat detection efforts and on-going work to prepare for and respond to public health emergencies.

I am here today to discuss the vital role that public health plays in biothreat detection efforts and how the New York City Health Department collaborates with city agencies and coordinates with State and Federal partners to prepare for and respond to emergencies.

Our Nation's public health and health care infrastructure play a critical role in protecting people from a range of hazards, including bioterrorism and infectious diseases. Local public health departments and their partners are on the front lines and are often the first to detect and respond to disease outbreaks.

Core public health infrastructure at the local level requires state-of-the-art laboratories and electronic surveillance systems. We also need highly-skilled staff, such as laboratory leadership, lab bench technologists, epidemiologists, informatics specialists, and emergency management and response experts to enable the people and systems to operate efficiently during emergencies.

What we do every day at the local level is backed by our partners at the Federal level, such as the Centers for Disease Control and Prevention and the Department of Homeland Security. For this system to work, each piece must be appropriately resourced and engage in on-going transparent communication and collaboration.

As the largest, most densely-populated city in the United States, New York City is an international hub for business, media, and tourism. Consequently, we face a high risk of both intentionally disseminated and naturally-occurring hazards. A biological attack or large-scale infectious disease outbreak in New York City would

significantly impact the health, security, economy, and political stability not only of the city but of the rest of the country and will have an international impact.

The New York City Public Health Laboratory is a local laboratory that serves a population larger than that of most States. It has been central to the New York City response to the Amerithrax letters in 2001, the H1N1 outbreak in 2009, Ebola in 2014, Zika in 2016, and the recent unprecedented measles outbreak in New York.

In addition, the New York City Public Health Lab, in coordination with the CDC's Laboratory Response Network, provides local diagnostic testing for emerging and highly-pathogenic diseases, including Ebola virus disease and Middle East Respiratory Syndrome coronavirus, or MERS.

Seven days after the 9/11 attacks in 2001, letters tainted with *Bacillus anthracis*, which causes anthrax, were sent to media companies and Congressional offices. The investigation that followed resulted in a Nation-wide focus on bioterrorism and identified significant gaps in our ability to protect the public's health.

In 2003, as a result of this investigation, BioWatch was created and quickly rolled out to a number of jurisdictions, including New York City. BioWatch is intended to serve as an early warning system of a wide-spread attack with one of a small number of potential biological threat agents.

As the lead scientific agency for the New York City BioWatch program, the health department is responsible for the day-to-day technical oversight of the BioWatch laboratory testing and the development of environmental sampling plans to be deployed in the event of a BioWatch detection.

While the Public Health Laboratory hosts the BioWatch lab, neither the PHL, nor the New York City Health Department, has input regarding the standard operating procedures and testing reagents used for BioWatch testing. Further, the local jurisdictions do not have detailed information regarding basic performance characteristics of the tests to which we are asked to respond.

However, as the Public Health Lab director, I am responsible for determining that a BioWatch result is valid and is a BioWatch actionable result, or BAR, to be reported to local Federal partners and to determine what response actions will be taken.

In 2010, after New York City experienced an unacceptable increase in the number of false positive BioWatch testing results, the New York City Public Health Lab revised the testing algorithm to differ from the National BioWatch program standard to require additional verification to minimize this threat of a false positive BAR.

New York City has taken a leadership role Nationally in pushing for a better system that provides reliable results. As the committee is aware, DHS is proposing to replace BioWatch with a new system, BD21, the intention of which is to detect a potential release in near-real time. BD21 will use real-time detectors of biological anomalies in the field to signal the initiation of additional sample collection and testing.

A biodetection program is an essential public health tool for a global city like New York. We understand the need for a reliable biodetection system and applaud the efforts to improve upon the

current system, both in the timing of detection and the reliability of the assays.

However, both BioWatch and the proposed BD21 systems fail to meet even minimum standards that any other test deployed in a public health laboratory would need to meet.

While we support advancing the current BioWatch program to take advantage of modern biothreat detection technology, we have concerns about the deployment of this new program and the options under evaluation as part of BD21.

Instruments currently deployed for military use, which have generated regular false alarms, are being considered for implementation in New York City and throughout the country. Biothreat detection systems requirements for urban settings like New York fundamentally differ from the requirements for those used in military settings.

Mr. PAYNE. Please wrap up.

Ms. RAKEMAN. The implications for launching a substantial response based on a false positive are far-reaching and will have associated morbidity and mortality.

It is imperative that DHS has an on-going dialog with other Federal partners, such as CDC and ASPR and, critically, with local jurisdictions throughout this process.

Chairman Payne and Ranking Member King, thank you once again for inviting me to testify today. Our concerns regarding BioWatch, BD21, and the need for a stable investment in public health preparedness are shared by cities across the Nation.

[The prepared statement of Ms. Rakeman follows:]

PREPARED STATEMENT OF JENNIFER L. RAKEMAN

OCTOBER 17, 2019

Good morning Chairman Payne, Ranking Member King, and Members of the subcommittee. I am Dr. Jennifer Rakeman, assistant commissioner and laboratory director of the Public Health Laboratory at the New York City Department of Health and Mental Hygiene (NYC Health Department). On behalf of Mayor Bill de Blasio and Health Commissioner Dr. Oxiris Barbot, thank you for the opportunity to testify on New York City's (NYC) biothreat detection efforts and on-going work to prepare for and respond to public health emergencies.

PUBLIC HEALTH AND EMERGENCY PREPAREDNESS

I am here today to discuss the vital role that public health plays in biothreat detection efforts and how the NYC Health Department collaborates with city agencies and coordinates with State and Federal partners to prepare for and respond to emergencies.

Our Nation's public health and health care infrastructure play a critical role in protecting people from a range of hazards, including bioterrorism and infectious diseases. Local public health departments and their partners are on the front lines and are often the first to detect and respond to disease outbreaks. What we do every day at the local level is backed by our partners at the Federal level, such as the Centers for Disease Control and Prevention (CDC) and the Department of Homeland Security (DHS). For this system to work, each piece must be appropriately resourced and engage in on-going transparent communication and collaboration.

A robust public health infrastructure saves lives and is crucial for all jurisdictions. Core public health infrastructure at the local level requires state-of-the-art laboratories and electronic surveillance systems. We also need highly-skilled staff such as laboratory leadership, bench technologists, epidemiologists, informatics specialists, and emergency management and response experts who enable the people and systems to operate effectively during emergencies. Core public health infrastructure is essential to detect and respond to emerging diseases and outbreaks. Without it, we risk the rapid spread of disease, increased illness, and death. It is

therefore critical to our Nation's security that local health departments receive the necessary resources to maintain these capabilities.

Public health and health care system readiness noticeably expanded and improved after 9/11, with an influx of Federal preparedness funding from the CDC and the Assistant Secretary for Preparedness and Response (ASPR). Public health departments and health care systems have used these funds to invest in staff, purchase equipment and instrumentation, implement critical information technology (IT) systems, and create response plans. Adequate funding allows operators to train and exercise these plans to prepare for a broad range of emergencies and maintain a strong, experienced workforce necessary for a robust response.

NEW YORK CITY CONTEXT

As the largest, most densely-populated city in the United States, NYC is an international hub for business, media, and tourism. Consequently, we face a high risk of both intentionally disseminated and naturally-occurring hazards. A biological attack or large-scale infectious disease outbreak in NYC would significantly impact the health, security, economy, and political stability of not only the city, but the rest of the country, and will have international impact. The NYC Public Health Laboratory (PHL) serves a population larger than that of most States. It has been central to the NYC response to the Amerithrax letters in 2001, H1N1 outbreak in 2009, Ebola in 2014, Zika virus in 2016, and the recent, unprecedented measles outbreak. In addition, the NYC PHL, in coordination with the CDC's Laboratory Response Network (LRN), provides local diagnostic testing for emerging and highly pathogenic diseases including Ebola virus disease and Middle East respiratory syndrome corona virus (MERS-CoV).

Seven days after the 9/11 attacks in 2001, letters tainted with *Bacillus anthracis* were sent to media companies and Congressional offices. The investigation that followed resulted in a Nation-wide focus on bioterrorism and identified significant gaps in our ability to protect the public's health. In 2003, as a result of this investigation, BioWatch was created and quickly rolled out to a number of jurisdictions, including NYC. BioWatch is intended to serve as an early warning system of a wide-spread attack with one of a small number of potential biological threat agents.

As the lead scientific agency for the NYC BioWatch program, the NYC Health Department is responsible for the day-to-day technical oversight of BioWatch laboratory testing and is responsible for the development of environmental sampling plans to be deployed in the event of a BioWatch detection. While the NYC PHL hosts the BioWatch laboratory, neither the NYC PHL nor the NYC Health Department has input regarding the standard operating procedures and testing reagents used for BioWatch testing. Further, the local jurisdictions do not have detailed information regarding basic performance characteristics of the tests to which we are asked to respond. However, as the PHL Laboratory Director, I am responsible for determining that a BioWatch result is valid and is a "BioWatch Actionable Result" (or BAR) to be reported to local and Federal partners to determine what response actions will be taken.

In 2010, after NYC experienced an unacceptable increase in the number of false positive BioWatch testing results, the NYC PHL revised the testing algorithm to differ from the National BioWatch program standard to require additional verification to minimize the threat of a false positive BAR. The same BioWatch reagents and testing standard operating procedures are used, as required by the BioWatch program, but part of the test is repeated in the NYC algorithm as a check of the initial positive result.

COOPERATION WITH FEDERAL PARTNERS

NYC has taken a leadership role Nationally in pushing for a better system that provides reliable results, and has worked closely with the CDC, DHS, and other jurisdictions to inform the building of a biothreat detection architecture with acceptable performance characteristics required in urban and civilian settings. As the committee is aware, DHS is proposing to replace BioWatch with a new detection system, BioDetection 21 (BD21), the intention of which is to detect a potential release in near real-time. BD21 will use real-time detectors of "biological anomalies" in the field to signal the initiation of additional sample collection and testing. A biodetection program is an essential public health tool for a global city like NYC. We understand the need for a reliable biodetection system and applaud the efforts to improve upon the current system, both in the timing of detection and the reliability of the assays. However, both BioWatch and the proposed BD21 systems fail to meet even minimum standards that any other test deployed in a public health laboratory would need to meet.

While we support advancing the current BioWatch program to take advantage of modern biothreat detection technology, we have concerns about the deployment of this new program and the options under evaluation as part of BD21. Instruments currently deployed for military use, which have generated regular false alarms, are being considered for implementation in NYC and throughout the country. Biothreat detection system requirements for urban settings like NYC fundamentally differ from the requirements for those used in military settings. The implications for launching a substantial response based on a false-positive biothreat detection could have profound economic consequences and will have associated morbidity and mortality.

DHS has communicated very little about the program and has made it clear that jurisdictions will need to develop response plans without any input or consideration to the technology deployed, evaluation plans, or access to evaluation data. Local public health agencies have been left out of the conversation and, at best, are receiving very limited information and no data. Active, on-going collaboration between local, State, and Federal partners is critical to the development and deployment of a successful biodetection program. It is imperative that DHS has an on-going dialog with other Federal partners, such as CDC and ASPR, and, critically, with State and local jurisdictions throughout this process. The local end-users must be confident that the system is based on scientifically-sound principles, that it will be used appropriately, and that the technology will generate information with sufficient fidelity for an actionable response. We are grateful for the subcommittee's interest in this matter.

IMPORTANCE OF FEDERAL EMERGENCY PREPAREDNESS FUNDING

A strong public health and health care system preparedness and response infrastructure is an essential component of National security to any biodetection program. However, significant cuts in Federal funding have hampered State and local readiness at a time when emerging diseases are spreading faster than ever before. NYC relies on Federal funding to prepare for, detect, and respond to public health emergencies. Over the past 14 years, this funding has been significantly reduced—including a 34 percent cut to the Public Health Emergency Preparedness (PHEP) program and 39 percent cut to the Hospital Preparedness Program (HPP) funding since fiscal year 2005. The most drastic impact of these cuts has been the significant reduction in the public health preparedness and response workforce in NYC. If there are no public health laboratory scientists, epidemiologists, environmental health specialists, emergency managers, and risk communication experts to build the local alarm system, and then hear the alarm and respond when it goes off, we cannot protect the health of the American public. This critical workforce needs an infrastructure to enable them to do their work—state-of-the-art public health laboratories that are flush with instrumentation, reagents, and supplies, information technology solutions for the analysis of data, and interoperable electronic systems to share that data are all also basic necessities for protecting Americans.

Additionally, funding for the CDC Epidemiology and Laboratory Capacity (ELC) Infection Control and Laboratory BioSafety Officer (BSO) programs ended in March 2019. These programs provided critical support for infection control and clinical laboratories at health care facilities. The BSO network ensured that clinical laboratory staff across the country were trained to safely handle and test specimens from patients that may have a highly infectious disease. This program is critical to ensuring the safety of the health care workforce and to ensure that all patients are able to receive appropriate life-sustaining care, and allows NYC and the rest of the country to maintain these capabilities. This loss of funding threatens to waste years of investment and relationship-building with critical partners.

In 2014, Congress appropriated funding to prepare public health and health care systems to respond to cases from the Ebola outbreak in West Africa that reached the United States and prevent further transmission. This funding has helped sustain the capacity of 10 Regional Ebola and Other Special Pathogen Treatment Centers (RESPTC), state-designated Ebola Treatment Centers (ETCs) as well as front-line hospitals, health departments, and emergency medical services (EMS). With this funding, the capability to identify and safely care for patients with viral hemorrhagic fevers and other high-consequence infectious diseases was built and maintained. These funds supported joint planning and regional coordination between public health, health care, EMS, and law enforcement to rapidly respond, and were critical to the replacement of aging laboratory equipment and instrumentation, initially purchased with post-9/11 funding, in public health laboratories. As a result, our country is substantially more prepared to manage cases of Ebola than ever before. However, there is no plan to continue funding when it expires in 2020. Local

health departments, public health laboratories, and health care systems around the country cannot continue to function on sporadic funding. We cannot wait for the next major public health emergency to maintain critical infrastructure.

Chairman Payne and Ranking Member King, thank you once again for inviting me to testify today. Our concerns regarding BioWatch, the BD21 system, and the need for stable investment in public health preparedness are shared by cities across our Nation. Federal investment and collaboration is critical to ensuring local government's ability to stay ahead of emerging threats. I look forward to your questions.

Mr. PAYNE. Thank you. Thank you very much.

Now, I recognize Dr. Shah to summarize his statement for 5 minutes.

**STATEMENT OF UMAIR A. SHAH, M.D., MPH, EXECUTIVE
DIRECTOR, PUBLIC HEALTH, HARRIS COUNTY, TEXAS**

Dr. SHAH. Good morning, Chairman Payne and Ranking Member King. It is wonderful to join you both and Members of the subcommittee today.

I also want to extend greetings to fellow Texans, Representative Green and Representative Crenshaw. I hope you, too, will join me in wishing the Houston Astros well against the New York Yankees.

Mr. KING. I object to that remark.

Dr. SHAH. I hope that is not considered a partisan statement.

Thank you for inviting me to testify on this important topic. I am joined by Michael "Mac" McClendon, our director of the Office of Public Health Preparedness and Response, and Albert Chang, in our area of policy.

My name is Dr. Umair Shah. I am the executive director of the Harris County Public Health and the local health authority of Harris County, Texas, the third-largest county in the United States. I am also the past president of NACCHO, the National Association of County and City Health Officials, representing the Nation's nearly 3,000 local health departments, and its Texas affiliate, TACCHO, which represents 45 local health departments across Texas.

I am also an emergency department physician at the Michael E. DeBakey VA Medical Center in Houston, where I have proudly cared for our Nation's veterans for the last 20 years.

Today, I am here to testify on local public health's key role in emergency preparedness and response with respect to bioterrorism.

I have limited time, so please refer to my full written testimony. Let me point out, though, that, on the top of page 7, the testimony inadvertently refers to HHS when it should have instead stated DHS. Please note that correction.

Today, I will touch on 3 main points. One, public health truly matters, especially at the local level and in emergencies, yet it is largely invisible.

I refer to this as the #invisibilitycrisis. This invisibility is a major issue in ensuring adequate capacity for preparing and responding to a myriad of emergencies. Frankly, our communities most often do not even know we are working on their behalf when we are.

No. 2, emergencies occur repeatedly and unexpectedly, and public health must have strong tools at its disposal to protect our communities. Biodetection systems are important such tools, but even they cannot be used in isolation.

No. 3, there is a science and an art to public health, just as in medicine, and we must have access and availability to as much information as possible to make decisions. This means that Federal, State, and local partners must plan together today in order to protect our communities more effectively tomorrow.

I speak to you as someone who comes from an impacted community. Since Tropical Storm Allison in 2001, we have responded to the H1N1 pandemic, West Nile virus, Ebola, Zika, Hurricanes Katrina, Rita, Ike, Harvey, and just this year a resurgence of measles, 3 large-scale petrochemical fires, confirmed vaping cases, and, most recently, Tropical Storm Imelda. No doubt Harris County has seen it all, but our story is one of a community of strength and resilience.

Harris County Public Health is part of the Houston/Galveston Metro Area BioWatch Advisory Committee. The BAC is one of many such BACs across the country.

In 2003, our community witnessed the Nation's first BioWatch actionable result, a BAR, when low levels of *Francisella tularensis* were detected for three consecutive days. We eventually confirmed the detection was due to a naturally-occurring source, but it took time to rule out a weaponized version.

As many communities, too, have learned, a biodetection positive is not the same as a public health positive. While biodetection systems must be robust and accurate, effective, and efficient, they are still tools within a well-established public health emergency response system.

We cannot forget, no matter how invisible they may be, local public health personnel are the quote-unquote, boots on the ground in ensuring communities are prepared for, protected from, and resilient to a variety of health threats.

Much of the discussion today is focused on the science of biodetection. While I agree there is a science to public health decision making, there is also an art. Despite the technologies at our disposal, this decision making is based on the expertise of the individuals and agencies who are part of the process based on all available data points.

This is why in medicine, we ensure a finding from a diagnostic test is both confirmed and put into context of the patient in front of us. Local public health officials take other factors into consideration, including community concerns as well as political, economic, and other ramifications for actions such as canceling large-scale events and how to respond.

This is why locals must be a part of the equation. We cannot be brought in at the end. Ultimately, the decision of how to respond to a biodetection hit must be a shared one involving local decision makers and responders, front and center. This means Federal, State, and local partners must work together as do public health and emergency management, law enforcement, and health care delivery, all partners alike. Ultimately, we are all part of the same team, and our communities expect it.

Let me close by saying I am honored to represent our amazingly resilient community, as well as the strong, dedicated public health professionals that give it their all as first responders in emergencies each and every day, not just at Harris County Public

Health but in the 3,000 such local health departments across the Nation.

I appreciate again the opportunity to testify today and look forward to your questions.

Thank you.

[The prepared statement of Dr. Shah follows:]

PREPARED STATEMENT OF UMAIR A. SHAH

OCTOBER 17, 2019

I would like to thank Chairman Thompson, Ranking Member Rogers, Subcommittee Chairman Payne, Ranking Member King, and Members of the committee for the opportunity to testify today on behalf of local health departments and public health emergency responders across the country.

My name is Dr. Umair Shah, and I am the executive director for Harris County Public Health (HCPH) and the local health authority for Harris County, Texas. Harris County is the third most populous county in the United States with 4.7 million people and is home to the Nation's 4th largest city, Houston. I am a past president and former board member of NACCHO, the National Association of County and City Health Officials. NACCHO is the voice of the nearly 3,000 local health departments (LHDs) across the country. I am also a past president and current board member of TACCHO, the Texas Association of City and County Health Officials, which represents approximately 45 LHDs across Texas.

As background, Harris County is the most culturally diverse and one of the fastest-growing metropolitan areas in the United States and home to the world's largest medical complex, the Texas Medical Center, one of the Nation's busiest ports, the Port of Houston, and 2 of the Nation's busiest international airports. Our metropolitan area comprises the largest concentration of petrochemical manufacturing in the world. HCPH is the county public health agency responsible for protecting the public's health in the event of wide-spread public health emergencies within Harris County under the direction of County Judge Lina Hidalgo, who by State law, is the county's director of emergency management and leads the Harris County Office of Homeland Security & Emergency Management (HCOHSEM). In close coordination with HCOHSEM, HCPH's Office of Public Health Preparedness and Response (OPHPR) ensures an effective, coordinated public health response to a variety of emergencies including terrorist attacks, disease outbreaks, weather-related disasters, to name a few.

In fact, our community has seen its share of emergencies over the years, including but not limited to Tropical Storm Alison (2001), Hurricane Katrina sheltering (2005), Hurricane Ike (2008) and more recently Hurricane Harvey (2017). Coupling these natural disasters with others such as the Department's 18-month nH1N1 influenza pandemic response (2008), West Nile virus (WNV) response (2012), Ebola readiness & "response" activities (2014–2015), human rabies death and rabies in a Harris County dog (2008 and 2015), Zika virus (2016–2017), measles "resurgence" (2019), and 3 large-scale chemical fires in 2019 as well, our community is undoubtedly an impacted community. However, one thing one must remember about Harris County—and really this goes for all of Texas—is that it is also an incredibly strong and resilient community.

In my testimony today, I will focus on 3 main points:

1. We all agree that emergencies occur repeatedly, unexpectedly, and we must ensure that our communities are prepared for what lurks behind the next corner. BioWatch and the next generation of biodetection are important tools in the toolbox for decision making but are not the only tools. Yet these tools must be effective which means they must be science-based and must evolve as the science and threats equally evolve.
2. Public health at all levels of government is vital—indeed we say that public health truly matters! Public health must be invested in and capacity built because it is absolutely critical to protecting our communities even when it is largely invisible or forgotten (the so-called "Invisibility Crisis"). Public health is equally a crucial sector that must be well-equipped and trained to prevent, protect against, mitigate, respond to, and recover from all incidents whether small or catastrophic.
3. There is a science and an art to public health and we must have access and availability to as much information as possible especially during a biological attack to make appropriate, difficult, nuanced decisions on behalf of our community so sharing of that information is critical. We must continue to involve all

Federal, State, local, and even global partners in not just response activities but also the planning phase.

PROTECTING OUR COMMUNITIES

HCPH is part of the Houston/Galveston Metro Area BioWatch Advisory Committee (BAC) and this BAC makes up 1 of the more than 30 BioWatch jurisdictions across the country. The National Academy of Medicine (formerly the Institute of Medicine) and the National Research Council convened a workshop in 2014 entitled, “Strategies for Cost-effective and Flexible Biodetection Systems that Ensure Timely and Accurate Information for Public Health Officials” that explored many of the issues around BioWatch and biodetection systems and needs. I participated in this workshop that was held 5 years ago—unfortunately many of those same themes that were inherent then are still of concern today. Many of the issues and problems with any biodetection system or the next generation replacement systems will always need to be addressed in order to ensure the most robust and accurate system and must be seen as a “tool” within a well-established public health emergency preparedness system. In 2003, our local community had the first BioWatch hit in the Nation when low levels of *Francisella Tularensis* (FT) were detected for 3 days. The detection caught natural-occurring instances of the bacterium and yet no terrorism was discovered. Instead it caused a cascade of events and highlighted gaps that public health helped identify that I will describe within my testimony.

The CDC Foundation states, “Public health is the science of protecting and improving the health of people and their communities. Overall, public health is concerned with protecting the health of entire populations. These populations can be as small as a local neighborhood, or as big as an entire country or region of the world.” Public health emergency preparedness is truly National health security. Local health departments play an essential role in ensuring that people and their communities are prepared for, protected from, and are resilient to, threats to health that result from a host of disasters and emergencies. Given that the impact of all disasters is felt locally first and foremost, local health departments have and will continue to play a critical part of every community’s first response to disasters in an emergency and in the long-term recovery efforts. Local health departments regularly host trainings and exercises to prepare their own staff and health care partners for public health emergencies, to build consistent and on-going communication between partners, clearly define response roles, and anticipate challenges before an emergency occurs. And when disasters strike, local health departments are the “boots on the ground” responding to and helping communities recover.

Much of the discussion around BioWatch is focused on the science of biodetection. I agree there is a “science” to public health decision making, but I also strongly maintain there is also an “art” to public health decision making. Public health decision making is still based on the experiences of the individuals and the agencies that are part of the process and performed in the contextual framework of a summation of available information. It is what we as clinicians and public health practitioners do all the time, which is really taking the situational contexts, the individual nuances, and making that part of our decision-making process. BioWatch and the next iteration, BioDetection 21 (BD21), should be considered simply as tools—one of many tools that are available to public health decision makers and needs to be kept in the context of that paradigm. The sum of all those tools is really how we go about making sound public health decisions.

As mentioned earlier, our community had the Nation’s first BioWatch Actionable Result (BAR) for tularemia in 2003. Our community has seen multiple subsequent tularemia detections where HCPH has been notified by our Houston Health Department partners who operate our region’s Centers for Disease Control & Prevention (CDC) BioWatch Laboratory of a BAR. This has required considering those detection data, along with information from disease surveillance and contextual intelligence. Disease surveillance includes examining zoonotic patterns reported by local veterinary clinics and the State zoonosis surveillance system as well as data on human disease patterns that may have been reported by area hospitals or other health departments to our epidemiologists, or disease detectives. Contextual information includes details about environmental patterns and unusual security threats or security patterns.

While this decision-making process is occurring, response partners begin mobilizing its crisis risk communication resources and makes sure that its operational support functions are ready. Local public health officials also take a number of other factors into consideration including community concerns as well as political and economic ramifications for actions such as canceling large-scale community events when making decisions on how to respond to a BAR. Fiscal constraints in particular have

a real impact on the value proposition of biodetection today. For example, investment in the technologies that enable programs such as BioWatch may compete with more broad-based public health investments and capacity building. This could mean decreased investments in other technologies such as syndromic surveillance and automated disease reporting systems, not to mention decreased staffing for surveillance and response as well as other important preparedness-related activities. These diminished response capabilities in turn make the decision on how to respond to a BAR even more art than science.

It should be pointed out that a laboratory positive is not the same as a public health positive, and the issue of false positives is likely to be a bigger issue with new autonomous detection systems with more cycles, more tests, and more results on an almost continual basis. A biodetector that has the capability to signal automatically a BAR or act as if it has somehow “confirmed” that very result without any human input or additional context (so-called red light/green light) may be appealing from a technology perspective, but from the public health perspective such a feature would take away the ability to engage in nuanced decision making. It is important to remember that the integrity of public health is critically important. How does the public view decision makers if we do launch or do not launch a response based on incorrect or incomplete information? What are the ramifications to a community if decision makers cancel events or move forward with them based on inaccurate sensor data systems alone? Our understanding of what a BAR means locally has even changed over time. Let me provide a clinical example to drive home this point.

As a clinician, if I had a female patient who walked through the clinic door and I said to her, “Ma’am, we have unfortunately found a spot on your mammogram, and without any additional testing, I am going to send you immediately for a total mastectomy (i.e., removal of the entire breast), based on that abnormal spot,” immediately, my days as a physician would be numbered. That is the challenge here. What we are really trying to do is take that spot on a mammogram, figure out what other diagnostic and contextual information we need to put to the puzzle, and then figure out what to do with that information. In the IOM Workshop I referenced, one of my colleagues, Dr. David Persse said, “Two of the strengths that public health agencies bring to the table are their versatility and their ability to make decisions even when sufficient information is not available.” Dr. Persse is an emergency medicine physician and the city of Houston’s Public Health Authority, who serves as our local BioWatch Advisory Committee (BAC) chair.

Ultimately the decision of how to respond to the release of a biological weapon must be a shared one but it must involve local decision makers front and center. Our communities, our residents, expect local governance and local decision making, which implies both a need for transparency and a need for local public health officials to help in managing the data from a networked system. Local Health Authorities (LHAs) are responsible for the lives of the people entrusted to them within their jurisdictions. Local (and State) officials must be given more input and information from Federal partners during the planning phase as well as the response phase as future programs are deployed. Any new technology must make public health more effective and not make it more difficult for these officials to make necessary decisions when time is of the essence.

COOPERATION AND INFORMATION SHARING WITH ALL PARTNERS

From the beginning of BioWatch and the inception of a National response system after the 9/11 terrorist attacks, a priority has been placed on the need to form partnerships and acknowledge the role of local responders and to share information with all partners. This has been an important and accepted tenet within the program. Anything less than this is unacceptable, and we must continue this cooperation and information sharing.

In 2012, President Obama released the National Strategy for Biosurveillance. He said at that time that this strategy “. . . calls for a coordinated approach that brings together Federal, State, local, and Tribal governments; the private sector; nongovernmental organizations; and international partners. There exists a strong foundation of capacity arrayed in a tiered architecture of Federal, State, local, Tribal, territorial, and private capabilities. We can strengthen the approach with focused attention on a few core functions and an increased integration of effort across the Nation. In these fiscally challenging times, we seek to leverage distributed capabilities and to add value to independent, individual efforts to protect the health and safety of the Nation through an effective National biosurveillance enterprise. (https://obamawhitehouse.archives.gov/sites/default/files/National_Strategy_for_Biosurveillance_July_2012.pdf).

I have spoken in front of Congress previously about the invisibility crisis of public health. I refer to this in the age of social media as the so-called “hashtag Invisibility Crisis” (#InvisibilityCrisis). Why? Well, despite the significant impact to a community’s overall health and well-being, public health is largely invisible, under-appreciated, and as a result underfunded. This is further exacerbated when public health agencies are confused for health care. Most people operate in their daily lives without noticing that public health is there working to prevent diseases and address other concerns. Though the news may cover a measles outbreak, few tell the countless stories of public health responders who work to ensure the most vulnerable are vaccinated. Just this year as our Department confirmed a few cases of measles in our community, each identified case meant that our epidemiologists had to contact 100 persons for each case to ensure the protection of our community. The prevention of countless outbreaks seldom makes the headline. Public health is there day and night ensuring the health, well-being, and safety of the community. I say often that public health is like the “offensive line” of a football team—rarely recognized for the success of the football team but absolutely critical nonetheless.

Whether intentional or not, one of the most important areas where public health is largely invisible to the public and other partners is in emergency preparedness and response. Everyone sees and knows the other first responders, such as police, fire, EMS, and even the National Guard, but many are unaware of public health’s role in emergency response. All public health staff are trained and are a part of the National Incident Management System (NIMS) developed by the Federal Emergency Management Association (FEMA) to respond and prepare for large and small-scale disasters across the country. Local public health would respond and distribute antibiotics, vaccines, chemical antidotes, antitoxins, and other critical medical supplies from the Strategic National Stockpile (SNS) as the final interface between Government and its community members.

This “Invisibility Crisis” problem has unfortunately led to funding cuts for public health and public health preparedness at every level of government at a time where our services are needed more than ever as we face incredible challenges in our public health sector for ensure the health, security, and well-being of our communities from a variety of emergencies. These funding cuts impact preparedness and our ability to respond to a public health disaster. We know another hurricane, wildfire, mass-shooting, disease outbreak, or even another terrorist attack may happen, yet preparedness and resiliency for our communities is still just not at adequate levels to protect us. We need a National response strategy that does not react to the latest disaster but one that is pro-active to build and maintain that necessary capacity on an on-going basis. All emergency events, including infectious disease emergencies, are ultimately local. An effective response that prevents illness and saves lives demands immediate attention. Local health departments, local health care providers, local emergency responders, and local government all work together to make this an every-day reality and are in the best position to exact immediate action for small- and large-scale events. They must be trusted partners for our Federal and State agencies and decision makers.

Local public health departments deal with infectious diseases daily—our staff of epidemiologists and other key personnel are on-call, 24 hours a day, 7 days a week, diligently monitoring disease patterns and looking for irregularities. In fact, the only way to recognize the unusual is to understand the normal. On a daily basis, public health staff members work with health care providers to conduct disease surveillance activities. We communicate disease patterns and specific actions that are critical for disease investigation and disease control to the community. From an epidemiologist’s point of view, you take away the name of the disease, and the response is the same—early detection of cases, contact investigation and control measures are all essential. They save lives. At our department, we have built capacity keeping the “One Health” approach in mind as we know that the intersection of the environment impacts all those who live in that environment, whether humans, animals, or even insects. This is vital as many of the agents of bioterrorism and nearly 75 percent of the newly-emerging infectious disease agents are zoonotic (animal-related) in nature. (http://www.onehealthinitiative.com/publications/One%20Health_ASMPoster.pdf)

I applaud Congress and President Trump for passing and signing the Pandemic and All-Hazards Preparedness and Advancing Innovation Act (PAHPAI) earlier this year. PAHPAI reauthorizes the Public Health Emergency Preparedness (PHEP) grant program and the Hospital Preparedness Program (HPP) to keep our emergency preparedness infrastructure strong; strengthens the National Health Security Strategy, including global health security; and authorizes the Public Health Emergency Medical Countermeasure Enterprise, with a role for input from stakeholders, including local health departments. These measures must not just be milestones in

time but lead to foundations of on-going capacity-building that should be maintained and strengthened over time.

COOPERATIVE PARTNERSHIPS

As recently as 2017, National biodefense policy continued to emphasize cooperation between Federal, State, local, and territorial partners. Section 1086 of the National Defense Authorization Act for Fiscal Year 2017 (<https://www.Congress.gov/114/plaws/publ328/PLAW-114publ328.pdf>) directs the Department of Defense (DOD), the Department of Health and Human Services (HHS), the Department of Homeland Security (DHS), and the Department of Agriculture (DOA) to develop a strategy for the United States response to biological threats. The National Biodefense Strategy (<https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Biodefense-Strategy.pdf>) was released on September 18, 2018. The strategy lays out a clear pathway and set of objectives to counter threats effectively from naturally-occurring, accidental, and deliberate biological events. It is broader than a Federal Government strategy. It is a call to action for State, local, territorial, and Tribal (SLTT) entities, other governments, practitioners, physicians, scientists, educators, and industry.

Moving the responsibility of biodetection and the authority previously within the U.S. Department of Homeland Security (DHS) Office of Health Affairs to the Countering Weapons of Mass Destruction Office is potentially concerning as it is a significant change from the U.S. history of biodetection in the aftermath of the 9/11 attacks. The director of the HCPH Office of Public Health Preparedness and Response (OPHPR), Mr. Michael W. “Mac” McClendon—who is with me here today and I might add along with the rest of our dedicated HCPH staff members has served admirably to protect our community from a variety of threats over the years—serves on a DHS Countering Weapons of Mass Destruction (CWMD) BioDetection 21 (BD21) workgroup.

Earlier this year, locals were briefed on BD21 in Indianapolis at a closed workshop. I cannot say too much about this meeting except that we hope the concerns of locals have been heard and that appropriate steps to address these concerns including the importance of true partnership and the sharing of information bidirectionally is not forgotten. We know that problems with BD21 continue to appear in the press. (<https://www.latimes.com/politics/story/2019-08-08/bipartisan-lawmakers-look-probe-of-controversial-bio-weapons-defense-system>). The technology is not proven or vetted as of yet and has not been fully shared with local public health partners. It is hard for us to say more from a local level since we do not have additional information to base any such comments on. As per what we have read though, it appears there are concerns that an environmentally-based detection system could still have trouble with small pathogen releases in real-time, underground, or indoor releases, and may not detect previously-unknown organisms such as naturally-occurring mutant viral strains of genetically-engineered bacteria. On-going epidemiologic and zoonotic surveillance systems which rely on collective diagnoses, monitoring of the health and agriculture sectors looking for aberrant disease patterns, will always be needed for natural pathogens but have a role in detecting a terroristic attack as well.

CONCLUSION

Thank you for allowing me to testify today on this very important topic. I want to restate 3 main points:

1. We all agree that emergencies occur repeatedly, unexpectedly, and we must ensure that our communities are prepared for what lurks behind the next corner. BioWatch and the next generation of biodetection are important tools in the toolbox for decision making but are not the only tools. Yet these tools must be effective which means they must be science-based and must equally evolve as the science and threats evolve. We must continue to involve all Federal, State, local, and even global partners. Even the DHS Countering Weapons of Mass Destruction Office acknowledges that the current BioWatch Program “involves a large network of stakeholders from public health, emergency management, law enforcement, laboratory, scientific, and environmental health organizations around the country who collaborate to detect and prepare a coordinated response to a bioterrorism attack.” (<https://www.dhs.gov/biowatch-program>)
2. Public health at all levels of government is vital—indeed we say that public health truly matters! Public health must be invested in and capacity built because it is absolutely critical to protecting our communities even when it is largely invisible or forgotten (the so-called “Invisibility Crisis”). Public health is equally a crucial sector that must be well-equipped and trained to prevent, pro-

tect against, mitigate, respond to, and recover from all incidents whether small or catastrophic. Public health emergency preparedness is National health security. Local health departments and local health authorities should be notified and allowed to verify independently a suspected sample and use medical and veterinary surveillance and local intelligence of the community to help make the call on the threat.

3. There is a science and an art to public health and we must have access and availability to as much information as possible especially during a biological attack to make appropriate, difficult, nuanced decisions on behalf of our community so sharing of that information is critical. Beyond a certain point, during a biological catastrophe, everything will depend on sound public health decision making. Leaders will then have to do the best they can with the resources they have at their disposal to ensure the very health, safety, and security of the communities for whom they are responsible. (<https://biodefensecommission.org/wp-content/uploads/2019/07/Holding-the-Line-on-Biodefense.pdf>)

On behalf of Harris County Public Health, and the nearly 3,000 local health departments across the country, I appreciate again the opportunity to testify today. We join you in strengthening a public health system that protects our economic vitality and National security. Thank you for all you do in building safe, healthy, and protected communities where we live, learn, work, worship, and play, across this great Nation of ours.

Mr. PAYNE. Thank you.

I want to thank all of the witnesses for their testimony. I will remind each Member that he or she will have 5 minutes to question the panel.

I will now recognize myself for questions.

Dr. George and Dr. Rakeman, the creation of the Countering Weapons of Mass Destruction Office was intended to enhance our defenses against biological terrorists and increase coordination and cooperation in the WMD mission space. Has creation of CWMD improved our preparedness for a bioterror attack?

Ms. GEORGE. Mr. Chairman, it has not. That office, unfortunately, has suffered from changes in the mission and goals and objectives for it since they started talking about creating it years ago—8 years ago, as I believe.

When you don't have a vision, the people perish. We know this. But they seem to have just spun down worse and worse as the years have gone by, these past 2 years.

You mentioned the morale survey earlier. But in addition, they just seem not to be able to accomplish any of the things that they set out to accomplish. BioWatch has not improved. NBIC has not improved. DNDO is beginning to suffer, and they have lost a great deal of personnel, specialists that used to address all of those issues.

So I would say, no, it hasn't done what it was intended to do.

Mr. PAYNE. Dr. Rakeman.

Ms. RAKEMAN. I think also, with the creation of CWMD, biological agents have been lumped together with radiological and chemical agents and are being approached in the same manner, which is an issue. You can't approach biological agents and detection of biological agents the same way that you can for radiological and chemical. Radiological and chemical agents are either there or they are not. Biological agents require detecting a specific agent in a mix of lots of biology and biological agents. So approaching them in the same way does not work well.

Mr. PAYNE. So can those agents lay dormant for periods of time?

Ms. RAKEMAN. Well, it is trying to detect a very specific agent that you are concerned about in a world where we are surrounded

by bacteria and viruses and things that are good for us and also bad for us. So being able to pick out a select agent in that mix is a very different approach than looking for whether or not sarin gas is present or not, for example.

Mr. PAYNE. Yes. You know, I have been very critical of the BioWatch program. Actually, I finally ran across one of the units at the Democratic Convention. They had one in the parking lot. I walked by and, oh, finally—I finally saw one, so—but it has not been the most successful way to do this. It almost seems antiquated science, you know, from the fifties or whatever. With all of the advances that we have, it is really amazing that that is what we are stuck with at this point in time.

Dr. George and Dr. Shah and Rakeman, all 3, CWMD is creating a new biodetection system to replace BioWatch—DHS's current system. This new system is called Biodetection in the 21st Century, or BD21, and it is supposed to address the shortcomings of BioWatch.

Is the technology behind BD21 mature enough to address the issue of BioWatch, and how has CWMD worked with local jurisdictions to develop BD21 and solicit requirements for its use?

Start with Dr. Shah.

Dr. SHAH. Yes, thank you, Mr. Chairman, for that question.

I think the challenge that we have is that we do not have a lot of information about this new system. So when locals, and State partners as well—but locals are in particular not a part of the planning process. We understand that there is sensitive information here, that we are not going to be able to get everything shared. But we do believe that there is an opportunity to work with locals throughout this planning process. Again, that is how we are going to know better what the system is, what its limitations are, and certainly how we are going to be able to respond effectively to it in the future.

Mr. PAYNE. Thank you.

Dr. Rakeman.

Ms. RAKEMAN. I agree with Dr. Shah. We are not confident in the maturity of the technology that is being deployed. It is technology that has been used in a military setting, which is not appropriate for an urban center like New York City or other cities around the country. It generates a lot of false alarms, which is a problem.

Locals have not been given really any data and very little information about the system and have not been pulled into good conversations about how to develop this process and make it work.

So, again, it is a technology that is potentially being pushed on locals without any input. We have to respond.

Mr. PAYNE. Thank you.

Very quickly, Dr. George.

Ms. GEORGE. Mr. Chairman, I would only say just two things. One is that the system is predicated on the notion that State and local folks would respond immediately to a trigger. But if they are supposed to respond, they ought to be included in the planning for the system in the first place.

The other is that the DOD technology that is being tested was technology that was rejected by the Department of Defense. It did

not test well in the operational field environment. While it is good for DHS to try and test anything it can, I suppose, in the domestic environment, it is not like it started out with great results, and DHS has been testing it. It is not mature.

Mr. PAYNE. Thank you.

I now recognize the gentleman from New York, Mr. King.

Mr. KING. Thank you, Mr. Chairman.

Dr. George, just out of curiosity. There is no need to get specific. You mentioned Senator Daschle. Have his staff members recovered? Because I remember for several years afterwards, they were—some of them were still, you know, pretty ill from that.

Ms. GEORGE. Yes, sir, they have recovered. But one of the things—if Senator Daschle was here, he would tell you this—that none of the people that were potentially or absolutely exposed to those letters were ever tracked going forward. Nobody paid attention to their health, other than their bosses, like yourself and Senator Daschle. There is no reason for that.

The Department of Defense actually tracks people going forward if they have been exposed. I think it is a simple thing for the Department of Homeland Security to do now.

Mr. KING. OK. Thank you.

Tell Senator Daschle I wish him the best.

Dr. Rakeman, Chairman Payne and I, our districts are so close. With the PATH trains and Amtrak, what happens in New York can happen in Newark, and Newark can happen in New York.

Does the city have the supplies necessary to counter deadly pathogens?

Ms. RAKEMAN. So that is something that is a little bit outside of my area of expertise as a laboratory professional, so we can get back to you on that.

Mr. KING. OK. If you would, yes.

Also, then, I guess, if the city has its own vaccine stockpiles, or do you have to rely on the Strategic National Stockpile?

Ms. RAKEMAN. Again, we will get back to you on that.

Mr. KING. OK. To all of the witnesses, do you believe the Federal Government has successfully leveraged the private sector to increase bioterrorism defense?

Dr. SHAH. So let me just—

Mr. KING. Sure.

Dr. SHAH. Excuse me. Thank you for that question.

Let me just start by saying that I think there are opportunities for working with, partnering with, and learning from private sector. I think there is a lot that we can really look at with respect to technologies, improving those technologies, but also in the distribution of medication supply, stockpiles, et cetera. So I think there are some things that we can learn better as a Federal Government.

That said, this is an emerging area. This is also an area that has a number of unknowns that potentially can also be challenging. So I think the—you know, the proof in the pudding, if you will, is going to take some time for us to understand what better private companies might be able to—or private sector might be able to offer. But I think it is absolutely critical that the Federal Government does partner and explore all avenues to protect Americans.

Ms. GEORGE. Mr. King, I would say, no, they have not. Of course, the Department as a whole has struggled with leveraging and working with the private sector. But in this particular arena, I would say it is very hard for the private sector to even be involved if the office itself does not actually issue requirements for the technology that it is trying to utilize. They don't know where to connect.

It has been an unnecessary challenge, but I would also say it is not just about industry. Academia should be involved. Then you have your sort-of half-and-halves, like the National laboratories. They are not involved as much as they could be or should be.

Mr. KING. Dr. Rakeman.

Ms. RAKEMAN. I would agree with both of my colleagues on the witness panel here and also add that, again, more transparency and interaction with even local jurisdictions as well as industry partners, National partners. All of us are on the same team. All of us are looking to protect the health of Americans. If we get all of our heads together, that is going to give us the best result at the end of the day.

Mr. KING. Going back to Dr. George. Parenthetically—and this goes beyond this particular issue. I know one concern we have had for years is DHS has not worked with the private sector, for instance, to the extent that the Defense Department works with the private sector. In many ways, it should be mirror images of each other.

So—I guess—assume it is a deficiency, but especially in this regard. But as you are saying, unless the guidance is coming, it is hard to make use of the private sector.

With that, Mr. Chairman, I yield back.

Also thank you all for your testimony and your service. We appreciate it. Good seeing you again.

Mr. PAYNE. Thank you, sir.

We now recognize the gentlelady from Illinois, Ms. Underwood. Ms. UNDERWOOD. Thank you, Chairman Payne.

Before being elected to Congress, I was honored to serve as a senior advisor to the assistant secretary for preparedness and response at the Department of Health and Human Services, and while at HHS, I had the opportunity to work on public health response and recovery efforts involving emerging infectious diseases, natural disasters, and bioterror threats.

From my time working as a senior advisor to the ASPR and my work with BARDA, the Biomedical Advanced Research and Development Authority, I appreciate their evidence-based whole-of-community approach to planning, response, and recovery efforts, including in determining which threats to prioritize for development of medical countermeasures like vaccines, therapies, and diagnostics. I have seen first-hand how ASPR coordinates with CDC and local public health agencies on deployment and education.

After reviewing the testimony, your testimony, for today's hearing, it seems that there is room for closer coordination between the Department of Homeland Security, local law enforcement, and local public health departments.

So my question is for Drs. George and Shah. HHS also plays a critical role in protecting and promoting public health. As DHS

seeks to protect the country from the threat of bioterrorism, they should ensure that they are coordinating with HHS.

In your view, what could be done to strengthen that coordination?

Ms. GEORGE. Well, one thing I would like to mention are the material threat determinations that DHS is supposed to be producing and sending over to HHS for them to respond to, with BARDA's actions and others.

It currently takes the Department of Homeland Security up to 2 years to produce one of these things, which is way too slow for the actual threat stream, which means then that BARDA has to sort-of rush on its own with whatever information it can get.

So that should work better. If DHS can't produce one of those determinations in less than 2 years, then we need to come up with something else. Otherwise, you are going to automatically have siloed efforts going down the pike.

Ms. UNDERWOOD. Thank you so much.

Dr. Shah.

Dr. SHAH. Yes. Thank you for that question.

My humble opinion is that a lot more can be done. I have an incredible amount of respect for Department of Health and Human Services, ASPR, as well as CDC. They do an incredible job. They support hospital systems. They certainly support local public health departments, State public health agency, just an incredible amount of work that goes in. There seems to be a lot more of that cooperative agreement, a cooperative understanding, a sharing of working together with, partnering with, and really leveraging the expertise and knowledge of local, States, Tribes, territorial, as well as private-sector hospitals, et cetera, et cetera, all coming to the table.

That doesn't seem to be happening the same way with DHS. So I think just the fact that learning from each other and how HHS is able to share with locals, I think that is an important.

But I do want to also point out that we recognize again, as I said earlier, that there are sensitivities in a biodetection program. But there is also a trust that should be engendered with local public health officials that we also are a part of that spectrum.

So some—and oftentimes we are then put into the category of: Well, they are locals, they don't get it, they are not smart enough, or they are just not—we can't trust them enough with this sensitive information, and so, therefore, it is just not shared with us. That is—that is a terrible mistake.

Ms. UNDERWOOD. So would you characterize there have been an improvement since the Countering Weapons of Mass Destruction Office is now housing the health care aspects at DHS, or would you say that there has been really dissemination of that relationship over at DHS?

Dr. SHAH. It is difficult to tell. But I will say that we have noted that there was an earlier meeting, as you saw in my testimony earlier—meeting in Indianapolis where locals did share concerns with DHS and CWMD about the sharing of information, really working together. We are hopeful that that is going to start to show results. But that was the concern that was really articulated, is that you have got to work with Federal partners, Federal agencies across

the spectrum, and also work with State and local agencies. So certainly that is a perspective.

I think it is also important to say: Look, law enforcement and security oftentimes have different perspectives. Not that they are wrong, but different perspectives than health. So we have to really bring together both parts of the equation in order to be successful to protect our communities.

Ms. UNDERWOOD. Well, one of the things that we are considering, and certainly with feedback from the office of CMO, the chief medical officer, is trying to make sure that they have the authorities that they need in order to do their important work. It appears that in this reorganization, some of those authorities have been stripped away or require additional levels of bureaucracy in order to execute the mission. So, as you-all may have some ideas or feedback about how sure to structure that, please be sure to pass that on to our office.

With that, I yield back. Thank you.

Mr. PAYNE. Thank you.

I now recognize the gentleman from Texas, Mr. Crenshaw.

Mr. CRENSHAW. Thank you, Mr. Chairman. Thank you, everyone, for being here.

I will start with a general question, which is, as we say in the military, we have the most likely threat and the most dangerous course of action or threat.

For all 3 of you, what would you perceive to be the answer to both of those questions? The most likely threat that we face, I would say, so I guess the easiest way for someone to attack us, and the most dangerous potentiality that you might see.

Start with Dr. George.

Ms. GEORGE. Mr. Crenshaw, I think the most likely is a terrorist attack or a small-scale nation-state attack utilizing biological agents probably already weaponized. I think the most dangerous course of action—

Mr. CRENSHAW. Can you dig into that a little bit more? How would they do that? So what are our most vulnerable points in our society, if they were to—you said weaponize a biological agent. But if you were to take a quick look at our infrastructure right now, what would you say is the most vulnerable?

Ms. GEORGE. OK. So I am former military, too, so I am going to answer that question with a military answer.

So you have to look and see what is going on throughout the Nation right now. As a military person, if we were going to attack somebody else, we would look for vulnerabilities. But we would also look to see where are different critical infrastructure sectors or whatever is the most busy.

So places like New York and other metropolitan areas and rural areas that are currently struggling with naturally-occurring diseases are already taken up and responding to some kind of crisis. If you add in the naturally-occurring disasters and such, now you have another layer.

So, if you are going to attack with a biological weapon of any sort, or a biological agent, you are going to go to those places, which are very obvious on a map and attack there.

In terms of—in terms of weaponizing things, weaponizing a biological agent is not the most technically difficult thing in the world to do. It is made even easier when you get your hands on already-weaponized material from the former Soviet Union and other places like that. I would suggest to you that getting their hands on that material or producing it and then bringing it over here would not be that difficult.

Mr. CRENSHAW. OK. You mentioned New York City. Dr. Rakeman, if you could answer that, you know, what are your vulnerabilities in New York City? What do you see?

Ms. RAKEMAN. So I think one thing as a Nation that we need to be very careful about is maintaining the public health and health care infrastructure, because that is what we need in place to be able to detect and respond to any biological incident, whether it is an intentional attack or a naturally-occurring outbreak.

So making sure that we have stabilized funding and infrastructure in place, a laboratory that works and we have the right instruments and we can get the right reagents and get a test up and running very quickly in an emergency is really critical and sort-of keeping that going. We have been in a place where we sort-of fund our lab and buy new instruments and things from emergency to emergency rather than having things ready to go every single moment. We need to be able to do that.

Mr. CRENSHAW. Do you have that now?

Ms. RAKEMAN. So we did get a large influx of money after Ebola. That helped us actually, in one instance, in the Public Health Laboratory replace aging biosafety cabinets that were initially purchased with money that came after 9/11 and the Anthrax attacks.

Mr. CRENSHAW. Dr. Shah.

Dr. SHAH. Sure. I actually really like that last answer, Congressman. What I—and as I said in my testimony, I really think one of the challenges is that we have this invisibility crisis, that we are really behind the scenes.

Because we are behind the scenes, oftentimes there isn't the visibility, which then drives value, and when you have value, you have validation by either pro-health policies or pro-health funding. That is not happening.

So what happens is, we are behind the scenes, people don't see what we are doing, so we don't get that investment that you get with the bells and whistles of a police car or hospital or an emergency department physician. You start to really have a value proposition that goes into, well, public sector, public health, or even what is happening at local public health agencies, that is not as critical.

But surveillance systems, epidemiological systems, working with our hospitals, the technologies, those are vulnerabilities. So to answer your question, those vulnerabilities translate to if somebody is really looking at all of this and then you pepper this with Federal partners not sharing with local partners, now you have a state of either not-as-good capacity or you have a state of confusion when you actually have a release. I think that is our biggest vulnerability.

Mr. CRENSHAW. OK. So, if I understand in summary what you all are saying, you are not as concerned about whether they come

through the water or they send a sick person through an airport. You are concerned more about our ability to respond to any of those events?

Dr. SHAH. To detect and respond, that is right.

Ms. GEORGE. We are—our Commission is as concerned about the scenario you just laid out as with the ability to detect.

Mr. CRENSHAW. Thank you. I yield back. Thank you, Mr. Chairman.

Mr. PAYNE. Thank you. Before I recognize the next Member, I now ask unanimous consent to allow Congresswoman Sheila Jackson Lee to sit and question witnesses at today's hearing.

Without objection, so ordered.

I now recognize the gentleman from Texas, Mr. Green.

Mr. GREEN of Texas. Thank you, Mr. Chairman. Thank the witnesses for appearing. I am going to acknowledge the presence of Dr. Shah from Harris County. Greatly appreciate your work over the years.

Let me start with the concept that we have to embrace of CWMD, replacing BioWatch with the BD21 system.

The question has to do with the triggers. The triggers that are proposed, it seems, may not be as sensitive as we would have them be.

Can you give me some intelligence on how these triggers will perform, in your estimation, if you have such?

Dr. SHAH. Thank you, Congressman. Great seeing you again today.

I am going to defer the scientific aspects to my colleagues. But what I would like to say is that one of the concerns that we had initially with the BD21 was that it seemed to skip a step when it came to locals being involved in even knowing that something was happening that was abnormal.

That was a very big concern that, for example, we in local—and you know our local governance, our Judge Hidalgo, our emergency management, and our entire structure at the county, as well as with Mayor White and—Mayor Turner and all of our colleagues at the city of Houston. There is an incredible infrastructure of local strength.

What we didn't want to have happen is that in the middle of something being detected, our Federal Government partners were finding out first, and we weren't even aware that something was happening. We are hopeful that that has changed, but that is one of the big concerns that we had.

Then I will defer to my colleagues on the triggers piece.

Mr. GREEN of Texas. Thank you.

Ms. RAKEMAN. I think one of the major concerns we have with BD21 and our interaction with CWMD and DHS on this project is that we haven't really been given any information; we have no data on how the anomaly detection works, how well it performs. Again, we are being asked to start to think about developing CONOPS and response plans for this system without knowing anything about its performance characteristics.

Ms. GEORGE. Mr. Green, from what we have been told, there isn't reliability and validity data on any of the detectors that are being tested as part of BD21, No. 1.

No. 2, it depends on trying to set some sort of normal baseline for whatever is going on around those detectors, and then eventually getting to the point where you could identify an anomaly.

The problem is, most of these detectors aren't set up for that sort of thing, No. 1. No. 2, the Department that is trying to do this, the Department of Homeland Security, hasn't been in the environmental airborne detection business for that long.

If you are going to look at the background anyplace and look at things like pollen counts and air quality, you are going to go to EPA or some other department. So they don't even have that sort of history—historical background to use with the system.

Last, I would tell you that we have heard that the BD21 detectors go off at least 1 time a day, wherever these 12 have been deployed thus far. They go off, but nobody knows what to do about it because they didn't get in place with a good concept of operations in the first place or any direction to the State and locals or any of the other Federal departments and agencies like the FBI and DOD that might have to respond.

Mr. GREEN of Texas. Next question. With the current BioWatch system, have you been privy to an actual testing of the system where you actually see it function so as to determine the efficacy?

Ms. GEORGE. I have never seen such a test done since its implementation. The last time I saw BioWatch or BioWatch-related technology being tested, physically being tested, was back when the original technology was rolled out for the Salt Lake City Olympics. One of the National labs actually produced the BASIS detector. I have not seen since then.

Dr. SHAH. What I would just add is that, as you know, 2003, Houston was the first BioWatch hit in the country. We have learned a tremendous amount since then. However, I will say, with the bacterium that was discovered at that time, we were being told that this is an active intent or terror immediately, regardless of what was happening, and turned out over time learning that it was really naturally-occurring bacterium.

That is a big challenge. This is why it is not just the science of the biodetection. It is the art of public health coming together and really putting all of that intel together to make decisions.

Mr. GREEN of Texas. Thank you very much, Mr. Chairman. I yield back.

Mr. PAYNE. Thank you.

I now recognize the gentleman from Mississippi, Mr. Guest.

Mr. GUEST. Thank you, Mr. Chairman.

Dr. George, you state in your report that the Bipartisan Commission on Biodefense in October 2015 presented findings and recommendations to this committee. You state in the report that you made 33 recommendations, and then you later, on page 2 of your report, state that 4 years after the release of the initial report, the Nation remains unprepared for bioterrorism and biological warfare with catastrophic consequences.

My question to you is, of those 33 recommendations that were made some 4-plus years ago, what progress has been made to make sure that those recommendations are being carried out?

Ms. GEORGE. Thank you, Mr. Guest.

Some of our recommendations have been taken up. We had 33 recommendations and 87 associated action items. Of those, I would say about 17 have been taken up by Congress in various pieces of legislation, the reauthorization for the Pandemic All Hazards Preparedness Act, the farm bill, the National Defense Authorization Act and others.

In terms of actual execution, however, I would tell you that the third recommendation for a National biodefense strategy has been completed. The Trump administration released that last year, and they are in the process of implementing it. Other activities have been taken up by the Federal Government itself without legislation or the White House having to push them to do it.

Strides are being made in terms of biological attribution, in terms of addressing the one health concept of animal, environmental, and human health all coming together.

The State Department has taken some forward steps in terms of addressing the biological weapons convention requirements. The Judiciary Committee here has been working on strengthening the law to make the possession of biological agents and working with biological agents more of a criminal activity.

Mr. GUEST. So, from your answer, roughly half of those recommendations, there has been some action on? Would that be correct, Dr. George? I think you said 17. Did I get that number correct?

Ms. GEORGE. I would say probably 10 percent.

Mr. GUEST. Oh, only 10 percent?

Ms. GEORGE. Yes.

Mr. GUEST. All right. Of those that have—those recommendations that we have not yet taken action on, which of those do we need to give the highest priority to?

Ms. GEORGE. Gosh, I think this issue of biodetection certainly is a high priority. I think that our recommendations on preparedness for the public health and health care communities are also high priority.

I believe we need a stratified hospital system so that we know where to send patients, wherever those patients might find themselves. We can't assume that everybody who is going to become ill from a biological agent is conveniently going to be around the 4 or 5 Ebola treatment centers that we have right now.

Mr. GUEST. Let me ask—you also talk about in your report—you mention North Korea and Russia, that they continue to develop biological weapons. You say China will invest, between 2015 and 2020, \$12 billion in biological innovations. You also mention Iran and terrorist organizations.

As it relates to terrorist organizations, you talk about different biological agents, including anthrax. Where would a terrorist organization most likely obtain a biological agent? Would they manufacture those themselves? Would they be obtained from a country, such as Iran or North Korea? Based upon your expertise in this area, is it more likely that they will internally be able to produce a biological agent, or would they be more likely to partner with North Korea, Iran, China, Russia, one of the nation-states that currently are producing and possess biological weapons?

Ms. GEORGE. Sir, I think it depends, honestly. It depends on the terrorist organization and the resources that they have available to them. If they can, if they have the resources, if they can get them and they can get the scientific expertise, they will try and produce them themselves, because that would just be easier logistically.

Otherwise, you would have to determine whether those organizations have a relationship with the countries you just mentioned, or whether they are able to tap into the black market, and somehow get already weaponized material out of the former Soviet Union and other countries like that, and bring—and just already have weaponized material at their disposal.

Mr. GUEST. One last question, ma'am. I know my time is running short.

In previous meetings and reports, the Commission has highlighted the importance of partnering with the private sector.

Can you provide examples of how the private sector, specifically the medical countermeasure manufacturers, have partnered with the U.S. Government and ways in which we can improve this public/private partnership in which we are working together to keep the American public safe?

Ms. GEORGE. Sir, I think where it has worked best is when the U.S. Government has been very clear on its requirements, so that the private sector knows what it is responding to.

A great example would be what happened with Ebola. We had a very—the industry had a very specific disease it was going after. It knew where various locations were at. The Department of Defense, the Department of Health and Human Services, and others, were very clear on what it is—what it was they were looking for.

So now you can see today, we don't just have one vaccine, we have got all kinds of things happening now, because they knew what they were shooting for.

Mr. GUEST. Thank you.

Mr. Chairman, I yield back.

Mr. PAYNE. Thank you. I now recognize the gentlelady from Texas, Ms. Jackson Lee.

Oh, I apologize, sir. We will now go to the gentleman from New York, Mr. Rose. I apologize.

Mr. ROSE. Thank you, sir. No need for an apology.

Dr. RAKEMAN, thank you for your service, first of all, to New York City.

Are you familiar with the unit at Fort Hamilton Base that moves to major sites, whether it is the Thanksgiving Day parade or whatever else it might be, that has biodetection technology?

Ms. RAKEMAN. I am not. I can get back to you with more information—

Mr. ROSE. OK. Well, this unit does exist, and they do certainly move from—

Ms. RAKEMAN. CST unit?

Mr. ROSE. What is that?

Ms. RAKEMAN. CST unit, Civil Support Team?

Mr. ROSE. Yep. So my concern is, is that when they are on-site, they have basically detection technology there, and it takes about an hour to determine if something is hazardous or not.

In the event that that CST unit is not on-site, let's say U.S. Open, whatever other large-scale event in New York City, what is the time that it takes from identifying whatever it might be to actually having a confirmation that it is hazardous?

Ms. RAKEMAN. So using the BioWatch system, which, in New York City, can be deployed and is often deployed at big special events, such as—I am sorry—the New York Yankees games, things like that, and events like the U.S. Open, we will—the city will deploy PSUs to those.

Mr. ROSE. A PSU is?

Ms. RAKEMAN. A portable sampling unit, the unit that is on-site that actually draws in the air sample.

Mr. ROSE. They have the same technology as a CST?

Ms. RAKEMAN. The CST technology is not something that I am particularly familiar—

Mr. ROSE. Dr. George, do you want to add anything to this?

Ms. GEORGE. No, sir. It is different technology.

Mr. ROSE. How is it different?

Ms. GEORGE. I can't tell you that, sir. It is just different technologies, actual different pieces of equipment.

Mr. ROSE. Is it worse? Is it better? Is it—I mean—

Ms. GEORGE. I don't have that data, sir. I would have to talk to DOD.

Mr. ROSE. So PSUs, you said, right?

Ms. RAKEMAN. It is BioWatch testing. So then the filter would come back the Public Health Laboratory and be tested.

Mr. ROSE. So the PSUs don't—can't test it on-site?

Ms. RAKEMAN. No. No, all BioWatch testing samples—

Mr. ROSE. So what do they do then?

Ms. RAKEMAN. So they are collected by our partners in the field—

Mr. ROSE. OK.

Ms. RAKEMAN [continuing]. The filters, they come back to the laboratory, and we process and test those samples at the laboratory.

So in New York City, depending on where the sampler is—and if it is a special event, the sampler will be operational for a period of time, up to 24 hours. It could be less. So an attack may have occurred 24 hours prior to when the sample is collected. Then that sample needs to be transported to the laboratory, processed and tested, and that takes a number of hours as well.

So the window between when something may have happened and when we actually have a positive BioWatch actionable result in the laboratory can be over 24 hours, up to 36 hours.

Mr. ROSE. So what is our right now—first of all, is that OK, 36 hours, in terms of the time line? Is that too long? It seems to me that that is too long.

Ms. RAKEMAN. The goal for biodetection, and one of the goals of the BD21 program, is to shorten that time to detection. That is something is that we definitely support.

Mr. ROSE. What would you like to shorten it to?

Ms. RAKEMAN. Well, to pick up an attack, to be able to save lives, hours count. So as short as that window can be, the better it is.

Mr. ROSE. So, Dr. George, what do you think it should be?

Ms. GEORGE. You know, sir, the right answer to this is it should be immediate or near-immediate.

The reason she is saying that it is taking so long is because those—what is happening with the current BioWatch system is that it is just a system of filters that is filtering air and somebody has got to test it. The system itself is not testing it.

So if you have better handheld detectors that could identify something quickly and with valid and reliable results, or you had better detectors or whatever—

Mr. ROSE. That technology exists?

Ms. GEORGE. Technology exists, but it is—but none of that technology is perfect yet. So all of it requires gold standard testing back in a laboratory as of right now.

Dr. SHAH. That was a key. The key message is that it is the confirmatory test. You certainly don't want to launch a response when you don't have the confirmation.

Ms. RAKEMAN. The tests deployed need to be good, reliable tests.

Mr. ROSE. But we do have the technology right now for mobile laboratories, correct?

Dr. SHAH. Well, and I will—

Mr. ROSE. Does that technology exist?

Dr. SHAH. I will defer, but we do—we still—the mobile does not have the confirmatory component.

Mr. ROSE. OK.

Dr. SHAH. So it still requires you going back to a public health laboratory or response network laboratory to actually confirm.

Mr. ROSE. Well, but, right now in New York City, based off our SOP with the NYPD, obviously we would evacuate a site once there was any level of confirmation, correct?

Ms. RAKEMAN. So if we had a full BioWatch actionable result that we determined—and me, as the laboratory director, is responsible for determining whether our result is valid, which is—then the response would happen. That is something that we partner with NYPD to determine—

Mr. ROSE. So right now, if you found something in Grand Central Station, and I am sure this has happened before, and you send it to the lab, takes 36 hours. So really, what New York City policy is right now, is that we find something that is potentially hazardous, we wait 36 hours before evacuating?

Ms. RAKEMAN. No. So it might take 36 hours to determine whether there is a reason to go back and do follow-up sampling, to determine whether there was a true agent in that facility at that site.

Mr. ROSE. So how long does that take?

Ms. RAKEMAN. Well, then that can add on more hours.

Mr. ROSE. So basically, I am asking, how many hours does it take for us to find out whether this stuff kills people? Do you have a number for that?

Ms. RAKEMAN. I don't have a number for that. We can get back to you. We would have to talk about the entire system and work with all of our partners to come up with that number.

Mr. ROSE. Who is in charge of that entire system in New York City?

Ms. RAKEMAN. There are multiple city agencies that work—

Mr. ROSE. There is not one person in charge?

Ms. RAKEMAN. No.

Mr. ROSE. So there is not one person in charge in New York City right now of managing a biohazard response?

Ms. RAKEMAN. So there is a public health piece to the response that the health department is responsible for. There is a law enforcement response that the law enforcement teams are responsible for.

Mr. ROSE. OK. So we have some interesting questions here, because I am a simple guy. I just want to know that we can quickly get people out of large areas by quickly finding out that there is a hazardous item there.

Mr. PAYNE. The gentleman's time has expired, and if we can come to a second go-round, we can get back to that.

Mr. ROSE. Thank you.

Mr. PAYNE. I recognize the gentlelady from Texas, Ms. Jackson Lee.

Ms. JACKSON LEE. Mr. Chairman, let me thank you for your generosity and kindness for allowing me to sit on a very important panel for a committee that I have invested my legislative career, the Homeland Security Committee.

But I want to thank you particularly for your well-suited leadership on this committee. I look forward to working with you and being a problem-solver for some of the very issues that these very fine witnesses are espousing, particularly in the FEMA overhaul.

One of the things that we are stifled by is the structure of funding from the Federal Government, the Stafford Act. For those of us who have experienced disasters, Hurricane Sandy, you saw it firsthand, your local folk coming out of City Council—I came out of City Council—your local folk needed their resources and they knew what they needed to do.

So, my line of questioning will be to these witnesses on that very order. But as I do so, I would be remiss not to speak about my friend, Dr. Shah, who has responded to all of the public requests that I have made dealing with public health. Let it be very clear that we have worked together on public matters. I am reminded of the Zika virus and the work and the promptness and the astuteness that Harris County Health engaged in. Dr. Shah is a collaborator with the Houston City Health Department. We worked on Ebola. No, the first case was not in Houston, it was in Dallas, but we were well recognizing, as the rest of you were, that we needed to be on point, because Ebola took to the flight, aviation system, and people were traveling.

We worked on this question that doesn't get you a lot of fans, and that is about supporting vaccinations. When we were having a moment in our community wherein people seemingly were rejecting the value of vaccinations, that is a public health scenario.

For example, one does not know if those untoward Russian bots could influence people, let's don't get vaccinated. We know what will happen. We had a measles outbreak in a number of places. Then, of course, the idea of gun violence.

So let me make some pithy questions. Yes or no. I want to get back to Dr. George, and I want to thank her for her service. I want to thank her for the 2014 report that you worked on so diligently.

Just give me—has the Government responded to that report and some of the valuable aspects of it?

Ms. GEORGE. Yes.

Ms. JACKSON LEE. In its totality or portions thereof?

Ms. GEORGE. Portions thereof. I think—

Ms. JACKSON LEE. Tell me where we could get in there in a better way for some of the—

Ms. GEORGE. I think where Congress could act would be to take—take those activities they are halfway through and push them, show some interest and—

Ms. JACKSON LEE. Give me one activity to push through?

Ms. GEORGE. Well, I think—BioWatch is the topic of today. I think BioWatch would be one that could be pushed.

Ms. JACKSON LEE. That we need to profoundly try to refine and define and make it work?

Ms. GEORGE. Yes, ma'am.

Ms. JACKSON LEE. You also—someone said the BD21 has data that you haven't discerned whether it is reliable. Is that accurate?

Ms. GEORGE. Correct.

Ms. JACKSON LEE. So that is certainly a part of our work that we really need to encourage and work with the private sector. We need to refine the reliability of that data?

Ms. GEORGE. Correct.

Ms. JACKSON LEE. To both—I am going to go to Dr. Shah first, but let me ensure that Dr. Rakeman—see if my glasses are working—can ask, in your leadership. But you made a very important statement that the bells and whistles of public health are not conspicuous. If you are working on Zika, maybe the neighborhood of which you may be doing the complementary mosquitoes spraying, which is another agency, but you work with them to do what they are supposed to be doing, is not a real bell and whistle, unless somebody is looking out their window at about 9 at night.

But there are other aspects of public health that you are working on, and, therefore, when it comes to funding, you may not be in the forefront.

Tell me how devastating that is and how we need to change the Federal construct that you—that we are dealing with so that public health, particularly in bioterrorism, can be front and center? Dr. Shah and Dr.—

Dr. SHAH. Sure. Thank you, Congresswoman, for your leadership and your support of public health. We really appreciate that. Your on-going support is critical to what we are wanting and trying to achieve in our local community. So thank you.

I think that the real rub of this is—at the end of the day, is to ensure that locals are a part of that planning process. I mean, emergencies happen in local communities, local governments, local responders, local partners, local community members who are impacted. We want to make sure—and you highlighted many of those issues that have occurred in our community, but also the vast number of emergencies that the Houston/Harris County and southeast Texas, as well as Texas throughout has had, in terms of emergencies over the years.

We have to ensure that that experience is respected by our Federal partners, that it is not that the Federal partners know it all,

and they simply say, You know what? We are going to tell you exactly how this is going to happen. It should be a cooperative partnership. That is not always happening, and I think that is the concern.

Ms. JACKSON LEE. Doctor, would you respond?

Thank you, Dr. Shah.

Ms. RAKEMAN. Thank you. I like Dr. Shah's hashtag of invisibility crisis. Because that really is something that is an important aspect of what we do in public health. Our job is to keep people from getting sick. To sort-of put that on a banner, puts lights and sirens around that, is very difficult.

So, making sure that State and locals—local governments are part of the conversation when it comes to things like funding or programming is very important, because what we do needs to have infrastructure and that needs to be there always. We don't know when the next outbreak is going to happen. We don't know when the next crisis will occur. But if the infrastructure is not there ahead of time, then we can't respond.

Ms. JACKSON LEE. Let me quickly ask you this:

You heard me talk about the construct, which is Federal, State, and then maybe—would it be helpful that if we had a definition of a crisis, an emergency, a natural disaster, a man-made disaster, that you are getting a direct emergency infusion of dollars? Would that be helpful to you all as leaders in your community on health care?

Ms. RAKEMAN. Yes.

Ms. JACKSON LEE. It would be defined to the particular incident, or the definition of incidents, that would occur that would be able to direct moneys directly to those local agencies.

Dr. Rakeman.

Ms. RAKEMAN. So getting funding to local agencies is very, very important. Funding that is, particularly for emergencies, is important and necessary.

What can be hampering is if funding dollars are tied to specific events and that we can't use them for other things, because building that infrastructure is important. The same instrumentation we use in the laboratory to test for a food-borne outbreak is instrumentation we use to test for Zika or to test for Ebola.

So having all of that there and being able to spend the money in the way that makes our work most efficient and makes us most nimble is really critical.

Ms. JACKSON LEE. We would listen to you in how that would be designed.

Dr. Shah.

Dr. SHAH. Yes. As you know, it is not an either/or. It is not just the emergency funding coming. It is really building that capacity throughout. So you have higher level of capacity, and so, you don't have to stretch as much when you have a surge in an emergency.

But I think as you also know, Congresswoman, there is also that concern about looking at how Federal agencies really send those dollars down to local partners, local health departments, and insuring that it is not just going, for example, to a city core, but really, it is looking at all of the risk threats and all of the community members that are potentially in Houston/Harris County, where you

have 2.2 million that are within the city of Houston, but you have 2.5 million outside the city of Houston, also looking at a whole-community approach to that funding.

So I think looking at funding streams and funding formulas is absolutely critical so that we can get this correct.

Mr. PAYNE. OK.

Ms. JACKSON LEE. I know my time is long spent, Mr. Chairman. Thank you to the witnesses.

As I close, may I just have a letter of collaboration from the city of Houston? May I just extend a question that we can work on? Part of their issue is being blocked from getting information because of it being Classified—as Classified or they are not at that level. So I think this is a very perfect entity to work on solving some of those structural problems, funding problems—

Mr. PAYNE. Yes.

Ms. JACKSON LEE [continuing]. So that we can fight this war of bioterrorism.

Thank you. I yield back, Mr. Chairman, for your courtesies, thank you.

Mr. PAYNE. I would like to ask unanimous consent to enter into the record the Bipartisan Report of the Blue Ribbon Study Panel of Biodefense from October 2015.*

I want to thank all of you for your testimony.

Ms. JACKSON LEE. I am sorry. Mr. Chairman, did you get this one, too, the letter that I offered on unanimous consent to be—

Mr. PAYNE. Without objection.

[The information referred to follows:]

LETTER FROM THE CITY OF HOUSTON

October 17, 2019.

Congresswoman SHEILA JACKSON LEE (TX-18),
2079 Rayburn HOB, Washington, DC 20515.

DEAR CONGRESSWOMAN JACKSON LEE: We are writing to brief you on the current efforts that the city of Houston (COH) has under way to be prepared for a Bioterrorism event. We have strong relationships between the Houston Health Department (HHD), Houston Emergency Medical Services, HazMat teams, Emergency Management, health care, and law enforcement agencies, both Federal and local. Our efforts include drills, surveillance and laboratory capacity.

In October, we will be conducting an exercise to develop our mass dispensing capability for antibiotics that would be issued in the event of an anthrax event. That day-long exercise includes multiple Point of Dispensing sites (PODs) to dispense antibiotics and reassignment of COH employees to staff the exercise. In 2018, we worked with the U.S. Postal Service to conduct an anthrax tabletop at the main Houston postal distribution center.

During the current baseball playoffs for the Houston Astros, COH is conducting enhanced syndromic surveillance and laboratory testing for any possible bioterrorism incidents. The effort includes syndromic surveillance of emergency room complaints and laboratory surveillance for bioterrorism agents.

We are also aware of the risk that illegal drugs potentially pose both as a risk to the community and as potential bioterrorism agents. COH has just competed for and been awarded a Department of Justice award to implement OD Map, a tool to track opioid overdoses.

Early in 2020, COH units, including public health and the water department, will partner with the Environmental Protection Agency and the Houston office of the Federal Bureau of Investigation to describe water issues in biosecurity. We will explore possible hazards and do a tabletop exercise assessing COH ability to respond to an incident where the opioid fentanyl is added to the water supply.

*The information has been retained in committee files and is also available at <https://biodefensecommission.org/reports/a-national-blueprint-for-biodefense/>.

The HHD lab has extensive laboratory testing capacity, including the ability to conduct rule-out testing for Category A agents. The laboratory has been quick to adopt emergent testing capabilities, including for Ebola. Such capacities are developed as part of our participation in the Laboratory Response Network.

COH is extremely aware of the potential risk of bioterrorism and has a strong system in place to detect, confirm and respond to such incidents. We wanted to let you know that we take our responsibility seriously and make maximum use of Federal dollars.

Sincerely,

STEPHEN L. WILLIAMS,
Director, Houston Health Department.

DAVID E. PERSSE, MD,
Public Health Authority, Physician Director EMS.

Ms. JACKSON LEE. Thank you, Mr. Chairman.

Mr. PAYNE. I want to thank the witnesses for your valuable testimony and the Members for their questions.

The Members of the subcommittee may have additional questions for the witnesses, and we ask that you respond expeditiously in writing to those questions.

Pursuant to committee Rule VII(D), the hearing record will be held open for 10 days.

Without objection, hearing no further business, the subcommittee stands adjourned.

[Whereupon, at 11:34 a.m., the subcommittee was adjourned.]

APPENDIX

QUESTIONS FROM CHAIRMAN DONALD M. PAYNE, JR. FOR ASHA M. GEORGE

Question 1a. It is my understanding that DoD Civil Support Teams (CST) teams have biodetection capabilities.

What capabilities do they have and how do they interact with local public health?

Answer. The commission understands that the National Guard Weapons of Mass Destruction (WMD)—Civil Support Teams (CSTs) support civil authorities when a domestic biological event occurs with identification and assessment of the biological hazard. They utilize an Analytical Laboratory System (ALS, a standardized mobile laboratory system) to conduct analysis of biological samples collected from the affected environment. The ALS also prepares, extracts, analyzes, and stores environmental samples, using a variety of scientific methods, including electrochemical luminescence, gas chromatography, mass spectroscopy, infrared spectroscopy, polarized light microscopy, polymerase chain reaction, lateral flow immunoassays, high purity germanium gamma spectroscopy, and fluorescence microscopy.

The commission's understanding is that the National Guard CSTs interact with the Laboratory Response Network (for biological, chemical, and radiological threats)—also known as the LRN. Public health laboratories are members of this Network. In addition, the CSTs participate in scenario-driven exercises and support large-scale events at which the public health community is also present. Given the relationship of the National Guard with their Governors, it seems more likely that the CSTs would interact with State departments of health than they would with local public health personnel.

While the CST integrates data from a variety of sources to determine the extent and severity of a biological hazard, the commission understands that CST testing throughput capability is limited to a maximum of 8 samples per day, making the use of LRN reference laboratories for confirmatory testing critical during events.

Question 1b. How long does it take them to detect a biological agent?

Answer. The commission does not possess information about how long it takes for a CST ALS to identify biological agents, but depending on the type of scientific method used, most identifications take from 4–48 hours. Preliminary, unconfirmed identification takes much less time than confirmation, which often requires the growth of microorganisms and subsequent use of gold standard laboratory testing that occurs in brick-and-mortar laboratories.

Question 1c. How do they confirm the results? If there is a positive hit in their detection system, what actions do they take?

Answer. The commission has been told that the ALS applies standardized analyses to screen potentially hazardous samples and prepare them for safe transport by the appropriate civilian law enforcement entity to the appropriate LRN reference laboratory for confirmatory testing and definitive analysis.

The commission understands that while the CST focuses on sending samples back to the appropriate LRN reference laboratory for confirmatory testing to support public health decisions, the CST also works closely with the Federal Bureau of Investigation, local law enforcement, and public health agencies to support public health and safety decisions with on-scene hazard analysis and evaluation of the extent of contamination.

The commission also understand that CSTs may take other actions after initial detection of a biological agent vary according to the situation. If a CST has been deployed to support a large-scale public event, they are part of a larger team (which may include local law enforcement, hazardous materials specialists, medical, public health, and Federal law enforcement, among others) and would alert incident commanders on-site, as well as their own Department of Defense (DOD) chain-of-command, to the suspected presence of biological agents. If the CST is deployed alone or as part of military activity, they would alert their own DOD chain-of-command, which would, in turn, alert civilian leaders and organizations.

Question 1d. What technology does CST use for biodetection? How does it compare to BioWatch technology?

Answer. The commission does not know which technology the CSTs are using to detect biological agents. We understand that a wide variety of detectors with different capabilities are available to DOD, including bio-aerosol monitoring and sampling systems, and devices that trigger on-board or remote samplers to collect real-time samples for subsequent analysis when a biological threat is present. From what the commission has been able to tell (without data), all biodetection systems currently in use by the CSTs, other elements of DOD, other parts of the Department of Homeland Security, and NASA outperform BioWatch technology.

QUESTIONS FROM HONORABLE JAMES R. LANGEVIN FOR ASHA M. GEORGE

Question 1. The intelligence community is increasingly concerned that the technical knowledge and material needed to develop biological agents is becoming more widely available. Will you please discuss how advances in synthetic biology and genome editing make it easier to develop biological weapons? What trends are you seeing in this area?

Answer. The commission understands that next-generation technologies (e.g., CRISPR-Cas9) have greatly lowered the barrier for both good and bad actors to experiment with microorganisms. Today, anyone looking to develop or alter biological agents can feasibly do so. Directions are readily available for those who know where to look for them on the Dark Web, and raw biological materials can be conveniently ordered on-line. The prospect of advances in synthetic biology being misused becomes even more concerning when considered in conjunction with the convergence of the cyber- and biological sciences. Bad actors may seek to penetrate sensitive computer systems at research institutions or Federal laboratories to obtain data regarding biological agents and other disease-causing organisms that they could use to develop biological weapons.

Such developments have increased the number of biological threats and made it all the more difficult to detect and identify them. While it is difficult to quantify how much the biological threat has expanded in recent years, the commission believes that it is a question of when, not if, synthetic biology and genome editing are used to create deadly pathogens.

Question 2. As you mentioned in your testimony, the Department of Homeland Security is using outdated Department of Defense technology in its transition from BioWatch to BD21. Is it your sense that DHS has access to the latest DoD technology? Is there another reason DHS is not using the latest technology in the testing and implementation of BD21?

Answer. The commission understands that Department of Homeland Security (DHS) BioWatch program has long suffered from a lack of effective technology. As currently designed and deployed, the system and its underlying technology simply do not work. BioWatch detectors cannot accomplish the stated mission of rapidly detecting biological threats to the public.

The commission understands that the BD21 program has obtained older Department of Defense (DOD) detection technology (including Government off-the-shelf technology) for evaluation, instead of more recent technology available to the private sector and other Federal departments and agencies. DOD also provided technology for evaluation by DHS that failed when DOD fielded the technology itself. Although DOD has transitioned some technology to DHS, these candidates have not included the latest DOD technology, according to both DHS and DOD. DOD is not required to provide all of its biodetection technology with DHS.

The DHS Office of Countering Weapons of Mass Destruction (where responsibility for BioWatch and domestic environmental biodetection resides) does not appear to the commission to be adhering to a standard Federal acquisition process. DHS has not issued requirements for BD21 biodetection technology. Industry representatives are at a loss as to what, if anything, they should provide when responding to DHS calls for biodetection technology. As a result, much of the private sector is not providing more advanced biodetection technology to DHS and those companies that are providing technology are guessing at requirements and providing technology that is inadequate to meet DHS National biodetection needs.

The commission understands that other elements of DHS are employing biodetectors that are not part of BioWatch and also do not appear to be under consideration by DHS for BD21. The Office of Countering Weapons of Mass Destruction has not explained why this is the case, but other parts of DHS believe this is due to the office's poor working relationship with the Science and Technology Directorate, which was responsible for identifying and emplacing some of this biodetection technology.

BioWatch program officials, working in conjunction with the DHS Science and Technology Directorate and other Federal partners, should identify the most cutting-edge biological detection technology and test it for potential use in the program. While DHS has declined to conduct a full evaluation of detection technology currently available to Federal departments and agencies, as well as the private sector, nothing prevents the Department from conducting such an analysis. The DHS Office of Countering Weapons of Mass Destruction consistently declines to work with the DHS Science and Technology Directorate in this regard.

Given the long-standing issues surrounding the technology used for the BioWatch program, Congressional actions, through oversight and legislation, may be the best methods by which to ensure that the latest technology is considered to replace BioWatch detectors. The commission recommended and continues to recommend that Congress and the administration terminate the existing BioWatch system and replace it with technology that can actually detect biological threats, thereby fulfilling Congressional mandate in this regard. If DHS cannot accomplish this, the commission recommends that Congress eliminate the program altogether.

Question 3. Researchers must follow security standards when working with dangerous pathogens to ensure they are not accessed by people with malicious intent. Are researchers required to comply with any cybersecurity standards when storing data on dangerous pathogens that could have biodefense implications?

Answer. The commission is not aware of any cybersecurity or cyberbiosecurity standards with which civilian researchers that work with dangerous pathogens and must store data on dangerous pathogens with biodefense implications must comply. The commission believes that the DOD is slightly further ahead in this regard, in that the National Security Agency has at least developed some mature plans for how researchers should store and work with this sort of data in a cyber-secure fashion.

QUESTIONS FROM HONORABLE LAUREN UNDERWOOD FOR ASHA M. GEORGE

Question 1. Recent reports have suggested that both health disinformation and misinformation campaigns have promoted vaccine hesitancy amongst the public. I am concerned that these campaigns could have long-lasting consequences on public health in this country. Are you worried that these campaigns will have a negative impact on domestic preparedness in case of a bioterror attack or naturally-occurring outbreak?

Answer. The commission supports vaccine uptake by the public as an effective approach to prevent, deter, and mitigate large-scale biological outbreaks. Although the Nation's biodefense enterprise often finds itself focusing on the challenges of research and development for new vaccine candidates, producing and stockpiling medical countermeasures are only two elements of biodefense. Public engagement and education regarding the benefits of vaccination are important contributors to public health security. The success of ring vaccination and other response efforts depend upon public trust in public health and other Governmental institutions. Public disinformation and misinformation campaigns about vaccines undermine public confidence in vaccine safety and put the health of the Nation at risk.

Question 2. Credible information is critical to saving lives during terrorist attacks. How can State and local health officials work to ensure the correct information is disseminated to the public leading up to, during, and after a bioterror attack? What can the Federal Government do to be an effective partner?

Answer. Effectively alerting the public depends upon access to accurate, actionable information with which to issue alerts. State, local, Tribal, and territorial governments should leverage their public health laboratories to confirm the identification and presence of biological pathogens. Simple, clear messaging to the public regarding the extent of the threat posed by an outbreak must follow. In the case of a biological terrorism attack, law enforcement must be brought in as evidence emerges, so that they can investigate and assist with messaging. Locations where needed medical countermeasures are available should also be made clear by the Federal Government.

Unfortunately, the unreliable technology that comprises the Federal Government's biological detection system, BioWatch, makes the task of collecting useful data for the purposes of informing the public more difficult. The Federal Government must replace this technology so that State, local, Tribal, and territorial partners can better maintain situational awareness of and during an outbreak. The Department of Health and Human Services, and Federal law enforcement, can assist with coordination and messaging for after a biological attack, and provide guidance on the location of supplies and medical countermeasures.

Question 3. How would you characterize the decision to move the health aspects of the Department of Homeland Security, including the Office of Health Affairs and Office of the Chief Medical Officer (CMO), within the Office of Countering Weapons of Mass Destruction (CWMD)?

Answer. In 2017, the Department of Homeland Security (DHS) decided to reorganize its weapons of mass destruction programs by combining the Domestic Nuclear Detection Office with the Office of Health Affairs and parts of a few other DHS components. The resulting Office of Countering Weapons of Mass Destruction was charged with leading Department policies and coordination on matters pertaining to chemical, biological, nuclear, and radiological threats. This reorganization also saw the transfer of some of the duties from the Office of Health Affairs to the Department's Management Directorate, to maintain the health of the DHS workforce. Other duties deemed to be more operational, including deploying liaisons to component agencies, were kept at the Office of Countering Weapons of Mass Destruction. During the course of this process, the position of the CMO was subsumed and the political position of Assistant Secretary of Health Affairs was changed to the Assistant Secretary for Countering Weapons of Mass Destruction.

An argument could be made that the CMO position and occupational health matters for the Department's workforce should be located within, and addressed by, the DHS Management Directorate. However, current statute (6 USC 597) specifically charges the CMO with some of the same responsibilities now taken up by the assistant secretary for countering weapons of mass destruction.

Question 4. Do you believe providing the CMO with contracting authority will allow for greater operational capabilities?

Answer. No, the commission does not believe that providing the CMO with contracting authority will allow for greater health care and public health operational capabilities. The problem is that the position of the CMO has been subsumed within the Office of Countering Weapons of Mass Destruction.

Question 5. Can you provide any recommendations for how the Department of Homeland Security should structure the CMO within DHS?

Answer. I believe that the position of the chief medical officer (CMO) should be removed from the Office of Countering Weapons of Mass Destruction. I believe the CMO should retain responsibilities for serving as principal advisor on medical and public health issues to the Secretary of Homeland Security, administrator of the Federal Emergency Management Agency, and all other officials in the Department of Homeland Security (DHS). The Department's CMO should also retain responsibility for coordinating medical and public health matters with Federal, State, local, Tribal, and territorial governments; and the medical, public health, and emergency medical services communities. Advisory and coordinating responsibilities should be removed from the Office of Countering Weapons of Mass Destruction. Additionally, the head of the DHS occupational health office should report to the under secretary of the DHS Management Directorate and to the Department's CMO.

I believe that CMOs should be established in all DHS operational components. The component CMOs should be managed by their component heads and not by the Department's CMO. Component CMOs should provide operational medical support to their own components and this responsibility should be removed from the Office of Countering Weapons of Mass Destruction and the Department's CMO. All component CMOs should report to their component heads and to the Department's CMO.

I do not believe that the Department's CMO needs to be a licensed physician, as the position is advisory and policy-oriented, and that this position should not only possess knowledge of medicine and public health, but they should also have experience with both, beyond the possession of academic credentials. The CMOs in each of the components should be licensed health care deliverers (i.e., nurses and other health care professionals should be considered for these positions) if the components believe that licensure is necessary.

QUESTIONS FROM CHAIRMAN DONALD M. PAYNE, JR. FOR JENNIFER L. RAKEMAN

Question 1a. It is my understanding that DoD Civil Support Teams (CST) have biodetection capabilities. What capabilities do they have and how do they interact with local public health in NYC?

Answer. We recommend that you contact DoD to discuss their specific biodetection capabilities.

Question 1b. How long does it take them to detect a biological agent in NYC?

Answer. The CST utilizes field testing methods that can detect the DNA of bio-threat agents within 2 hours. Note that this type of testing does not determine viability (i.e. whether the agent is infectious).

Question 1c. How do they confirm the results? If there is a positive hit in their detection system, what actions do they take?

Answer. The CST would refer samples to the NYC Public Health Laboratory (NYC PHL) as the local member of the Laboratory Response Network (LRN). Further characterization of biothreat samples would be performed by the NYC PHL and/or the CDC and other National laboratories such as the FBI's National Bioforensic Analysis Center (NBFAC).

Question 1d. What technology does CST use for biodetection? How does it compare to BioWatch technology?

Answer. We recommend that you contact DoD to discuss their specific biodetection capabilities. BioWatch testing is performed in a laboratory setting, including the NYC PHL, and utilizes DoD reagents from the critical reagent program to screen samples and reagents from the LRN to verify the presence of biothreat agent DNA.

Question 2. The time between biological agent release and detection has been described as taking too long. For NYC, how long is it until we have a confirmed bio event with current technology and processes? What recommendations would you have to decrease this time?

Answer. Depending on the frequency of sample collection, the current BioWatch system allows for detection of biothreat agent DNA between 12 to 36 hours post-release. Note that collection frequency and timing are determined locally.

As discussed during the hearing, no technology currently exists to specifically and rapidly detect a wide spectrum of biothreat agents in the field. Possible means to reduce detection time include:

- Increasing frequency of collections for laboratory-based testing, which would require increased funding to hire additional field and laboratory staff.
- Multiplexing, which is the combining of multiple target detection reagents into a single reaction mixture; this is technologically feasible but has not been accomplished to date for all biothreat agents of interest and may require sacrificing sensitivity and/or specificity.
- Reducing assay specificity, which may increase the false positive rate.

Note that there are no technologies for field use that are able to CONFIRM detection and/or viability of agents. Confirmatory and viability testing must be performed in a laboratory setting.

Question 3. Could you describe the process by which NYC detects, manages, and recovers from a biological attack?

Answer. NYC uses a multidisciplinary approach to detect, respond to, and recover from biothreat agents that includes disease surveillance, laboratory testing, emergency management, life safety, and law enforcement activities. A biological incident is managed using a Unified Command Element that is comprised of multiple NYC agencies. Any related criminal investigations are led by NYPD.

The NYC Health Department is responsible for human and animal disease surveillance and epidemiology, mass prophylaxis (including antibiotics and vaccines), laboratory testing, public health orders, clinical guidance and risk communication, mental health needs assessment, and service coordination and environmental mitigation.

The NYC Health Department will make a final assessment of the biological hazard, develop environmental sampling strategies to confirm and then characterize the incident, adjust zones of contamination and direct all mitigation efforts, including oversight of the remediation and clearing spaces for re-occupancy.

In anticipation of this role, the NYC Health Department, with support from the Environmental Protection Agency (EPA), developed the NYC Health Department Environmental Response and Remediation Plan for Biological Incidents. The Plan called for the establishment of a Technical Working Group, now established, consisting of subject-matter experts that would provide the NYC Health Department with technical expertise during environmental remediation operations.

Recovery from a widely disseminated biothreat agent attack would require a lengthy National effort, involving all levels of government.

Question 4a. There has been a lot of discussion about using field-deployed detection approaches for assisting in the detection of biological agents. Do we have the technology for mobile laboratories/handheld field detection equipment?

Can these technologies have a confirmatory element to it?

Answer. Any field-based test requires a laboratory-based confirmatory test. Current field detection technologies in use are not capable of determining the viability of biothreat agents. A rapid viability PCR-based test (RV-PCR) specifically for the detection of *Bacillus anthracis* spores has been developed by EPA for laboratory use, but it is not widely used or available to LRN public health laboratories. This method requires culture of spores and cannot be adapted to field use.

Question 4b. Do you have any concerns about making actionable public health decisions based upon hand-held field detection equipment or mobile laboratories?

Answer. Hand-held and mobile laboratory testing for biothreat agents that is performed by first responders has previously led to misidentification of suspicious substances in NYC. Mobile data collection does not yet provide the level of accuracy needed by first responders and health officials to adequately identify and respond to potential biological emergencies.

Question 4c. Would your jurisdiction allow the use of such hand-held devices to confirm a bioterror attack in the field?

Answer. Currently available hand-held technology is not capable of determining viability and therefore is not considered confirmatory.

Question 4d. Is the technology mature enough and has it been vetted to be used for this purpose?

Answer. Hand-held technology has not been tested in a manner similar to clinical assays that have received FDA clearance and CLIA-waivers and should not be considered for any routine use that may lead to high regret decisions such as closure of transit hubs or failure to pursue additional laboratory-based testing. Additionally, there are serious concerns about the lack of oversight to ensure training and competency of first responders using hand-held devices and a lack of laboratory quality systems in place in the first responder community for maintaining complex detection technology, whether hand-held or in a mobile lab.

QUESTIONS FROM HONORABLE LAUREN UNDERWOOD FOR JENNIFER L. RAKEMAN

Question 1. Recent reports have suggested that both health disinformation and misinformation campaigns have promoted vaccine hesitancy amongst the public. I am concerned that these campaigns could have long-lasting consequences on public health in this country. Are you worried that these campaigns will have a negative impact on domestic preparedness in case of a bioterror attack or naturally-occurring outbreak?

Answer. The recent measles outbreaks across the United States highlight the direct impact that misinformation can have on public health. Vaccine hesitancy is fueled by a small but impactful group of individuals spreading false information regarding vaccine development, purported negative health outcomes and other misinformation that seek to undermine the unequivocal science. Such misinformation can foment distrust in Government, such as some of the conspiracy theories surrounding vaccination, and can make it harder for Government agencies to respond to public health events in impacted communities.

In New York City, we have incredibly strong and versatile systems in place to respond to disease outbreaks. During the recent measles outbreak, our surveillance system promptly detected the outbreak and identified potentially infected individuals; our Public Health Laboratory rapidly tested specimens; legal mechanisms enabled the declaration of a public health emergency and vaccination mandate, exclusion of unvaccinated children from school and day care and enforcement against noncompliant schools, day cares and individuals; and our outreach and communications staff harnessed existing relationships to partner with public and private health care providers, community leaders and others to provide accurate information, improve infection control, and rapidly vaccinate thousands of New Yorkers.

In a public health emergency, we may need the public to take rapid action to save lives. In order to increase cooperation, we need clear and credible messages and trusted communicators at the local, State, and Federal level who are able to deliver coordinated information and instructions to the public. At the same time, we as a Nation need strategies to combat and halt misinformation. We must remain vigilant in dispelling misinformation to reduce the risk of another disease outbreak and improve the effectiveness of Government response in an emergency.

Question 2. Credible information is critical to saving lives during terrorist attacks. How can State and local health officials work to ensure the correct information is disseminated to the public leading up to, during, and after a bioterror attack? What can the Federal Government do to be an effective partner?

Answer. Critical to a speedy and effective response is developing risk communication messaging before an event and sharing at all levels of government to assure messages are aligned. This work requires close coordination with disease, environmental, and risk communication subject-matter experts.

As stated above, we need clear and credible messages and trusted communicators at the local, State, and Federal level who are able to deliver coordinated information and instructions to the public. The Federal Government and its resources are critical to an effective response, but Federal actions must be driven by local information

to ensure that public messaging and response efforts are consistent and coordinated across all levels.

Question 3. In addition to risks posed by bioterrorists, naturally-occurring pandemics also represent a threat to homeland security. Could you specify the ways in which bioterrorism preparedness dovetails with pandemic preparedness, and how we can more effectively leverage synergies from investing in each?

Answer. Local public health departments and their health care partners are on the front lines and are the first to detect and respond to public health emergencies. Therefore, it is essential that State and local health departments, health care partners, and first responders plan, exercise, and maintain readiness for “all-hazards” in close coordination.

Both public health and health care preparedness capabilities are developed for all-hazards and are thus designed to be flexible and responsive to the spectrum of public health threats, including a bioterrorism incident or a pandemic.

Federal Public Health Emergency Preparedness (PHEP) funding supports jurisdictions to build and maintain public health preparedness capabilities, which include:

- Maintaining systems to share information between jurisdictions and health disciplines;
- Timely and accurate communication of emergency information and guidance to the public;
- Standing up and coordinating emergency operations based on National standards; planning for, managing, and dispensing medical countermeasures;
- Implementing non-pharmaceutical interventions; conducting public health laboratory testing, as well as public health surveillance and investigatory activities; and
- Planning for and building community preparedness and resiliency.

Likewise, Federal Hospital Preparedness Program (HPP) funding via the assistant secretary for preparedness and response (ASPR) supports jurisdictions to build health care preparedness capabilities, which include:

- Effective system-wide coordination between facilities for planning, mitigation of vulnerabilities and preparedness gaps, information sharing, and collective resource management;
- Systematic plans and procedures to maintain continuity of health care service delivery; and
- Robust and exercised plans to respond to medical surge.

NYC relies on Federal funding to prepare for, detect, and respond to public health emergencies. Over the past 14 years, this funding has been significantly reduced—including a 34 percent cut to the Public Health Emergency Preparedness (PHEP) program and 39 percent cut to the Hospital Preparedness Program (HPP) funding since fiscal year 2005. The most drastic impact of these cuts has been the significant reduction in the public health preparedness and response workforce in NYC.

If there are no public health laboratory scientists, epidemiologists, environmental health specialists, emergency managers, and risk communication experts to build the local alarm system, and then hear the alarm and respond when it goes off, we cannot protect the health of the American public. This critical workforce needs an infrastructure to enable them to do their work—state-of-the-art public health laboratories that are flush with instrumentation, reagents, and supplies, information technology solutions for the analysis of data, and interoperable electronic systems to share that data are all also basic necessities for protecting Americans.

Federal investment and collaboration is critical to ensuring local government’s ability to stay ahead of emerging threats.

QUESTIONS FROM HONORABLE DONALD M. PAYNE, JR. FOR UMAIR A. SHAH

Question 1a. It is my understanding that DoD Civil Support Teams (CST) teams have biodetection capabilities. What capabilities do they have and how do they interact with local public health in Houston?

How long does it take them to detect a biological agent in Houston?

Answer. CST does not have any pre-deployed or continuous monitoring capability in Houston/Harris County. CST would respond at the request of Houston/Harris County either as part of a special event enhanced monitoring or for a chemical, biological, radiological, or nuclear (CBRN) emergency.

Question 1b. How do they confirm the results?

Answer. This question is better answered from the National Guard Civil Support Team spokesman.

Question 1c. If there is a positive hit in their detection system, what actions do they take?

Answer. This question is better answered from the National Guard Civil Support Team spokesman.

Question 1d. What technology does CST use for biodetection? How does it compare to BioWatch technology?

Answer. This question is better answered from the National Guard Civil Support Team spokesman.

Question 2. The time between biological agent release and detection has been described as taking too long. For Houston, how long is it until we have a confirmed bio event with current technology and processes? What recommendations would you have to decrease this time?

Answer. Through routine BioWatch environmental monitoring, the time from release to lab-confirmed detection is estimated at 12–36 hours. Currently, we do not have practical recommendations to decrease this time, but it is under study.

Question 3. Could you describe the process by which Houston detects, manages, and recovers from a biological attack?

Answer. Biological attack detection can be through 5 separate pathways: (1) Environmental detection via systems like BioWatch or the USPS Bio-Detection System; (2) Human clinical suspect or confirmed disease reporting by practitioners and labs; (3) Animal clinical suspect or confirmed disease reporting by veterinary providers; (4) Human Syndromic Surveillance of Emergency Department chief complaints; and (5) overt threats from perpetrators (e.g. letters to media or Congressional members in 2001). Regardless of the mechanism of initial detection public health would need to assess the threat and determine appropriate actions. The management of the threat depends on the agent and the interventions needed to protect the public.

Question 4a. There has been a lot of discussion about using field-deployed detection approaches for assisting in the detection of biological agents. Do we have the technology for mobile laboratories/hand-held field detection equipment?

Can these technologies have a confirmatory element to it?

Answer. In the case of mobile laboratories, yes, if equipped with PCR capability.

Question 4b. Do you have any concerns about making actionable public health decisions based upon hand-held field detection equipment or mobile laboratories?

Answer. Yes, hand-held field instruments and mobile laboratories each need to provide their specifications and limitations before we can assess their creditability for public health decision support. Confirmatory tests should be done in a controlled LRN laboratory for verification.

Question 4c. Would your jurisdiction allow the use of such hand-held devices to confirm a bioterror attack in the field?

Answer. Currently, we rely on our LRN and BioWatch labs for confirmatory testing. Before we can attribute confirmation testing capability to a hand-held device we would need to know more about the actual specifications of the instrument and its reliability—we are not aware of any current hand-held field instruments that have proven confirmatory testing capability.

Question 4d. Is the technology mature enough and has it been vetted to be used for this purpose?

Answer. Testing technology is rapidly emerging. For public health to feel comfortable relying on new technology for decision support it needs to be vetted with local public health, the user of the instruments and the DHS CWMD science and technology group.

QUESTIONS FROM HONORABLE LAUREN UNDERWOOD FOR UMAIR A. SHAH

Question 1. Recent reports have suggested that both health disinformation and misinformation campaigns have promoted vaccine hesitancy amongst the public. I am concerned that these campaigns could have long-lasting consequences on public health in this country. Are you worried that these campaigns will have a negative impact on domestic preparedness in case of a bioterror attack or naturally-occurring outbreak?

Answer. Yes. These campaigns erode the very creditability of public health and put us in the precarious position of having to re-establish trust and confidence and developing an effective communications strategy to counter the misinformation.

Question 2. Credible information is critical to saving lives during terrorist attacks. How can State and local health officials work to ensure the correct information is disseminated to the public leading up to, during, and after a bioterror attack? What can the Federal Government do to be an effective partner?

Answer. Unity of message for public health is our credibility and our currency. We coordinate our public information messaging through the Joint Information Center. Local, State, and Federal partners all contribute, recognizing that all disasters are local. State and Federal partners work to support locals.

Question 3. In addition to risks posed by bioterrorists, naturally-occurring pandemics also represent a threat to homeland security. Could you specify the ways in which bioterrorism preparedness dovetails with pandemic preparedness, and how we can more effectively leverage synergies from investing in each?

Answer. Both bioterrorism incidents and pandemics have the potential to affect large numbers of people and therefore require extensive coordinated large-scale responses.

- Preparedness similarities:
 - i. Use of Preparedness Cycle
 - ii. Education (community & partners)
 - iii. Relationship building.
- Response to both incidents are similar:
 - i. Strong media/social media campaign
 - ii. Both require the use of prophylaxis
 - iii. Both require local unity of effort to include State and Federal partners.

Question 4. How would you characterize the decision to move the health aspects of the Department of Homeland Security, including the Office of Health Affairs and Office of the Chief Medical Officer (CMO), within the Office of Countering Weapons of Mass Destruction (CWMD)?

Answer. CWMD seems to have a primary focus on protecting the homeland whereas the OHA focus is more in line with protecting the public health and coordinating with the health care response during a major emergency. Merging the CMO in the CWMD may not be the most effective from a health perspective. The locals do not understand what the CMO mission is under the new alignment.

Question 5. Do you believe providing the CMO with contracting authority will allow for greater operational capabilities?

Answer. Not sure, there has been no communication with the local health departments on the subject. As mentioned before with the CWMD program, there is a lack of communication.

Question 6. Can you provide any recommendations for how the Department of Homeland Security should structure the CMO within DHS?

Answer. From the local health department perspective, better define and publicize the CMO mission, communication paths, determine lines of reporting within DHS and the CMO authority.

