

**AGENTS OF OPPORTUNITY: RESPONDING TO THE
THREAT OF CHEMICAL TERRORISM**

HEARING

BEFORE THE

**SUBCOMMITTEE ON
EMERGENCY PREPAREDNESS,
RESPONSE, AND COMMUNICATIONS**

OF THE

**COMMITTEE ON HOMELAND SECURITY
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CONTENTS

	Page
STATEMENTS	
The Honorable Martha McSally, a Representative in Congress From the State of Arizona, and Chairman, Subcommittee on Emergency Preparedness, Response, and Communications:	
Oral Statement	1
Prepared Statement	2
The Honorable Bonnie Watson Coleman, a Representative in Congress From the State of New Jersey:	
Oral Statement	3
Prepared Statement	4
The Honorable Bennie G. Thompson, a Representative in Congress From the State of Mississippi, and Ranking Member, Committee on Homeland Security:	
Prepared Statement	5
WITNESSES	
Dr. Mark Kirk, Director, Chemical Defense Program, Office of Health Affairs, U.S. Department of Homeland Security:	
Oral Statement	7
Prepared Statement	8
Dr. Christina Catlett, Associate Director, Office of Critical Event Preparedness and Response, Department of Emergency Medicine, The Johns Hopkins Hospital:	
Oral Statement	13
Prepared Statement	14
Chief G. Keith Bryant, Fire Chief, Oklahoma City Fire Department, Testifying on Behalf of the International Association of Fire Chiefs:	
Oral Statement	17
Prepared Statement	19
Mr. Armando B. Fontoura, Sherriff, Essex County, New Jersey:	
Oral Statement	22
Prepared Statement	24

AGENTS OF OPPORTUNITY: RESPONDING TO THE THREAT OF CHEMICAL TERRORISM

Thursday, March 19, 2015

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

The subcommittee met, pursuant to call, at 9:35 a.m., in Room 311, Cannon House Office Building, Hon. Martha McSally [Chairman of the subcommittee] presiding.

Present: Representatives McSally, Marino, Palazzo, Walker, Loudermilk, and Watson Coleman.

Ms. MCSALLY. The Subcommittee on Emergency Preparedness, Response, and Communications will come to order. The subcommittee is meeting today to receive testimony regarding our Nation's preparedness to respond to terrorist attacks using chemical agents.

I now recognize myself for an opening statement.

Terrorists have long had an interest in using chemical, biological, radiological, and nuclear agents, or CBRN, in their attacks. In fact, tomorrow marks the 20th anniversary of the sarin gas attacks on the Tokyo subway, which killed 12 and injured roughly 5,500 people.

In the 113th Congress this subcommittee, led by my colleague, Susan Brooks, and Ranking Member Payne, spent considerable time examining the CBRN threat, and particularly the biological aspect of this threat. This morning we are going to build on that work and consider the threat posed using chemical agents in attacks.

We find ourselves at a pivotal time in our fight against terrorists around the world. ISIS is better-resourced, more brutal, and more organized than any terrorist group to date. We are also seeing other al-Qaeda affiliates metastasizing around the globe, inspiring individuals to join through social media and other means, and traveling to get the training that they need.

We know that, given the opportunity, terrorists will acquire and use military-grade chemical weapons or other chemical agents in their attacks. In fact, earlier this year CENTCOM reported that a coalition air strike killed ISIS's chemical weapons expert. Reports have also indicated that ISIS has used chlorine gas in their attacks just this year.

Ranking Member Payne and I are Members of the Committee on Homeland Security's newly-established Foreign Fighter Task Force.

We are particularly focused on the threat to the United States from these individuals who have traveled to Iraq and Syria to train and fight with ISIS and those that are inspired by their extremist message here at home.

We must ensure we work to prevent any attacks on U.S. soil, but we also must be prepared should one occur.

A terrorist attack using chemical is a low-probability, but high-consequence scenario. A chemical attack could cause mass casualties and significant economic losses, and in light of this, we must be vigilant and ensure our first responders and our medical personnel are ready to respond.

In 1995 Aum Shinrikyo cult used sarin gas, a chemical nerve agent, to attack the subway system in Tokyo. It killed 12 people, as I mentioned, and sent thousands to the hospital with some degree of injury. The same group reportedly carried out an attack in Matsumoto, where seven people were killed and over 200 injured.

More recently, attacks in Iraq in 2006 and 2007 using conventional explosives combined with chlorine gas illustrates terrorists' interest in deploying commercially-available toxic industrial chemicals as weapons. Earlier this week an individual reportedly mailed a letter to the President containing cyanide.

I served numerous deployments in the Middle East and Afghanistan and have nearly 30 years of experience in National security and counterterrorism. As part of this service, I have received extensive training on the impact of chemical agents.

I was sharing a little bit with you all earlier. Multiple exercises that we have done in the military to respond to chemical attacks—how we are going to don our personal equipment, how we are going to protect bases, how we are going to respond and continue to operate. So this is what our military does really on a daily basis as we are exercising around the globe, getting ready for scenarios like this.

But today we want to see what we can do in order to protect the rest of our country, to make sure that we are ready to respond and we can operate and be able to save lives and not have significant negative impacts of a chemical attack here on the homeland. So I am very interested in this topic.

We are joined today by a panel of distinguished witnesses from the medical and first responder communities.

I am interested in your perspectives on the current threat to the United States of chemical terrorism; the steps that Federal, State, and local partners are taking to address this threat; and whether the Federal Government has provided sufficient guidance and information to State and local officials on how to respond to a chemical threat—chemical terrorist event.

With that, I welcome our witnesses here today. I look forward to our discussion.

[The statement of Chairman McSally follows:]

STATEMENT OF CHAIRMAN MARTHA MCSALLY

MARCH 19, 2015

Terrorists have long had an interest in using chemical, biological, radiological, and nuclear (CBRN) agents in their attacks. In fact, tomorrow marks the 20th anni-

versary of the sarin attacks on the Tokyo subway, which killed 12 and injured roughly 5,500 people.

In the 113th Congress, this subcommittee, led by my colleague Susan Brooks, and Ranking Member Payne, spent considerable time examining the CBRN threat, and particularly the biological aspect of this threat. This morning, we will build on that work and consider the threat posed by attacks using chemical agents.

We find ourselves at a pivotal time in our fight against terrorists around the world. ISIS is better-resourced, more brutal, and more organized than any terrorist group to date. We know that, given the opportunity, terrorists will acquire and use military grade chemical weapons or other chemical agents in their attacks. In fact, earlier this year, CENTCOM reported that a coalition air strike killed ISIS' chemical weapons expert. Reports have also indicated that ISIS used chlorine gas in their attacks last year.

Ranking Member Payne and I are Members of the Committee on Homeland Security's newly-established Foreign Fighter Task Force. We are particularly focused on the threat to the United States from individuals who have traveled to Iraq and Syria to train and fight with ISIS and those inspired by their extremist message here at home. We must ensure we work to prevent any attacks on U.S. soil, but we must also be prepared should one occur.

A terrorist attack using chemical agents is a low-probability, high-consequence scenario. A chemical attack could cause mass casualties and significant economic losses. In light of this, we must be vigilant and ensure our first responders and medical personnel are ready to respond.

In 1995, the Aum Shinrikyo cult used sarin, a chemical nerve agent, to attack the subway system in Tokyo. The attack killed 12 people and sent thousands to the hospital with some degree of injury. The same group reportedly carried out an attack in Matsumoto where 7 people were killed and over 200 injured. More recently, attacks in Iraq in 2006 and 2007 using conventional explosives combined with chlorine gas illustrates terrorists' interest in deploying commercially-available toxic industrial chemicals as weapons. And earlier this week, an individual reportedly mailed a letter to the President containing cyanide.

I served numerous deployments in the Middle East and Afghanistan and have nearly 30 years of experience in National security and counterterrorism. As part of this service, I have received extensive training on the impact of chemical agents. I am very interested in how prepared we are here at home for a chemical terrorist attack.

We are joined today by a panel of distinguished witnesses from the medical and first responder communities. I am interested in their perspective on the current threat to the United States of chemical terrorism, the steps Federal, State, and local partners are taking to address this threat, and whether the Federal Government has provided sufficient guidance and information to State and local officials on how to respond to a chemical terrorism event.

With that, I welcome our witnesses here today. I look forward to our discussion.

Ms. MCSALLY. The Chairman now recognizes the gentlelady from New Jersey, Mrs. Watson Coleman, for any opening statement.

Mrs. WATSON COLEMAN. Thank you very much.

Good morning. On behalf of Mr. Payne, Jr., who could not be here today, I want to welcome Ms. McSally to the Emergency Preparedness, Response, and Communications Subcommittee and wish her well as our new Chairman.

I also would like to thank the witnesses for being here today, especially Sheriff Fontoura, who is from the great State of New Jersey, Essex County in particular.

Good to see you, Sheriff.

My home State of New Jersey is home of a stretch of highway that the New York Times has coined the most dangerous 2 miles in America. Interspersed between homes and commuter corridors there are 100 potential terrorist targets including a chlorine plant that, if compromised, would injure up to 12 million people.

The threat of chemical attack is not new. Twenty years ago terrorists in Japan released sarin gas on Tokyo subway system, as the Chairman noted. Over 5,000 were injured, many of whom were

first responders and health care workers who experienced secondary exposure because appropriate response protocols did not exist.

Within 5 years of the Tokyo attack, our law enforcement thwarted two significant plots—one by a Ku Klux Klan affiliate against a natural gas facility and the other by a right-wing extremist organization against a bulk propane storage facility.

Although I understand that the risk of a catastrophic chemical attack is relatively low, terrorist organizations have demonstrated an interest in acquiring chemical weapons. Just last weekend Kurdish authorities in Iraq alleged that ISIL has used chemical weapons on two separate occasions just this winter, and we already know that there is a risk that chemical facilities will be targeted.

While I want to be careful not to sound alarmist, the consequences of a chemical incident on our communities and the people who live and work in them are too significant for us to ignore the threat. Terrorism aside, the explosion at the West, Texas chemical facility in April 2013 was a grave reminder of the potential lethality of chemical explosions.

Regardless of whether an explosion is the result of terrorism or an accident, the same first responders are called into action and the safety of the same people is jeopardized.

We have to make sure our communities and our first responders are informed of the risk and prepared to respond.

With that said, I look forward to learning more about the Baltimore demonstration project, how gaps in capabilities and operating procedures were identified, and how they are being resolved. I am also interested to know the extent to which other cities have been able to use the lessons learned through the demonstration project to inform their own chemical incident response planning.

From our emergency responders, I will be interested to learn whether you have adequate information related to the risk of potential chemical incidents in your community, whether through fusion centers and JTTFs or from direct relationships with chemical facilities. I am also interested to know about the availability of training opportunities and if your organizations have the resources to send responders to them.

Once again, on behalf of Mr. Payne, Jr., I thank Chairman McSally for holding the subcommittee's first hearing on such an important matter and I think all-too-often overlooked topic, and I look forward to the witnesses' testimony.

With that, I yield back the balance of my time.

[The statement of Mrs. Watson Coleman follows:]

STATEMENT OF HONORABLE BONNIE WATSON COLEMAN

MARCH, 19, 2015

On behalf of Mr. Payne, Jr., who could not be here today, I want to welcome Ms. McSally to the Emergency Preparedness, Response, and Communications Subcommittee and wish her well as the new Chairman.

I also would like to thank the witnesses for being here today, especially Sheriff Fontoura who traveled from New Jersey to testify before us today. My home State of New Jersey, is home of a stretch of highway that the *New York Times* has coined "the most dangerous 2 miles in America."

Interspersed between homes and commuter corridors, there are 100 potential terrorist targets—including a chlorine plant that, if comprised, could injure up to 12 million people.

The threat of chemical attacks is not new. Twenty years ago, terrorists in Japan released Sarin gas on Tokyo subway system. Over 5,000 were injured, many of whom were first responders and health care workers who experienced secondary exposure because appropriate response protocols did not exist.

Within 5 years of the Tokyo attack, our law enforcement thwarted two significant plots: One by a Ku Klux Klan-affiliate against a natural gas facility and the other by a right-wing extremist organization against a bulk propane storage facility.

Although I understand that the risk of a catastrophic chemical attack is relatively low, terrorist organizations have demonstrated an interest in acquiring chemical weapons. Just last weekend, Kurdish authorities in Iraq alleged that ISIL has used chemical weapons on two separate occasions this winter.

And we already know that there is the risk that chemical facilities will be targeted. While I want to be careful not to sound alarmist, the consequences of a chemical incident on our communities, and the people who live and work in them, are too significant for us to ignore the threat.

Terrorism aside, the explosion at the West, Texas chemical facility in April 2013 was a grave reminder of the potential lethality of chemical explosions. Regardless of whether an explosion is the result of terrorism or an accident, the same first responders are called to action and the safety of the same people is jeopardized.

We have to make sure our communities and our first responders are informed of the risks and prepared to respond. With that said, I look forward to learning more about the Baltimore Demonstration Project, how gaps in capabilities and operating procedures were identified, and how they are being resolved. I am also interested to know the extent to which other cities have been able to use the lessons learned from the Baltimore Demonstration Project to inform their own chemical incident response planning.

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Once again, on behalf of Mr. Payne, Jr., I thank Chairman McSally for holding the subcommittee's first hearing on such an important—and I think all-too-often overlooked—topic, and I look forward to the witnesses' testimony.

Ms. MCSALLY. Thank you, Mrs. Watson Coleman. I appreciate it.

Other Members of the subcommittee are reminded that opening statements may be submitted for the record.

[The statement of Ranking Member Thompson follows:]

STATEMENT OF RANKING MEMBER BENNIE G. THOMPSON

MARCH 19, 2015

By holding this hearing in the Subcommittee on Emergency Preparedness, Response, and Communications, the committee is sending a strong message to the American public that chemical security is a shared responsibility. When a chemical incident occurs, our emergency responders are called to the site. Rarely do these brave men and women have the benefit of full information or know whether an incident is the result of terrorism or an accident.

One of the most notorious attacks on a mass transit system occurred nearly 20 years ago. On March 20, 1995, terrorists carried out a coordinated series of sarin gas attacks in the Tokyo subway system, killing 12 and sickening over 5,000. That day, emergency responders were notified within 15 minutes, police blocked access to the subway system within 1 hour, and authorities identified sarin as the chemical agent within 3 hours. But first responders and health care workers did not have appropriate personal protective equipment. No primary decontamination was conducted at the site. As a result, 135 firefighters and 23% of hospital staff at the hospital receiving the initial victims experienced secondary exposure.

In the wake of these attacks, we asked ourselves how we could make sure emergency responders had the equipment and response protocols in place to respond to a Tokyo-style event safely and contain the damage. Twenty years later, those same questions are being asked, although the September 11, 2001 terrorist attacks certainly added a sense of urgency.

I look forward to hearing testimony on emergency preparedness and response capabilities to chemical incidents regardless of their origins, and learning more about the Baltimore Demonstration Project. I should note that today's hearing is a continuation of this committee's efforts to address this threat.

Back in 2006, a series of deadly chlorine bomb attacks in Iraq intensified interest in bolstering chemical security here in the United States. One aspect of addressing the chemical threat is determining how best to fortify chemical plants to ensure that they are not attacked and that stored chemicals are not stolen for terrorist purposes.

In response to a series of Classified briefings and conversations with then-DHS Secretary Michael Chertoff, I co-authored legislation to, for the first time, require chemical facilities to conduct vulnerability assessments and have security plans in place to address their vulnerabilities. That program, known as the Chemical Facility Anti-Terrorism Standards program, or "CFATS," includes a provision that encourages information sharing with State and local emergency responders.

Given the diverse ways that chemicals behave, it is critical that those who race to the site of a fire or explosion at a chemical plant, as occurred earlier this week in Milwaukee and 2 years ago in West, Texas, know what chemicals are stored at the facility so that they can take the necessary precautions. Ensuring that businesses are good neighbors who share chemical security responsibility is important.

Ms. MCSALLY. We are pleased to have a very distinguished panel before us today on this important topic.

Dr. Mark Kirk directs the Chemical Defense Program at the Department of Homeland Security's Office of Health Affairs. He is an emergency physician and medical toxicologist with extensive field experience in pre-hospital medicine, emergency medicine, critical care toxicology, and large-scale hazardous materials and chemical terrorist incident response.

Dr. Christina Catlett is an assistant professor of emergency medicine at the Johns Hopkins Hospital in Baltimore, Maryland. In 2001, Dr. Catlett became the associate director of the Johns Hopkins Office of Critical Event Preparedness and Response, created in the wake of September 11 terrorist attacks.

In this capacity, she has coordinated disaster planning—including for terrorist attacks, hazmat events, contagious disease outbreaks, and mass casualty events and response within the Hopkins health system, and integrated those activities with Federal, State, and local plans. Dr. Catlett serves as director of the Johns Hopkins Go Team, Hopkins' deployable disaster medical team, and is a member of the Maryland's Disaster Medical Assistant Team.

Chief Keith Bryant serves as the chief of the Oklahoma City Fire Department, a position he has held since 2005. During his 30 years at Oklahoma City Fire Department, Chief Bryant has served as an EMT, hazmat technician, dive team member—there is not much diving in Oklahoma, is there—and a certified fire service instructor. He began his fire service career as a firefighter in the United States Army in 1977.

Thanks for your service in the Army and your continued service now.

Chief Bryant currently serves as the president of the International Association of Fire Chiefs, and he is testifying in that capacity today.

Sheriff Armando Fontoura serves as the sheriff of Essex County, New Jersey, a position he has held since 1991, but prior to that, many years in the police department, as well, so lots of years of service in law enforcement. He is the longest-tenured sheriff in Essex County history. Sheriff Fontoura also serves as the county

coordinator for the Essex County Office of Emergency Management.

He began his law enforcement career with the Newark Police Department in 1967. He is the past president of the Police Management Association and an active member of the International Association of Chiefs of Police and National Sheriffs' Association.

Welcome.

The witnesses' full written statements will appear in the record. The Chairman now recognizes Dr. Kirk for 5 minutes.

STATEMENT OF MARK KIRK, DIRECTOR, CHEMICAL DEFENSE PROGRAM, OFFICE OF HEALTH AFFAIRS, U.S. DEPARTMENT OF HOMELAND SECURITY

Dr. KIRK. Chairman McSally, Representative Watson Coleman, and distinguished Members of the subcommittee, I would like to thank you for allowing me to speak on this important topic. I really appreciate the opportunity to talk about an issue of chemical threats to our Nation.

It has been my honor to run the Chemical Defense Program at the Department of Homeland Security for 6 years. More importantly is I am so grateful for the opportunities I have had to be in the preparedness and response roles.

I have been an EMT and now a practicing emergency physician medical toxicologist. These experiences have given me quite a broad experience and understanding of how community preparedness works, and it also has given me a strong commitment to help those that respond to these types of events.

This year is an important anniversary for several tragic, large-scale chemical incidents. We have already heard about the Tokyo sarin attack, but it is also 30 years ago in December was the Bhopal, India toxic industrial chemical release; and 10 years ago in March was the chlorine gas release from the Graniteville, South Carolina train derailment. All of these communities and the victims who suffered from this still suffer in ways today.

Chemical warfare agents have been designed and stockpiled for battlefield use. However, the threat is not just from chemical warfare agents, but also from toxic industrial chemicals. These important chemicals are often referred to as agents of opportunity, and mostly they are referred to this because of their easy or potentially easy access through theft, diversion, or purchase.

I would like to refer your attention to the diagram that is being illustrated on the screens. This illustrates the events as they unfolded in the Tokyo sarin attack in 1995, and what it illustrates mostly are the predictable challenges of a chemical incident.

A couple of points to make. First, chemical incidents often occur abruptly, with many victims falling ill at once.

In this particular incident, 500 people showed up at the closest hospital within the first hour. In addition, sarin gas—sarin was not identified for at least 2½ hours after the release, and there was a delay in reporting this to responders in hospitals.

A predictable challenge during the early stages of any chemical incident is that medical personnel and first responders find themselves operating in the blind, having to react immediately to the threat before they have complete information available to them.

The first hours are often the window of opportunity for us to make the best decisions about protection and also for treatment.

I would like to also point out that if you look in the lower right corner you can see that it took almost 5 hours before resources and specialized teams were able to arrive, and communities must stabilize these incidents on their own before specialized resources and Federal assets can mobilize.

The Office of Health Affairs' Chemical Defense Program provides a unique medical and technical expertise to DHS and the Federal agencies. The Federal Government does play an important role, including the Office of Health Affairs, in supporting State and local preparedness so communities are equipped to respond to the early minutes of these types of incidents.

One of the primary ways the Office of Health Affairs currently supports State and local communities is through our demonstration projects. The first multi-year pilot demonstration project was completed in the city of Baltimore at the Johns Hopkins Hospital's metro station in 2014.

The Maryland Transit Administration led the effort with the support of OHA, and during the Baltimore project we developed a structured approach to systematically examine the entire emergency response system in a large-scale incident and in an accidental release. We have extended this chemical defense demonstration project to four additional cities: Houston, Texas; Boise, Idaho; New Orleans, Louisiana; and Nassau County, New York.

We intend to look at at-risk venues in those areas, and we need to specifically focus on improving rapid recognition, information flow, enhancing the decision making, and aligning resources so that we can optimize the communities' response.

At the completion of these demonstration projects we would like to identify specific solutions that can address the greatest challenges, the limitations, and the gaps in the community. Most important in our direction moving forward is translating our findings into implementation and action plans, and we intend to share our collection of guidance, best practices, and newly-developed decision aids with all communities. We plan to partner with other agencies and relevant organizations to share our findings to get the word out.

My team and I will continue to work with our colleagues at DHS, other agencies, and the academic community to identify gaps and bring together the right expertise to address them in a meaningful way. We will continue to act as a resource to the Federal, State, and local groups working on chemical defense.

I thank you for your time and interest in this important issue, and I look forward to answering your questions.

[The prepared statement of Dr. Kirk follows:]

PREPARED STATEMENT OF MARK KIRK

MARCH 19, 2015

Chairman McSally, Ranking Member Payne, and distinguished Members of the subcommittee, thank you for inviting me to speak with you today. I appreciate the opportunity to testify on the important issue of chemical threats to our Nation. The Department of Homeland Security (DHS) Office of Health Affairs' (OHA) Chemical Defense Program works across the Department, with our Federal partners, and with State and local communities to ensure we are prepared for any future threats. I

have been honored to run this program for 6 years, and have worked as an emergency physician and medical toxicologist for more than 25 years. My past experiences in the area of chemical response include working as an emergency medical technician and volunteer firefighter, emergency physician, critical care medical toxicologist, fire department medical advisor, and community emergency response planner. These experiences give me a broad understanding of community preparedness and a strong commitment to help those who respond to chemical emergencies.

NATURE OF THE THREAT

This is an important time to focus on chemical defense, as it marks an anniversary of a tragic, large-scale chemical incident. Twenty years ago tomorrow, on March 20, 1995, terrorists attacked the Tokyo, Japan subway by intentionally releasing sarin, a chemical warfare agent. Twelve people were killed and thousands were injured. Just over 30 years ago in December 1984, a large release of a toxic, industrial chemical killed thousands in Bhopal, India. Finally, 10 years ago in January 2005, a freight train derailed in the middle of the night, releasing a large cloud of chlorine gas into the Graniteville, South Carolina community. Nine people died, hundreds were injured and thousands had to be evacuated from the surrounding area.

Poisoning has been used as a weapon for centuries. Battlefield use of chemical warfare agents prominently appeared in World War I, and in the decades following, chemicals were designed and stockpiled solely for use on the battlefield. Although the United States and many countries around the world have since banned chemical weapons and committed to controlling their precursors, these materials continue to be a threat today. Evidence shows sarin has been used in Syria, and the toxic, industrial chemical chlorine allegedly has been used in multiple attacks in Iraq and Syria since 2007. Recipes, dispersion methods and “how-to” manuals for chemical weapons can be found on the internet. Readily-accessible chemicals are used in the United States by those committing “chemical suicide,” and recently chlorine was deliberately released in a Rosemont, Illinois hotel affecting a group attending a convention.

The threat is not just from chemical warfare agents, but also from toxic industrial chemicals (TICs). These chemicals are often referred to as “Agents of Opportunity.” Some of these chemicals, such as cyanide and phosgene, are recognized chemical warfare agents but have important industrial uses. Even some household chemicals can be potential weapons. TICs are a risk because they do not require the necessary technical expertise that a chemical warfare agent would require to synthesize. In fact, they are readily available and can be accessed, often in large quantities. The DHS Chemical Facility Anti-Terrorism Standards (CFATS) program within the National Protection and Programs Directorate (NPPD) along with a variety of voluntary outreach programs are just some of the ways that DHS works with its partners in the chemical industry to reduce risk.

Chemical agents can be used to kill, incapacitate large numbers of people, cause permanent or long-lasting harm, contaminate critical infrastructure and create uncertainty, fear, and panic. Even small-scale attacks can have a large and lasting impact. For example, the Tokyo sarin subway attack could be considered a small-scale attack. The attackers targeted confined, crowded subway cars for the release. Twelve people died, about 1,200 people showed signs of poisoning and 5,500 sought medical care. Additionally, almost 250 first responders and hospital staff developed adverse effects from secondary exposure to the victims from the scene. Currently, Tokyo scientists are studying the persistent long-term neurological effects in some victims, and the Chemical Defense Program is supporting the National Institutes of Health in further study of this issue.

HOW CHEMICAL INCIDENTS ARE DIFFERENT FROM OTHER THREATS

Chemicals cause predictable toxic effects based on the dose, and there are typical actions that can be taken to limit exposure time and decrease concentration as rapidly as possible. For example, moving rapidly away from a vapor cloud or sheltering in place can help decrease concentration and duration of exposure. Similarly, using large amounts of water on your skin after being splashed with a concentrated acid will decrease the chemical’s harmful effects. It is important to note that chemicals do not have incubation periods and the harmful effects are not contagious, although for certain agents, contamination on patients’ clothing can cause others to become affected. Further, a dose of chemicals is not always lethal—not everyone exposed to a chemical will die. However, those exposed may be affected, potentially seriously, and require treatment attention or suffer long-term deleterious effects.

Chemical incidents have recurring patterns with predictable challenges, and thus a response can be planned. Each incident is unique and chemical terrorism attacks can cause chaos, confusion, and seeming unpredictability. While it is impossible to be prepared for every challenge that may arise during the response, past events have shown us that there are common themes that can be incorporated into emergency response planning.

Although we can plan for chemical threats, an important and dangerous element is time. Chemical incidents often occur abruptly, with many victims falling ill at once. Protective movements and life-saving treatments—and the key decisions that facilitate these actions—must occur very quickly to make a difference. This rapid response requirement necessitates that communities stabilize incidents on their own, often before specialized resources and Federal assets can mobilize.

During the early stages of many chemical events, medical personnel and first responders may find themselves operating “in the blind,” having to react immediately to a threat before complete information is available. During this stage, sifting through reports to find the difference between accurate and misleading accounts can be difficult, and key information about the alleged chemical may not yet be known. Responders can suffer injury if they fail to use adequate personal protection for the threat they face. Fear from the public and inaccurate information can overwhelm health systems, and make it difficult to determine the real scale of an incident. Further, specialized groups of experts who are not necessarily part of a typical response plan for other hazards, such as medical toxicologists, poison centers, chemists, and hazardous materials specialists, need to be mobilized to address the incident.

Without accurate information, coordination, and guidance, responders are left to improvise, and critical resources may be misdirected, wasted, or even incapacitated. Information sharing and coordination in this early phase are so critical and can be difficult to realize without expert decision-making skills and planning resources. The Federal Government, including the OHA Chemical Defense Program plays an important role in supporting State and local preparedness for chemical incidents, so that communities are equipped to respond quickly and appropriately during those first critical minutes. A time line has been submitted with this testimony illustrating the events as they unfolded during the response to the 1995 Tokyo sarin subway attack, and demonstrates many of these challenges.

DHS CHEMICAL DEFENSE ACTIVITIES

OHA's Chemical Defense Program seeks to build preparedness for chemical terrorism and accidents at the Federal, State, and local levels with the ultimate goal of protecting the health and safety of the American people. It is a comprehensive program to address Federal, State, and local risk awareness, planning, and response mechanisms in the event of a chemical incident. OHA provides subject-matter expertise on medical toxicology and responder workforce protection related to chemical threats. Most importantly, the program works directly with communities to help integrate threat-based risk assessments and response capabilities, and help communities understand their strengths, limitations, and needs.

Several components and offices within DHS are involved in different elements of chemical defense. For example, the NPPD runs the Chemical Facility Anti-Terrorism Standards program. This program identifies and regulates high-risk chemical facilities to ensure they have measures in place to reduce the security risks associated with these chemicals. NPPD also performs outreach and collaborates with its Federal partners and the chemical industry to reduce risk. The Federal Emergency Management Agency (FEMA) runs the Center for Domestic Preparedness, which develops and delivers training to State, local, and Tribal emergency response providers on all hazards, to include chemical threats. FEMA also addresses chemical incidents in its training grants program, Fire Academy, and as part of its response planning efforts. The DHS Science and Technology Directorate's (S&T) Chemical Security Analysis Center (CSAC) identifies and assesses chemical threats and vulnerabilities. Other Federal agencies also take an active role in chemical defense, and NPPD, the Environmental Protection Agency, and the Occupational Safety and Health Administration work to ensure the safety of chemical facilities per *Executive Order 13650: Improving Chemical Facility Safety and Security*. OHA's Chemical Defense Program works with all of these entities to coordinate and share information.

Our office's medical and technical expertise is a resource for DHS and other Federal agencies. It works closely with several DHS components such as FEMA, U.S. Customs and Border Protection (CBP), NPPD, U.S. Secret Service, Office of Intelligence and Analysis, and S&T to develop and implement chemical defense policies and plans, and provide technical advice. For example, the Chemical Defense Program has assisted in the development of medical management guidelines for treat-

ing those smuggling drugs concealed inside of their bodies and workforce protection protocols for exposure to potentially harmful chemicals for CBP, and provided support to FEMA's Center for Domestic Preparedness, National Fire Academy, and training grants programs. The program has also provided technical expertise to the DHS CSAC's Chemical Terrorism Risk Assessment.

In addition, OHA assists communities with their chemical defense preparedness efforts, works closely with National associations to enhance information sharing and provide technical support to communities, and coordinates with its Federal counterparts. We support interagency working groups to develop response tools like specifications for autonomous stationary chemical detectors and guidance for first responders. Recently, we worked with the Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response to develop guidance on Patient Decontamination in a Mass Chemical Exposure Incident. The guidance, written in coordination with the interagency, compiles evidence-based information that focuses on providing options for responses to events like chemical release and mass casualties. Designed to be flexible and scalable to a community's resources and capabilities, the recommendations can be adapted to each unique community according to hazard and risk assessments. Our office is also assisting the National Library of Medicine on the development of the Chemical Hazards Emergency Medical Management resource as part of their on-line resources for first responders.

Because of the rapid onset of chemical incidents, the Chemical Defense Program focuses on assisting interagency partners and DHS components in preparing first responders, first receivers, and emergency managers for these situations.

CHEMICAL DEFENSE DEMONSTRATION PROJECTS

One of the primary ways the OHA Chemical Defense Program currently supports State and local communities is through its demonstration projects. These programs help communities define best practices that will better prepare them for responding to high-consequence chemical events. The first multi-year pilot demonstration project was completed in the city of Baltimore in 2014, with the Maryland Transit Administration leading the effort with support from the OHA Chemical Defense Program. During the pilot, OHA developed a structured approach to systematically examine the entire emergency response system in a large-scale chemical accident or intentional release. This process was applied to the Maryland Transit Administration's Johns Hopkins Metro Station to develop tailored risk assessment methodologies, provide workshops for stakeholders and vendors, conduct technology assessments, complete a detailed cognitive task analysis that analyzed decision making in chaotic situations, develop a comprehensive concept of operations, and facilitate a community-wide scenario-based table-top exercise. These findings were used by the Maryland Transit Administration and the local emergency response community to improve their chemical emergency preparedness, planning, and technologies designed to protect the public from chemical incidents.

OHA has extended demonstration projects to four other cities that will test similar capabilities: Houston, TX; Boise, ID; New Orleans, LA, and Nassau County, NY. These four cities were chosen through a competitive selection process evaluating their chemical threat risk (city and venue) and community interest and goals to improve chemical incident preparedness. The additional projects are intended to systematically study multiple types of "at-risk" venues in several cities with a variety of capabilities and resources.

Each community we visit benefits from our work. The demonstration projects focus mostly on improving information flow, enhancing decision making, and aligning resources to optimize the emergency response system. The demonstration projects are designed to treat each community's response as a unique, holistic, and complex system, and to boost information flow and decision-making expertise. At the completion of all the demonstration projects, we will have examined in detail where the leverage points within the emergency response system exist and identify where specific solutions can address the greatest challenges, limitations, and gaps each community faces. Our analysis is intended to lead to the delivery of a set of preparedness tools, shared best practices, and guidance for comprehensive community preparedness to a large-scale chemical incident.

PATH FORWARD

DHS and the Federal Government have contributed to strengthening our Nation's chemical defense capabilities, and have provided support for community-level capacity building. The Chemical Defense Demonstration Projects are already improving our understanding of the immediate response, at the community level, following a large-scale chemical incident, and will help us to identify leverage points within the

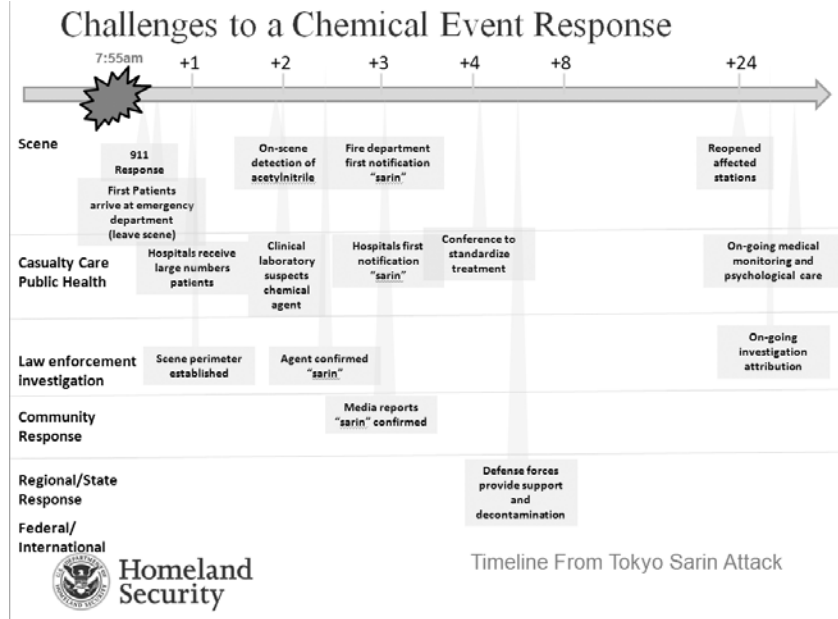
complex emergency response system. This information will help the Chemical Defense Program, in collaboration with communities and Federal experts, to facilitate the building of tools to intervene at critical points and optimize the emergency response system when responding to chemical incidents.

The most important direction moving forward is translating our findings into implementation plans and actionable steps. We intend to share our collection of guidance, best practices, and newly-developed decision-aids with all communities. We plan to partner with other agencies and relevant organizations to share our findings so that we can assist in the creation of training and education methods that will help decision makers at all levels operate within a structured environment even during the chaotic first moments of a chemical incident, and optimize key information sharing in order to make sound critical decisions.

Supporting community response in the critical first few hours of an incident is very important, and the OHA Chemical Defense Program will continue to build best practices and tools for communities to help them make the critical decisions, allocate their resources, and conduct effective planning. However, there is still important work to do on planning and preparation for an end-to-end approach that takes into account a full chemical threat short- and long-term effects. This essential work is taking place at DHS and across the Federal Government and must continue until the approach is fully developed.

The chemical defense system spans all relevant components at Federal level. It also connects the local response to the Federal Interagency. Coordination across both of these groups is important, and DHS sits in a unique position to facilitate coordination. The OHA Chemical Defense Program continually looks for opportunities to amplify coordination and collaboration across Government and make full use of all available resources for Federal and community response efforts. I and my team will continue to work with our colleagues in DHS, other agencies, and the academic community to identify gaps and bring together the right expertise to address them in a meaningful way. We will also continue to act as a resource to Federal, State, and local groups working on chemical defense.

I thank you for your time and interest in this important issue, and look forward to answering your questions.



Ms. MCSALLY. Thank you, Dr. Kirk.
The Chairman now recognizes Dr. Catlett for 5 minutes.

**STATEMENT OF CHRISTINA CATLETT, ASSOCIATE DIRECTOR,
OFFICE OF CRITICAL EVENT PREPAREDNESS AND RE-
SPONSE, DEPARTMENT OF EMERGENCY MEDICINE, THE
JOHNS HOPKINS HOSPITAL**

Dr. CATLETT. Good morning, Chairman McSally, Representative Watson Coleman, and distinguished Members of the subcommittee. Thank you for the opportunity to appear before you today.

I am the associate director of the Johns Hopkins Office of Critical Event Preparedness Response in Baltimore. I have been an emergency physician for 20 years and an expert in disaster medicine and health care system emergency preparedness for 16 years.

Johns Hopkins Hospital began planning for a potential chemical event in 1999, when we drafted our first chemical response plan. Our rudimentary decontamination capability at that point was comprised of basic PPE, a baby pool, and a garden hose.

September 11 dramatically changed health care's perception about our vulnerability to a terrorist attack and spurred a paradigm shift in preparedness activities. Initial Hospital Preparedness Program, HPP, funding allowed us to obtain the critical elements of response: Decontamination capability, personal protective gear for our staff, and stockpiles of chemical antidotes. We began training our staff on decontamination procedures and vastly improved our capability to respond to a chemical attack.

Since then, diminishing HPP funding, budget constraints, and competing priorities such as emerging infectious diseases, have turned our attention away from chemical preparedness and limited our ability to replace damaged or expired supplies, equipment, and antidotes. Training and education of hospital staff to respond to a chemical event have all but fallen off the radar screen.

According to 2008 data, only 69.6 percent of hospitals had performed an exercise involving decontamination procedures, and only 55.6 percent of hospitals had participated in a mass casualty drill involving a chemical scenario.

Furthermore, we are raising a new generation of health care providers who are naive to the threat of chemical terrorism. There is very little, if any, medical student or resident education on the topic. Even seasoned emergency physicians have little, if any, experience with industrial accidents or hazmat events, the closest approximation we have to chemical terrorism.

Response to a chemical event is not intuitive. Assembly of the decontamination tents, correct donning and doffing of PPE, proper patient decontamination procedures, and familiarity with chemical agent symptoms and treatment are all perishable skills that require on-going training.

So where do we go from here?

First, we need to redefine the problem, which requires research funding. Information on the state of preparedness of the health care system is nearly a decade old. We need new data that accurately reflects the level of hospital preparedness for chemical events today so that we can identify gaps, develop those metrics for success, and redirect funding if needed.

Second, we need to ramp up the level of training and education of health care providers in the response to agents of opportunity. Third, hospitals need to partner with the intelligence community to

develop more informed, threat-based risk assessments, so that we understand where to direct our efforts.

Finally, the importance of regional chemical preparedness initiatives, such as the Baltimore demonstration project described by Dr. Kirk, cannot be underestimated. In addition to providing us with chemical detection technology, the initiative has engendered collaboration, communication, and coordination between Johns Hopkins Hospital and our community and State response partners, such as the Maryland Transit Authority, police, fire, EMS, and hazmat teams, which significantly enhance our regional response capability.

In conclusion, hospital preparedness for chemical terrorism has improved since 2001, but we cannot allow our achievements to continue to erode due to complacency.

The time has come for hospitals to abandon our reactionary stance to critical events and to assume a more forward-leaning posture in preparing for agents of opportunity through implementation of thoughtful preparedness initiatives, such as research, education, training, and regional partnerships.

Thank you for your time. I look forward to answering any questions that you have.

[The prepared statement of Dr. Catlett follows:]

PREPARED STATEMENT OF CHRISTINA CATLETT

MARCH 19, 2015

Chairman McCally, Ranking Member Payne, and distinguished Members of the subcommittee, thank you for the opportunity to appear before you today. I appreciate your interest in the state of preparedness and response efforts of the health care system regarding chemical terrorism. I am honored to testify with my distinguished colleagues Dr. Kirk, Chief Bryant, and Sheriff Fontoura.

I am an emergency physician at Johns Hopkins Hospital in Baltimore and the associate director of the Johns Hopkins Office of Critical Event Preparedness and Response (CEPAR), founded in 2001 in response to the terrorist attacks. Our office oversees preparedness planning and disaster response for all of the Johns Hopkins Institutions, including the Johns Hopkins Health System and the University. CEPAR's other focus areas include policy development for the Institution (e.g. small-pox vaccination, scarce resource distribution during pandemic influenza, and Ebola response) and disaster education and training, not only for the Institution, but also Nationally and internationally.¹ In addition, we are home to the National Center of Excellence for the Study of Preparedness and Catastrophic Event Response (PACER), created by the Department of Homeland Security (DHS). PACER's research portfolio includes surge capacity metrics, modeling and simulation, and development of decision support tools.²

I have been an emergency physician for 20 years and an expert in disaster medicine and health care system preparedness and response for nearly 16 years. I have responded in the field to disasters such as Hurricanes Ivan (2004), Katrina (2005), and Rita (2005), the Haiti earthquake (2010), and Hurricane Sandy (2012). I had the honor of serving on the FEMA National Advisory Council for 3 years and am the senior medical officer for Maryland's Federal Disaster Medical Assistance Team (MD-1 DMAT). My additional experience in the area of chemical response includes serving as a subject-matter expert on a number of Department of Homeland Security (DHS) and Department of Health and Human Services (HHS) projects pertaining to chemical, biological, radiological, nuclear, and explosive (CBRNE) event preparedness. I have authored multiple research publications on health care and terrorism, including the state of preparedness, the willingness of health care providers to respond, and training and education of staff. In addition, I served as a subject-matter expert in 2004 and 2011 to Meridian Medical Technologies (originally

¹www.hopkins-cepar.org

²<http://www.pacercenter.org/>.

King Pharmaceuticals), producers of nerve antidote auto injectors, on the topics of public awareness and establishment of medical training and readiness.

BACKGROUND

My awareness of preparedness gaps related to the threat of chemical terrorism began in 1999, when I attended the Army's Domestic Preparedness training program. Thereafter, I became committed to improving my hospital's level of preparedness and making this a focus of my academic career. At that time, our emergency operations plan did not address the unique issues and needs related to a chemical event, so I drafted the first chemical response plan for Johns Hopkins Hospital. Our decontamination capability at that point was comprised of rudimentary personal protective equipment (PPE), a plastic baby pool and a garden hose.

September 11 and the subsequent anthrax attacks dramatically changed the health care system's perception of our vulnerability to these emerging threats and spurred a paradigm shift preparedness activities. Over the next several years, Federal Hospital Preparedness Program (HPP) funding became available to hospitals, which allowed us to bolster our preparedness for acts of terrorism, including biological, chemical, and radiological events. We used initial HPP funding to purchase portable decontamination tents and/or install permanent decontamination showers, to buy appropriate PPE for our staff, and to stockpile antidotes. We began training our health care providers on implementation of the chemical response plan and the use of the equipment. We expected an accelerated pattern of attacks, and we felt more prepared. Fortunately for the United States, no further attacks have occurred.

CURRENT STATE OF PREPAREDNESS

Are hospitals currently prepared to manage and treat victims of a chemical attack? The question is difficult to answer. There is surprisingly scant information on the current state of preparedness of hospitals and health care systems for chemical events. In the years following the events of 2001, a number of reports and studies reported a deficit in preparedness efforts of hospitals with regards to chemical and biological agents;^{3 4 5} however, given the age of the data, it is difficult to determine its accuracy or applicability to the state of preparedness of the health care system today. In addition, a standard definition of "preparedness" for chemical terrorism is lacking, although researchers have called for the development of disaster preparedness and emergency management metrics.⁶

As the years have passed since 9/11, the health care system's attention to the matter of preparedness has turned to other types of disasters, such as emerging infectious diseases and natural disasters. The steady stream of funding for CBRNE preparedness given directly to hospitals has slowed significantly in the last 10 years. For example, Johns Hopkins Hospital received \$352,596 in HPP funding in 2004; in 2014, we received \$35,000. HPP funding is now distributed to State health departments rather than to hospitals; in addition, the funding has become less discretionary and more directed.

In addition to diminishing HPP funding, hospital budget constraints and competing priorities have limited the replacement of damaged or expired supplies, equipment, and antidotes. In the world of just-in-time purchasing, items needed for relative rare events fall low on the priority list. Decontamination equipment and PPE is slowly degrading due to lack of use. Chemical cartridges and antidotes are expiring. Our current stockpile of chemical antidotes is minimal, and our reliance on the Strategic National Stockpile's Chempack has grown.

Training of staff for chemical events has essentially fallen off the radar screen of hospitals. While patient care is what we do every day, response to a chemical event is not intuitive: Assembly of the decontamination tents, correct donning and doffing of PPE, proper patient decontamination procedures, and familiarity with chemical agent symptoms and treatment are perishable skills that require on-going training to maintain. According to 2008 data, only 69.6% of hospitals had performed an exer-

³GAO Report to Congressional Committees. Hospital preparedness: most urban hospitals have emergency plans but lack certain capacities for bioterrorism response. August 2003.

⁴Bennett RL. Chemical or biological terrorist attacks: an analysis of the preparedness of hospitals for managing victims affected by chemical or biological weapons of mass destruction. *Int J Environ Res Public Health*. 2006; 3(1): 67–75.

⁵Niska RW, Shimizu IM. Hospital preparedness for emergency response: United States, 2008. *National Health Statistics Reports*. Mar 24, 2011: Number 37.

⁶McCarthy ML, Brewster P, Hsu EB, MacIntyre AG, Kelen GD. Consensus and tools needed to measure health care emergency management capabilities. *Disaster Med Publ Health Prep*. 2009: S45–S51.

cise involving decontamination procedures, and only 55.6% of hospitals had participated in a mass casualty drill involving a chemical accident or attack scenario.⁷

Health care providers' experience with managing victims of agents of opportunity is extremely limited. I myself have only seen one victim of organophosphate exposure in 20 years of practice (which was due to a farming accident, not terrorism). Experience with industrial accidents and hazmat events are the closest approximation that first responders have to chemical terrorism response. However, large-scale hazmat events are relatively rare, and even seasoned emergency physicians have little if any experience in this kind of response at the hospital level.

Given the current lack of focus on chemical response in medical education, we are raising a new generation of care providers who are naïve to the threat of chemical terrorism. Our medical residents were in elementary school when the sarin gas attacks occurred in 1995, and our medical students were preschoolers. Most emergency medicine residents receive only 1 hour of education on CBRNE agent awareness training during a 2-year curriculum rotation. Medical students may receive only 1 hour of CBRNE information (if any) during their 4 years of medical school. Unless residents or medical students seek independent study or participate in a chemical drill at our hospital, it is unlikely that they will be familiar with the initial management of a chemical event or patient decontamination procedures when they enter into practice.

MOVING FORWARD

So where do we go from here? First, we need to redefine the problem, which requires research funding. We need new data that accurately reflects the level of hospital preparedness for chemical events today so that we can identify gaps and redirect HPP funding where it is most needed. Furthermore, we need to expand current research on hospital preparedness metrics⁸ and core competencies in disaster response⁹ to specifically address chemical preparedness and response. Through this information, we can establish benchmarks, which provide us with the objectivity needed to measure our success on the very question before us today.

Second, on-going training and education of health care providers in chemical response is critical, but there are some barriers to this concept. At the hospital level, training equals time and money. At the medical education level, medical student and resident education curricula are already extremely rigorous, and there is little flexibility for addition of new topics or expansion of existing subjects. New training and education endeavors for health care providers will need to be time-efficient and cost-effective in order to be adopted. As an example, one available model is the CDC's new on-line learning experience for emergency department personnel who treat patients with infectious diseases entitled *Ebola Preparedness: Emergency Department Guidelines*,¹⁰ developed in conjunction with the Johns Hopkins Armstrong Institute of Patient Safety and Quality.¹¹ The training series prepares health care workers to safely and efficiently identify, triage, and manage Ebola patients. In addition, the modules showcase important planning processes, provider-patient communication techniques and cross-discipline teamwork principles that can be used to successfully prepare for emerging infectious diseases. In order to incentivize hospitals to accomplish their chemical event education goals, completion of training programs and/or chemical-specific disaster drills should be linked to HPP funding or Joint Commission emergency preparedness standards.

Third, the health care system is missing the information we need to understand our vulnerability to these threats. All hospitals are required by the Joint Commission to perform a hazard vulnerability analysis for their region. We have a general awareness of regional chemical plants or nearby railways that may be carrying hazardous materials. We list "chemical attack" as a potential threat on our grid, but have no further information. In order for hospitals to accept the concept that agents of opportunity are a relevant threat, we need to understand what makes it so. Hospitals should partner with the intelligence community in order to increase informa-

⁷ GAO Report to Congressional Committees. Hospital preparedness: most urban hospitals have emergency plans but lack certain capacities for bioterrorism response. August 2003.

⁸ Bayram JD, Zuabi S, Subbarao I. Disaster metrics: quantitative benchmarking of hospital surge capacity in trauma-related multiple casualty events. *Disaster Med Public Health Prep*. 2011 June; 5(2):117-24.

⁹ Walsh L, Subbarao I, Gebbie K, et al. Core competencies for disaster medicine and public health. *Disaster Med Public Health Prep*. 2012; 6:44-52.

¹⁰ <http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/emergency-department-training.html>.

¹¹ http://www.hopkinsmedicine.org/armstrong_institute.

tion sharing (to the extent possible) and to develop more informed threat-based risk assessments so we understand where to direct our efforts.

Lastly, the importance of regional chemical preparedness initiatives, such as the *Baltimore Demonstration Project* described by Dr. Kirk, cannot be underestimated. Such projects enhance health care capabilities through both technology and collaboration. The new chemical detection equipment in the subway system under Johns Hopkins Hospital gives us the critical lead time that we need to respond effectively: To secure the entrances of our hospital to prevent loss of this critical infrastructure, to mobilize hazmat resources and decontamination equipment, to safeguard first responders and our staff with PPE, and to ready the life-saving treatment necessary for victims. More importantly, the initiative has engendered collaboration, communication, coordination, and relationship building with our community and State response partners, such as the MD Transit Authority, Police, Fire, EMS, and hazmat teams, which significantly enhance our chemical event regional response capability.

CONCLUSION

In conclusion, hospital preparedness for chemical terrorism has improved since 2001, but we cannot allow our achievements to erode due to complacency. The time has come to abandon our reactionary stance to critical events and assume a more forward-leaning posture in preparing for agents of opportunity through implementation of thoughtful preparedness initiatives such as research, education, and training. To quote General Pershing after WWI, “. . . the effect is so deadly to the unprepared that we can never afford to neglect the question.”

Ms. MCSALLY. Thank you, Dr. Catlett.

The Chairman now recognizes Chief Bryant for 5 minutes.

STATEMENT OF G. KEITH BRYANT, FIRE CHIEF, OKLAHOMA CITY FIRE DEPARTMENT, TESTIFYING ON BEHALF OF THE INTERNATIONAL ASSOCIATION OF FIRE CHIEFS

Chief BRYANT. Good morning, Chairman McSally, Representative Watson Coleman, and Members of the subcommittee.

The International Association of Fire Chiefs represents more than 11,000 members of the Nation’s fire, rescue, and emergency services, and it is on their behalf today that I appreciate the opportunity to discuss the threat of chemical terrorism, a matter of serious concern to this Nation.

Toxic industrial chemicals are prevalent in the Nation’s economy and transportation system. Approximately 2.2 billion tons of hazardous materials are transported by air, roadway, rail, and pipeline annually across the Nation.

While not weaponized, these chemicals require little expertise or preparation to use as a weapon. We must recognize that extremists are looking for opportunities to use chemicals for nefarious purposes.

Federal officials have warned local first responders that industrial chemicals could be used by violent extremists here at home. Both extremist social media and literature have included information on how to use chemicals in terrorist attacks.

The initial response to a terrorist attack using chemicals would be similar to that of an accidental hazardous material release or incident. After the chemical release, fire and emergency medical service departments would isolate and establish control zones to stabilize the area. Direction would be given to civilians to evacuate or shelter in place to reduce exposure.

The hazardous materials teams would be deployed to ascertain the type of chemical released and begin decontaminating the scene. Mass decontamination units would also be deployed. Patients

would be decontaminated, triaged, stabilized, and transported to the closest appropriate treatment center.

Local law enforcement would provide scene security and begin its investigation once the incident was confirmed to be a terrorist attack. During the response, the local Joint Terrorism Task Force and other State and local authorities would be alerted.

Since the incident is a terrorist attack, emergency responders would have to be vigilant about secondary devices. The local fire and EMS department would have to work with Federal, State, and local law enforcement officials to preserve the evidence and maintain scene security.

To prevent panic, officials would have to provide accurate information about what happened, what emergency steps must be taken, and the overall threat to the population.

In order to ensure preparedness for a chemical terrorist attack, a number of steps need to be taken.

The Federal Government must provide important threat information to local first responders. We need to be informed about any new tactics, techniques, or threats, both Nationally and to our specific jurisdictions, in order to prepare for them. The JTTF, State or local fusion center, and local law enforcement officials can provide this information to local fire and EMS departments.

Planning and preparedness are essential for a successful response to a chemical terrorist attack. Fire, EMS, emergency management, and law enforcement officials will have to coordinate their operations in a dynamic environment.

A well-coordinated incident command system will be an essential component. Federal, State, and local officials should adopt the National Incident Management System and exercise this cooperation before a terrorist attack occurs.

In addition, local fire officials will have to have pre-existing mutual aid agreements and know when to expect additional resources to be able to deploy. They will also have to know how they will stabilize the situation until help arrives.

The Federal Government plays an important role in helping local fire and EMS departments obtain the necessary training and equipment. According to the National Fire Protection Association, approximately two-thirds of all fire departments that are responsible for hazardous material response have not formally trained all of their personnel.

Local fire and emergency departments depend on training hosted by Federal partners such as the National Fire Academy, and Rural Domestic Preparedness Consortium, and funded by the Department of Homeland Security, and Pipeline and Hazardous Materials Safety Administration.

Programs like the State Homeland Security Grant program, Urban Area Security Initiative program, and the Assistance to Firefighters Grant program all provide funding opportunities for fire and emergency departments to obtain the necessary resources for responding to a chemical attack.

More importantly, Federal funding provides an incentive for Federal, State, and local, and private-sector officials to comprehensively plan for a major chemical incident and mass casualty event.

The private sector has a role to play in preparing for a chemical attack. Chemical facilities, rails, and pipelines are natural targets for extremists. Railroads and pipeline owners should let State and local officials know what types of hazardous materials are being transported through their jurisdictions.

Chemical facilities are required to work with local emergency planning committees to plan and prepared for incidents. Close cooperation between the private sector and local officials is key for preparedness for a potential chemical terrorist attack.

Again, I thank you very much for the opportunity to be before you today, and I look forward to answering any questions that you may have.

[The prepared statement of Chief Bryant follows:]

PREPARED STATEMENT OF G. KEITH BRYANT

MARCH 19, 2015

Good morning, Chairman McSally, Representative Payne, and Members of the subcommittee. I am Keith Bryant, fire chief of the Oklahoma City Fire Department, and president and chairman of the board of the International Association of Fire Chiefs (IAFC). The IAFC represents more than 11,000 leaders of the Nation's fire, rescue, and emergency medical services. I would like to thank you for the opportunity to discuss emergency response issues relating to the threat of chemical terrorism.

THE THREAT OF A TERRORIST ATTACK USING CHEMICALS

There is a real threat that violent extremists would like to use chemical weapons in terrorist attacks within the United States. Toxic industrial chemicals, such as chlorine, compounds containing cyanide, and anhydrous ammonia, are readily available and present in the Nation's transportation system and at chemical facilities. While it may not be weaponized, industrial chemicals also require little expertise or preparation to use. Finally, while in many cases, the casualty count may not be high, there would be a psychological shock to a chemical terrorist attack on American soil. These characteristics might make a chemical attack particularly appealing to a lone wolf.

It is important to point out that industrial chemicals play an important role in daily life in America. For example, chlorine is used for water purification, and anhydrous ammonia is used in fertilizer. According to the U.S. Bureau of Transportation Statistics/U.S. Census Bureau's 2007 Commodity Flow Survey, 2.2 billion tons, corresponding to 323 billion ton-miles of hazardous materials, are shipped by air, road, rail, and pipeline in the United States annually. While hazardous chemicals are vital to the American economy and quality of life, we must recognize that extremists can take advantage of weaknesses in the Nation's transportation system or at chemical facilities to obtain toxic chemicals for nefarious purposes.

There have been recent examples of chemicals being used by violent extremists. Insurgents used a car bomb with numerous mortar shells and two 100-pound chlorine tanks in a 2006 attack in Ramadi. Recently, there have been reports about the Islamic State of Iraq and the Levant (ISIL) using roadside bombs with chlorine to try to panic Iraqi forces, along with pro-jihadist social media discussing the use of cyanide and sulfuric acid in terrorist attacks. We have seen the impact that these types of attacks can have on communities and know for what we need to prepare.

There also is clear evidence that extremist groups overseas are urging adherents to use chemicals in the United States. Other tweets by ISIL proponents have discussed using chemical weapons in the West. In the past 5 years, the U.S. Department of Justice and the Federal Bureau of Investigation (FBI) have sent warnings to local first response agencies about the threat of industrial chemicals being used in a terrorist attack. In addition, local first responders have been warned to be on the lookout for precursors and designs for devices using industrial chemicals and chlorine gases for attacks in enclosed public spaces, such as restaurants and theaters. In addition, the Global Islamic Media Front published a document known as "The Explosives Course," which teaches interested parties to use commercially-available chemicals to manufacture explosives.

THE RESPONSE TO A TERRORIST ATTACK USING CHEMICAL WEAPONS

The initial response to a terrorist attack will be similar to a hazardous materials incident. Once a hazardous chemical release is confirmed, the fire and emergency medical services (EMS) departments will isolate the area and establish control zones to stabilize the area and minimize civilian exposure. If the type of chemical being used is easily identifiable, resources, such as the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration's (PHMSA) Emergency Response Guidebook, can be used to determine the hazardous zones and decide if civilians should evacuate or shelter in place. Many cities, like Oklahoma City, will deploy their hazmat teams and mass decontamination units. Patients will be decontaminated, triaged, stabilized, and transported to the closest appropriate treatment centers. The hazmat team will be deployed to use chemical detection technology to ascertain the type of chemical released, along with personnel who are trained in the signs and symptoms of chemicals. The hazmat team and other hazardous materials contractors will be in charge of decontaminating the scene. Local law enforcement will play a role in scene security, and begin investigative activities once the incident is identified as a terrorist attack. During the response, the local Joint Terrorism Task Force (JTTF) and other State and Federal authorities will be alerted.

Since the event is a terrorist attack, it would be important to prevent panic in the area near the attack. Emergency responders also would have to be vigilant about the threat of secondary devices. An important difference between a hazardous materials incident and a chemical terrorist attack is the necessity of working with the Federal, State, and local law enforcement agencies to preserve evidence and maintain scene security for the criminal investigation. To prevent widespread panic, Federal, State, and local authorities would have to provide accurate information to the public about what happened, what emergency steps must be taken, and the overall threat to the population.

PREPAREDNESS FOR A CHEMICAL TERRORIST ATTACK

While the initial response would primarily involve local first responders, the Federal Government has a large role to play in any successful response to a terrorist attack using chemicals. The most important role is in helping local agencies prepare for such an incident.

One major role for the Federal Government is providing important threat information to local first responders. Considering the myriad potential threats and the budgetary constraints of local governments, local first responders need to know for which threats they should prepare. If groups promoting violent extremism are publishing training materials on the internet or social media, the Federal Government should provide information to local governments about what tactics and techniques are being taught. In addition, local jurisdictions should be informed about specific or credible threats to their areas. The local JTTF, State or local intelligence fusion center, and strong working relationships with local law enforcement officials should help local fire and EMS departments obtain this information. The National Counterterrorism Center also hosts the Joint Counterterrorism Assessment Team, which brings in local first responders to work with intelligence analysts to provide actionable information to local first response agencies.

The Federal Government also plays an important role in helping local agencies plan and exercise for a potential terrorist incident using chemical agents. During the early hours of the response to such an attack, it is important for Federal, State, and local authorities to have a well-coordinated incident command system to provide clarity and leadership in an inherently confusing situation. The National Incident Management System (NIMS) is designed to provide the capability for Federal, State, and local partners across all of the fields (fire, EMS, law enforcement, emergency management, etc.) to work and operate together. Federal, State, and local agencies must adopt NIMS and exercise their cooperation before such a terrorist attack. Well-established pre-existing relationships between Federal, State, and local partners was a key to previous successful responses, such as the 9/11 response at the Pentagon. In addition, fire and EMS personnel will have to know how to treat, decontaminate, and transport patients in a dynamic crime scene, while law enforcement will have to gather evidence in a hot zone or wait until the area is safe to enter. Federal initiatives, such as NIMS, and Federally-funded exercises will help local emergency response agencies to train and prepare for the threat of a terrorist attack.

Related to this issue, local fire and EMS departments will have to plan for a terrorist attack using chemical agents. Many local fire departments do not have the hazardous materials response capability, including a mass decontamination unit, to

respond to a large-scale chemical terrorist attack. They will have to pre-plan and develop mutual aid agreements with surrounding jurisdictions to bring in resources if an incident occurs. In some cases, a fire department in a small town may depend on the hazardous materials response capabilities of a neighboring metropolitan fire department, like Oklahoma City. In other parts of the country, a regional hazmat team covers a corner of a State, and can deploy to the scene within an agreed-upon time frame. The local incident commanders will have to pre-plan, know when these specialized resources should arrive and be able to stabilize the situation until help arrives.

The private sector also plays an important role in ensuring preparedness for a potential chemical attack. Chemical facilities, rails, and pipelines are natural points for an extremist group to attack in order to cause a chemical incident. The railroads and pipeline companies should work with local first response agencies to ensure that the local fire and EMS chief knows what types of hazardous materials are being transported in their jurisdictions. The owners of chemical facilities are required to work with Local Emergency Planning Committees, so that local jurisdictions know what hazardous materials are produced and stored at their facilities. Close cooperation between the private sector and local governments will support preparedness for a potential chemical terrorist incident.

The Federal Government also plays an important role in helping local fire and EMS departments train for a terrorist incident involving chemical agents. The response to a dangerous hazardous materials incident requires special training that is both expensive and time-consuming. For example, the National Fire Protection Association's 2011 *Third Needs Assessment of the U.S. Fire Service* found that approximately two-thirds of all fire departments that are responsible for hazmat response have not formally trained all of their personnel involved in hazmat response.

Many small and volunteer fire departments rely on Federal assistance to get the training that they need. Classes provided by the National Fire Academy, the Rural Domestic Preparedness Consortium, and other courses funded by the U.S. Department of Homeland Security provide training on how to respond to a hazardous materials incident and lead the response to a major terrorist incident. PHMSA also provides training for responding to hazardous materials incidents in situations involving rails or other modes of transportation that will be critical in responding to a chemical terrorist incident. Finally, other organizations, like the IAFC, hold conferences and other educational opportunities that allow local first responders to learn in person from Federal hazmat experts, like members of the FBI's Hazardous Materials Response Unit.

Finally, it's important to recognize the important role that Federal funding plays in helping local fire departments prepare for the threat of a chemical terrorist incident. An effective hazmat team requires an expensive cache of protective equipment, detection devices, and other technology. Programs, such as the Urban Areas Security Initiative and the former Metropolitan Medical Response System, provide funding for the comprehensive planning and coordination required to respond to a major chemical terrorist incident and mass casualty event. Across the Nation we have witnessed how Federal funding has provided an incentive for Federal, State, and local authorities across disciplines to come together and plan for potential acts of terrorism. In addition, the Assistance to Firefighters Grant program (including the SAFER grant program) can help fire departments obtain the training, equipment, and staffing that they need to either develop a regional hazmat team or obtain resources for an effective initial response.

CONCLUSION

I thank the committee for the opportunity to testify about the response to an act of terrorism involving chemical agents. This is an active and realistic threat for which local first responders must be prepared. There may be confusion during the initial response about whether it is an actual terrorist attack or a hazmat incident, which requires that Federal, State, and local authorities plan, train, and exercise ahead of time. The Federal Government provides a number of critical resources to help State and local agencies, including planning resources, training opportunities, and material support through funding. As Federal, State, and local governments address tightening budget capabilities, we must focus on remaining prepared to protect our citizens from this pernicious threat.

Ms. MCSALLY. Thank you, Chief Bryant.

The Chairman now recognizes Sheriff Fontoura for 5 minutes.

**STATEMENT OF ARMANDO B. FONTOURA, SHERIFF, ESSEX
COUNTY, NEW JERSEY**

Sheriff FONTOURA. Thank you very much.

Madam Chairman, distinguished Members, thank you for the opportunity.

A special shout-out, of course, to our newest Member Watson Coleman. Thank you very much. Doing a great job. You are going to do great things down here. We are very proud of you.

A special shout-out to my Congressman, Donald Payne, who invited me here, and I appreciate very much the opportunity to be here.

For those of you who are not familiar with northern New Jersey, please know that Essex County is a core member of the Urban Area Security Initiative, commonly known as UASI.

As reported in the *New York Times*, Federal counterterrorism officials have categorized parts of Essex County and Hudson County as the two most dangerous miles in America. Those of us charged with protecting the people of the—in our community are not in disagreement with that characterization.

As one of our Nation's most densely populated areas—Hudson, Union, and Essex—and home to a wide variety of potential terrorist targets, including chemical manufacturing plants, refineries, propane gas farms, and natural gas storage facilities, among other obvious infrastructure targets, including the thousands of containers that come into Newark—Port Newark, the third-busiest port in North America—thousands upon thousands.

We were only about to inspect about 5 or 10 percent of those until recently; we are doing much better now. I am told by homeland security folks that now we are doing up to about 80 or 90 percent. We must do them all, because that is a potential problem.

As background, please know that Essex County—we are not strangers to terrorism. Back in 1994, Thomas Mosser, a North Caldwell executive, was killed by a Unabomber. You may remember that—mail.

The follow-up investigation 2001 attacks upon our country documents that 19 of the 21 terrorists traveled through northern New Jersey, plotting their assault right in our own backyard; and as many as 11 of the terrorists assimilated our culture and lived among us. Four spent 4 or 5 days in a hotel across from Newark Airport and hijacked one of the planes, as you may remember.

Also, captured documents specifically reveal that Newark's Prudential complex has been of particular interest to al-Qaeda terrorists. Because of this 2004 threat, law enforcement surveillance at Prudential continues.

You might remember the first attack on the towers in 1993 were plotted by the so-called Blind Sheik, that lived in Jersey City and operated out of Jersey City.

On February 21, 2015, security at shopping malls in New Jersey, as other States, went on high alert following a video released by the Somali-based terrorist group al-Shabaab in which violence against American citizens was advocated.

With these many targets simultaneously in play, local, regional, and State homeland security personnel, emergency preparedness responders, and law enforcement agencies have intensified our vigi-

lance, analyzed and investigated every potential lead, and shared all intelligence as it relates to threats upon us. That was not always done prior to 9/11. Most of you remember that.

But now we are all on the same page. We realize we are the same army fighting the same war. So I am happy to report that we—the Joint Terrorism Task Force that we participate in in the New York area, we are well-informed of what goes on, and any potential threat that may come along.

New Jersey has more than 3,000 plants that either produce, store, or utilize toxic chemicals. Essex County is home to many of those plants, and Hudson County, as well. A release of lethal chemical clouds could threaten a million lives or more with a half-hour.

When we talk about the threats, if you are familiar with the Pulaski Skyway—if you have an arm as good as Mariano Rivera you could haul a grenade and hit a sweet spot.

Many of these chemical facilities have been with us since New Jersey's industrial heyday, and to many these great white tank farms seem a curious welcome to the most densely-populated region in the country.

The short list of these companies would include the General Chemical, Universal Chemical, Shamrock Technologies, L&R Manufacturing, and Elan Chemical. Other entities would include Colonial Pipeline, Sun Oil Pipeline, Amerada Hess and Getty Terminals. All are located or adjacent to Port Newark, that I mentioned before, the third-largest, busiest port in America.

These companies produce, store, and transport chlorine, sodium hypochlorite, hydrochloric acid, aluminum sulfate, aqua ammonia, and many others. Although there have been, to date, very few terrorist attacks or plots on chemical facilities, this does not mean that threats are merely hypothetical.

We all remember 1977 in West, Texas—city of West, Texas, where it was attacked and a large quantity of hydrogen-sulfide into the environment killed 15 people and wounded 200 others. In 1999 a bulk propane storage facility in Elk Grove, California was targeted by suspects later identified as extreme right-wing militia members.

While both of these plots involved facilities that can be classed as—in the nature, there is no reason to think that a potential perpetrator would limit himself or herself to this particular type of facility. While Essex County has never experienced an attack at its chemical facilities and we have had accidents and fires, fortunately with few lives lost, but many, many injuries.

We know that exposure to chlorine leaks and other toxic chemicals cause severe lung damage, even death. When we unload from Port Newark we could sometimes—if you drive by the turnpike, you look over to the right and you will see tankers on a railroad just waiting to be transported. They are full of liquid; sometimes they linger there for 2 or 3 days, overnight. Very, very dangerous situation.

As a result of these incidents and the direct terrorist attacks on our Nation, we have bolstered our protocols with those private-sector industries that produce, store, and transport chemicals. We have also conducted drills and exercises in response to chemical releases, chlorine leaks, nuclear threats, and other hazmat dangers.

As to future chemical threats, our boots are on the ground in Essex County and north New Jersey. Our law enforcement officers, emergency preparedness personnel, and other first responders are proactively training, exercising, and watching.

We thank our Federal partners for their technical expertise and financial support to acquire vital protective gear, communications, rolling stock, and other counter-terrorism hardware. The target-hardening of critical infrastructure where toxic chemicals are present remains a top priority.

From 2004 to present, our Department has acquired just over \$1 million—out of the \$12 million in UASI funding, \$1 million or so was from the Federal homeland security funding, which has been expended on the protection critical infrastructure related to the storage, distribution, and refining of chemical and fuel substances throughout Essex County, New Jersey. All of this funding was utilized for target hardening at these critical sites.

After a series of meetings with our chemical and petrochemical industry neighbors it was determined that this vital funding would best be spent on high-security fencing and gates, controlled access to systems, video surveillance systems, security barriers, and motion detection equipment. We are doing all we can at the local level. More must be done and our Federal Government must lead the way.

Security monitoring efforts must be stepped up for chemical facilities both large and small. It is my understanding that the security monitoring of these sensitive facilities is uneven at best, and in some cases nonexistent.

The industry must also fully share in the financial investment that our taxpayers have made in securing their private-sector infrastructure. We commend Congress for extending the Chemical Facility Anti-Terrorism Standard program for another 4 years so the Government and chemical companies can better improve information sharing and plan for longer security.

It is my further understanding that Department of Homeland Security grants exemptions to a number of industries, including water and wastewater treatment, which is—use high amounts of chlorine. All chemical industry loopholes must be closed.

Finally, safer alternatives to current toxic chemicals must be aggressively deployed. More than 21 million people live in our metropolitan area. Locally, the stakes are extremely high.

We urge you enact increased security measures for chemical plants.

I thank you very much for this opportunity.

[The prepared statement of Sheriff Fontoura follows:]

PREPARED STATEMENT OF ARMANDO B. FONTOURA

MARCH 19, 2015

Madame Chairman, Representative Payne, distinguished Members of Congress, ladies and gentlemen.

My name is Armando Fontoura. I am the sheriff of Essex County, New Jersey and the coordinator of the Essex County Office of Emergency Management.

I thank you for this opportunity to appear today before you to address the topic of “Responding to the Threat of Chemical Terrorism”.

For those who are unfamiliar with northern New Jersey, please know that Essex County is a core member of the Urban Area Security Initiative, commonly known as UASI.

As reported in the *New York Times*, Federal counter-terrorist officials have categorized parts of Essex County, the financial, industrial, cultural, and the transportation hub of New Jersey, as "America's Two Most Dangerous Miles".

Those of us charged with protecting the people of our community and our critical infrastructure do not disagree with this "Most Dangerous" classification.

As one of our Nation's most densely populated regions, Essex County is also home to a wide variety of potential terrorist targets, including chemical manufacturing plants, refineries, propane gas farms, and natural gas storage facilities, among other obvious infrastructure targets.

As background, please know that Essex County and our northern New Jersey neighbors are no strangers to incidents of terrorism and terrorist plots.

On December 10, 1994, Mr. Thomas Mosser of North Caldwell in Essex County, was killed when he opened a mail bomb sent by Ted Kaczynski, the notorious Unabomber.

Jersey City was the headquarters for the so-called "Blind Sheik", Omar Abdul Rahman, and staging ground for the 1993 terrorist attack on the World Trade Center.

The follow-up investigation to the 2001 attacks upon our country documents that 19 of the 21 terrorists traveled through northern New Jersey, plotting their assault right in our own backyard, and as many as 11 of the terrorists assimilated our culture and lived among us.

Also, captured documents specifically reveal that Newark's Prudential complex has been of particular interest to al-Qaeda terrorists. Because of this 2004 threat, law enforcement surveillance at Prudential continues.

On February 21, 2015, security at shopping malls in New Jersey, as with other States, went on high alert following a video released by the Somali-based terrorist group al-Shabab in which violence against American citizens was advocated.

With these many targets simultaneously in play, local, regional, and State Homeland Security personnel, emergency preparedness responders, and law enforcement agencies have intensified our vigilance, analyzed, and investigated every potential lead and shared all intelligence as it relates to threats upon us.

New Jersey has more than 3,000 plants that either produce, store, or utilize toxic chemicals. Essex County is home to many of these plants and a release of lethal chemical clouds could threaten a million lives or more within one-half hour.

Many of these chemical facilities have been with us since New Jersey's industrial heyday and, to many, these great white tank farms seem a curious welcome to the most densely populated region in the country.

The short list of these companies would include the General Chemical, Universal Chemical, Shamrock Technologies, L & R Manufacturing, and Elan Chemical. Other entities would include Colonial Pipeline, Sun Oil Pipeline, Amerada Hess and Getty Terminals. All are located at or adjacent to Port Newark, the third-largest and -busiest port in the United States.

These companies produce, store, and transport chlorine, sodium hypochlorite, hydrochloric acid, aluminum sulfate, aqua ammonia, fluorocarbons, petro-chemicals, and other toxic chemicals in significant quantities.

Although there have, to date, been few terrorist attacks or plots on chemical facilities, this does not mean that threats are merely hypothetical.

In 1997, an explosive device was detonated at a natural-gas processing facility in the town of West, Texas which released large quantities of hydrogen-sulfide gas into the environment.

The explosion killed 15 persons and wounded an additional 200 individuals.

In 1999, a bulk propane storage facility in Elk Grove, California, was targeted by suspects later identified as extreme right-wing militia members.

While both of these plots involved facilities that can be classed as petrochemical in nature, there is no reason to think that a potential perpetrator would limit itself to this particular type of facility.

While Essex County has never experienced an attack on its chemical facilities we have had accidents and fires. Fortunately, the number of casualties was few although the injuries were severe.

We know that exposure to chlorine leaks and other toxic chemicals cause severe lung damage, even death.

As a result of these incidents and the direct terrorist attacks on our Nation, we have bolstered our protocols with those private-sector industries that produce, store, and transport chemicals.

We have also conducted drills and exercises in response to chemical releases, chlorine leaks, nuclear threats, and other HAZMAT dangers.

As to future chemical threats, our boots are on the ground in Essex County. Our law enforcement officers, emergency preparedness personnel, and other First Responders are proactively training, exercising, and watching.

We thank our Federal partners for their technical expertise and past financial support to acquire vital protective gear, communications, rolling stock, and other counter-terrorism hardware.

The target-hardening of critical infrastructure where toxic chemicals are present remains a top priority.

From 2004 to the present, my department has acquired just over \$1 million in Federal Homeland Security funding which has been expended on the protection of critical infrastructure related to the storage, distribution, and refining of chemical and fuel substances throughout Essex County, New Jersey.

All of this funding was utilized for target hardening at these critical sites. After a series of meetings with our chemical and petrochemical industry neighbors it was determined that this vital funding would best be spent on high security fencing and gates, controlled access systems, video surveillance systems, security barriers, and motion detection equipment.

We are doing all we can at the local level. More must be done and our Federal Government must lead the way.

Security monitoring efforts must be stepped up for chemical facilities both large and small. It is my understanding that the security monitoring of these sensitive facilities is uneven at best and in some cases non-existent.

The industry must also fully share in the financial investment our taxpayers have made in securing their private-sector infrastructure.

We commend Congress for extending the Chemical Facility Anti-Terrorism Standards program for another 4 years so the Government and chemical companies can better improve information sharing and plan for longer-range security.

It is my further understanding that Department of Homeland Security grants exemptions to a number of industries, including water and wastewater treatment, which use high amounts of chlorine. All chemical industry loopholes must be closed.

Finally, safer alternatives to current toxic chemicals must be aggressively developed.

More than 21 million people live in our metropolitan area. Locally, the stakes are extremely high. We urge you enact increased security measures for chemical plants.

I thank you for this opportunity to appear before you today.

Ms. MCSALLY. Thank you, Sheriff Fontoura.

Sheriff FONTOURA. Or any questions you may have.

Ms. MCSALLY. Thank you.

I now recognize myself for 5 minutes for questions.

I appreciate the testimony from all of you. It raises a whole lot of questions and we will have to adjourn shortly, but I think we will be able to get some questions in first.

Dr. Kirk, I want to start with you. In your experience and in your position, and all the things that were mentioned here today, do you think that the United States is vulnerable to a chemical attack? I mean, how vulnerable are we?

In the military we think about a threat equals intent-plus-capability, right? So how vulnerable are we?

Do you think that we are able to respond, given all the comments that were here today and all the challenges that there are? What keeps you up at night?

Dr. KIRK. Thank you for your question.

I can start by talking about vulnerability. I think the best way to address that is to reflect on what our program is doing as we realize the every community is different.

The way we are trying to approach this is to look at risk. The way we look at risk is we take threat, we take vulnerability, and we look at consequences. We are trying to come up with what are

the greatest likelihood, the greatest consequence events that could occur.

Then that is what drives a lot of preparedness activities beyond that. It helps with purchasing of detector capabilities; it helps with training focus; it helps with the kind of personnel needed. I think that is a way to get our arms around the many different threats and risks that we have that are currently there.

But every community, depending on industry, railroad, truck traffic, and then the vulnerable facilities that are in that community, all make it a different answer for different communities.

What we did in Baltimore and what we are doing in the other communities is trying to come up with a good way for the communities to do this for themselves to some extent, and then to interact with the Federal Government with current emerging threats that are coming along so that they can incorporate those into their preparedness plans.

Ms. MCSALLY. Great. Thank you, Dr. Kirk.

Dr. Catlett, you talked about the declining capabilities of our medical community to—or, you know, just the atrophying of those skills. I can say, as I mentioned, in the military, I mean, if we don't exercise those skills—because it is very complicated and not intuitive, as you said, to be able to make sure you are able to detect and then decontaminate and all that. If you are not training to do that all the time, you are not going to be able to do it well.

So what do we need to do to turn that around, and how much of that is really the Federal Government's role, and how much of it is at the State level or just within communities, and the medical community themselves, to know that this is part of their responsibility? Like, what is that mix, and what do we need to do to turn that trend around?

Dr. CATLETT. Very good question. I happen to think that training and education is one of the most important strategies that we can address in the health care system.

Part of our limitation is time. Time and money. Education is both of those for us.

We have extremely tight curricula at baseline, so it is very difficult to introduce new topics. In addition, for more seasoned health care providers we have very limited funds to attend continuing medical education programs or continuing nursing education programs.

So in my opinion, any new education initiative that we undertake specifically to address chemical training is going to have to be time-efficient and it is going to have to be cost-effective.

In my submitted written testimony I happened to mention one model, which is the CDC's on-line training. We have put so much effort into Ebola preparedness, and doing on-line training modules as an adjunct to those hands-on training with the actual supplies and equipment is an example of a cost-effective, time-efficient way to train people.

Ultimately, if we don't address this training and education issue, I think we will continue to struggle in our preparedness level.

Ms. MCSALLY. Thank you.

Chief Bryant and Sheriff Fontoura, representing the first responders—Sheriff, I know you mentioned you were talking very

specifically about your area, but, you know, my concern is if you are a bad guy you probably don't want to go to an area that has learned a lot from previous attacks and are working very closely together; you maybe want to find another more vulnerable area that hasn't had the resources, that is a softer attack area.

I mean, as you are looking Nation-wide, I mean, where do you think we have our challenges? Are they large cities that are not equipped to address these issues and haven't been inculcating the culture of being able to deal with a chemical attack, or is it a small town that just really this isn't on their radar at all?

I mean, where do you think the threats are Nationally and the vulnerabilities? Then what can we do to share best practices from the cities that are doing it great?

Chief BRYANT. Well, in terms of the fire service, you know, we look at threat based on the resources available. So, ma'am, I think it is both, to be very honest with you.

You know, obviously in some of your major metropolitan areas of the city or where you have the facilities, the plants, the manufacturing facilities that—where these—there are mass quantities of these chemicals, so there is certainly a vulnerability there. But also, obviously, in Oklahoma, you know, we are large in the oil and gas industry and we have refineries that are in more rural areas. So it runs the gamut.

I would say that, you know, most of the grant money that is dispersed from the Federal Government in terms of hazardous material response, you have to show what your level of threat is to your community. So therefore, some of the resources in those areas where there may not be a large quantity of chemical facilities or plants may not have the resources, in terms of equipment and training, necessary to handle a full-scale hazardous material incident or chemical attack, and some of the areas where there is more vulnerability, that is where you are going to see your assets pooled and concentrated in those areas.

Ms. MCSALLY. Okay. Great.

My time is expired, Sheriff Fontoura, if you have a quick add-on to that?

Sheriff FONTOURA. Are we on?

We are as vulnerable in Oklahoma as we are in New York City or New Jersey. I think that the philosophy of terrorists—most terrorists is that, "Get as many people as you can."

So if—the densely-populated areas are their first choice, obviously. This is the intelligence that we have gathered and continue to gather.

But that doesn't mean that rural areas are excluded, because they are not. I think that we need to look at it as, again, an equal opportunity for—everyone is the same vulnerable no matter where you are, you know. If they want to go after an awful lot of people, then obviously northern New Jersey, New York City, that is where you go. That is where you attack, you know.

UASI funds, by the way, I talked about it before, they are just about drying up. So we need to start looking at that because we, you know, the Federal Government has to step up again and start doing the right thing.

Ms. MCSALLY. Great. Thank you.

I think we have time for Mrs. Watson Coleman.

Chairman now recognizes Mrs. Watson Coleman for 5 minutes, and then we will have to adjourn for votes.

Mrs. WATSON COLEMAN. I am going to just kind-of start my questioning because I do have a number of questions, I think, this moment.

I think that the problems with an accidental situation just as terrible as an intentional situation. So I notice that Dr. Kirk, that your budget requests have gone down over the years and I am just wondering what is the reason for that? In your CDP program.

Dr. KIRK. Over the years we have focused on different parts of chemical defense. Originally we had an operational capability with detectors, and we have moved into an area where we are looking more at preparedness and planning efforts. In that we have been able, with our budget, to hire expertise, a staff that has focused expertise.

What we do with our staff is that we provide subject-matter expertise across all of DHS and the interagency. We provide something unique—it is medical toxicology and some technical expertise. So with that budget we have been able to do that.

In addition, in fiscal year 2012 and fiscal year 2013 the appropriations allowed us to provide four additional cities to look at after the Baltimore project to further define what we have been doing in Baltimore.

Mrs. WATSON COLEMAN. Well, how do you determine what cities need to have these demonstration projects? What is the criteria for it?

Dr. KIRK. Well, when we were asked to extend to four new cities we were also asked to select the cities based on a competitive and fair selection. So we sent out an expression of interest through the *Federal Register* and asked for applications. Interestingly, we had 30 cities that applied for that, so there was quite an interest in it.

After we received the applications we first of all looked at risk. We had our Science and Technology Chemical Security Analysis Center do a risk assessment of the type of venue that was selected for the project and the city itself, and so that constituted most of the selection.

But in addition, we looked at the city's interest and their concerns that they had about chemicals. We had a panel that actually selected this, and then we offered it.

As part of our program we have already looked at a subway station transit, so we were looking at other types of facilities.

Mrs. WATSON COLEMAN. So it seems to me that the issues of preparedness, protocols, education, exercises, training, cooperation, coordination, and predictability just seem to flow from to your left on.

So from the hospital's perspective I am very concerned that there are antidotes, and protocols, and tools, and other things that have just kind-of been sitting on the shelf and are no longer going to be helpful, and that there are doctors who are not being trained should there be such a major incident. Do you find that it is an issue of financial resources coming—funding resources coming from the Federal Government that is impeding your ability to make sure that the hospital is—hospitals are where they need to be?

The same thing with our first responders. Are we missing resources, funding that you need in order to ensure that you have the coordination that you need, that you have the information that you need, that you have the kind of interaction between the private sector, the public sector, and what is the role of the Federal Government in that?

I am not sure we can get through all of that within a minute and 20 seconds, but those are the questions that I really need to have answered here.

I guess I will start with you, Dr. Catlett.

Dr. CATLETT. Yes, ma'am.

Sheriff FONTOURA. Our hazardous mitigation plan—

Mrs. WATSON COLEMAN. Pardon?

Sheriff FONTOURA. Our hazardous mitigation plan will—addresses most of those things. We have hospital—are a part of our plan, our emergency management plan, and we have those protocols in place already from our perspective.

Is it enough? Do we have enough rolling stock? We did okay with the \$12 million that we had, but again, some of the stuff is starting to get aged and we need to replace that, but we do have protocols in place where we are working with hospitals on a regular basis and—as well as, you know, other areas, schools, et cetera.

Dr. CATLETT. I think for us the issue is two things: (A) I think we are—we have lost awareness of the threat. That is one problem.

Then the second is, yes, funding. I gave you some statistics. In 2004 Johns Hopkins received almost \$350,000 in funding from HPP; in 2014 we received \$35,000, and we re-donated back to the system half of that.

So we don't have the financial resources that are necessary to replace these degrading supplies and equipment and add additional training programs for us.

Mrs. WATSON COLEMAN. That is concerning, because you might not be the first responder but you certainly are the very next contact point in an emergency.

Dr. CATLETT. We are called first receivers, yes, ma'am.

Mrs. WATSON COLEMAN. First receivers. Thank you.

Dr. CATLETT. Yes, ma'am.

Chief BRYANT. Generally speaking—I am sorry. Did you—generally speaking, yes, the Federal Government has been doing their part in a large way to support the local first responders in terms of training and grant programs to fund equipment and resources necessary to respond. Again, our concern would be on-going and maintaining that level of preparedness.

Mrs. WATSON COLEMAN. When we come back I really would like to discuss the real possible or probable threat that we are experiencing or think we are experiencing. Thank you very much.

Thank you.

Ms. MCSALLY. Great.

Mrs. WATSON COLEMAN. I yield back.

Ms. MCSALLY. Thank you.

Without objection, the subcommittee is in recess subject to the call of the Chairman. We expect to return in about 10 minutes. We have two votes. We are going to catch the first one and then we will be back, so thank you.

[Recess.]

Ms. MCSALLY. All right. The subcommittee will now reconvene. Thank you for your patience.

We do have some other Members that may come back in and ask questions, but until they do, I know we have some additional questions. So I think we will go to a second round for us, if that is okay with you, and then if they come in we will be able to have them jump in.

So again, thanks for your time. There are obviously so many elements of the issue that we are doing with today, so I appreciate all your perspectives.

I am interested in the feedback from the Baltimore pilot and—from Dr. Kirk and Dr. Catlett. So if each of you could give your perspectives on what you learned there and what else we need to do to implement some of the lessons learned?

In the military we call them “lessons identified” until they are actually learned, and then they become “lessons learned.”

Dr. Kirk.

Dr. KIRK. I think this project, at least from my perspective, was very successful. The ways it was successful are several.

First of all, the relationship that were built there, and I think that is part of the success of a preparedness is the relationship-building. Our program looked at not just law enforcement, fire hospitals; we were really looking at the connections amongst all of those. We were looking at a community response in total.

So that was probably the most important part of it. It was also the relationships between the Federal Government and the community and the Maryland Transit Administration. These were all important relationships for this to work well. I think we left something there when we helped build those relationships.

The key things that we learned, though, is, first of all, this is a complex system, and within that complex system there is certain leverage points. There are places where if we really focus on those we can make a big difference, versus trying to fix everything.

So we found some of those, and there are really three that I think are the most important. The first one was recognizing the problem. It is not just about detector technology; it is about all of the different things that we can pull out of our toolkit and say what is this, and how quickly can we identify it, and how quickly we pass that information to everyone that is responsible for response.

The second thing was information flow, but the information flow is focused on how people make good decisions, so really getting into the brains of the responders at every level of how they make decisions in this chaotic and this uncertain environment, and delivering the best information right away so they make very good decisions.

The third was just aligning resources—what resources they currently have in the community that they can really leverage, and if they are not aware, what resources are right outside of their community that they could pull into it.

So those are the things that we are highlighting in the new projects that we are—as we move forward.

Ms. MCSALLY. Dr. Catlett.

Dr. CATLETT. Thank you. We were very excited to be included and chosen for this project. I think we learned three things quickly.

The first was our vulnerability. We sit directly on top of a metro station, very similar to George Washington University here in Washington, DC. You know, it opens up directly into the hospital.

That is a critical infrastructure that you do not want to contaminate and take off-line. So that was one: Realizing our vulnerability.

The second one is the complexity of the concept of operations if one of those alarm goes off. It triggers a cascade of events that is very dramatic and will disrupt our services at the hospital, so we wanted to make sure that we got it right, which led to our third thing that we learned, which was the importance of collaboration.

We can't operate in a vacuum. We are nothing without our first response partners—police, fire, EMS, the hazmat teams. It really gave us the opportunity to sit down in the same room, have those hard conversations, and, you know, we always say game day is not the time to be exchanging business cards. So we have that lead time now to make those connections and to develop that concept of operations.

Ms. MCSALLY. Great. Thank you.

I want to move on to—Dr. Kirk, you mentioned that detection is, you know, one of the big challenges, obviously.

To Chief Bryant and Sheriff Fontoura, you are going to be the first on scene for one of these incidents and, you know, how do you know the difference between something that is an accident or something that is, you know, just a—in the chaos of a catastrophic event, being able to detect that we've got a chemical attack or some sort of chemical agent, whether it was an accident or an attack, and how you protect your individuals right away and communicate that?

Like, can we walk through what our detection capabilities are right now for our first responders, what those gaps are, and how we then get that information out?

Chief Bryant and then Sheriff Fontoura.

Chief BRYANT. Yes, ma'am. As I mentioned in my testimony, the fire service's response to a chemical incident is going to be very similar, whether it is an act of terrorism or an accident.

So again, depending on the level of training of those first responders, they are going to respond to it in maybe more of a defensive posture if their level of training hasn't got them to the point that they can take a more direct response to it. So in terms of protective clothing, in terms of detection devices, again, that is—depending on the municipality and their—their vulnerability, again, they may go from a very basic level of training, very basic resources and equipment, to a full built-up hazardous material team.

Kind-of in the gaps and between that, especially post-9/11, a lot of the grant funding has gone to regional hazmat teams. So in Oklahoma, for instance, there are about five or so of those scattered throughout the State, so maybe to protect those rural areas.

But again, our initial response to that is going to be to isolate that incident to a small as area as possible. To not let that agent go any further than that, obviously you need—people that are affected are going to have to be treated there on the scene, isolated there on the scene. A lot of times the medical response has to come

to us because we can't—we are not going to risk further contamination to other people by sending those people to a health facility until we know that they are decontaminated to some acceptable level.

But again, that is our first approach to that is to isolate that incident to as small as area as possible.

Ms. MCSALLY. Thank you.

So, Sheriff Fontoura, that assumes—Chief, you are right, that assumes you have detected it, right? So, you know, what are you doing to actually detect it in the—again, in the chaos of what is going on that, “Hey, this is a chemical situation,” and then be able to protect?

I know I'm past my time, but if you could just give your perspective, Sheriff Fontoura.

Sheriff FONTOURA [continuing]. Keep forgetting.

Our first responders, and our department in particular, they are all equipped with Tyvek suits and all the protective equipment that we have. Our bomb squad personnel have been cross-trained and they have special equipment they could put on for—they can breathe—whatever it may be.

But again, what the chief talked about—you isolate, you find—get as much information as you can, get as much information out to the public as you can, and if it is some kind of a chemical spill you got to be careful that the—those—if it is an accident or those responsible are not the ones giving out the information, that you take control of that.

Today, with the social media available to—there are so many ways to let the public know. Reverse 9-1-1, of course, is the first one that we go to, but there are so many other ways. If you have to, with loudspeakers, go to, “Stay out of the neighborhood.”

Evacuate as quickly as you possibly can. Isolate the area as much as you can—totally, if you can.

We have secured a mobile field hospital, for example. We have four hazmat units within our county. State police is—also has a hazmat unit available to us, Union County. We can get as many as six hazmat units ready to go and work with the hospitals and make sure that we isolate, isolate, and control, and make sure that we keep the public as safe as we possibly can.

Ms. MCSALLY. Great. Thank you.

The Chairman now recognizes Mrs. Watson Coleman for a second round for 5 minutes.

Mrs. WATSON COLEMAN. Thank you, Chairman.

I am interested in knowing—I know that corporations that store chemicals have a—have the legal responsibility to report the kind of chemicals that they have in their facilities. So that information is transmitted to fire and police? Is that information transmitted—

Chief BRYANT. Yes, ma'am. Most communities have—or areas have what is referred to as a local emergency planning committee, LEPC, and they are that group. Again, it is kind of a multi-discipline group that comes together, and that is how we—through that committee is generally how those—what is out there in our community is communicated to us, and then that stays updated on a regular basis.

Mrs. WATSON COLEMAN. That is my other question. How often does the company have to report what is within their facility?

Chief BRYANT. I couldn't tell you how regularly, but generally they initially report that, that information is collected, disseminated to the people that need to know that. Any type of change in quantity or a type of chemical or whatever, that is also reported immediately to that group, and that information, again, is collected and stored.

Mrs. WATSON COLEMAN. So the right-to-know law identifies the kind of chemicals and things that are to be identified and shared.

Dr. Kirk, would you know the answer to that? That is where that is contained, right, within that law?

Dr. KIRK. Well, the Environmental Protection Agency and their risk management plans are where that comes from. I don't have detailed information about that. I am not certain the specific requirements.

Mrs. WATSON COLEMAN. Dr. Catlett, would you know whether or not that list has been updated or need to be updated?

Dr. CATLETT. No, ma'am. I would not have access the information, and I am not sure that hospitals seek that type of information. I am not saying it is not important; I don't think we know to seek that sort of information.

Mrs. WATSON COLEMAN. Well, I know that would be important information for first responders. I mean, I know that you need to know what is in your communities. I know we need to figure out, what does it take, therefore, to make—to protect the people within that community, be it an accident or a terrorist attack?

I am just wondering if the information is flowing in a matter that it is usable and timely. Or do we not know because we just haven't had an accident or an incident in such a long period of time that we ought to just be looking towards the what-ifs of the future?

Sheriff FONTOURA. Our hazardous mitigation plan, our emergency management plan, which has to be—every year we have to upgrade it and send it to the—forward it to the State. It lists all of the companies that I talked about and then some, and what they are dealing with. We stay in constant touch with them.

If it becomes necessary, anybody can access that. The only thing you cannot access for emergency management or hazardous is the actual response that we may have, because you—some things you need to keep from the wrong people to get ahold of.

So we don't list everything. We may not risk the entire response, but you certainly know what is in there in those companies and what they are making.

Mrs. WATSON COLEMAN. So Newark in particular—well, Essex County in particular—I mean, you've got the rail, you've got the ports, and you've got the highways. Is there any mechanism that lets you know what is being transported that could be a potential dangerous—a danger to the communities?

Sheriff FONTOURA. We have a pretty good idea, but the answer to that is—absolutely totally? No. We don't always know what is in those tankers of—that are coming through there or those tanks that I talked about on the railroad just waiting. You know, we think we know what is in there, but I am sure there is always one

or two that we are not entirely aware of or what time they are going to be moving through.

Mrs. WATSON COLEMAN. In Bridgeton most recently, last year, there was a freight train with stuff in it that was bad, kind of overturned and got into the water, got into the air. They are still actually trying to recover from that. Luckily nobody died from it, but people could have.

So do we have specific identification of sort-of the various communities that live within certain distances of facilities that store these potentially dangerous and available chemicals?

Sheriff FONTOURA. In our county we do. We are pretty much on top of everything that is being manufactured and everything that is being stored, because if the companies don't cooperate with us then they have a serious problem, obviously.

Mrs. WATSON COLEMAN. Essex County seems to be particularly prepared. To what extent are you using Essex County resources, versus getting assistance from the Federal Government, in ensuring that you all are ready, willing, and able to serve and protect?

Sheriff FONTOURA. I think it is incumbent upon us and we don't rely too heavily on the Federal Government to advise us or rely on them to—

Mrs. WATSON COLEMAN. What about funding?

Sheriff FONTOURA. For training?

Mrs. WATSON COLEMAN. For the whole megillah.

Sheriff FONTOURA. Yes. Yes.

Mrs. WATSON COLEMAN. For the whole megillah, for the whole—you know, your—establishing your protocols, having your—having your tools, having your resources, having your communications system, having your readiness and preparedness to do that.

Essex seems to be so prepared. To what extent are you relying upon the budget coming from the county taxpayers or the State taxpayers, or what—to what extent are we relying upon the Federal—

Sheriff FONTOURA. Very heavily.

Mrs. WATSON COLEMAN [continuing]. To support you?

Sheriff FONTOURA. All of our rolling stock that I talked about before—and I have a whole list of it that I will leave for you before I leave—but all of that was purchased through UASI funding, the \$12 million that I talked about. We have very state-of-the-art equipment. We are starting to get—couple of items are getting a little old, and right now the—has dried up.

But we have done very well in that area, so I have no complaints. I mean, I was born and raised in the Ironbound section of Newark. We have more than our fair share of—I used to swim in the Passaic River when I was a kid. You know—

Mrs. WATSON COLEMAN. Not now.

Sheriff FONTOURA [continuing]. Now I can walk across it.

Mrs. WATSON COLEMAN. Thank you.

Sheriff FONTOURA. So we know all about those plants that are there and what they are capable of producing for us.

Mrs. WATSON COLEMAN. Always known you to be attractive. I don't want to see you glowing in the dark, though.

Thank you, Chairman.

Ms. MCSALLY. Thank you.

The Chairman now recognizes my colleague, Mr. Palazzo, from Mississippi.

Mr. PALAZZO. Thank you, Chairman McSally, for holding this important hearing.

I thank our witnesses for coming here today to share their expertise on chemical terrorism.

Dr. Kirk, I have a question for you.

Of course, others can pipe in after he is finished.

What technologies are available now to remove or neutralize chemical warfare agents?

Dr. KIRK. Well, a lot of different groups within the Federal Government and even academics are working on those kinds of things. There are emerging technologies I am aware of.

My program doesn't specifically work in that area. What we are trying to do is connect some of those available resources to the communities.

Some of the most specific things that I have worked on, and—in the patients that are contaminated, one of the very first things to neutralize or remove is patient decontamination. This is a guidance—a National guidance that was developed through both HHS, ASPR, and our office.

That really looks at how do we remove the chemicals from a person so that they can first of all not have additional harm, which is one problem—it is a first aid procedure to get the chemicals off quickly. Then second, how do we prevent that from being spread into the hospitals and downstream?

Mr. PALAZZO. Can I ask you what countermeasures have been stockpiled to react to a chemical attack?

Dr. KIRK. Those are usually local in most regards of the—and back to our risk assessment work we are doing in each community, I think that risk assessment really informs what countermeasures should be most available in that particular community.

I am also aware—I work with my colleagues at HHS, CDC, who have the CHEMPACK project, which stores auto-injectors and other types of pharmaceuticals for chemical attacks.

Mr. PALAZZO. Okay.

Our National Guard troops often provide military support to civil authorities at high-visibility and high-exposure public events. What chemical protective equipment do they carry to shield against chemical exposure or provide for immediate skin decontamination if exposure occurs?

Dr. Kirk and anybody else on the panel that is familiar with the National Guard's role, feel free to weigh in.

Dr. KIRK. I do advise them. I don't have the depth of understanding of that, that they carry a lot of the Department of Defense chemical protective equipment and skin decontamination countermeasures, as well as antidotes that I have mentioned already.

Mr. PALAZZO. So it would probably be best to talk to the NGB?

Chief BRYANT. Well, just from my own experience, sir, in Oklahoma we have the 63rd Civil Support Team, and that is their focus. They are very well-equipped, they are very well-trained, and they have a lot of resources in terms of protective clothing, decontamination equipment, detection equipment.

So, again, the issue with that is that they are there, again, because they are a National Guard unit there is a little bit of time involved to notify them and get them on the scene. So initially, you know, it is that local jurisdiction.

But again, it is very good to have those assets close by because, again, they are very well-equipped and trained.

Mr. PALAZZO. My final question is for Dr. Kirk or Dr. Catlett. What gaps remain in our preparedness for the health effects of a chemical attack?

Dr. KIRK. Well, as I mentioned earlier, there are so many different chemicals that are available, and many of them have toxic effects, and there are so many different scenarios, as well, that that question is somewhat challenging to answer unless you know, you know, which community you are dealing with and what is most likely.

We do have a specialist in each community, both the regional poison centers and medical toxicologists. The specialty that I am a part of is a fairly young specialty, but it is people that have actual clinical experience in dealing with that.

I think one of the gaps may be that most communities aren't as aware of those resources that already exist that they could engage more fully in this, and that has been part of what I have tried to do is bring those—that kind of expertise to the forefront. That is one of the differences in that chemical incident versus some of the others is that we have this area of expertise that has been working in this area all day long every day that would like to be engaged in these activities.

Dr. CATLETT. I think you hit the nail on the head with your question: What are the gaps in health care response to these agents? I don't know that we have the answer to that right now.

There was the GAO report that was published I believe in 2004 that looked at hospital preparedness for—in general, to other acts of terrorism as well—but there hasn't been good, well-organized data published in almost a decade.

So I think that it is worthwhile to invest in a new research project or a poll to find out what the level of preparedness now, but more importantly, research to define the metrics. We don't know what the metrics are for success right now. It is one thing to have the data on our level, but we need to breach that gap and cross that gap to provide those countermeasures and give us the capability to respond.

Mr. PALAZZO. Is it fair to say that we can't—you know, it is almost impossible to mitigate against every threat that is possibly out there?

Dr. CATLETT. I think that is a fair statement. We are always reacting to emerging threats. Particularly for us it is emerging infectious diseases. You know, we went SARS to swine flu to bird flu to MERS to Ebola, you know, and we are always—it always seems we are one step behind anticipating that next threat.

Mr. PALAZZO. All right.

My time is expired. Thank you, Chairman McSally.

Thank you.

Ms. MCSALLY. Just a couple of quick wrap-up questions focused on detection.

First one: My understanding, Dr. Kirk, is DHS used to support a rapidly-deployable chemical detection system, and this was a detect-to-warn capability deployed to high-profile events, kind-of like BioWatch. But my understanding is it is no longer being funded.

So why has it been eliminated, and is something replacing it for high-profile event detection?

Dr. KIRK. Well, the reason that that is no longer being deployed is early on when I joined DHS I was part of the team that deployed with that, and one of the problems we had was that the communities wanted to know what to do with the information. In the discussions I had when we would go to these events with this was that they wanted other ways of recognition, they wanted decision making with what that information meant to the—what did that information mean to them, and then how to take actions.

So it really is the nidus of the program we now have was because the communities were asking for the kind of information, rather than detection capabilities.

Along the way, detection capabilities have improved. They are more accessible. Other grants programs have provided detection capabilities. Ours were—had been around for a bit, and we felt like we were not adding as much to what the communities already had and there was a better place to be, a leverage point where we could actually improve the response beyond that.

Ms. MCSALLY. Great. Thank you.

Just one final question for anyone on the panel—you've got to go, Sheriff? You've got law and order to keep in Essex County? Thank you, sir. Thanks for your time—which is, related to the threat—so there was discussion so far in your testimony about shipping containers coming in not being inspected, and chemical facilities that there would be a concern of somebody trying to have an attack on them. I also would think that just, you know, chlorine gas with an IED associated with it, you know, potentially could be a threat.

Like, what do you think is the biggest threat, as we are seeing the prevalence of ISIS-inspired extremists that potentially are either in our country, or flowing in our country, or is it coming over the border? Like, what do you think is the most significant threat of all the ones that were mentioned today?

If anybody just wants to jump in and then we can wrap up.

Chief BRYANT. It probably may have been a bigger—or a better question for the sheriff who just left us, but—

Ms. MCSALLY. He left at the perfect—

Chief BRYANT. You know, there are just so many out there. They are just so numerous.

Again, you mentioned chlorine again, and earlier that I mentioned, you know petrochemical plants. So again, I think it is just—it is opportunity and what somebody would think to try and weaponize.

But again, as far as biggest threats, I think you have to think in terms of what could affect a large part of the population quickly. So when you are thinking in terms of compressed gases, like chlorine and so forth, that if you release those in some way that they can get out they expand very rapidly with winds, and so forth, can cover a large area fairly quickly. Liquid type of chemicals—you

would probably have to introduce them into the water system or something to have an impact in that way.

So I think that is what we have to think in terms of, as far as what the bigger threats are, is what would affect a large part of the population in a—very quickly.

Ms. MCSALLY. Okay. Great. Thank you.

Mrs. Watson Coleman, do you have any more questions?

Mrs. WATSON COLEMAN. No. I just want to thank our panelists for sharing this information for us and putting something before us and on the table that perhaps we have not been giving the kind of attention to.

Thank you.

Thank you, Chairman.

Ms. MCSALLY. Thank you.

I do want to thank all the witnesses. Thanks for your work in this area. Thanks for your testimony today, and look forward to continuing working together with you to try and address these issues.

The Members of the subcommittee may have some additional questions for you. We will be asking you to respond in writing potentially. Pursuant to committee rule 7(e), the hearing record will be open for 10 days for that purpose.

So without objection, the subcommittee now stands adjourned.

[Whereupon, at 11:19 a.m., the subcommittee was adjourned.]

