Proceedings of the

Community Health Resilience Workshop 2011

OCTOBER 25–26, 2011 | WASHINGTON, D.C.

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TABLE OF CONTENTS

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EXECUTIVE SUMMARY

Representatives of government, private sector, and non-profit organizations met for a two-day Community Health Resilience Workshop on October 25 – 26, 2011 in Washington, D.C. to discuss needs, current initiatives, and capabilities required to develop a community health information sharing and situational awareness framework that could be utilized nationwide. The Workshop was sponsored by the United States (U.S.) Department of Homeland Security (DHS) Office of Health Affairs (OHA) in cooperation with the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR), and the HHS Administration for Children and Families. The Workshop raised awareness of the need for the *whole community* (i.e., public-private sector and non-profit organizations, including social service providers) to share information during a major health-related incident. This was done by examining two scenarios: a major natural disaster and food-borne illness outbreak. The scenarios were followed with "snapshot" user perspectives by local, state, federal, private sector, and other stakeholders, and highlighted examples of initiatives and capabilities that could contribute to a community health resilience information sharing framework. Participants then focused on identifying priority areas that could be included in a community health resilience information sharing and situational awareness framework. Lastly, participants addressed convening a Community Health Resilience Task Group to develop the framework.

Workshop Results

There were a wide range of findings and lessons learned with more than four dozen major outcomes that fell in six categories: (1) community health resilience and broader community resilience overarching issues, (2) operationalizing community health resilience, (3) community health information sharing capabilities, (4) standards and guidelines for health information sharing, (5) outreach, communications mechanisms, and public education, and (6) development of a community health information sharing and situational awareness framework.

Selected Major Outcomes

There are many definitions of community resilience; what is necessary is to determine its attributes and how to operationalize it. One key requirement is involvement from the grass roots to national and international levels—engaging and empowering the *whole community* in partnership—private/public sector and non-profits, including social service organizations. Another requirement is that community resilience includes mental, as well as physical health, and addresses behavioral needs, children and families, and at-risk individuals.

There are many useful and innovative health information exchange and resilience initiatives and capabilities that can be identified and leveraged for an information sharing and situational awareness framework that would avoid "recreating the wheel." Health Information Exchange (HIE) and broader resilient and secure information sharing systems must be must be part of this.

Evolving state HIE programs and activities are fragmented across the nation, varying in goals, focus, and technical capabilities, with little to no coordination. Standards are needed to control the manner in which HIE and broader health information is shared, as well as guidelines for determining what community characteristics or functions are critical for community resilience or health resilience.

Different constituencies need different types of information and utilize different communications mechanisms they are comfortable using (including trusted information sources). Emergency managers and public health officials must ensure that critical messages reach all populations, including people with disabilities and limited English proficiency, and immigrants. Social media is becoming an important element in health resilience information sharing, but poses challenges in that it vastly increases the number of communicators, and can dilute or alter the message. Also, many groups may not have access to, or know how to operate, computers (e.g., elderly and impoverished populations); and internet connectivity may be interrupted during a crisis.

A national-level (federal, state, tribal, local) Community Health Resilience Task Group comprised of healthcare providers, public/private sector, non-profit organizations, and academia could be established to develop attributes of, and criteria for community health resilience and requirements for an information sharing framework. If resources were available, a collaborative complementary project also could be undertaken to assess state HIE capabilities, develop a standardized approach for state HIE systems and broader community health resilience information sharing, and implement community health resilience pilot programs with *whole community* stakeholders to validate and further develop the framework.

1. BACKGROUND

Representatives of local, state, and federal agencies, private sector, and non-profit organizations with roles and responsibilities, or significant interest, in community health and safety and/or disaster preparedness met for a two-day Community Health Resilience Workshop on October 25-26, 2011 in Washington, D.C. to discuss needs, current initiatives, and capabilities to develop the information sharing and situational awareness capabilities necessary to enhance community health resilience. The Workshop was sponsored by the U.S. Department of Homeland Security (DHS) Office of Health Affairs (OHA) in cooperation with the U.S. Department of Health and Human Services' (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR), and Administration for Children and Families (ACF).

2. WORKSHOP GOAL AND OBJECTIVES

The overall purpose of this first Community Health Resilience Workshop was to identify areas of cooperation that could lead to an approach, or framework, for community health resilience information sharing; which, in turn, can be used to provide guidance to stakeholder organizations nationwide.

Objectives of the workshop included:

- Examining the types of data organizations already collect, the types of information they require to fulfill their responsibilities, and what other types of data are needed to meet operational needs, better understand the communities they serve, and increase resilience.
- Fostering discussion among representatives of federal agencies, states, localities, private sector, and non-profit organizations where community resilience, health information sharing, and situational awareness are major priorities.
- Addressing how to develop a local-to-national level framework for information sharing to enhance community health resilience and advance mutual goals, objectives, and outcomes.
- Identifying challenges that can impede information sharing and situational awareness and ways to address these challenges.
- Discussing how to develop and maintain an inventory of best practices, approaches, tools, and technologies that can be used to build and improve community health resilience information sharing and situational awareness.

3. SCOPE AND FORMAT

The Workshop was organized in four sessions on Day One and two sessions on Day Two. The sessions were designed to maximize participant interaction and exploration of the issues and challenges involved in addressing community health resilience information sharing and situational awareness. Although the Workshop's primary focus was on information sharing, it was intended to address the broader context of community resilience, and within that broad area, *health resilience*, both of which as yet are not defined and lack a policy foundation.

3.1. Day One, October 25, 2011

Session 1 centered around two scenarios to facilitate discussion and illuminate the diverse array of stakeholders who would require information during a major community health-related incident—a natural disaster with extensive health impacts, and a severe disease outbreak that had local-to-global impacts. The scenario discussion was followed by a roundtable with "snapshot" user perspectives provided by local, state, federal, private sector, and other stakeholders. Session 1 ended with an interactive discussion focusing on current health resilience information needs, capabilities, and barriers that can impede information sharing. Sessions 2 and 3 featured panels of experts and technical service providers focusing on examples of initiatives and capabilities that could contribute to a community health resilience information sharing framework. Session 4, which closed Day One of the Workshop, was a facilitated, interactive discussion among participants on how current information sharing mechanisms and technologies for community health resilience could be improved. The afternoon proceedings included a keynote address by Richard Reed, the Special Assistant to the President for National Security Affairs, Senior Director for Resilience Policy.

3.2. Day Two, October 26, 2011

The second day opened with a recap of the previous day's outcomes and decisions followed by facilitated interactive discussion building on the outcomes of Day One. This interactive discussion focused on identifying potential elements of a community resilience information sharing framework. The concluding session focused on participant views on what would be the most useful path forward towards achieving the goal of a community health resilience information sharing and situational awareness framework.

4. DAY ONE HIGHLIGHTS AND PARTICIPANT OBSERVATIONS

Dr. Jeffrey Stiefel, Senior Health Threats Advisor, Health Threats Resilience Directorate for the OHA, convened the workshop. He described the goal of the workshop; to bring together experts and representatives of stakeholder communities to identify information requirements, capabilities, and areas of cooperation that could lead to a nationwide approach to develop a community health resilience information sharing and situational awareness framework. Pointing to the past year's twin tornado disasters in Tuscaloosa, Alabama and Joplin, Missouri, he noted the importance of addressing health, psychological, and physical needs of the broad range of stakeholders which comprise the "pillars of community resilience" including business, infrastructure, non-governmental organizations and volunteers, local authorities, schools and academic institutions, neighbors, and federal authorities. He observed that there was as yet no definition of community resilience, but that for discussion purposes, workshop participants could refer to a RAND study on *Building Community Resilience to Disasters*. This RAND study defines community resilience as entailing the ongoing and developing capacity of the community to account for its vulnerabilities and develop capabilities that aid in (1) preventing, withstanding, and mitigating the stress of a health incident; (2) recovering in a way that restores the community to a state of self-sufficiency and at least the same level of health and social functioning after a health incident; and (3) using knowledge from a past response to better withstand the next health incident. He closed with a brief overview of the workshop agenda, commenting that participants would have the opportunity on the second and final day of the workshop to "roll up their sleeves" and consider how to move forward.

4.1. Opening Remarks

The workshop opening remarks were provided by Dr. Alexander Garza, Assistant Secretary for Health Affairs and Chief Medical Officer, DHS, and Dr. George W. Korch, Jr., Senior Science Advisor, ASPR, HHS. Dr. Garza welcomed participants, pointing out that he understood health resilience from his experiences as a paramedic and in the military in Iraq, where the healthcare infrastructure was rebuilt with limited resources. He thanked the workshop planning group, which included representatives from the Federal Emergency Management Agency (FEMA), HHS, DHS, Department of Defense (DOD), local government, the private and non-profit sectors, and academe, commenting on the need to approach resilience through engaging the whole community without duplicating or wasting efforts. Resilience is the ability to restore a community's way of life and bring people back to work, re-open schools, and return people to

their homes. Lessons learned from Hurricane Katrina and other disasters, including this year's Hurricane Irene, demonstrated the need to assure that businesses don't leave communities affected by disasters.

Likewise, Dr. Korch underscored the need to leverage the expertise of the broad stakeholder community to enable better response and recovery. HHS is committed to community resilience and improving the nation's ability to respond to and recover from major public health emergencies, and is working with public health officials and healthcare organizations across the country towards this end. HHS/ASPR coordinates the National Response Framework (NRF) Emergency Support Function (ESF) 8 on recovery after disasters and incidents and is working with government agencies and stakeholders to strengthen community health resilience. He emphasized the importance of investment for development of health electronic information capabilities. He gave as an example the new health records system developed before the disaster that was used to restore healthcare in Joplin, Missouri, after the tornadoes. He lastly commented that the one resource that could never be recovered was time, and that is important to move forward by working together to further the goal of community health resilience.

4.2. Identifying the Broad, Diverse Health Information User Community

Participants discussed two scenarios to examine the range of community health information "users" from public health and healthcare professionals to non-health associated users in law enforcement, agriculture, food production and distribution, supply chains, etc.

Discussion questions for each of these scenarios focused on the same issues:

1. What types of organizations would be involved in addressing this health emergency at the, local, state, and federal government levels, and within the private sector and non-profit communities?

2. What particular information would stakeholders require, what would be the sources of this information, and how would they access it?

3. How would relevant information be integrated to provide situational awareness on community health issues for localities and at the state and federal levels?

4. How will information be provided to the different types of community stakeholders who need it—government agencies, residents, businesses, community and academic institutions, ethnic groups, other social groups?

4.2.1. Scenario 1: Natural Disaster

The first scenario, which was facilitated by Michael Gresalfi, Senior Advisor of Chemical, Biological, Radiological, Nuclear, and High-yield Explosive (CBRNE) Plans and Programs, FEMA, focused on a hurricane turned tropical storm in June 2012 that causes major flooding with widespread cascading impacts throughout the eastern and central U.S. In the scenario, the storm displaces thousands and has significant impacts; health-related (including an upsurge in West Nile virus) that necessitate medical and psychological assistance, and infrastructure-related that necessitate food, water, fuel, and economy-related assistance. Participants discussed health impacts and needs, raising several key issues, including the need for timely and accurate information about: disruptions, particularly those that are time-dependent critical and/or need immediate attention; infrastructure and essential service restoration issues and timelines; and evacuations, sheltering, and sheltering in place. Participants also discussed the need for communication mechanisms that are resilient; knowledge of service provider points-of-contact; having someone in charge of public information that people can trust and believe, and public messaging tailored to different constituencies. It was noted that information sharing during recovery and restoration must be taken into account and that it does not matter if the hazard is a natural disaster or a terrorist act—the basic information should remain the same, only the stakeholders requiring this information (e.g., additional federal and local law components) may change. Participants cited some examples of useful health information sharing capabilities including: schools (if operational) that can be used to disseminate information to parents and the community at large; the APEX tool that provides information to epidemiologists; and CDC's Health Alert Network that serves the medical community.

4.2.2. Scenario 2: Food-borne Illness Outbreak

The second scenario, which involved a food-borne illness outbreak, was facilitated by Dr. Paula Scalingi, Executive Director of the Bay Area Center for Regional Disaster Resilience and President of The Scalingi Group. The scenario described a virulent salmonella outbreak that causes a

number of deaths, chiefly among children and the elderly. The outbreak spreads across several states. The source is packaged lettuce distributed locally in the Chicago area and nationally out of the Seattle area, packaged in California and grown in Mexico with tainted seed from China. Participants discussed the local-to-global nature of the scenario impacts and the broad and diverse number of organizations that would need to have and share information. The key issue raised was the need to provide credible public information regarding the cause of the outbreak in order to discourage or dispel rumors; manage public fear and mistrust; and avoid negatively impacting the food industry and local restaurants. It was noted that in the early days of the H1N1 pandemic, the erroneous idea that the pandemic was swine flu had a heavy adverse impact on pork producers; likewise a food-borne illness outbreak attributed to Florida tomatoes significantly affected those producers. The recent British Petroleum (BP) Deep Water Horizon oil disaster in the Gulf of Mexico led to fear of seafood contamination and discouraged tourism to the Gulf Coast. In this regard, several participants emphasized the need to gain information on impacts that provides early situational awareness on the cause and potential consequences for emergency managers and public health officials, as well as information updates as recovery progresses. The Red Cross, for example, would work closely with local and national public health officials in this regard.

4.3. Roundtable Discussion of Perspectives of Local, Federal, Private Sector, and Non-Profit Organizations

The scenario discussions were followed by short perspectives on user needs from representatives of major stakeholder constituencies (government, private sector, and non-profit) that have roles or significant interests in health event-related information. The roundtable was moderated by Darrin Donato, Senior Policy Analyst of the Division for At-Risk Individuals, Behavioral Health, and Community Resilience, ASPR, HHS.

Leslie Luke, Group Program Manager, County of San Diego Office of Emergency Services**,** observed that the public health mission is to promote health and improve quality of life by preventing disease, injury and disability and by protecting against, and responding to, health threats and disasters. County Public Health officials act as conveners, facilitators, and enforcers. They have the responsibility to assist in public health and safety and to comply with California laws and safety codes. He noted that they were in the process of identifying needs for emergency management, continuity of operations, and

community resilience, and that it is important to understand the resources of key local and regional stakeholders. Information that emergency management and public health officials need include: the type of incident, the number of cases, school and business absenteeism; information on symptoms and contagion potential and times, mitigation, and containment options; and information on individuals—e.g., vaccination histories and demographics that can be factors in addressing community heath resilience. Luke observed that obtaining some of this information is difficult and often it is not available. Emergency management and public health officials work closely to determine the cause of and ways to address major health events. Capabilities that will greatly assist include the evolving state Health Information Exchange (HIE) system and a dashboard to analyze community parameters to help generate the appropriate messages to disseminate and provide risk communication and calls to action for the public.

Wendell Potter, Senior Analyst, Center for Public Integrity, focused his remarks on broader community health resilience issues. Potter mentioned the Commonwealth Fund's[1] recently released *National Scorecard on U.S. Health System Performance, 2011* which states the U.S. continues to fall behind other countries in healthcare, and that 44% of people between the ages of 19 and 64 (81 million) are either un-insured or under-insured and/or do not have primary care physicians. Further, the U.S. failed to keep pace with gains in health outcomes achieved by the leading nations, ranking 16th among industrialized countries on a measure of mortality (i.e., deaths that might have been prevented with timely and effective care), with premature death rates that are 68% higher than in the best-performing countries. He said that reliance on market forces has led to greatly reduced access to healthcare and communities are becoming less resilient as a result, and that reform is needed. A key step is to create incentives for healthcare providers and customers and to leverage large private sector companies' techniques for providing information, looking at how they work with the Centers for Disease Control and Prevention (CDC) and other public health organizations to develop their continuity plans and, during an event, to deal with impacts on staff. The objective is to have mutual beneficial sharing of threats. Businesses for example can provide information on staff absenteeism and illnesses, as well as other information. It is a matter of asking them what information they can provide and what they need. Potter gave as an example close collaboration with retail pharmacists to gain

[1] The Commonwealth Fund is a private U.S. foundation whose stated purpose is "to promote a high-performing health care system that achieves better access, improved quality, and greater efficiency."

information on community health. The goal should be to examine what can be done, what makes sense, and develop a strategy.

Nicole McKoin, Asset Protection, Community Engagement, Target Corporation shared a global business perspective on health information and community health preparedness and resilience. Target is the fifth largest general merchandise retailer—more than 1700 stores in 49 states with non-retail locations in 29 countries. She observed that Target has robust preparedness plans in place to keep their stores open as long as it's safe for their guests and team members, and to re-open stores as quickly as possible. Target has been actively working with public health and public safety officials where they have stores and at the national level with FEMA and other federal agencies. She said that Target is focused on community and business preparedness and supporting public awareness campaigns like National Preparedness Month. Additionally, they share resources with their employees about preparedness at work and at home. Prevention is a top health care priority for Target and because of this Target offers employees free flu shots and has flexible sick leave policies. She noted that the government can work with businesses like Target to disseminate health information, and that there are many advantages for collaboration with the private sector. She gave as an example the information shared with the CDC during the H1N1 pandemic: Target's tracking of pharmacy sales of over-the-counter drugs, and the locations experiencing an increase in sales of influenza relief products. She observed that the level of private sector interest in public health preparedness has increased significantly since the H1N1 pandemic and that it was important for government at all levels to leverage this interest and identify opportunities to engage the private sector to support healthier, more prepared and resilient communities.

Ed Gabriel, Principal Deputy Assistant Secretary, ASPR, HHS*,* provided some brief remarks based on his long career in health response and emergency management. Mr. Gabriel has served as Director of Global Crisis Management and Business Continuity for The Walt Disney Company. He is a twenty-six year paramedic veteran of New York City Fire Department's Emergency Medical Service, and was assigned to the New York City Office of Emergency Management as Deputy Commissioner for Planning and Preparedness. He commented on the importance of community health resilience, its emergence as a national and HHS priority, and the necessity of private sector and non-profit involvement.

Christy Music, Program Director, Health/Medical Policy and Programs, Office of the Assistant Secretary of Defense (OASD) (Homeland Defense & Americas' Security Affairs), U.S. Department of Defense, and J. C. Jones, Chief, Defense Support of Civil Authorities Branch Homeland Defense Integration & Defense Support to Civil Authorities, provided an overview of DOD mission priorities and activities related to community health resilience to demonstrate the broad range of information DOD requires for meeting its preparedness, response, recovery, and resilience needs. Music said that DOD is the nation's largest employer, with 9.6 million military healthcare system beneficiaries at a cost of an estimated $50 billion annually. There are currently 1.695 million active duty personnel, 718,000 civilians, 842,000 National Guard and Reserve forces and contractors, 1.064 million military retirees, 2.204 million TRICARE for Life members, and 2.209 million retiree family members. Department of Defense facilities are part of communities and rely on those communities for services and personnel. Base/installation commanders work closely with local emergency management and other officials. She stated that preparedness and resiliency-related policy and guidance responsibilities are shared among many DOD offices. These plans, policies, and guidance address base/installation emergency management, personnel accountability during natural or manmade disasters, public health emergencies within DOD, health and medical resilience and disaster preparedness, installation evacuation planning, and defense support of civil authorities. The DOD's emergency management activities are consistent with the National Incident Management System (NIMS), National Preparedness Guidelines (NPG), and the NRF, and include coordination of preparedness, response, and recovery requirements and capabilities with state, local, tribal governments, other military departments, or foreign-nation partners using an all-hazards approach that balances risk management, resources, and needs. Preparedness activities include risk management, prevention and mitigation planning, training, exercises, and interagency coordination. Response planning includes DOD mission assurance continuity of operations (mission essential personnel, procedures, resources), evacuation management and mass care planning, family assistance, sheltering in place, local/remote safe havens, civilian shelter, personnel accountability, special needs management, animal needs management, volunteer and donations management recovery planning (restoration of functions, services, resources, facilities, programs and infrastructure), and lastly, communications through all phases of an emergency that covers major communication nodes (e.g. dispatch centers, mobile command posts, and 911services). In conclusion, Music observed that the size of DOD and its global scope complicates information sharing and establishing a

common operating picture, which requires working with different portals within DOD. DOD needs information "as quickly as possible and from multiple sources."

J. C. Jones followed Music with a graphic depiction of DOD's approach to disaster resilience in the context of mission assurance and preparedness. The approach is all hazards-focused and encompasses prevention, protection, response and recovery, covering the following major areas: emergency management, antiterrorism, CBRN defense, critical infrastructure protection, law enforcement, fire and emergency services, engineering and public works, force health protection, physical security, intelligence and counter intelligence, information assurance and cyber security, and other areas.

Russ Paulsen, Executive Director, Program Management Office, American Red Cross, said that the Red Cross focuses on two types of messaging—pre-event and post-event, and that post-event messaging can be prolonged. He noted that messaging was particularly important during the period when people are aware of an impending event. Red Cross research has shown that people have a sense of denial and postpone taking preparedness actions. Surveys on readiness and preparedness show that messages often don't resonate with the public and that the Red Cross is working on finding a solution to this. He pointed out that preparedness messaging can be too vague to get people's attention and also that people will not take into account unlikely events, such as an earthquake in Virginia or hurricane impacting Vermont. He noted that during the H1N1 pandemic, people went to Face Book to ask friends for information on vaccinations or to people in their offices or neighborhoods whom they considered "trusted sources." Paulsen acknowledged that exercises are important tools to raise awareness of stakeholders in preparedness, but the issue is how to get communities engaged to "own the problem." A challenge in the post-event period is that people have a distorted view of reality and that initial reports are usually wrong. He said that people at shelters arrive without medical records and often don't know who their doctor is or lack information on the type of prescriptions they have or what doses to take. Additionally, he note that it would be helpful to have an electronic system for medical records and other health-related information for individuals.

4.4. Interactive Discussion

Participants engaged on a number of issues raised by the presenters and injected some new ones into the discussion. Several comments coalesced around the topic of what is community resilience. One participant observed that

it was necessary to take into account different "levels" of resilience (i.e., individual, families, communities, regions, states, and the nation) and address conflicts that arise in resilience decision-making. Another participant pointed out that there are many opinions on what constitutes resilience and various definitions of the term. What is important is determining how to "operationalize" community resilience (i.e., what is required to build resilient communities). Another participant commented that resilience is the ability to maintain normal operations in a non-normal environment. The focus should be on identifying the core functions or attributes that constitute resilience. Yet another said that resilience is mitigating vulnerabilities, and the challenge is how to accomplish this.

Other participant's comments focused on how to move forward on health resilience information sharing, including the need to pick "low hanging fruit" that will benefit most communities; working collaboratively across sectors and jurisdictions; finding ways to make information sharing two-way and actionable; and ways circumvent sensitive and proprietary data concerns and health data privacy issues. The challenge is to determine the optimal, cost-effective approach to a community resilience information sharing system to address threats and challenges that benefits and provides value to each end-user and does not duplicate resources. Currently, national standards for electronic health information exchange or for broader health information sharing do not exist. One participant suggested the NIMS, which is now well-developed, could be used to develop a health resilience information sharing network. Others, however, pointed out that many stakeholder organizations that needed health resilience-related information had organizational structures that were not compatible with NIMS.

Looking beyond information sharing to encouraging the development of community health resilience, participant's comments focused on the need to incorporate resilience into peoples' lifestyles and making it an "ongoing capability," the importance of having more representation from the private sector and non-profits, including volunteer and other social service organizations, and to identify and highlight their capabilities. Other participant observations were that community resilience models that are working should be identified and that the federal government, including DOD, should continue to forge relationships with community partners.

4.5. Developing a Community Health Resilience Information Framework: Examples of Current Initiatives and Capabilities

Participants heard short overviews of programs, systems, tools and technologies for health information sharing and situational awareness.

4.5.1. Overview: Evolution and Status of Health Information Exchange Initiatives

Deborah Lafky, Program Officer, Security/Cybersecurity, Office of the Chief Privacy Office, Office of the National Coordinator for Health IT, HHS noted the mission of the Office of the National Coordinator (ONC) is to improve health and healthcare through the use of information technology. Within ONC, the Office of the Chief Privacy Officer is responsible for all privacy and security policy for Health Information Technology (HIT). She noted that the emergence of community resilience had complicated ONC's responsibilities. At the same time, there had been a number of small communities hit hard by disasters this past year and it was greatly important to be able to exchange information over a wide area. She described the HIT "Ecosystem," which encompasses hospitals and other healthcare facilities; physicians, patients, clinics, and long-term care providers; and four broad groups of health Information Technology (IT) stakeholders: care support, including emergency services, telemedicine, medical suppliers, and home health; research/public health, including academic medical centers, public health, research and education, screening registers; diagnostics/pharmacy, including pharmacy benefit management, other diagnostics, laboratories, and diagnostic imaging centers; and employer/payers, including employers, wellness programs, and school clinics. ONC's information sharing initiatives are available through formal HIE mechanisms, including CONNECT, which is a federally developed open source gateway available to stakeholder organizations; Exchange, a public-private partnership based on interoperability standards and data use agreement; and Direct, a one-to-one interchange protocol. Ms. Lafky pointed out that the real key to HIE is the state systems. Each state and territory is funded by a cooperative agreement to create an HIE capability with the goal to use the first two years to build capacity to achieve a critical mass of providers participating in the system. She said that currently all states have submitted their HIE operating plans, noting that many states are operational at various stages and some are pre-operational. ONC provides HIE resilience support

through risk assessments, incident response, training, backup and recovery training and capability building, cyber security information sharing, and fostering resilience collaboration at the state, local, and tribal levels.

4.5.2. National Collaborative for Bio-Preparedness (NCB-Prepared)

Dr. Chuck Cairns, Professor and Chair Department of Emergency Medicine, University of North Carolina

Dr. David Potenziani, Executive Director, NCB-Prepared, University of North Carolina

Drs. Cairns and Potenziani described NBC-Prepared as a public-private partnership comprised of the University of North Carolina, North Carolina State, the SAS Institute and other organizations and that the partnership is being extended to other states. NBC-Prepared goals are to improve early recognition of disease outbreaks and other significant health impacts, augment bio-surveillance and response, improve situational awareness through faster and more accurate information for decision-makers and integrate with emergency management and law enforcement. The system has an eight step analytics capability and an early detection capability that enables collection, assessment, and trends analysis of emergency-related health data across a state. The challenge has been obtaining standardized data, but this now exists in the Statewide National EMS Information System (NEMSIS), which provides the data necessary for trends forecasting and alerts. NEMSIS is being used by 32 states with expansion underway or planned throughout the nation. Over time, NBC-Prepared can be used to integrate and assess a wide range of incident-related clinical data in a secure environment using cloud computing. Data assessed includes: social media; 911; food alerts; Emergency Medical Services (EMS), hospital, educational and other organizational; lab, including poison and animal; and discharge information, and vial statistics.

4.5.3. Hospital-Related Health Information Sharing Capabilities

Carl Taylor, Assistant Dean, University of South Alabama cited the tornado outbreak that struck Alabama earlier this year to underscore the importance of a health information sharing system. He noted that resilience is not “what it is, but what it does.” He said that the assumption that communities need to be able to sustain themselves for 96 hours after a major event is unrealistic, and that in Tuscaloosa supplies ran out in four

to ten hours. He underscored the "YOYO" dilemma for the public ("you're on your own") in an emergency and that health resilience was not about hospital beds but security, equipment, cash, food, water, and operating supply lines. The challenge was running out of these necessities after a major disaster or event. Mr. Taylor noted the benefits of the Alabama Incident Management System (AIMS), which facilitates ongoing, real-time communication among health facilities (hospitals, nursing homes, community health centers, medical needs shelters, and EMS providers) and state Emergency Operations Centers (EOCs), tracking staff, facilities and supplies in times of normalcy and for distribution in times of stress. Using AIMS's Web-based interface, data server and instant messaging allows individual health facilities that use the system to function as a single system, reporting the status of their health care facility directly to the server, which directs that information to the EOC in an easy to read graphical analysis. The AIMS situational awareness system is now used by over 1,000 healthcare facilities around the country. Mr. Taylor stated that the problem with AIMS is that the system is only active during disasters, with the need to ramp-up each time. He described another system under development to expand health management and disaster response and resilience to other patient providers, the XTreme Collaboration Hub, which sets-up a social media collaborative to connect patients, healthcare providers and experts.

4.6. Keynote Address

Richard Reed, Special Assistant to the President for National Security Affairs, Senior Director for Resilience Policy focused on the concept of resilience and the role of the White House in furthering it. He remarked that the concept of resilience is based on one's perceptions. There are many types of organizations involved in resilience including government, private sector and non-profits. There is no one size fits all. What is critical to a small community is not critical at the national level. Mr. Reed cited "black swan events" (i.e., a high-impact, unanticipated, and rare event) and the H1N1 pandemic as examples of disasters that require collaboration among a wide range of responders and other stakeholders and the need to be prepared for the unexpected. The response to H1N1 required surveillance—gathering information and data from a wide array of organizations and individuals on pharmaceuticals, antibiotics, school closures, postponement of large events, vaccine production and distribution, and communications. There was a need for a framework, process and mechanisms. He noted the National

Preparedness System was the next deliverable and that the National Recovery Framework had just been released.

4.7. Continuation of Examples of Current Initiatives and Capabilities

4.7.1. MedMap and At-Risk Individuals

Moira Shea, At-Risk Individuals Team Lead, ABC, ASPR, HHS

Tim Jackson, Policy Analyst, ABC, ASPR, HHS

Ms. Shea addressed the development and use of MedMap for assistance during disasters and emergencies for at-risk individuals. She observed that at-risk individuals are people with functional needs—not populations. They have different levels of personal resilience, and may have additional needs in one or more of the following functional areas: communication, medical care, independence, supervision, and transportation. In addition to those individuals specifically recognized as at-risk (i.e., children, senior citizens, and pregnant women), individuals who may need additional assistance include those who have disabilities, live in institutionalized settings, are from diverse cultures, have limited English proficiency or are non-English speaking, are transportation disadvantaged, have chronic medical disorders, or have pharmacological dependency. Individuals who have limitations that interfere with the receipt of and response to information will need that information provided in methods they can understand and use. Ms. Shea commented that individuals who are not self-sufficient, or do not have support from caregivers, family, or friends may need assistance with managing unstable, terminal, or contagious conditions that require observation and ongoing treatment. Individuals requiring support in order to carry out daily activities may lose this support during an emergency or a disaster. Such support may include providing consumable medical supplies (diapers, formula, bandages, colostomy supplies, etc.), durable medical equipment (wheelchairs, walkers, scooters, etc.), service animals, and/or attendant or caregiver services. Before, during, and after an emergency individuals may lose the support of caregivers, family, or friends or may be unable to cope in a new environment (particularly if they have dementia, Alzheimer's, or psychiatric conditions such as schizophrenia or intense anxiety). If separated from their caregivers, young children may be unable to identify themselves. Individuals who cannot drive, or who do not have a vehicle, may require transportation support for successful evacuation. MedMap is an interactive geographic information system (GIS)-based mapping system,

which enables users to query data to assist in response and recovery, such as potential medical care sites and assembly centers, evacuation routes, hazards, and what regional and nationwide resources are available.

The value of the MedMap tool to community health resilience is that it is not subject to Health Insurance Portability and Accountability Act (HIPAA) requirements and is scalable and adaptable. The tool was launched in December 2010 for surveillance and made available to users. ASPR will add capabilities over time. There are 450+ user accounts from multiple federal, state, and coordinating agencies and the number of accounts is growing daily; the system has been used for recent responses. Future development will connect it with social networks.

4.7.2. PsySTART Triage/Surveillance and Neighbor-to-Neighbor Initiative

Rob Yin, LISW, Manager, Disaster Mental Health, American Red Cross National Headquarters provided an overview of a mental health surveillance system to allocate scarce mental health resources and rapidly identify and refer high-risk clients to the Red Cross and disaster response partners. The Red Cross supports the National Health Security Strategy to foster an "informed, empowered, and resilient *whole community*". He noted that there are 4,000 Red Cross disaster management health workers in 600 chapters who respond to 70,000 disasters per year. Neighbor-to-neighbor resilience and psychological first aid training is important, enabling stronger communities that are prepared and better able to respond and recover from a disaster. He noted that the first 30 days after an event are critical in the development of post-event mental health disorders. As an example, he cited a radiation event that causes unique stressors and challenges, as well as fear, uncertainty, and anxiety over short- and long-term health effects. This results in demand for physical and mental health services that would exceed capacity. Under these conditions, responders face difficult situations and decisions, for example, having to choose between helping others and looking out for their own long-term health. Individuals who were not physically harmed could be stressed over potential health effects. Radiation exposed individuals could be ostracized. To deal with these mental health impacts, community members are taught "neighbor-to-neighbor" psychological first aid and resilience skills. There is a new Red Cross course called Coping in Today's World: Psychological First Aid and Resilience for Families, Friends, and Neighbors which includes pilot projects in the Gulf region and

in California. Also, a curriculum for school personnel is under development. The idea is for psychological heath and resilience training to be extended nationwide. Regarding response and recovery, the Red Cross is focusing on increased support for adults and children and promoting event-specific public mental health messaging via social media. There is a Safe & Well Linking website for parents and children. In addition, the Red Cross provides disaster psychological health training with Psychological Simple Triage and Rapid Treatment (PsySTART) for all responders. PsySTART is a rapid mental health triage and incident management strategy for large scale disasters and terrorism events. PsySTART is used to rapidly assess and provide for acute and longer-term mental health impacts following disasters. Along with the Red Cross, many organizations around the country have adopted PsySTART, including public health officials in Los Angeles County. It has been identified as a recommended strategy in the behavioral health guidelines of the National Disaster Medical System (NDMS) and is a component of a novel approach to children's mental health needs in disasters that was identified by FEMA as a "model emergency management practice." PsySTART provides an information technology platform that manages the collection and analysis of triage needs in near real time and can be used for prioritization of services and to provide a "common operating picture" and situational awareness on needs of at-risk individuals.

4.7.3. Capabilities for Enhancing Responder Resilience Challenges

Merritt D. Schreiber, PhD., Associate Clinical Professor of Emergency Medicine, and Director, Psychological Programs, Center for Disaster Medical Sciences, UC Irvine observed that one aspect of community resilience is the resilience of critical responders and their families. There is emerging evidence that some responders may be at-risk, as a function of their disaster responder role, with impacts extending to their children. Implementation of crisis standards of care may represent such a challenge. Beyond risk, this issue poses significant opportunities for enhancing community resilience. He has developed the "Anticipate, Plan and Deter" responder resilience system for Los Angeles County Emergency Medical Services Agency and its 83 hospitals and community clinic agencies along with some federal responders on the "Anticipate, Plan and Deter" model as a pilot project to develop a disaster responder resilience system. This leverages other evidence based and evidence informed models such as the PsySTART rapid disaster mental health triage and Listen, Protect and Connect model of Psychological First Aid for

responders. The project involves building resilience in critical responders for catastrophic earthquake and other mass casualty events using evidence based and evidence informed practices, tools and strategies.

5. DAY TWO WELCOME AND RECAP OF DAY ONE: OUTCOMES AND DECISIONS

Sally Phillips, R.N., Ph.D., Deputy Director, OHA, DHS

Nitin Natarajan, Coordinating Director, Office of Preparedness and Emergency Operations, ASPR, HHS

Both provided a joint recap of key points from Day One of the workshop. Dr. Phillips remarked that she was particularly impressed by the YOYO concept—and that community health resilience begins with individual resilience. It is necessary to build resilience at the local level and to focus on personal resilience. The federal role is to support and build resilience at the local level, connect systems and help individuals that cannot take care of themselves. Healthcare providers need to think about this in new ways and look for low cost solutions. She observed that after a disaster there can be a second disaster for those people who have been in temporary housing, lack money and access to medicines or other resources. We need to keep in mind the importance of longer-term recovery and rebuilding communities after an event, and how to assure people have the resources and healthcare they need. And finally, Dr. Phillips mentioned that we have done a lot of thinking about initial recovery but not about long-term resilience.

Mr. Natarajan pointed out that all resilience components need to be addressed and that health resilience cuts across all of them. He added that there are many issues beyond health that impact health and cited critical infrastructures, such as power, water systems, communications, transportation, supply chains, etc. that need to be taken into account. Resilience requires having the whole community involved. Jurisdictions may practice home rule but no jurisdiction owns resilience or the information sharing necessary to support it. He emphasized that it is important to know the end-state of resilience—and not to worry about defining it. We need to know the needs, capabilities, and gaps, and what solutions can be brought to bear.

5.1. How Current Information Sharing Can Be Improved

Chris Allen, Co-chair, Medical and Public Health Information Sharing Environment focused on the evolving and burgeoning role of social media and its importance to community resilience. He pointed out that 4 billion people are currently connected to the Internet (out of 7 billion people worldwide), and that we “can’t separate social from technology anymore.” Social media is

something we have not experienced before. It generates "flocking" behavior. The technology underpinning social media is way out in front of government culture. The key is how to leverage Internet and information technologies for social good. The amount of the data is growing and content evolving exponentially. The focus is turning to finding and tracking intelligence information on the Web, including ascertaining individual's interests and bringing them products. There are nuggets of intelligence distributed throughout the Internet that can be exploited. Smart phones are providing individuals ongoing access to information and social networks and enabling the development of tools to manage events and disasters. The challenge is how to manage this information and use it in situational awareness and decision-making. The Internet is the most robust and resilient infrastructure on the planet, and now the shift is to cloud computing. "We are not tied to what we know." Allen described examples of emerging IT capabilities that can be used for community health resilience information sharing, including "anticipatory, self-triggering smart swarms," trusted information brokers, intelligent social networks, and user defined operational pictures. He cited as a model for health resilience information sharing "A-Space" (Analytic Space), which provides a common collaborative workspace for all analysts, is accessible from all workstations, and provides unprecedented access to interagency databases, a capability to search classified and unclassified sources simultaneously, Web-based messaging, and collaboration tools. He lastly described Medical Public Health Information Sharing Environment (MPHISE), which is a collaborative, user-defined, operational picture used to share medical and public health information freely between government and the public, in support of community resilience. MPHISE provides real-time response with trusted subject matter experts through information brokers rather than government sources. He noted the value of MPHISE was that it lowered mission risk, tracks events as they unfold, and provides subject matter expertise.

5.2. Potential Priority Focus Areas for Community Health Resilience Information Sharing

Dr. Scalingi facilitated the 90-minute, spirited discussion among participants on key focus areas for the health information sharing framework. Many issues and points were raised: the concept of resilience, health resilience, and what these entail; how one determines functions that constitute resilience; other potential mechanisms and capabilities that would be useful for the framework; the need for bench-marking best practices and measurable outcomes for community resilience; standards for HIE systems; factors to determine success in achieving resilience; the need to think beyond health issues to broader human

security and infrastructure resilience issues; how to encourage leadership at the local level to empower resilience; the need for strong private sector participation in devising a health resilience information sharing approach; and what would be the optimal follow-on collaborative initiative to the workshop—a Task Group, working group, or network—and what should be its composition, mission, and objectives?

5.3. Determining a Path Forward

Participants lastly examined what constitutes the most useful path forward to develop a better understanding of community health resilience and what needs to be included in a potential health resilience information sharing and situational awareness framework. Dr. Stiefel informed attendees that the workshop presentations would be posted on the workshop website and a report summarizing the workshop proceedings would be produced and provided to them. Bill Anderson, Director of The Infrastructure Security Partnership (TISP), offered TISP as a convening and facilitating organization for a post workshop Task Group or other follow-on activities. It was agreed that after the workshop proceedings report was disseminated, a conference call would be convened for workshop participants and others interested in being part of the Task Group to examine what actions could be taken to move forward.

6. WORKSHOP OUTCOMES, UTILITY, and FOLLOW-ON ACTIVITIES

The following issues and outcomes emerged from the Workshop discussions and participant workshop feedback forms and comment cards, and post-workshop input from participants individually.

6.1. Major Outcomes

6.1.1. Community Health Resilience and Broader Community Resilience Overarching Issues

- There are many definitions of community resilience; what is necessary is to determine what it requires and how to operationalize it.
- We need to determine what we mean by community health resilience and how it relates to community resilience.
- National health security, community resilience, emergency management, and environmental and economic security are inherently linked.

- Mental health is just as important as physical health and psychological health training is an important element of community resilience.
- Community health resilience requires involvement and information sharing from the grass roots to national level, and in many cases, to international levels.
- Currently U.S. policy (PPD 8 on National Preparedness, the National Health Security Strategy, and FEMA's Whole Community) encourages the development of health resilience capabilities.

6.1.2. Operationalizing Community Health Resilience

- At the local level, health resilience requires engaging and empowering the *whole community* in partnership, including all levels of government, private sector, and non-profit organizations.
- There is a need to build bridges and "develop the capacities to communicate" across organizations and disciplines focusing on health resilience, e.g., emergency management, public health and healthcare, environmental, engineering, social service, economic development, planning, and policy organizations.
- It is necessary to identify the users of health-related information at all levels and cross-sector and their basic requirements for information sharing and situational awareness.
- Information collection methods need to be developed for seeking and including input from diverse populations.
- A community health resilience framework must address behavioral needs, children and families, and at-risk individuals.
- The media needs to be recruited and involved in community health resilience information sharing in an appropriate manner.
- HIE and broader resilience information sharing systems must be secure and meet HIPAA and other data privacy and protection requirements.
- HIE and broader resilience information sharing systems also should respect civil rights and liberties.

6.1.3. Community Health Information Sharing Capabilities

- There are many useful and innovative health information exchange and resilience initiatives and capabilities underway that can be leveraged for a health resilience information sharing and situational awareness framework.

- State HIE systems have developed independently with different goals, focus, and technical capabilities and are in different stages of development.

- Key capabilities at the national level include:
    - The National Health Information Sharing and Analysis Center (NH-ISAC), which supports healthcare and public health organizations with 24/7 cyber security situational awareness monitoring, two-way information sharing, sector-specific analysis and response notification, health IT security best practices and education
    - The Homeland Security Information Network (HSIN) is the DHS-developed Web-based portal for information sharing and collaboration among federal, state, local, tribal, territorial, private sector, and international partners engaged in the homeland security information sharing and situational awareness. HSIN for the Healthcare and Public Health community (HSIN-HPH) is the nation's primary Web portal for public-private collaboration for critical infrastructure protection and resources.

- There is need for an inventory of HIE and health information sharing capabilities and best practices.

- In creating a community health resilience information sharing and situational awareness framework, we should not "recreate the wheel" but build on existing approaches, systems, and architectures.

6.1.4. Standards and Guidelines for Health Information Sharing

- Evolving state HIE programs and activities are fragmented across the nation, varying in goals, focus, and technical capabilities, with little to no coordination.

- There are no standards as yet for HIE or broader health information sharing.

- There are no guidelines for determining what community characteristics or functions are critical for community resilience or health resilience.

6.1.5. Outreach, Communications Mechanisms, and Public Education

- Communication before and after an event affecting public health and safety is critical.
- Different constituencies need different types of information and have different communication mechanisms they are comfortable using.
- People and organizations want health information that is tailored to their needs.
- Trusted information sources should be used (e.g., faith-based volunteers, social service agencies, medical, academic, and public libraries, schools) with information “pushed out.”
- Emergency managers and public health officials need to identify ways to ensure critical messages reach all populations in an impacted area, including at-risk individuals, such as people with disabilities and limited English proficiency, including immigrants.
- Social media is becoming a tremendously important element in a health resilience information sharing framework, but poses challenges in that it vastly increases the number of communicators and may dilute or alter the message.
- Capabilities need to be developed or leveraged to ensure control of quality and accuracy in messaging.
- Many groups do not have access to, or working knowledge of, the Internet (e.g., elderly, impoverished populations) requiring face-to-face/neighbor-to-neighbor networks that can serve as conduits for information.
- Communication mechanisms and the power infrastructure must be resilient to assure messages can be conveyed during response and recovery
- Communications content and resilient mechanisms need to be determined and “staged” pre-event.

- Existing health information resources should be identified and utilized; for example, the U.S. National Library of Medicine, an Internet information repository hosted by the National Institutes of Health, which contains links to federal and other databases and data repositories, health statistics, surveys and tools.

- A "culture of resilience" needs to be created across the nation much like the civil defense or "Smokey the Bear" campaigns that successfully built public awareness of nuclear war preparedness and forest fire prevention, respectively.

6.1.6. Development of a Community Health Information Sharing and Situational Awareness Framework

- A national-level Community Health Resilience Task Group or similar work group comprised of healthcare providers, private sector, and non-profit organizations; relevant local, state, and federal agencies; and community groups could be established to develop the subject framework. The first task would be to determine the primary objectives, scope, structure, timeframe, and desired outcomes of the Task Group, which would necessarily include addressing the challenging issues surrounding what community health resilience requires and how to operationalize it.

- There are communities and regions that have developed public-private-non-profit collaborations that could be used to help develop and validate a health resilience information sharing framework.

6.2. Workshop Utility

Participants overall found the workshop quite useful. In attendee evaluations, more than 85% rated their overall impression as very good to excellent. Comments on the workshop included:

- *It provided information that can be used to shape resilience work moving forward.* (Federal official)

- *The workshop was a collaborating opportunity with those who share a passion for health resiliency. I learned about people, policies, and tools that I did not know before.* (Community healthcare provider)

- *The workshop was a far more understandable and [had more] practical conversation than I had been expecting.* (Veterinary medicine/public health official)
- *Good overview of the issues and potential solutions.* (Federal official)
- *The workshop provided several different components and challenges to building resilience at the community level.* (Epidemiology researcher)
- *So much great information for someone just coming into the resilience field—a wide diversity of thought.* (Health research center representative)

Participants cited many of the speakers for their interesting or useful presentations, particularly Carl Taylor, who as one participant said, "really brought it down to the community level," and Chris Allen's discussion of social media and community health resilience. As another participant put it, "Chris Allen's presentation changed the dynamic of the conversation in a positive way."

Topics that participants wanted more information on included: building community engagement, the YOYO concept, creating health resiliency in schools, food safety/food security and agriculture issues impacting health resilience, business involvement in disseminating resilience information and resources, case studies of community resilience, social media tools for resilience, and examples of case management and social service tracking systems.

Some participants observed that the workshop attendance needed more private sector and community speakers and participants. As one commented, the dialogue on community resilience should move beyond the federal to the local and state levels.

Many participants responded positively to the concluding question on the attendee evaluation form on whether they would like to be part of a follow-on Task Group or other type of collaborative activity to develop a community health resilience framework.

6.3. Workshop Follow-on Activities

Based on participant views expressed during and after the workshop, attendee evaluations, and workshop outcomes, there is interest in moving forward to develop a Community Health Resilience Information Sharing and Situational

Awareness approach/framework. Two complementary activities could be used to accomplish this over a two-year timeframe. These activities would closely leverage the expertise of, and be coordinated with, the NH-ISAC.

6.3.1. Task Group

Need to create a diverse and representative private, public, and non-profit Task Group or other type of collaborative working group that addresses the following four questions:

1. What are the characteristics/functions (i.e., criteria) for community health resilience?

2. What information is necessary to maintain and sustain healthy communities under normal conditions, and to help communities respond and recover expeditiously with limited consequences during disasters or events that impact public health and safety?
   - Which organizations need this information?
   - What information is available?
   - What information needs to be made available?
   - What mechanisms are available for acquiring this information?

3. What are the constraints (e.g., security and privacy) on this information and the current state of capabilities to deal with these constraints?

4. What should be the role of evolving electronic HIE systems in community health resilience?

6.3.2. Community Health Resilience Project

A collaborative public-private sector-non-profit Community Health Resilience project that includes:

- A baseline assessment of state HIE objectives, activities, and capabilities.
- Development of a standardized approach/guidelines for state HIE systems and for broader community health resilience information sharing that integrates public health, emergency management, social service groups, etc.
- Community health resilience pilot projects in two diverse communities with *whole community* stakeholders to validate and further develop the

information sharing and situational awareness approach, and the standards and guidelines.

Outcomes from both activities would be incorporated into the community health resilience information sharing and situational awareness framework.

APPENDIX A: WORKSHOP PARTICIPATING ORGANIZATIONS

AAAS – Center for Science, Technology, and Security Policy

American Red Cross
- Disaster Mental Health

Argonne National Laboratory

Arlington Virginia Office of Emergency Management

Battelle

Association of State and Territorial Health Officials

County of San Diego
- Office of Emergency Services

Dartmouth Medical School NCPTSD

DRS International, LLC

Easton Area School District

ERDG

Florida Department of Health
- Bureau of Preparedness and Response

Hassett Willis and Company

Instant Access Networks, LLC

Johns Hopkins University
- Applied Physics Laboratory

Linden Resources

MITRE / Homeland Security Systems Engineering and Development Institute (SEDI)

National Association of Community Health Centers

National Association of County and City Health Officials

National Center Disaster Medicine & Public Health

National Governors Association

National Sheriffs' Association

RAND Corporation

Target

The Efiia Group
- Efiia Cares

The Infrastructure Security Partnership (TISP)

The Scalingi Group, LLC

The Tauri Group

Transportation Research Board of The National Academies

University of California, Irvine
- Center for Disaster Medical Sciences
- School of Medicine

University of Maryland
- National Consortium for the Study of Terrorism and Responses to Terrorism (START)

University of North Carolina

University of South Alabama

U.S. Department of Defense
- National Defense University
- Office of the Assistant Secretary for Homeland Defense and Americas' Security Affairs

- Office of the Under Secretary for Policy

U.S. Department of Homeland Security

- Federal Emergency Management Agency (FEMA)
- Office of Response and Recovery
- Immigration and Customs Enforcement
- National Operations Center
- Office of the Chief Privacy Officer
- Office of Health Affairs
  - National Biosurveillance Integration Center
- Office of Operations Coordination and Planning
- Office of Policy

U.S. Department of Health and Human Services

- Office of the Assistant Secretary for Preparedness and Response
- Office of Policy Planning
- Office of the National Coordinator for Health IT
- Health Resources and Services Administration
  - Maternal and Child Health Bureau
  - Office of Special Health Affairs

U.S. Navy

- Bureau of Medicine and Surgery

U.S. Resilience System

Virginia Department of Health

APPENDIX B: WORKSHOP PLANNING GROUP

William Anderson	The Infrastructure Security Partnership (TISP)
Suki Baz	U.S. Department of Homeland Security, OHA
Stacy Cardillo	The Infrastructure Security Partnership (TISP)
Stephen Curren	U.S. Department of Health and Human Services
Daniel Dodgen	U.S. Department of Health and Human Services, ASPR
Darrin Donato	U.S. Department of Health and Human Services, ASPR
Charlotte Franklin	Arlington County Office of Emergency Management
Michael Gresalfi	U.S. Department of Homeland Security, FEMA
Mark Harris	U.S. Department of Health and Human Services
Robin Hearn	U.S. Department of Homeland Security
David Kaufman	U.S. Department of Homeland Security
Gerald Kiernan	The Scalingi Group, LLC, and Bay Area Center for Regional Disaster Resilience
Michael McDonald	U.S. Resilience System
Tom McGinn	U.S. Department of Homeland Security, OHA
Eric Meyers	U.S. Department of Homeland Security
Eugene Miller	Battelle
Nitin Natarajan	U.S. Department of Health and Human Services, ASPR
Matthew Payne	U.S. Department of Homeland Security, FEMA
Paula Scalingi	The Scalingi Group, LLC, and Bay Area Center for Regional Disaster Resilience
Dennis Schrader	DRS International, LLC
Jeffrey Stiefel	U.S. Department of Homeland Security, OHA
Tim Stephens	National Sherrifs' Association
Paul Strang	U.S. Department of Homeland Security, OHA
Jonathan White	U.S. Department of Health and Human Services/ACF
Beth Windisch	U.S. Department of Homeland Security

ACRONYM LISTING

ACF ..... Administration for Children and Families
AIMS ..... Alabama Incident Management System
ASPR ..... Office of the Assistant Secretary for Preparedness and Response

BP ..... British Petroleum

CBRNE..... Chemical, Biological, Radiological, Nuclear, and High-yield Explosive
CDC ..... Centers for Disease Control and Prevention

DHS..... Department of Homeland Security
DOD ..... Department of Defense

EOC ..... Emergency Operations Centers
ESF ..... Emergency Support Function

FEMA ..... Federal Emergency Management Agency

HHS..... Department of Health and Human Services
HIE ..... Health Information Exchange
HIPAA ..... Health Information Portability and Accountability Act
HIT .....Health Information Technology
HSIN..... Homeland Security Information Network

IT ..... Information Technology

MPHISE .....Medical Public Health Information Sharing Environment

NDMS..... National Disaster Medical System
NEMSIS .....National EMS Information System
NH-ISAC .....National Health Information Sharing and Analysis Center
NIMS ..... National Incident Management System
EMS ..... Emergency Medical Services
NPG ..... National Preparedness Guidelines
NRF..... National Response Framework

OASD ..... Office of the Assistant Secretary of Defense
OHA ..... Office of Health Affairs
ONC ..... Office of the National Coordinator

PHS ..... Public Health Service
PPD ..... Presidential Policy Directive
PsySTART ..... Psychological Simple Triage and Rapid Treatment

TISP ..... The Infrastructure Security Partnership

U.S. ..... United States