

Population Behavior Local Capability Exercise Operational Plan
AKA
**Catastrophic Disaster Response:
Health, Medical and Population Planning at the Regional Level
March 5, 2013**

AFTER ACTION REPORT

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I. Executive Summary

The conference, held on March 5, 2013, focused on health, medical and behavioral health issues related to an Improvised Nuclear Device (IND) detonation in the Nation's capital. With the involvement of business, healthcare, public health, public education, emergency managers, as well as other system leaders and mid-level managers, the meeting was one of the first efforts to consider the regional impacts and system requirements of such a catastrophe. Governmental, academic and other emergency preparedness and response leaders drawn from across the region participated on meeting panels.

In addition to plenary sessions, the conference was organized into two tracks corresponding to major health issues and primary population issues. In each of these areas, important recommendations were developed incorporating insights gleaned from conference plenary sessions, break out groups and conference evaluation results.

Major recommendations include, but are not limited to:

- With an assumption that substantial barriers exist to implementing such an effort, developing a highly strategic public information campaign on sheltering-in-place for a nuclear incident. Plans should include regional, state and local components with specific attention focused on the role that schools can play in promoting a shelter-in-place response. It should be capable of galvanizing action on multiple fronts in order to ensure widespread knowledge about best practices in a nuclear event.
- A “bottom up” approach to alerting local populations should also be developed and pilot tested. Although individual communities have commonalities on how information is shared, it is arguable that they also have unique pathways for information transmission. A quick action methodology is needed whereby individual communities in the Greater Washington DC Region coalesce in identifying the best ways to alert their respective citizens to the need to shelter in place and how to accomplish that during a nuclear incident. This should be achieved through a pilot project configured to include three suburban jurisdictions proximate to Washington DC.
- Convening regional health and medical planners to discuss matters related to consistency of response to complex emergencies such as an IND detonation event, and to examine how healthcare systems can better coordinate their response to such events and the promotion of crisis standards of care planning.
- Successful mitigation of the health and medical effects of an IND response will require significant planning, coordination, and training of the multiple components of the healthcare system. This will include Emergency Management System (EMS), hospitals, hospital coalitions, public health and behavioral health elements. Following the model used in this conference, the conversation around such planning should be expanded to include participants from the healthcare organizations likely to bear the responsibility of providing medical care, including initial triage, stabilization, transfer and definitive care. In addition, plans and procedures to focus on scarce resource

allocation and the development of crisis standards of care planning that incorporates all of the emergency response disciplines should be actively pursued.

Pre- and post-conference surveys were completed by attendees. In addition to responses related to the conference itself conference, these surveys provide a rich source of information and data on preparing for a nuclear event. Frequency distributions and qualitative information from the surveys are presented in the report.

The pre-conference survey showed that the respondents believe they are personally prepared at home and are ready to evacuate with only an hour notice. This may not be surprising since people interested in attending are not a random sample. On the other hand, there is concern that the number of those responding who are aware of school plans is not as high as expected.

The post-conference survey contained useful information emanating from the plenary and specialized sessions. This survey was completed by slightly more than 50 percent of the attendees. Approximately 98 percent of respondents "Strongly Agree" (69 percent) or "Agree" (29 percent) with the statement: "This conference provided vital information for the region on being prepared and surviving a nuclear attack." In addition, 100 percent strongly agreed or agreed that it is essential that we prepare for such an event.

Among many substantive comments, there was uniform agreement that concerted action must be taken to inform the public about the nuclear attack threat and the steps necessary to protect families. In particular, informing the public that an IND is survivable if you shelter in place and act as your own first responder resonated among attendees.

II. Conference: Vision, Mission and Purpose

Vision: The population from Baltimore through Northern Virginia will be better prepared for a no notice catastrophic event

Mission: Explore the consequences on the population of a no notice catastrophic event and determine ways to mitigate these consequences

Purpose: A catastrophe caused by an IND would have major impacts on the critical infrastructure, key suppliers, and the population. The purpose of the March 5 conference is: (1) examine the impact on the population and explore ways to mitigate it; (2) improve the readiness of health and medical systems to respond to such an event; and (3) minimize adverse health consequences for the general population.

III. Objectives and were they met?

Objectives:

1. Explore what the behavior of the general population might be in response to a no notice catastrophic event.
2. Determine if likely behaviors increase or decrease the risk to both the general population and specific populations deemed to be at higher risk.
3. Determine what are the most important issues involved in increasing preparedness for the population and health care sector
4. Examine how to increase coordination and consistency across the full range of health organizations that will mobilize following a no notice catastrophic event.
5. Assess how education, information, social media, social marketing, organization development and population engagement models can help mitigate a no notice catastrophic event
6. Examine regional health care/medical issues. How and where will medical care be delivered in the region? How will triage plans be coordinated?
7. Recommend how to increase awareness of catastrophic disaster response planning based upon the Crisis Standards of Care (CSC) framework, including how scarce medical resources will need to be rationed.

Were they met?

The initial intent of this meeting was to focus on health, medical and behavioral health issues related to a catastrophic disaster due to an IND detonation. Given compelling information available on the importance of sheltering populations as a protective measure that can save many thousands of lives, (thereby reducing the demand for health and medical services), the meeting's intent was to share these important concepts. Therefore, the intended audience initially was the senior leadership in communities – school administrators, clinical and medical leadership from the region's major healthcare organizations, and the senior most leadership from emergency response agencies.

However, once the registration for the meeting opened, it became clear early on that those registering for the meeting represented a mix of senior-most leaders, the intended audience as described above, and mid-level management participants, many with more direct responsibilities for emergency management planning, but not necessarily with responsibility for organizational decision making. This was not unexpected, particularly given that those who attended this meeting are the usual participants who are asked to represent their organizations on these matters. In addition, with regards to the school based attendees, there was a competing meeting scheduled on the same day, precluding the attendance of some of the targeted audience.

Nonetheless, the meeting objectives were comprehensively addressed and substantially met. This was made all the more clear given a meeting on IND response held in late January by the National Academies Institute of Medicine, in which many of the same attendees (both panelists and meeting registrants) participated. One of the "take home" messages leveled at that very important meeting was that not enough effort was being put in place to assure that the important 'messages' related to IND planning were being promulgated at the local/regional level. This meeting has been one of the first to do so, with its focus on local/regional participants, regardless of their positional status within their organization. On this count, alone, this meeting can be considered a huge success.

IV. Conference Assumptions

The following catastrophic event assumptions emanate from conference speakers, audience questions/comments and the post-conference survey. They were used in forming the report recommendations.

- A nominal 10 kiloton (KT) yield nuclear device is assumed for purposes of estimating impacts in high-density urban areas; in this case an IND detonation in the National Capital Region (further detail on the scenario is contained in Appendix A)
- No significant Federal response will occur at or near the detonation site for 24 hours; the full extent of Federal assets will not be available for up to 72 hours

- While a nuclear detonation in Washington DC is clearly at the highest level of a catastrophic event, multi-hazard planning and response principles are should be observed.
- Guidance provided by FEMA, The Department of Homeland Security, first tier national laboratories and others are extremely useful in understanding/modeling a contingency of this type. These reports and policy guidance are essential in improving preparedness for a nuclear detonation.
- The preparedness level by public health and health care providers, EMS organizations, other first responders, and the public at large is currently very low. Recommendations must be potent enough to enable traction on this front, as quickly as possible and with accountability set within individual systems.
- Any recommendations for these groups should be as straightforward and comprehensible as possible. Complex messaging will not work.
- Whole community engagement is highly desirable in preparing and surviving a nuclear event and should be factored into recommendations.
- Denial is a risk-amplifier – populations should be entrusted with information on the aftermath of a nuclear attack that can save lives.
- Failure to shelter-in-place will significantly increase fatalities. Public readiness for adequate sheltering-in-place is grossly inadequate. Since there will be little or no time to effectuate this after an event, it is essential that actions happen to effectively relay sheltering information to the public, business and others.
- Timely and efficient evacuation is highly unlikely and undesirable immediately following this type of event.

V. The Conference

A. General Information

- i. The Conference was held on March 5th at the Johns Hopkins University Applied Physics Laboratory's Kossiakoff Center.¹
- ii. A dinner was held the night before for the speakers and other invited guests. Twenty-two people attended the dinner. It provided a time for the speakers to visit and discuss pertinent topics. Steve Becker said that the dinner was worth coming to even if nothing else happened during the conversation. The dinner also gave an opportunity for those who helped plan the conference to be included and a way of thanking them for their help. In short, the dinner was successful and a good way to begin.

B. Who attended

- i. The Conference was attended by 192 people (190 actually signed in and quite by accident it was discovered that at least two people did not sign in. There may have been others.)
- ii. 245 people registered for the conference. Consequently, there was a 22% fall off. This was mainly due to two reasons: a major snow storm was predicted for March 6th and many of those registering for the conference have responsibilities during major storms/emergencies. The sequestration caused some registrants to be concerned about travel and attending conferences.
- iii. The demographics of those attending were as follows:
 1. Healthcare sector – 36%
 2. Businesses – 23% (Some of the businesses may have been related to the healthcare sector)
 3. Government representatives – 13%
 4. Office of Emergency Management and Fire/Rescue – 9% (part of these are government but special interest for this conference)
 5. Non-profit and faith-base – 10%
 6. Schools and universities – 9%

¹ The conference was publicized by the Howard County Business Monthly April Edition. <http://www.bizmonthly.com/busy-quarter-at-apl-nuclear-meeting-scientific-advances/>

Note: All of the Maryland School Superintendents were invited to Annapolis on the same date as the conference to attend a special session on legislative issues facing schools; consequently, we did not have the decision makers to attend the breakout session on schools. This was a disappointment because getting the message to schools is extremely important. However, representatives from the education sector participated, with the hope of bringing the important lessons learned at this meeting to administrative leadership. See breakout and post survey comments for suggestions.

iv. The Conference Planners and Leaders

Mary Lasky as the Chairman of the Howard County Community Emergency Response Network (CERN) was the lead planner for the conference. Rich Krieg and Dan Hanfling played critical consulting, planning and interpretive roles. In the early days, Ms. Lasky was also assisted by an Advisory Team.

See Appendix C for the Biographies of Mary Lasky, Rich Krieg and Dan Hanfling and a list of those serving on the Advisory Team.

C. The Agenda for March 5th

8:30 Arrival and Continental Breakfast

9:00 Introductions – Mary Lasky

Setting the Stage – Richard Krieg

- 1) Kathryn Brinsfield – Why an attack in the National Capital Region (NCR) and the response to such an attack carries national security implications
- 2) Michael Barrett – The Rhetoric and the Reality of the Risks from Improvised Nuclear Devices

9:30 Panel I – What exists in the Federal Toolbox to manage an IND event? – Mary Lasky

- 3) Brooke Buddemeier – Scenario and Saving Lives
- 4) Tammy Taylor – Developing the White House Interagency IND planning guidance
- 5) Norman Coleman – Health/Medical Response

10:30 Break

10:45 Panel II – Health, Medical, and Population What Might Happen

(Moderator: Bill Thomas)

- Janet Clements - University of Virginia Behavioral Study on Radiological Dirty Bomb Attack
- Ben Sheppard - Understanding and mitigating adverse avoidance and adaptive behaviors following an IND
- Monica Schoch-Spana -- Risk Communications, Rad Resiliency Project
- Steven M. Becker, PhD – Community Reactions and Responses: Learning from the Fukushima Dai-ichi Nuclear Accident
- Richard Alcorta – EMS Perspective
- Eric Toner – Healthcare Perspective
- Bob Mauskopf – Public Health Perspective
- Dan Hanfling – Understanding Crisis Standards of Care

12:15 Lunch

- Philip J. Palin – Definition of Catastrophe

1:00 Breakout Sessions by Track

The Health Care and Medical Track Break Out Sessions:

Breakout #1- Command, Control, and Communication

- Facilitated discussion of the scenario and how C&C will work. Situational Awareness and a common operating picture are important to be sure the region is on the same page.

- Facilitated by Craig DeAtley

Breakout #2- Health Care

- Facilitated discussion of the scenario and how health care will be delivered.
- Facilitated by Dan Hanfling and Richard Krieg

General Population Track Break Out Sessions:

Breakout #1- Schools

- Facilitated Discussion of the scenario to determine how Schools will react, how we want them to react and ways to close the gap.
- Facilitated by Ken Roey
- Subject Matter Experts: Ben Sheppard and Steven M. Becker

Breakout #2- Employers

- Facilitated discussion of the scenario and how Businesses will react and how to work with staff so that they are prepared.
- Facilitated by John Contestabile
- Subject Matter Experts: Janet Clements, Monica Schoch-Spana

Breakout #3- Population with Functional Needs

- Facilitated discussion of the scenario to determine what are the Functional Needs, Population vulnerabilities and How to mitigate them.
- Facilitated by Anne Long
- Subject Matter Experts: Joyce Lehrer, Hector Garcia
- Functional needs are defined as: Communication – e.g., non-native speakers; Medical – e.g., needing medical equipment; Independence – e.g., elderly, homeless, pets

3:00 Break

3:15 Report from Facilitators from Health Care/Medical and General Population Sessions

4:15 Next Steps and Closing Remarks – Richard Krieg and Mary Lasky

4:30 End of Workshop

D. Relevant Conference Findings from Presenters

- 1) Mary Lasky welcomed everyone to the Applied Physics Laboratory and thanked Phil Palin and the FEMA Regional Catastrophic Preparedness Grant Program for their support of the conference

- 2) Rich Krieg, PhD – Set the stage for the first panel and the remainder of the conference. A nuclear detonation in a US city is clearly a catastrophic incident that could cause enormous loss of life and property, and severely damage economic viability. Depending on location, a strike in Washington DC could cripple government with potential deterioration of citizen reliance on government as “protector.” This is a cornerstone of democratic governance. For a variety of reasons, the probability of a terrorist nuclear attack is likely increasing. Given catastrophic consequences, even a small probability of terrorists securing a nuclear bomb warrants urgent action to reduce population risk. It is incumbent upon all levels of government, as well as other public and private entities, to prepare for this contingency through energetic, focused and high visibility response planning.

- 3) Kathryn Brinsfield, MD, MPH – “Why an attack in the National Capital Region (NCR) and the response to such an attack carries national security implications.”

Dr. Brinsfield serves on the National Security Staff of the White House, and addressed the importance of planning, preparedness and resiliency for communities who may have to respond to a catastrophic event of this nature. She highlighted the implications that such an event would have on the nation’s psyche, and stressed the importance of coordinating response, including addressing the efforts that have been underway at the Federal level, including work being actively led by The Department of Health and Human Services’ Assistant Secretary for Preparedness and Response (ASPR), DHS/OHA, and FEMA to help develop the practical response plans that will need to be executed in event of such a catastrophic attack on the United States.

- 4) Michael Barrett – The Rhetoric and the Reality of the Risks from Improvised Nuclear Devices

Mr. Barrett serviced as Director of Strategy for the White House Homeland Security Council. He discussed that nuclear terrorism is a real and urgent

danger. Even if there is a small probability of a terrorist getting and detonating a nuclear bomb, the consequences justify urgent action. He also stressed that Al-Qaida and North Caucasus terrorist seek nuclear weapons and that Pakistan, and particularly the Khan Research Laboratories, has provided information and nuclear-weapons components to Iran and North Korea.

5) Brooke Buddemeier , CHP – Scenario and Saving Lives

Mr. Buddemeier from Lawrence Livermore National Laboratory is the nation’s leading expert on how to save lives if there is a nuclear attack. He has helped Washington DC, Chicago, New York City and Los Angeles. He developed a scenario of an IND in Washington DC discussing the details of the different zones and illustrated how sheltering can save lives. The first hour is the most critical and people must know how to respond and seek adequate shelter. Ideally, people would shelter for at least 12 hours and up to 24. See Appendix A for critical information on the scenario.

6) Tammy Taylor – Developing the White House Interagency IND Planning Guidance

Ms. Taylor of Los Alamos National Laboratory served at the Office of Science and Technology in the Executive Office of the President where she led the nuclear portfolio for the President’s Science Advisor in the Bush and Obama administrations. She led the development of the “Planning Guidance for Response to a Nuclear Detonation.” The message of the document and her message at the conference was that community preparedness can save tens of thousands of lives. Early, adequate shelter followed by informed, phased evacuation is the right strategy to save lives.

7) Norman Coleman, MD – Health/Medical Response

Dr. Coleman, who serves as special advisor to the Assistant Secretary for Preparedness and Response at HHS on matters related to radiological and nuclear response planning, addressed the development of strategic and tactical level health and medical response planning, including a description of the current HHS/ASPR ‘playbook’ for IND response. This has been developed with input of a number of key stakeholders, and has been published in the peer reviewed literature. He described use of the Radiological Triage Treatment-Transport (RTR) system, and the work focused on scarce resource allocation,

building upon work conducted by the Institute of Medicine of the National Academies focused on the development of ‘crisis standards of care’.

- 8) Janet Clements – University of Virginia Behavioral Study on Radiological Dirty Bomb Attack – a radiation event in different areas of the Washington DC metropolitan area

Ms. Clements, former Deputy Director of Virginia Department of Emergency Management, message from the behavioral study on an Radiological bomb (RDD) was that people were more likely to shelter if the event was near them than if it were further away. That is that if it was miles away, they did not shelter and close by event they did. People were more likely to shelter if their cell phone was working and they could call their family

- 9) Ben Sheppard, PhD – Understanding and mitigating adverse avoidance and adaptive behaviors following an IND

Dr. Sheppard, George Washington University, discussed research he has conducted as to people’s actions in disasters. He has found that people remain calm during a disaster and people do not panic. The fact that people may not panic can help save lives in a radiological event. The authorities may not provide information to the public ahead of time thinking that the public will panic, which is harmful.

- 10) Monica Schoch-Spana, PhD -- Risk Communications, Rad Resiliency Project

Dr. Schoch-Spana discussed the Rad Resilient City project that she led for the Center for Biosecurity of the University of Pittsburgh Medical Center (UPMC). Her main points were that obtaining community backing is key to getting the message to people about what to do if there is a nuclear attack. The sheltering-in-place message is vital to saving lives. It is important for people to know the level of protection different buildings provide.

- 11) Steve Becker, PhD – What Might Happen based on finding from the Radiological Emergency Assistance Mission to Japan following the Fukushima Dai-ichi Nuclear Accident in 2011

Dr. Becker, discussed his experience being asked by the Japanese government to come to Japan following the Nuclear Accident. His main points for the lessons learned in Japan in 2011 were that:

- i. If information provided to the public is incomplete or inadequate, problems result
- ii. Population will need to know answers to many questions about radiation and fallout – there will be a stigma to those contaminated
- iii. When practicing emergency communications, include scenarios where communication infrastructure is degraded

12) Richard Alcorta, MD – EMS Perspective

Dr. Alcorta, who serves as the State of Maryland EMS Medical Director addressed the issue of accessing casualties and conducting initial triage on injured patients, as well as providing initial stabilizing medical treatment. He described the current state of EMS system notification and activation, and reviewed a number of the online tools that are currently in use to support events of this nature in the region. The Facilities Resource Emergency Database (FRED) tool demonstrated how the timeline for information sharing has been compressed and improved upon since its implementation post 9-11. He then reviewed a number of the key principles related to managing casualties in a radioactive environment, and highlighted the importance of instituting proper safety measures for first responders including the use of appropriate personal protective equipment and monitoring of work exposure rates to radioactive source material. He concluded with a description of some of the expected injury patterns from trauma and combined trauma and radiological exposure injuries.

13) Eric Toner, MD – Healthcare Perspective

Dr. Toner, who is a Senior Associate with the Center for Biosecurity of the University of Pittsburgh Medical Center (UPMC), addressed the issue of hospital response to an IND detonation event, and what the likely flow of patients would be from an event located in downtown Washington DC. He noted that the limited impact of such an event would leave hospital and healthcare facility infrastructure wholly intact for all but a relatively small number of facilities in the immediate detonation zones. However, the number of patients seeking treatment and care would be overwhelming, and would extend in concentric rings from the epicenter of the event. Given the fragile state of healthcare organization acquisitions and materials management

services, which have been honed to be a ‘just in time’ supply chain, resources would likely be quickly exceeded. In addition, hospitals would have an additional challenge of identifying patients presenting with the potential for acute radiation sickness (ARS) despite their not yet having significant symptoms. The logistical challenge of conducting the required blood tests on these patients would be a significant challenge.

14) Bob Mauskapf, MPA – Public Health Perspective

Mr. Mauskapf, who serves as Director of Emergency Preparedness for the Virginia Department of Health, described the role of the State Health Department in response to an IND event. He outlined the incident command functions that would be implemented in the health department, and highlighted the specific roles and responsibilities in the preparation phase, response phase, re-entry, recovery and relocation phases of an IND event. He also described the issue of patient tracking and reunification, based on a specific project developed by the Northern Virginia Hospital Alliance, and currently being evaluated for statewide adoption.

15) Dan Hanfling, MD – Understanding Crisis standards of Care

Dr. Hanfling, who serves as special advisor to the Inova Health System, and serves as an advisor to senior government leadership on healthcare preparedness, described the work of the Institute of Medicine on developing a framework for catastrophic disaster response, incorporating the concepts of ‘crisis standards of care’ and the allocation of scarce resources under catastrophic conditions. Important concepts related to the delivery of medical care that occurs over a continuum that ranges from conventional to contingency to crisis surge response were described. So, too, was the concept that under crisis surge response, in which crisis standards of care are invoked, the focus for patient care outcomes necessarily transitions from the individual patient to the population as a whole.

16) Phil Palin – Definition of Catastrophe

Mr. Palin is the co-author and editor of the Strategic Playbook: Regional catastrophic Preparedness and supply Chain resilience and the sponsor for the

conference. He provided a synthesis of the morning plenary sessions and a bridge to the afternoon breakout sessions. He said that this conference is part of a series of conferences sponsored by the FEMA Regional Catastrophic Preparedness Grant Program. He mentioned that at the conference in January on Supply Chain, General Thad Alan (who had been responsible for managing the recovery from Katrina and the BP Oil Spill) said that we need a Theater Response System to complement the Incident Command System (ICS) in responding to major events. Mr. Palin's definition of a catastrophe is: "An incident that permanently interrupts or alters the continuity of the status quo in terms of impacts upon human physical and mental health, culture, language, economy, and the environment, creating irrecoverable losses and a diminished faith and hope in traditional supports systems, ultimately resulting in the creation of a new normal."

E. Relevant Conference Findings from the Breakout sessions

1) Healthcare Track -- Command, Control, and Communication

This Breakout session was facilitated by Mr. Craig DeAtley, PA-C, who serves as the Director of Emergency Preparedness for MedStar Health, leads the DC Hospital Coalition, and is the Associate Medical Director for Fairfax County Police Department. Attendees represented a variety of private sector interests, public safety agencies and other backgrounds. The questions that were posed to the group included the following: What are the C3 issues? What policies, plans, and procedures are in place to manage this type of event? Where do private sector agencies fit into this? What are the roles of emergency operations centers (EOCs)? And how will they coordinate amongst themselves, and with the federal government? Where would the FEMA response be centered?

Some of the issues that were covered in this session include concerns regarding the ability to establish communications in the setting of this event, and the ensuing lack of situational awareness that is likely to result, particularly in the early stages of the event. Emergency responders noted that they may have to initially shelter in place, thereby limiting the immediate response to the event, and altering the manner in which the emergency response is likely to be conducted. Another key point discussed was the importance of establishing unified command. There was concern noted regarding the ability to do so without duplicating efforts, and recognizing that there will likely be ‘organic’ establishment of command and control during the early phases of the response.

Highlighting one of the key themes of the meeting, some discussion was focused on concerns related to panic, fear, stress and mistrust, and the effect this will have on efforts to maintain command and control. It was recognized that people may not act the way they would be expected to act. Other population based issues discussed included the management of convergent volunteers. The importance of education, both for the population, as well as for first responders, was emphasized repeatedly throughout this session.

It was recognized that there are more than 70 private EMS agencies in the region, and yet there are not great mechanisms currently in place that engage these private agencies in emergency response plans. They are not integrated into the 911 system. In an IND event, how would they be utilized, and if utilized, how would they choose patient destinations?

Discussion of federal resources focused on the timeliness of their availability, and the mechanism by which these resources will be integrated into the local

and State response efforts. When they do come, where will they report? Are they self-sufficient, or will they rely on the local and state teams for setup and action? There was also some discussion regarding DoD assets, and the response authority of base commanders to deploy resources as needed. How would all such resources be coordinated?

Finally, discussion focused on the issue of contamination, and its relative importance in the response to an event of this magnitude. The consensus discussion focused on the need to describe the contamination issue as a relatively 'minor' issue in the face of the many acute patient needs, consistent with the teaching of radiation response experts, who always emphasize the importance of managing patients regardless of the risk of contamination, a fundamental principle of radiation injury management.

2) Healthcare Track -- Health Care

This breakout session was facilitated by Dr. Dan Hanfling, Special Advisor for Emergency Preparedness and Response for Inova Health System. The attendees represented a variety of healthcare organizations and public health agencies across the region, as well as the meeting attendees from ASPR, DHS and FEMA. The questions posed to the group were focused on what to prioritize with regards to health and medical preparedness and response for and IND event? How do we put in place a regional mass triage capability in order to identify and stratify patients needing medical attention? And what assumptions should be agreed to regionally in responding to an event of this magnitude?

Discussion focused on the importance of working towards community health resilience and the importance of public engagement in achieving this important goal. Because the response of the public is so important in disaster response, especially so in the IND scenario, it is important to establish realistic expectation for the public, and to ensure access to training, education and information management. This is also particularly important with regards to providing useful, actionable information to a frightened public, many of whom are likely to seek care in area hospitals. Managing this surge in patient care demand for services can be positively influenced by providing useful information that may limit the numbers of patients seeking attention. The most important aspect related to information sharing is related to the importance of sheltering in place, particularly for those potentially exposed to radioactive fallout in the dangerous fallout zone (DFZ). Reducing the numbers of patients exposed to radiation will reduce the overall surge demand on the healthcare system.

The role of hospital coalitions in coordinating response was highlighted, as was the importance of hospitals participating in regional disaster exercises. Attention on how to best utilize scarce resources focused on the importance of

healthcare facilities coordinating their responses. There was also some discussion of User Managed Inventory (UMI), a means for building up par levels of selected items that may be important medical countermeasures (i.e. hemopoetic stimulant agents). This is most likely accomplished at the regional/coalition level. There was also a recognition of the importance of behavioral and mental health needs that need to be addressed, both for patient populations as well for the responders who will be taking care of patient needs.

Utilization of broadcast media to assist in sharing real time information was discussed. The availability of ‘just in time’ information was deemed not to be of use in an event of this kind. One suggestion was to provide key messages pertaining to sheltering and self-care to school children via a public messaging campaign directed specifically towards the schools. This may be effective in sharing information with parents, as well.

Finally, discussion turned to the importance of being able to utilize resources from across the entire healthcare system, including the use of private practice providers based in the community. Pharmacies were posited as serving as spontaneous surge response centers, where basic patient triage could be conducted (consistent with the HHS Playbook recommending the development of an RTR system, see Norm Coleman, MD Panel I write up).

3) Population Track – Schools

This breakout session was led by Ken Roey of the Howard County Public School system.

- School boards may be a key driver on what is possible and what is implemented. This will require substantial communication with elected officials. An environment must be created that will afford maximum receptivity by school officials on the need for active school system planning for a nuclear event.
- Building the relationship with parents is very important and leads to the parent’s trusting the school to keep their child. If the school focuses on all hazards and holds drills frequently and communicates that to parents, it helps build trust. Involving the parents in the process of planning and drills could help in the parents understanding the school’s plan. The goal is so that the parents’ first reactions will not be to retrieve their children if there is a plan in place.

- When the school initially hears of an IND, they should keep the students. Then release if not true or when safe and advised to do so. Do not wait for the county Emergency Office to notify the school.
- Parents arriving to pick up students could be asked to shelter in the school also. Parents must realize the students are safer at school than they are at home in the first hours after an IND attack.
- Keeping the students entertained during an extended sheltering period is of concern. Some suggestions were: if the school has multiple grades, K-12, then the older students can be assigned to your students to help and play with them; could have activity areas and rotate the students to a new activity; do something useful during this time.
- There are equipment and logistical issues related to school system readiness to shelter in place, even for minimal periods. For example, in some schools there may be only minimal generator capacity, geared towards a short timeframe and only for emergency lighting – not refrigeration, heating/cooling.

4) Population Track – Employers

This breakout session was led by John Contestabile of the Johns Hopkins University Applied Physics Laboratory

- There has been a significant uptick in emergency and continuity of operations planning by business. A full eighty percent of businesses in attendance at the breakout session have a disaster plan.
- However, extensive work needs to happen relative to the impact of catastrophic events on company supply chains.
- These supply chain implications will quickly cascade to the larger community. Obviously, the supply chain for necessities (e.g. food-medicine) will have dramatic impact on local populations.
- A major problem is that companies often don't have sufficient contact with suppliers and their subs.
- It is daunting to consider a nuclear scenario as too many employees don't know how to do shelter in place for far less serious events.

- A definitive reading should be obtained regarding whether companies may be liable if they don't train their people.
- The ability to move forward in business preparedness for this type of catastrophe will require messaging and education from the Federal government level down; specifically, business associations, roundtables, etc. However, anything of this nature must be sensitive to cost and careful about "not being too doomsday."
- A core strategy should elicit a perception of self-efficacy for businesses. Motivating business people requires their realizing that they have a modicum of control in protecting themselves.
- Additionally, proximity to Washington DC (or Baltimore, New York, Chicago, etc.) should lend more of a reality to the need for corporate action. The connection must be made between current events (e.g. the proliferation of terrorist groups in Syria as well as the Iran and North Korea situations) and the possibility of a nuclear attack.
- Policy makers must communicate to the business audience in a manner that gets their attention.
- Incentives for business preparedness may be possible via insurance carriers. There is precedent for this.
- Social media should be considered as a mechanism to expand employee preparedness.

5) Population Track – Functional Needs

This breakout session was facilitated by Anne Long of the Johns Hopkins University Applied Physics Laboratory

- The readiness of non-English speaking people for a nuclear event is largely non-existent.
- Information made available may not reach these populations or be presented in a suitable format. This relies on factors such as the following:
 - Language and cultural differences substantially complicate the transmission of protective information. For example, sheltering

procedures and basic information on radiation exposure will be difficult to explain.

- Illegal immigrants will be more concerned about exposure to immigration officials than hypothetical exposure to radiation.
- Beyond this, there are myriad cultural/religious issues and significant trust issues regarding government authority.
- More difficult issues may exist with respect to special need populations
 - Some of these individuals lack mobility. Needs can include: sign language and other communication support, personal equipment and lifesaving medication requirements.
 - There is a need to certify that instructions are fully understood. Multiple communication mechanisms should be considered; e.g. with different caregivers.
- Given barriers in reaching functional need populations, the ability to have impact will require a gargantuan effort. While some individuals (e.g. veterans) can be expected to relate to this issue, the vast majority will not.
- One productive avenue may be to involve people with functional needs in planning for this type of event. In addition to securing the time and talent of these individuals, ideas will undoubtedly flow on how to develop actionable plans for peers.
- With respect to at-risk older adult populations, specific factors influence readiness and the ability to take action in a nuclear event.
 - The need for durable medical equipment, power supply, etc. implies that individuals cannot get somewhere fast. However, this can also be viewed as an asset in terms of location in the home during the workday.
 - Family separation can be an issue as well as trust factors involving media or the government. Dementia, obviously, affects comprehension of response strategies.
 - A prime strategy here is to enlist or require facilities with older adult populations to become more resilient. This should include staff briefings and hardnosed planning for sheltering in place.

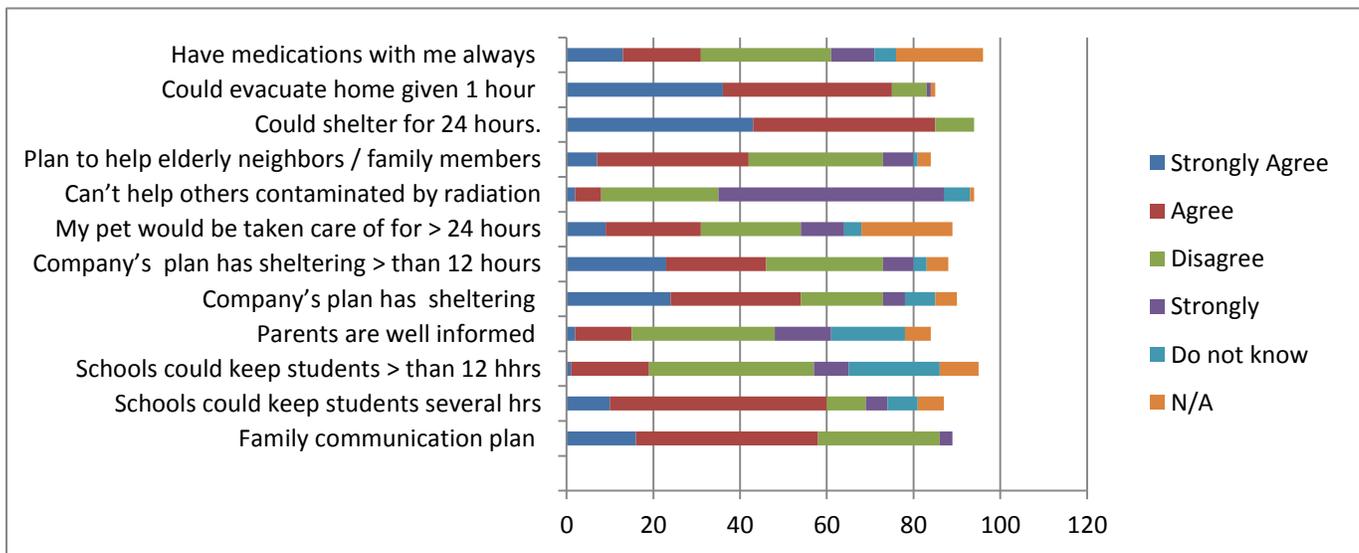
- The institutionalized elderly may have a relative advantage since they reside in larger buildings that should afford more fallout protection. In addition, long-term radiation sickness is less relevant for individuals in the 8th or 9th decade of life.
- As suggested above, older adults with military experience may be assets in understanding the need for protection from foreign enemies. Likewise, many older adults in the National Capital and the Baltimore Regions are retired defense industry, military or intelligence officials who could assist in the formulation of response strategies and the motivation of other older adults.

VI. Survey

VA. Pre-Conference Survey

There were some 90 responses to the questions in the survey that was left at everyone's place at the tables when they arrived at the conference. That is about half of those attending filled out the survey and left it at the table. The highlights from the survey are:

- Respondents said they would take care of people contaminated by radiological material, which is excellent. However, Steve Becker reports that there is a stigma and that people may not in reality take care of others.
- People attending feel they are prepared at home and are ready to evacuate with only an hour notice. This may not be surprising because of who would be interested in attending such an event.
- There is concern that the number of people who are aware of the school plans was not as high as expected.
- People do not take their medications with them and that can be a medical concern in such a disaster.



| Question | Strongly Agree | Agree | Disagree | Strongly Disagree | Do not know | N/A | Totals |
|---|----------------|-------|----------|-------------------|-------------|-----|-----------|
| Family communication plan | 16 | 42 | 28 | 3 | | | 89 |
| Schools could keep students several hrs | 10 | 50 | 9 | 5 | 7 | 6 | 81 |
| Schools could keep students > than 12 hrs | 1 | 18 | 38 | 8 | 21 | 9 | 86 |
| Parents are well informed | 2 | 13 | 33 | 13 | 17 | 6 | 78 |
| Company's plan has sheltering | 24 | 30 | 19 | 5 | 7 | 5 | 85 |
| Company's plan has sheltering > than 12 hours | 23 | 23 | 27 | 7 | 3 | 5 | 83 |
| My pet would be taken care of for > 24 hours | 9 | 22 | 23 | 10 | 4 | 21 | 68 |
| Can't help others contaminated by radiation | 2 | 6 | 27 | 52 | 6 | 1 | 93 |
| Plan to help elderly neighbors / family members | 7 | 35 | 31 | 7 | 1 | 3 | 81 |
| Could shelter for 24 hours. | 43 | 42 | 9 | | | | 94 |
| Could evacuate home given 1 hour | 36 | 39 | 8 | 1 | | 1 | 84 |
| Have medications with me always | 13 | 18 | 30 | 10 | 5 | 20 | 76 |

VB. Post-Conference Survey

97 attendees responded to the Post-Conference Survey, which means that slightly more than 50% of the attendees responded. Most made comments, which are discussed below.

Catastrophic Disaster Response Event: Evaluation

This conference provided vital information for the region on being prepared & surviving nuclear attack

| Choices (Score) | Percentage | Count |
|-----------------------|------------|------------|
| Strongly Disagree (5) | 0.00% | 0 |
| Disagree (4) | 0.00% | 0 |
| Indifferent (3) | 2.08% | 2 |
| Agree (2) | 29.17% | 28 |
| Strongly Agree (1) | 68.75% | 66 |
| Total | | 96 |
| <i>Unanswered</i> | | <i>1</i> |
| Avg Score | | 1.3 |

When I think of the impact ... it is essential that we prepare for such an event.

| Choices (Score) | Percentage | Count |
|------------------------------|---|------------|
| Strongly Disagree (5) |  0.00% | 0 |
| Disagree (4) |  0.00% | 0 |
| Indifferent (3) |  0.00% | 0 |
| Agree (2) |  8.33% | 8 |
| Strongly Agree (1) |  91.67% | 88 |
| Total | | 96 |
| <i>Unanswered</i> | | <i>1</i> |
| Avg Score | | 1.1 |

It is important that the region adjust its planning ... based on info. at the conference.

| Choices (Score) | Percentage | Count |
|------------------------------|---|------------|
| Strongly Disagree (5) |  0.00% | 0 |
| Disagree (4) |  0.00% | 0 |
| Indifferent (3) |  3.12% | 3 |
| Agree (2) |  20.83% | 20 |
| Strongly Agree (1) |  76.04% | 73 |
| Total | | 96 |
| <i>Unanswered</i> | | <i>1</i> |
| Avg Score | | 1.3 |

Command, Control, Communications Breakout

The breakout session I attended was useful:

| Choices (Score) | Percentage | Count |
|-----------------------|------------|------------|
| Strongly Disagree (5) | 0.00% | 0 |
| Disagree (4) | 3.45% | 1 |
| Indifferent (3) | 3.45% | 1 |
| Agree (2) | 34.48% | 10 |
| Strongly Agree (1) | 58.62% | 17 |
| Total | | 29 |
| <i>Unanswered</i> | | <i>68</i> |
| Avg Score | | 1.5 |

Healthcare Breakout

The breakout session I attended was useful:

| Choices (Score) | Percentage | Count |
|-----------------------|------------|------------|
| Strongly Disagree (5) | 0.00% | 0 |
| Disagree (4) | 2.94% | 1 |
| Indifferent (3) | 5.88% | 2 |
| Agree (2) | 35.29% | 12 |
| Strongly Agree (1) | 55.88% | 19 |
| Total | | 34 |
| <i>Unanswered</i> | | <i>63</i> |
| Avg Score | | 1.6 |

Schools Breakout

The breakout session I attended was useful:

| Choices (Score) | Percentage | Count |
|-----------------------|------------|------------|
| Strongly Disagree (5) | 0.00% | 0 |
| Disagree (4) | 0.00% | 0 |
| Indifferent (3) | 7.69% | 1 |
| Agree (2) | 53.85% | 7 |
| Strongly Agree (1) | 38.46% | 5 |
| Total | | 13 |
| <i>Unanswered</i> | | <i>84</i> |
| Avg Score | | 1.7 |

Employers Breakout

The breakout session I attended was useful:

| Choices (Score) | Percentage | Count |
|-----------------------|------------|------------|
| Strongly Disagree (5) | 0.00% | 0 |
| Disagree (4) | 0.00% | 0 |
| Indifferent (3) | 11.11% | 2 |
| Agree (2) | 50.00% | 9 |
| Strongly Agree (1) | 38.89% | 7 |
| Total | | 18 |
| <i>Unanswered</i> | | <i>79</i> |
| Avg Score | | 1.7 |

Functional Needs Population Breakout

The breakout session I attended was useful:

| Choices (Score) | Percentage | Count |
|------------------------------|-------------------|------------|
| Strongly Disagree (5) | 0.00% | 0 |
| Disagree (4) | 5.56% | 1 |
| Indifferent (3) | 11.11% | 2 |
| Agree (2) | 38.89% | 7 |
| Strongly Agree (1) | 44.44% | 8 |
| | Total | 18 |
| | <i>Unanswered</i> | <i>79</i> |
| | Avg Score | 1.8 |

The Comments were addressed to the following five questions:

- What topics did you find most useful?
- Were there any parts of the presentations that you found confusing or unclear?
- What specific ideas do you have to maximize getting information out to the public?
- What other ideas do you have for preparing the region and/or local communities?
- Do you have other comments about the conference?

The first 68 responders all wrote comments with 79% of the responders making comments. The respondents thought the conference was of high quality, valuable and inspiring. Only a few commented they wished for Q&A after the Panels or fewer panelists while several wished they could have attended more than one breakout session. Comments included mentioning other aspects of a nuclear attack that were not discussed at the conference.

The topics mentioned are outlined in the Appendix B. They could be material for other conferences or highlighting papers that are written on the topics for the attendees, etc.

- From the second chart above it is clear that all respondents thought it important to prepare. The comments were aligned with that and made suggestions about how to accomplish that. It is clear that communicating how to save lives if an IND is detonated is vital and the message should be promulgated through the region. One of the most powerful comments about this was, “Sheltering the public from the truth of advanced preparedness only breeds distrust of planned and effective local efforts to manage a real crisis.” This raises the imperative to take action.

The comments made in answering the five questions have been categorized as follows:

Communications

- Message was inspiring to let people know that an IND is survivable if you shelter and act as your own 1st responder. It is an empowering to know that you can survive. The message is “IF” it happens.
- Knowing that there is a threat helps concentrate on what to do.
- Use of social media is important to reach young people. Safety Apps could include this message.
- The FEMA message of “Go Inside, Stay Inside and Stay Tuned” is good and should be promoted. [The need for pre-scripted and pre-placed informational messages to alert the population on action steps to be taken.]
- There is not time to get the word out when an IND happens; consequently, people need to know what to do ahead of time. This is basically the same advice as what to do with hurricanes, earthquakes and tornadoes – so an all hazard approach can be beneficial.

- For those in the Incident Command Staffs of the local jurisdictions, a template with blanks to be filled in to aid Public Information Officers in quickly crafting a uniform message for their jurisdictions, to present a unified message to the NCR's population.

Schools

- Parents and staff must buy into the concept of sheltering and not rushing to get their children, thus endangering themselves and their children. The school response is the key to saving lives.
- Reaching the school age child has a big impact now and in the future.
- Tell parents every time a drill is held because this builds trust and confidence that the school knows how to keep and take care of the children.
- Set up a series of drills – prototype it with one school district and then move to others in the region based on the lessons learned from the first. Involve the EMS and police with these drills. Could hold students for two to three hours to simulate a real situation. Have signed slips from parents for younger students.

Public Announcements/the Press

- Use local news stations, TV, press, a pro-bono PR firm, and organizations like Veteran the American Legion and VFW for outreach, InfraGard. If we could reach corporate America like Google and Amazon to put an empowering message on their websites, it would spread and reinforce the message, through many different outlets.
- Make this part of an All Hazards and tiered approach: reverse 911, short twitter and email messages, Emergency Alert System via NOAA Weather Radio, short press releases bulletins, leaflets. It is also important to tell people how they will know when it is safe to leave t building where they are sheltering.
- Run message in local movie theaters and put it on YouTube.

The local communities

- Public Forums – simple message that can be used by businesses, PTA presidents, county councils, political leaders, first responders, community associations. It can be a grassroots effort. Political leaders need to engage in messaging about the threat.
- Use faith-based and neighborhood organizations to get the message disseminated.
- Having a YouTube video would be helpful and having it in several languages would be better.
- Make this a funding priority for the NCR.
- We need to reactivate the 1950's Civil Defense Program complete with checklists, pamphlets, instruction books, designated and marked shelters, and stocked basic provisions.

Drills

- Training, training, training of all people
- Ideally, a campaign would be nation-wide like the “Drop and Cover” message with a date and time to practice. Part of the message is how to be prepared to shelter at your business. Tie-in the Public Service Messages with this campaign.
- Hold some drills with lack of communications and determine how to communicate and practice.

Medical

- Very specific instructions will be needed in every hospital; e.g., job sheets, education on radiation.
- National stockpile would ideally be local (including water) (Coleman bubble deposits).
- During triage use different colored bandages to indicate different types of patients.
- Integrate retail pharmacies with medical clinics to help with triage and help keep people and take care of people who do not need to be hospitalized.

VII. Recommendations

There are two levels of recommendations emanating from the conference. Primary Recommendations are presented first, followed by Subsidiary Recommendations.

The Primary Recommendations, drawn from multiple conference sections, are overarching in nature and appropriate for consideration at the regional scale.

Subsidiary Recommendations emanate directly from individual conference panels, breakout sessions and the survey and contribute to the Primary Recommendations. (A summary these are found in Sections IV (d and e) and V of this report).

A. Primary Recommendations

1. Develop and a highly strategic public information effort on sheltering in place in a nuclear incident

While applicable to other urban areas, this work should be first delivered in the greater Washington DC area. The strategy developed should incorporate information pertinent to a nuclear event generated by the Modeling and Analysis Coordination Working Group funded by the Department of Homeland Security. In addition, best practices adapted from health education, social marketing and other pertinent fields should be applied. It is vital that the strategy begin with an assumption that substantial barriers exist to implementing such an effort. These include but are not limited to: government jurisdictional issues, bureaucratic inertia, limited funding resources and competition in getting the public's attention.

Therefore, the following elements should be considered:

- The plan should contain regional, state and local elements. The plan should be capable of galvanizing action on multiple fronts in order to ensure widespread knowledge about best citizen practices in a nuclear event. The proceedings of the effort could themselves be utilized to promote awareness of the potential for nuclear terrorism and viable response strategies.
 - The FEMA working groups have federal, state and private members and the results of their work should be widely disseminated.
 - The FEMA video "Go Inside, Stay Inside and Stay Tuned" shown at the IOM conference in January 2013 should be released and given wide dissemination.

- Consistent with this effort, the FEMA Communications working group should examine the full body of public notification and public education material inherent in all hazard and catastrophe response in order to ensure the incorporation of information relevant to a nuclear catastrophe.
- Representatives from news organizations and other groups involved in public reporting should provide testimony to the workgroup in order to carve out practicable, lower cost information distribution strategies.
- If possible, information content and messaging might be tested via focus groups, personal interviews and field trials.
- The founders and staff of the Nuclear Security Project ought to be integrally involved in this.
- Information and insights of the UPMC Center for Biosecurity, the Supply Chain Resilience Project and big city consultations completed by Brooke Buddemeier and others should be carefully considered.² This should include disseminating of shelter rating guidance so that building managers, tenants, employees and homeowners can learn about adequate shelter protection.
- Any recommendations should stress how and in what form just-in-time information would be provided to the public following a nuclear incident.

2. A “bottom up” community level approach to inform local populations about action that could be taken should be developed and pilot tested

While individual communities have commonalities on how information is shared, it is arguable that they also have unique pathways for information transmission. It is highly desirable to develop a quick action methodology whereby individual communities in the Greater Washington DC Region coalesce in identifying the best ways to alert their respective citizens to the need to shelter in place and how to accomplish that during a nuclear incident.

- The pilot project should be configured to include three suburban jurisdictions proximate to Washington DC.
- Community organization techniques perfected by the Howard County Community Emergency Response Network (CERN) should be considered.

² This includes but is not limited to the *National Capital Region: Key Response Planning Factors for the Aftermath of Nuclear Terrorism* (DHS, 2011); strategies and templates embodied in the *Rad Resilient City Report* (2012); and the Supply Chain Resilience Project’s *Strategic Playbook: Regional Catastrophic Preparedness and Supply Chain Resilience* (2012).

- With the involvement and the invitation of the jurisdiction’s chief executive (e.g. mayor, village president, etc.) each community’s public and private sector thought leaders would be assembled. This would include the chiefs of first responder agencies, nonprofit executives, hospital representatives, faith community leaders, public and private school administrators and others.
- In a half day session, these individuals would be familiarized with the present terrorist nuclear threat level, the realities of such attack and why sheltering in place is essential. In addition to other data, the number of preventable deaths specific to each community following a nuclear detonation would be shared with meeting attendees.
- Following these and other presentations, they would then, through facilitation and breakouts, devise the rudiments of a local strategic plan to communicate sheltering in place in their community.
- The pilot test should include a suitable evaluation mechanism, preferably one capable of registering local citizen awareness about nuclear fallout and sheltering in place as a life saving measure.

3. Sustain and Expand Health and Medical Planning Effort

There is great benefit to convening regional health and medical planners to discuss matters related to consistency of response to complex emergencies such as an IND detonation event, and to examine how healthcare systems can better coordinate their response to such events. Although the Metropolitan Washington Council of Governments (COG) convenes a regional Public Health working group, this effort needs to be expanded to include the outer “collar communities” that are likely to be as significantly impacted in an event of this magnitude as will the closer-in affected communities. In addition, the conversation around planning for such events must be expanded to include not just public health planners, and others from the traditional emergency response disciplines, but must also include participants from the healthcare organizations that are likely to bear the majority of responsibilities for patient care services including triage, medical stabilization, definitive medical management, administration of medical countermeasures, and plans for scarce resource allocation schema (transitioning to crisis standards of care). Plans to sustain a regional catastrophic planning and response effort, inclusive of all of the emergency response disciplines, and involving healthcare system planners, should be ensured, funded and supported administratively by the regional entities engaged in ESF 8 planning (State Health Departments and Regional Hospital Coalitions). Some funding from the CDC Public Health Emergency Preparedness (PHEP) and

ASPR Hospital Preparedness Program (HPP) grant programs should be budgeted towards sustaining this effort.

4. Develop Education Program for First Responders and Receivers

Additional education and training on the issues identified with the unique challenges of management of radiological casualties should be developed and offered to first responders and healthcare providers. Many of these educational tools already exist, but the forum for providing such information remains limited. Attempts to broaden access to information should be implemented, with the intent to use principles derived from the public relations and information management community related to risk communications. Establish a set of educational tools that convey a unified and consensus derived message with regards to plans, procedures and detailed response issues, but allow for a pool of potential subject matter experts to deliver the educational material.

5. Promote crisis standards of care planning

Consistent with current PHEP and HPP guidance, States and their regions need to expand upon current crisis standards of care planning, to include development of plans and procedures to implement scarce resource allocation, development of appropriate resource triage protocols, initiation of provider and community engagement efforts (we applaud the efforts currently underway in the State of Maryland to conduct community engagement discussions on crisis standards in different communities across the entire State), and appropriate coordination with interstate partners to ensure consistency of efforts and coordination of protocols. State governments should utilize existing coordination mechanisms to ensure that this work is being conducted and work products are being shared amongst the region.

6. Because of the strategic importance of the school system response in terms of the number of families affected, work with the Schools Systems to ensure they foster preparedness for sheltering

If the schools shelter students and staff and the parents are confident their children are safe, then the parents are more likely to shelter themselves at their office or home and not endanger themselves by going to the school to retrieve their children.

- Work to influence school emergency plans so that sheltering for up to 24 hours is incorporated into plans of the state/district/county school systems. Part of each plan should be that (pending other guidance) the school will shelter when any mention of a nuclear attack happens and not wait for instructions from the local government emergency management office.³
- Consideration should be given to the develop and implement a plan on how best to influence local school boards and elected officials so they are informed about the efficacy of the school sheltering plan.
- Undertake pilot planning with Howard County Public School System or another local school system on how the schools could handle keeping students and staff for up to 24 hours. Finally, carry out a drill on sheltering-in-place.
- The findings of the school pilot should be broadly disseminated throughout the region.

B. Subsidiary Recommendations

- Publicize the fact that first responders must shelter-in-place and therefore the response to the event will be different than for many other contingencies. Assure that the first responders are educated on how to respond to an IND event.
- Further planning and discussions focused on command and control structure involving local, regional, state and federal partners to include Northern Command and DoD also.
- Assess how to engage the 70+ private EMS agencies in nuclear contingency planning and to recognize how their contributions to this effort will strengthen local community resilience.

³ Maryland State Department of Education Emergency Planning Guidelines for Local School Systems and Schools: Because of the conference, Ron Miller, Howard County Public Schools knew that the State was revising its emergency planning guidelines. He put Mary Lasky in touch with Sally Dorman, who gave her an opportunity to provide comments on the Guidelines. Brooke Buddemeier assisted in this effort so that the comments had a strong foundation.

- Schools should ensure they can shelter students and staff for up to 24 hours if the electrical system is interrupted.
- Extensive work needs to happen at all levels on the impact of catastrophic events on company supply chains.
- Major business groups at the regional, statewide and national levels should be actively engaged in improving IND related planning.
- Assess the benefits, costs and risks associated with providing specialized nuclear event messaging to individuals with functional and age-related issues as well as for non-English speaking individuals. Emphasis should be placed on lower-cost options that engage systems serving these populations.
- Many older adults in the National Capital and the Baltimore Regions are retired defense industry, military or intelligence officials who could assist in the formulation of response strategies and the motivation of other older adults.
- Develop nuclear event messaging for the Public Information Officers to use in an IND situation and propagate that through the entire region for input and consistency.
- Work with Google, Facebook and other social media to put a public service announcement on their web sites to instruct people to shelter in the event of a nuclear attack. The existing FEMA video could be a resource for this.

VIII. APPENDICES

Appendix A: Critical Information about the scenario

- Critical facts:
 - Fallout is generated when thousands of tons of material excavated by the explosion is combined with radioactive fission products, drawn upward by the heat generated.
 - This fallout cloud rapidly climbs through the atmosphere, up to five miles high, for a 10kt bomb. Highly radioactive particles then coalesce and drop back down to earth as they cool.
 - Within 10 – 20 miles of the detonation, particles will be the size of table salt or sand as they descend, contaminating horizontal surfaces
 - These particles give off penetrating radiation that can injure people (inside cars, inadequately sheltered, etc.)
 - Fallout decays rapidly away with time, and is most dangerous in the first few hours after the detonation

- Community preparedness to respond to a nuclear detonation could result in life-saving on the order of tens of thousands of lives
- Specifically, depending on blast assumptions, sheltering in small houses could be expected to save in excess of 150,000 lives; sheltering in shallow basements would save 245,000 lives; and shelter in core/underground office spaces would save upwards 280,000 lives.
- Therefore, adequate shelter in houses with basements, large multi-story structures, and underground spaces (e.g., parking garages and tunnels) is essential. Sheltering during the first hour following the blast can keep exposures non-lethal. Barring other directives, 24-hour sheltering in place is recommended.
- No significant Federal response can be expected at the scene for 24 hours; the full extent of Federal assets will not be available for up to 72 hours
- A nominal 10 KT yield nuclear device should be assumed for purposes of estimating impacts in high-density urban areas (National Planning Scenario #1)
- Lessons from multi-hazard planning and response are applicable to a nuclear detonation

- Recommendations made to the public should intentionally be simplified – before and after the nuclear event.
- The target audience includes citizens in physically damaged areas, the life-threatening fallout zone as well as contiguous populations.
- Defining zones can be a useful approach to planning:
 - Identify priority zones
 - Prioritize actions within each zone
 - Identify responder protection in each zone
 - Determining where to locate staging areas
- The pre-event public protection strategy should focus on early, adequate shelter followed by informed, phased evacuation.
- In the post-blast period, the most beneficial response strategy should include:
 - Protect the response force
 - Rapid identification of hazard areas and safe evacuation routes
 - The establishment of communication; both responder and public
 - The first hour is the most critical
 - Hundreds of thousands of people can be saved through proper action (both individual action and leadership efforts)
 - Situational awareness, communication, and independent responder actions are also essential
 - Public awareness of what to do before the event is critical

Appendix B: Issues not addressed that were raised in the post-survey

- A 25kt incident versus a 10 kiloton (KT)
- What if many of the responders and leaders will also be incapacitated for some time.
- Emphasize, to elected representatives and public servants, the importance of diplomacy and the long, hard work of creating positive and constructive international relations. This kind of event may be hard to prevent, but cleaning up afterwards is harder.

- Look at our Command, Control and Communications infrastructure to see how it might be affected and what our response might be. That particular topic was not covered. The Command, Control and Communication will be the enabling technology that will support all of our other efforts.
- EMP disruptions of electrical grid, communications, water, sewerage, computer chips in vehicles.⁴
- Discuss how responsible businesses need to be to protect their employees immediately after an event, how to prepare their employees to be self-reliant, etc.
- Radiation and contamination in the Food and Water supply in stores or warehouses. Specifically the effect of radiation on the water supply (reservoirs & lakes) and any plant, seed, fruit, fish or animal that was outside and could be contaminated . What are the procedures in place for testing, who is the Lead Agency and what is the role of local and Federal Health Departments in this? There is nothing in place to inform the public on what to do. The amount of radiation could be small but extremely dangerous.
- Discussed the use of Potassium Iodide (KI). Can you provide some information on this? Iodine tablets for children.
- There will be major civil unrest if we don't get the food supply chain reestablished promptly.
- The evacuation of displaced persons into the near suburbs will create a major disaster of its own (suburban locations will be dealing with their own problems directly related to personal losses and disruptions in community

⁴ InfraGard – Special Interest Group on EMP (usually it means Electromagnetic Pulse; however, the charter for the Group gives EMP a broad meaning of “Every Major Problem” and is including an IND. The aftermath of many of these catastrophic disasters may have many of the same aspects and effects on the population; consequently, similar approaches may prove beneficial. Northern Command – Chuck Manto, is the leader of the EMP SIG and who attend the conference, had a conference call with 17 people from Northern Command. The results of that call were mainly concentrated on the EMP SIG membership with interest in participation and being involved. Note: Northern Command will be the government agency responsible for the event if an IND were detonated. Their involvement is important.

services etc.). Evacuation must involve staging and movement to distant cities, 100 or more miles from ground zero.

- Communication to people in the weeks and months of continued response and recovery will be most important. Knowing what to tell people will be vital for their health and prosperity.
- The subject of Nuclear Hot Spots & how we should handle them. What is the process, and what can we do about them?

Appendix C: Leaders Biographies and Advisory Team

Dan Hanfling, M.D.

Dr. Hanfling is special advisor to the Inova Health System in Falls Church, Virginia, on matters related to emergency preparedness and disaster response. He is a board certified emergency physician practicing at Inova Fairfax Hospital, Northern Virginia's Level I trauma center. He serves as an Operational Medical Director for PHI Air Medical Group—Virginia, and has responsibilities as a Medical Team Manager for Virginia Task Force One, a FEMA and USAID sanctioned international urban search and rescue team. He has been involved in the response to numerous international and domestic disaster events. He was integrally involved in the management of the response to the anthrax bioterror mailings, when two cases of inhalational anthrax were successfully diagnosed at Inova Fairfax Hospital.

He serves as Vice Chair of the National Academy of Sciences Institute of Medicine Committee on Establishing Guidelines for Standards of Care during Disasters, and has authored and co-authored a number of articles on subjects related to hospital preparedness and response.

Dr. Hanfling received an AB in Political Science from Duke University and received his medical degree from Brown University. He completed an internship in Internal Medicine at the Miriam Hospital in Providence, Rhode Island, and an Emergency Medicine Residency at George Washington/Georgetown University Hospitals. He is Clinical Professor of Emergency Medicine at George Washington University, Contributing Scholar at the UPMC Center for Biosecurity and adjunct faculty of the George Mason University School of Public Policy, Office of International Medical Policy.

Richard Krieg, Ph.D.

Dr. Krieg has specialized in health system management, state and regional policy development and public policy development and implementation. Over the past 14 years, he has focused on the improvement of community resilience and the promotion of joint public/private sector emergency response planning. He is founding Chairman of the Community Emergency Response Network.

He is immediate past President and a former Trustee of The Horizon Foundation. The Foundation is the largest health philanthropy in the Mid-Atlantic States with a multi-faceted community health agenda. Over the years, the Foundation has provided multiple grants designed to improve communications inter-operability, first responder training, and tabletop, functional and full bore emergency exercises and the improvement of hospital and health department readiness.

Dr. Krieg is former Health Commissioner for the City of Chicago. The Chicago Department of Health has a staff of approximately 2,000 people and an \$85 million annual budget. In that role, he focused on Level-3 trauma center improvement and public health/hospital coordination in emergency response. He is former Executive Director of the Chicago Institute for Metropolitan Affairs, an urban policy and community action facility that spearheaded health system reform, reduction in hospital emergency department overcrowding, Cook County Hospital reform and other issues. For four years, he held the position of Director of Policy Analysis and Planning for the Metropolitan Chicago Healthcare Council.

He received his doctorate from the University of Chicago where he specialized in health policy and administration. He holds a masters degree from the University of Chicago's Harris Graduate School of Policy Studies. He is a graduate of the Executive Management Program at the Harvard Business School. Among other commendations, he is recipient of the Illinois Department of Public Health's "Award of Merit" and the Illinois Public Health Association's "Presidential Award."

Mary D. Lasky, CBCP

Mary Lasky is the Program Manager for Business Continuity Planning for the Johns Hopkins University Applied Physics Laboratory (JHU/APL), and also coordinates the APL Incident Command System Team.

She currently serves as Chairman of the Community Emergency Response Network (CERN) in Howard County, Maryland. She is the President of the Central Maryland

Chapter of the Association of Contingency Planners (ACP). She is a member of the Nuclear/Radiation Communication Working Group.

Ms. Lasky has held a variety of supervisory positions in Information Technology and in business services. In addition, she is on the adjunct faculty of the Johns Hopkins University Whiting School of Engineering, teaching in the graduate degree program in Technical Management.

She has published and presented nationally and internationally on pandemic flu, continuity of operations, and public-private partnerships.

She received a MBA and a MS in Technical Management (cum laude) from Johns Hopkins University.

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