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## Welcome

Welcome to the spring issue of the New York DMH Responder, our quarterly newsletter for the Disaster Mental Health community. This issue features presentation summaries from the 10th annual Institute for Disaster Mental Health (IDMH) at SUNY New Paltz event, Radiological Readiness: Preparing for Dirty Bombs, Nuclear Disasters, and Other Radiation Emergencies. The conference once again brought together experts from across the emergency response, health, and disaster mental health spectrum, including several representatives from New York State Office of Mental Health (OMH), New York State Department of Health (NYSDOH) and New York State Office of Emergency Management (SOEM). Presentations, workshops, and panel discussions addressed the varied and intense needs responders and communities would face should one of these worst-case scenarios occur. Videos of many presentations can be viewed at the IDMH website, [www.newpaltz.edu/idmh](http://www.newpaltz.edu/idmh).

We hope these summaries will be informative for readers – and we hope these particular lessons never need to be implemented. As always, your feedback and suggestions for topics to cover in future issues are welcome; please email any comments to Judith LeComb at NYSDOH or Steve Moskowitz at OMH.

## From Radiological Incidents to Nuclear Calamities: Social, Behavioral, and Risk Communication Issues in Radiation Emergencies

The keynote address was delivered by Steven M. Becker, Ph.D., Professor of Community and Environmental Health, College of Health Sciences, Old Dominion University, and member of the Congressionally-chartered National Council on Radiation Protection and Measurements. Dr. Becker has been involved in responses to numerous major disasters and emergencies around the globe, including the ongoing response to Chernobyl and most recently the 2011 Fukushima Dai-ichi nuclear disaster in Japan that resulted from a magnitude 9.0 earthquake and tsunami. His keynote discussed the major types of radiological incidents, both accidental and intentional (radiological exposure/radiological dispersal devices and the growing threat of nuclear weapon use by both rogue states and terrorists.

While the number of casualties, extent of damage, scope of the affected area and duration of impact in any specific incident would depend on factors such as the size and type of the event, its location and timing, and weather

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## From Radiological Incidents to Nuclear Calamities, *continued*

conditions, Dr. Becker identified two key lessons he believes apply across the spectrum of radiological events:

- Social and behavioral factors, including how people react to the situation, are critically important in determining how a radiation emergency will unfold.
- The single most important way to prevent and reduce negative impacts including deaths, injuries, and illnesses is by providing people with timely, clear, credible, responsive, and actionable communication.

Specifically, because people have so little understanding of radiological events, they find them more threatening than other types of hazards so these events produce widespread fear, vulnerability, and continuing alarm and dread. This fear, especially when coupled with a lack of accurate information, can produce a host of social, psychological, and behavioral effects. This was observed after Chernobyl when those in impacted areas displayed deep and long-lasting anxiety about radiation, fears about health and a strong sense of a lack of control over their lives. Because of this extreme fear, especially when it's compounded by unclear or conflicting information, radiological events are likely to lead to "population flight," where residents self-evacuate unnecessarily. This was seen after the Three Mile Island accident where for every person who was advised to leave 45 actually did. It can have effects beyond anxiety or inconvenience: Unclear instructions after Fukushima Dai-ichi led members of some communities to flee into the path of the fallout plume causing exposure they could have avoided had they stayed in place.

In fact, Dr. Becker stated, especially in the event of a nuclear detonation, communicating protective orders to the public is the single most effective life-saving action authorities can take in the first hour after an explosion.

However, event characteristics would produce major communication challenges:

- The event would likely occur suddenly and without warning;
- Communication infrastructure near the epicenter could be destroyed, damaged, or overloaded;
- Changing conditions such as wind direction may make it necessary to qualify or update information, leading to confusion; and
- Radiation concepts and terms (such as the difference between contamination and irradiation) are complex and confusing for the public and many people express little sense of confidence in being able to protect themselves in an event – which may become a self-fulfilling prophecy if it leads to inaction.

Recognition of these difficulties has led to extensive research in risk communication around radiological incidents including work sponsored by the Centers for Disease Control and Prevention (CDC) and the Association of Schools of Public Health. Main findings that can guide messaging include:

- People's primary concerns and information needs center on health issues such as symptoms to look for and where to seek help;
- Fatalistic attitudes were more pronounced in minority populations; and
- Television meteorologists were viewed as a trustworthy and apolitical source of information and could be enlisted in information dissemination.



To conclude, Dr. Becker noted the need for responders to familiarize themselves with the threat produced by radiological accidents and terrorism and he highlighted the importance of improving emergency plans to incorporate the central importance of social and behavioral issues and the need for effective risk messaging.

## Lessons from Fukushima Dai-ichi Nuclear Accident

In an afternoon workshop, Steven M. Becker, Ph.D. elaborated on his experiences in Japan following the 2011 earthquake, tsunami, and nuclear disaster. Entire cities and towns were decimated from the earthquake and flood, and the casualties were high; 15,883 were killed during the event, 6,000 injured and 2,681 are still missing. The additional panic caused by the nuclear plant's malfunctions exacerbated the chaos and impacted the recovery efforts.

**Evacuation:** In the immediate aftermath the need for evacuation from impacted areas was complicated by difficulty in predicting the location of the radioactive gas plume and the efforts to communicate timely and accurate information was a challenge. People were desperate to move away from the devastation and possible radioactivity. Correct information was not always readily available causing segments of the population to flee – at times, evacuating a safe area and moving inadvertently to an area that had plume exposure.

**Sheltering:** One failure the Japanese disaster illuminated at great cost to survivors was that authorities had one plan for evacuating and sheltering people after an earthquake, another plan for tsunamis, and another plan for nuclear accidents – but, Dr. Becker said, no one had ever considered what would happen if all of these occurred at once. When they did the shelters planned for a nuclear accident had been largely

destroyed by the earthquake and tsunami so the 150,000 people who evacuated were forced to live in abysmal conditions often for very extended periods increasing both physical and psychological suffering. Similarly, Dr. Becker noted, we currently exercise plans and drills for discrete events but when there are simultaneous multiple events that result in loss of infrastructure we may not have sufficient planning in place to assure vital communication.

**Stigma:** Due to a lack of understanding as to what and where actually constituted safe areas, as well as what the perceived health risk were, people were stigmatized if they were believed to have been exposed to radiation. Residents from certain areas were shunned as people responded in fear despite their actual exposure. Residents asked for documentation of health clearance but as there wasn't a central registry of health assessment or clearance differing areas gave different certificates causing confusion and mistrust. The impact of the enforced social isolation and lack of support from others hindered people's ability to access the social support needed to manage trauma.



## New York State Response to Radiological Catastrophes

The second event of the day was a multidisciplinary plenary session moderated by Gerald Benjamin, Ph.D., Director, Center for Research, Regional Education and Outreach at SUNY New Paltz. Representatives from three New York State agencies and the American Red Cross discussed the challenges their organizations would face in the event of a radiological disaster.

**Jerome Hauer, Ph.D., Commissioner, NYS Division of Homeland Security and Emergency Services (DHSES)**, presented a sobering and eye opening view of the possibility of a nuclear terrorist act and asked the audience to consider if they were prepared to manage the aftermath of such an event. He reported that his focus on the potentiality of a deliberate attack had resulted in accusations of fear mongering but Dr. Hauer detailed the ease of manufacturing such a bomb and the availability of the raw materials and mentioned groups of individuals who would be willing to pursue such a course of action.

Dr. Hauer shared slides of differing scenarios should an attack occur in Washington, DC or New York City. He described the expected level of death and injury, with an anticipated possible 4-5,000 people lost immediately and both short- and long-term injuries to the survivors. Finally, he suggested ways to mitigate the level of destruction such as increasing the training of medical personnel to address these specific needs; increasing hospitals' ability to triage and to treat exposed individuals without contaminating the hospital; and focusing on medical countermeasures.

**Adela Salame-Alfie, Ph.D., Acting Director, Division of Environmental Health Investigation, NYS Department of Health**, spoke about current plans to respond to a nuclear detonation. She strongly suggested that individuals as well as governments make preparations for response with a focus on maximizing the preservation of life, managing destruction, sheltering, addressing medical needs, and managing the medical effects of the casualties exposed to radiation. Critical planning assumptions include:

- People should not expect any significant federal response in the first 24 hours;
- When estimating impact and planning resources it should be assumed a nominal 10KT yield nuclear device will be detonated; ; and
- Utilize lessons learned from multi-hazard planning.

Dr. Salame-Alfie detailed the varying levels of impact in the Severe, Moderate, and Light Damage Zones which can be identified by the level of structural damage, mortality, injury intensity, and physical proximity to the blast. She spoke about the need for early, adequate shelter, the immediate needs for identifying safe areas, and establishing correct communication. She suggested that the idea of "go inside, stay inside, and stay tuned" could result in the possibility of hundreds of thousands of lives being saved if people can be convinced to shelter in place until the initial level of radiation dissipates.

**Diane Ryan, L.C.S.W., American Red Cross in Greater NY Emergency Services and Regional Director of Disaster Mental Health and Partner Services** discussed how the Red Cross's Disaster Mental Health volunteers would respond to a nuclear event. Ms. Ryan described how the responders have learned to assess their own emotional safety over the course of their responses but admits that a response to a nuclear event is an untried area and people may not know their comfort level in a deployment. Ms. Ryan spoke about the drills at Indian Point and the plans to meet the needs of sheltering as well as evacuation. Diane also mentioned the need to acknowledge the vastly different numbers of inhabitants at varying times of the day noting that there is a 98% increase in the daytime population in New York City. The numbers of volunteers needed would be significant and managing these responders could be daunting in a time of nuclear crisis. As a comparison she noted the level of care needed to track, oversee, and support all of the Hurricane Sandy responders deployed in the city during New Year's Eve – and that was just for a party. Keeping responders safe and organized during a nuclear event would be a major challenge.

**Lloyd I. Sederer, M.D., Medical Director, NYS Office of Mental Health** noted that while mental health is critical it is not an immediate need during a nuclear event. The goal of terrorism is to destabilize the financial and emotional stability of a community and that is where the mental health response comes in. Dr. Sederer described how previous responses over the last 10 years resulted in significant gains in our knowledge about events and that the effects of events are not static. Our experiences shape the trajectory of our future responses and efforts should

## New York State Response to Radiological Catastrophes, *continued*

be made to learn more from our prior experiences; we should focus on how to mitigate consequences by learning what is most efficacious. Describing the Crisis Counseling Program response to Hurricane Sandy, Dr. Sederer explained that while the program provides outreach, information and brief crisis counseling, they are prevented by the funding conditions from offering much-needed treatment, and the results are not assessed. Dr. Sederer identified three key areas to focus on:

- Increasing the use of technology as a means of communication, such as advocacy for texting in times of crisis as it is immediate and accurate;
- Field-based care; and
- Attending to the special sector of schools and clinics to address the mental health needs of individuals after a disaster.



As these summaries show, the panelists were all focused on the themes of pre-planning, establishing and maintaining effective and accurate communication as well as the importance of being able to mitigate the effects of a disaster on individuals and communities. Each mentioned the dilemma of sheltering in place vs. evacuation and felt that the ability of the general population to understand the risks and benefits of both options, as well as having correct information on which to make that decision, could be a matter of life or death.

## Radiation Preparedness Resources Recommended by Presenters

### Websites

#### First Hours

<http://emergency.cdc.gov/firsthours/>

Centers for Disease Control website for initial communication with the public during a potential terrorism event.

#### Radiation Event Medical Management

<http://www.remm.nlm.gov>

Portal operated by multiple government agencies to provide guidance for health care providers regarding diagnosis and treatment during mass casualty radiological/nuclear events.

### Publications

#### Nuclear Detonation Preparedness: Communicating in the Immediate Aftermath

[www.remm.nlm.gov/NuclearDetonationPreparedness.pdf](http://www.remm.nlm.gov/NuclearDetonationPreparedness.pdf)  
(Free download)

A resource for emergency responders and federal, state, and local officials communicating with the public and media during the immediate aftermath following a nuclear detonation in the United States.

#### Responding to Radiological or Nuclear Terrorism Incidents: A Guide for Decision

**Makers** (National Council on Radiation Protection and Measurements Report No. 165)

<http://www.ncrppublications.org/reports/165>  
(\$75 hardcopy, \$60 PDF download)

This report provides the most comprehensive summary to date of recommendations and key decision points for planners preparing responses to radiological or nuclear terrorism incidents. It is unique because it considers both forms of terrorism within one publication while accounting for their fundamental differences.

## Understanding Post-Blast Human Behavior: Disaster Mental Health Overview

Mary Tramontin, Psy.D., Supervising Clinical Psychologist for the US Department of Defense, and Karla Vermeulen, Ph.D., IDMH Deputy Director and Assistant Professor of Psychology, discussed the key mental health issues related to radiological incidents in a workshop that was adapted from the Department of Health training, "Disaster Mental Health: Assisting People Exposed to Radiation." They focused on the specific factors that are expected to differentiate responses to radiological terrorism or nuclear accidents from other types of disasters. Key points included the following:

**Emotional Reactions:** Public misunderstanding of the difference between contamination and exposure and overestimation of the resulting physical harm are likely to greatly increase survivors' fears about short- and long-term health consequences. In addition to the range of cognitive, emotional, behavioral, physical, and spiritual reactions expected after any traumatic event, survivors of radiological incidents are expected to have intense anxiety and dread which may be long lasting, especially following serious incidents that cause long-term or permanent displacement from home.

**MUPS and Surge:** Since ionizing radiation is invisible and requires specialized equipment to detect some people may be exposed without knowing it. However, it's predicted that far more people will believe they've been exposed when they really haven't and many will develop "Medically Unexplained Physical Symptoms" (MUPS) –physical symptoms that are genuine but that are the result of fear and anxiety rather than actual exposure.



Responders must recognize that suffering in this group is real and is worthy of attention but it will be essential to establish a way to separate this group from people who really do need medical attention for exposure and to treat their psychosomatic symptoms in order to remove them from the surge to healthcare facilities that's expected following any radiological event.

**Stigma:** Past events including Chernobyl and an incident in Goiania, Brazil, indicate that survivors and responders may face lasting stigma and avoidance long after there is any valid concern that these individuals may be contaminated and able to harm others. This stigma can increase personal distress and could limit victims' access to needed services.

**Responder Issues:** Some settings where mental health helpers could be deployed are similar to other types of disasters (i.e., shelters, Family Assistance Centers), though the degree of survivor emotions could be more intense. Other settings would present unique challenges that responders would need to adapt to with little experience to draw on. For example, mental health helpers could serve an essential role in calming fears at a mass decontamination site but that could require helpers to try to connect with anxious crowds while wearing concealing protective equipment. Additionally, fears about being stigmatized may prevent some helpers from responding – and both individual and family concerns about exposure may make balancing personal and professional demands even more problematic than in more typical disasters.

### Disaster Mental Health Training

"Maintaining Responder Resilience through Extreme Disasters" will be offered by IDMH in the fall, 2013. The goal of this 3 hour training is provide professionals with the skills necessary to recognize the stressors (i.e., secondary traumatization and burnout) that may place them at risk for occupational hazards and how to cope with them productively during a prolonged response. The training will be offered in person at the SUNY New Paltz campus and will also be simultaneously webcast across the state. The training will use an

applied approach, teaching specific skills and providing opportunities to practice skills through exercises. Also incorporated into this training will be personal stories from healthcare and mental health providers who have been through intense or long-lasting disaster response operations and will share lessons learned about what did or did not help them cope with the demands. Further information regarding registration will be forthcoming.