International Center for Enterprise Preparedness (InterCEP)

Dirty Bombs: A New York City Multi-Agency Perspective

Web Forum Summary

On December 16, 2015, the International Center for Enterprise Preparedness (InterCEP) held a live web forum titled Dirty Bombs: A New York City Multi-Agency Perspective. As part of the event, four speakers from New York City agencies discussed dirty bombs, also known as radiological dispersion devices (RDD), their potential impacts and agency preparedness programs. The Centers for Disease Control and Prevention (CDC) defines a dirty bomb as a “mix of explosives, such as dynamite, with radioactive powder or pellets. When the dynamite or other explosives are set off, the blast carries radioactive material into the surrounding area.” These devices continue to pose a tangible threat and would require a multi-agency response in a real event.

The speakers that participated in the web forum, providing an overview of the risks associated with a dirty bomb incident and answering questions from forum participants, were:

Andrew Karam, PhD, CHP, board-certified radiation safety professional, New York Police Department (NYPD)

Robert Ingram, New York City Fire Department (FDNY) Battalion Chief, Center for Terrorism and Disaster Preparedness

Eliot Calhoun, Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Planner, NYC Emergency Management’s (NYCEM) Planning and Preparedness Division

Mark Maiello, PhD, Radiation Projects Planning Manager at New York City Department of Health and Mental Hygiene

Andrew Karam, NYPD, provided an overview of the threats posed by a dirty bomb, indicating that a dirty bomb is not a nuclear bomb. With a dirty bomb there is an explosion but this is not followed by massive destruction. The damage caused by a dirty bomb would depend largely on the type of explosive used, and although the explosion of a dirty bomb could be serious if a powerful explosive were to be used, the radiation itself would not necessarily be very serious. In fact, the radiation would probably not hurt or kill anybody.
In terms of long-term health effects, a handful of people could potentially be exposed to radiation and as a result they could have increased risk of cancer. But most people in the area of the explosion would not be affected in that way. Even after a major nuclear disaster such as the one following the meltdown in Fukushima, Japan, the World Health Organization (WHO) concluded that few if any people would see any significant long-term impacts.

Despite the minimal impacts posed by the radiation component of the device, such an event would likely be accompanied by long-term disruptions and fear. Any terrorist attack is associated with a disruption. Decontamination of the site would cause a significant amount of disruption. Even if scientists say radiological risks are minimal, people may not want to go back to the site of the explosion.

In the event of a dirty bomb the best thing to do would be to go inside and let city officials figure out when it is safe to evacuate. It would be important to close all doors and windows. Individuals who felt they may have been exposed to radiation would be advised to shower.

Following a dirty bomb explosion there would be an immediate response from the Police and Fire departments, with both arriving at the scene to determine whether the event was a dirty bomb. The top priority would be to secure the scene and this would include setting up barriers to make sure people would not be able to go into the scene. Another immediate priority would be to assess and understand radiological and other risks. If a bomb goes off there could be fires and unstable structures. The bottom line would be to secure the scene. Investigating who did it and capturing them, would also be police priorities.

**Robert Ingram, FDNY**, discussed the importance of securing and managing the scene. One of the key challenges related to this issue would be defining the scene boundaries. This would be determined initially by the risk assessment and environmental data conducted at the incident site by FDNY and NYPD personnel, supplemented by NYC Departments of Health and Mental Hygiene and Environmental Protection activities. Local, State, and Federal resources and national lab dispersion modeling would provide more detailed capabilities as the incident progresses. FDNY trains its members to provide a tiered response in such an event. FDNY personnel are equipped with radiation detection equipment on all ambulances and fire trucks. NYPD, FDNY, NYC Department of Health and Mental Hygiene and NYC Department of Environmental Protection (DEP) would all operate radiation detection equipment to better understand how any dispersed radiation would spread and to identify the boundaries of the scene.

Another important action of the first responder community would be to provide information to the public on what has occurred and guidance on how they should protect themselves. The
agencies’ citywide plan for RDD’s calls for recommending people shelter in place until public officials are able to get a sense of the boundaries of the scene and determine adequate evacuation routes.

New York City agencies have been working together preparing for this type of event and others since before 2001. This includes preparation for detecting a radiation release, responding to it, protecting the public and response personnel, mitigation and recovery. Recovery activities include establishing Community Reception Centers (CRCs) to screen the public for possible contamination, potential exposures, and to provide medical or other services determined necessary. Interagency coordination for data collection near the incident location and analysis of the potential hazards to the public and environment would be the basis to develop and communicate guidance to the public.

Eliot Calhoun, NYCEM, described the role that NYC Emergency Management (NYCEM) would play in the event of a dirty bomb incident. He framed the discussion by explaining the mission of NYCEM, which includes four main components: plan and prepare for emergencies; coordinate and support response and recovery; educate the public about preparedness; and collect and disseminate critical information. As part of its staff, NYCEM has interagency coordinators which would be sent out to link up with agencies responding in the field.

As part of the critical information component, NYCEM’s Watch Command monitors the city 24 hours a day, 7 days a week. In the event of an RDD incident NYCEM would activate the City’s Emergency Operations Center (EOC), which allows the agency to gather all information in one place and includes direct lines of communication with all the city agencies and other stakeholders. The stakeholders would include senior figures from multiple agencies and sectors, including health and medical, public safety, human services, private sector, infrastructure, and logistics.

In the event of an RDD incident NYCEM would assist with the activation and implementation of the City’s response plans for radiological emergencies, and would coordinate City, State and Federal collaboration. If deemed necessary, NYCEM would also activate additional all-hazard support plans, including measures such as limited evacuations, service centers, debris management, and others. In this kind of event the City may need federal resources and NYCEM would coordinate with New York State in order to request a Federal declaration.

Another priority for NYCEM would be public messaging. The immediate message would be to shelter in place for those near the scene. But there would be a need for messages directed to everybody in the City, since during such an event there would be many people outside the affected area who would be afraid that they are at risk of radiation exposure.
Mark Maiello, NYC Department of Health and Mental Hygiene, discussed the main challenges of a dirty bomb incident from a public health perspective. If such an event were to happen many people in the city could think they’ve been exposed to radioactivity and this could lead to fear and anxiety. Public messaging and communication should explain how to self-decontaminate and instruct people not to go to hospitals, which need to remain focused on their core duties of emergency and longer term care. Instead, the public should utilize Community Reception Centers (CRCs) which would be stood up by the DOHMH and FDNY following the incident.

At CRCs as many people as possible would be screened for radioactive contamination. People would walk through a designated area to assess their levels. If we do not detect any radioactivity, which is believed to be the case for most people during this kind of incident, they would be sent to areas manned by Department of Health and Mental Hygiene personnel where they would complete the registration process and be offered additional health and safety counseling including how to cope with the stress that incidents cause. If radioactive contamination is detected, they would be sent to FDNY to decontaminate. It is estimated that a CRC can screen hundreds of people per hour.

Following the presentations, the speakers addressed a number of questions from web forum participants. These are summarized below.

**What should people do with their HVAC system?** During an RDD incident it would be best, if possible, to keep the HVAC system off and close windows to reduce the amount of potentially contaminated air from outside coming into an indoor space.

**How easy is it to make an RDD?** We know people can make bombs. The question in this case would be whether they can get radioactive materials. If they want to cause disruption they may not need much radiological material given the fear and anxiety associated with this type of material.

**What are some of the main challenges in communicating messages?** One of the main challenges is having people believe the messages that are put out. Unfortunately, a lot of people may not believe the messages. Several surveys suggest getting trusted community leaders and respected individuals to convey those messages is very important so that people believe the messages. For example, having a mayor accompanied by officials from multiple agencies adds credibility to the messages. People with public health backgrounds would have credibility to talk about the effects on people who may have been exposed to radiation from
this type of incident. Environmental officials provide similar credibility for remediation efforts to affected neighborhoods.

DOHMH would also need to communicate information about decontamination of pets, since owners are not likely to leave them behind. Moreover, pets and owners must remain together at CRCs to prevent the animals from becoming anxious and a possible danger.

**Are there opportunities for non-governmental organizations (NGOs) to register to help out during this kind of event?** The NYC Department of Health and Mental Hygiene has worked with NGOs that support its mission. These are primarily hospitals, community action organizations, the Medical Reserve Corp and the Voluntary Organizations Active in Disaster (VOAD) group. There are many issues that NGOs of this type could help with. Many people could be displaced in the aftermath of a dirty bomb incident and certain NGOs could assist with some efforts involving displacement and temporary housing, such as the American Red Cross.

**How would clear and consistent information and messages be coordinated and how would you get them out?** A lot of information is pre-scripted and is already available and agreed upon. One of many methods the City would use to contact the public is Notify NYC. NYCEM’s Watch Command runs Notify NYC, which is the City of New York’s official source for information about emergency events and important City services. Registration is free and the public may enroll at https://a858-nycnotify.nyc.gov/notifynyc/Home.aspx

**Are Community Reception Centers (CRCs) standardized across cities so others could help out from neighboring areas?** The Community Reception Center (CRC) concept is one developed by the Centers for Disease Control and Prevention (CDC) and has been utilized in emergency response plans for incidents at nuclear energy facilities. Neighboring communities to NYC that have nuclear reactor power plants have Nuclear Regulatory Center (NRC) emergency response plans that establish CRCs similar to those in NYC plans. In other places, CRCs for rad events may not be familiar concepts.

**Would there be controls on people leaving if they have not been screened?** The NYPD has been managing a program that has a lot of detection systems with coordination for major transportation hubs and facilities to monitor for individuals who may have moved away from screening areas and who may need to be screened.

City agencies would not be able to control everyone even if they wanted to. And people are more likely to want to be screened than to leave.

**In summary, what would be the biggest challenges in the after-math of a dirty bomb?**

In the short-term the biggest challenge would be getting people to believe what they are being told about health risks. Providing incident information to the public on how to be better
prepared. Information sharing and coordination among agencies would be critical and there has been a lot of work in this area.

Initial training of agency personnel and the subsequent maintenance of their knowledge and skill sets is important in the City’s level of preparedness.

The number and very high density of people in New York City (upwards of a million- people per square mile in some districts at certain times) means that CRCs may have to handle very large numbers of visitors. CRCs need a predetermined amount of manpower to achieve that.

Another important factor to consider is that evacuation efforts could also result in additional risks. Some people could be hurt in traffic accidents. Patients with special needs may not get the care they need during an evacuation. However, CRCs would accommodate special needs individuals for decontamination and access to the CRCs. As stated earlier the best option for most people would be to shelter in place.

Additional Resources:

- Centers for Disease Control and Prevention (CDC): http://emergency.cdc.gov/radiation/dirtybombs.asp
- New York State Department of Health: https://www.health.ny.gov/environmental/emergency/dirty_bombs.htm
- United States Environmental Protection Agency (EPA): http://www.epa.gov/radiation/radiological-emergency-response