

## **Implications of an Improvised Nuclear Device Detonation on Command and Control for Surrounding Regions at the Local, State, and Federal Levels**

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### **Abstract**

This paper discusses command and control issues relating to the operation of Incident Command Posts (ICPs) and Emergency Operations Centers (EOCs) in the surrounding area jurisdictions following the detonation of an Improvised Nuclear Device (IND). Although many aspects of command and control will be similar to what is considered to be normal operations using the Incident Command System (ICS) and the National Incident Management System (NIMS), the IND response will require many new procedures and associations in order to design and implement a successful response. The scope of this white paper is to address the following questions:

- Would the current command and control framework change in the face of an IND incident?
- What would the management of operations look like as the event unfolded?
- How do neighboring and/or affected jurisdictions coordinate with the state?
- If the target area's command and control infrastructure is destroyed or disabled, how could neighboring jurisdictions assist with command and control of the targeted jurisdiction?
- How would public health and medical services fit into the command and control structure?
- How can pre-planning and common policies improve coordination and response effectiveness?
- Where can public health officials get federal guidance on radiation, contamination and other health and safety issues for IND response planning and operations?

### **Introduction**

The U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA) tasked CTOS – Center for Radiological/Nuclear Training at the Nevada National Security Site, to develop multi-course training programs on IND response for the state and local emergency response community. The programs under development include a program for operations-level first responders and another program for Incident Commanders (ICs) and the Command and General Staff of the major cities and surrounding areas. Future programs are planned for the leaders in public health and emergency management. The CTOS job task analysis effort and two workshops on Incident Commander IND Response involving local, state, and federal representatives from Fire Service, Law Enforcement, Emergency Medical Services, Emergency Management, Public Health/State Radiation Protection Offices, National Laboratories, and federal agencies identified a number of command and control challenges and potential solutions. (NSTec/CTOS, 2013a; 2013b; 2013c). Some of these challenges and potential solutions for surrounding regions in the initial days of the response to an IND detonation are presented

here. There is no single solution for each of these challenges that is appropriate for all jurisdictions and plans, nor are the potential solutions presented here intended to be taken as federal guidance.

## **Would the current command and control framework change in the face of an IND incident?**

No, the basic framework of command and control using the ICS and the NIMS would not change; however, specific plans and policies addressing an IND detonation will be required to enhance the ability to provide a rapid and coordinated response.

The consequences of an Improvised Nuclear Device (IND) detonation in a major city will have major implications on command and control systems in the directly impacted city as well as neighboring jurisdictions. The enormity of the incident will require the rapid establishment, in jurisdictions throughout the region, of ICPs with incident management teams expanded to handle the complexity of this catastrophic incident. Unlike many other complex incidents, time will not allow for the organization of the incident command system to evolve in the normal manner or pace (NSTec/CTOS, 2013b). In addition to dealing with the fallout that could soon be arriving in a significant portion of the jurisdictions surrounding the targeted city, the neighboring jurisdictions will need to handle massive numbers of evacuees and injured victims leaving impacted areas, along with large numbers of response resources moving into the impacted areas.

The command staffs in the neighboring jurisdictions will face many obstacles when establishing command and control. Availability of staff will be a significant issue. (NSTec/CTOS, 2013b).

Until situational awareness is established to determine what areas are in, or are likely to be in, the Dangerous Fallout Zone (DFZ) and Hot Zone, the current guidance (Buddemeier, 2011) is, for all jurisdictions within a 50-mile radius from the detonation site, to shelter-in-place. This action is taken to avoid exceeding the DHS Protection Action Guide (PAG) 5-rem projected dose for sheltering-in-place or evacuation of the public in an IND incident. (FEMA, 2008). While this shelter order is in effect, only limited travel outside of shelter may be authorized, limiting ability of personnel to report to the ICPs and EOCs.

Accessibility in regard to transportation infrastructure will also play a key role in the ability to assemble a command team. Fallout may impact primary transportation corridors and critical infrastructure. Even in the neighboring jurisdictions, some of the general population may try to self-evacuate the area, resulting in gridlock situations. Damage in the targeted area may cause power failures and temporary outages in telephone and internet services. Expect that the landline telephone, cell phone, and internet services that are still operational could be soon overloaded. Power failures shutting down mass transit could all have negative implications for accessibility.

Other staffing issues that may impact the development of command could be the willingness of personnel to leave their families during a crisis, concerns for personal safety when dealing with a radiological response, and a lack of confidence in planning and capabilities.

Some possible solutions to increase jurisdictions' abilities to rapidly establish functional ICPs and EOCs under these conditions include (NSTec/CTOS, 2013b):

- Providing multiple levels of redundancy which will expand the Continuity of Operations Plan (COOP)
- Making use of uniformed and non-uniformed staff within public safety agencies to temporarily fill staff positions at the ICP and EOC until more senior staff is available
- Addressing the need to rapidly establish command in the least effected and most operational district/area

## **What would the management of operations look like as the event unfolded?**

Initially, each of the neighboring jurisdictions would establish an ICP and EOC, with the ICPs transitioning to Unified Commands as soon as possible. As the incident evolves, the use of a "Complex" or Area Command could be established to maximize the use of available resources. As staffing becomes available from multiple response disciplines, Area Commands could transition into Unified Area Commands.

### **Unified Command**

The Unified Command structure required for effective command and control of an IND response must reflect the needs of the jurisdiction and be based on operational requirements. Representation from all partners with jurisdictional or operational authority will be required. The Unified Command team could include local, state, or federal representation from the following:

- Law Enforcement
- Fire Service
- Emergency Medical Services
- Emergency Management
- Public Health
- Community Based Health Care
- Public Works
- Mass Transit / Transportation
- Non-governmental Organizations (NGOs), Private and Public Sector Partners

### **Area Command**

Area Command is used when there are a number of incidents, generally in the same area and often of the same kind. (USFA, 2006). As the IND response expands and Unified Command evolves, the coordination of multiple ICPs and EOCs with various levels of need, all competing for resources, should be clearly defined and managed. The IC having authority to manage the incident and the EOC providing operational coordination and support to command play an important role in the success or failure of the incident. At the local and county level, Area Command might prove beneficial. Area Command may be

established to oversee the management of several Incident Commands and may be expanded to a Unified Area Command. If the Incident Command crosses jurisdictional boundaries, the Area Command must receive authority through a written “delegation of authority” document. (USFA, 2006).

### **Complex**

Multiple incidents managed by a single incident command, a single Unified Command, or a single incident management team (IMT) are referred to as a “Complex.” (NWCG, 2004).

### **Overarching Approach to Planning and Response Partners**

Due to the immense scope and magnitude of an IND incident, no one jurisdiction or agency possesses the resources or capabilities required to mount an effective response. Jurisdictions that attempt to manage an IND incident using existing, non-specific plans and procedures, will face the potential of significant delays related to initiating response actions and receiving aid from around the region. The incident will rapidly expand and impact multiple jurisdictions, counties, or even states. Implementing detailed regional plans, prepared before the incident, will enable jurisdictions to maximize the use of atypical, non-government resources, and typical local, state, and federal resources. This pre-incident regional planning should take an overarching approach by expanding current norms. The scope of partners that could be involved in both the pre-planning process and the response, include:

- Federal, state, and local agencies, such as Public Safety (Law Enforcement, Fire Department, and Emergency Medical Service-EMS), Emergency Management, Public Health, community-based health care, and environmental agencies
- Local emergency management agencies should engage and identify all assets such as private sector businesses, supplies, food, shipping, warehousing, and medical
- Non-governmental organizations, faith based organizations, and volunteer organizations should prepare for spontaneous volunteers

### **Incident Action Plan (IAP)**

As the command and control team is assembled and situational awareness is being communicated, mission planning will become the next priority. Strategies, tactics, and decisions made during the first hours of the incident will potentially have the greatest impact, positive or negative, on the population. Commanders will be tasked with analyzing available incident information and developing initial incident action plans based upon the needs of their population and available resources.

For surrounding jurisdictions not directly impacted by the fallout, careful consideration must be given to providing the best care to the greatest number of victims while maintaining the ability to protect their own jurisdiction. A commander’s first instinct might be to send as many assets as possible toward the targeted city. However, if the commander has the ability to coordinate efforts with other jurisdictions, the best course of action may be to keep resources in place and prepare to receive thousands of evacuees and medical patients from the effected city, or establish and manage staging areas.

As incident commanders and planning chiefs begin to evaluate their potential actions, it will become necessary to have a primary point of contact, such as an operational EOC, to coordinate resources from the surrounding communities.

Determining the best course of action will prove challenging for many command staff personnel and planners. Crucial areas that command and control from surrounding jurisdictions must consider, include: (NSTec/CTOS, 2012; 2013b)

- Needs of your primary response district vs. aid for the impacted jurisdiction
  - Risk vs. Benefit for your responders
    - Decision matrix for departing shelter to begin operations
  - Direct vs. Indirect assistance to the impacted jurisdiction
  - Balancing needs of your citizens vs. needs of the region
- Ability to assist and control influx of evacuees, both injured and non-injured (Meit, 2011) as well as consideration of employing scaled procedures based on resource capabilities for surge, Crisis Standards of Care (CSC) (Coleman, 2011)
  - Ability to assess radiation exposure
  - Victim/Patient triage for IND
  - Radiation monitoring
  - Contamination surveys (individual vs. group and traditional vs. non-traditional)
  - Decontamination (traditional or non-traditional)
    - Question: Is there a common operating procedure/standard for contamination levels that has been accepted and adopted by all regional partners, public safety, transport providers, health care, Red Cross, shelters, etc.?
    - What level of contamination will be accepted by receiving facilities and those providing transport services around the nation?
  - Shelter operations
  - State Health support agency with Strategic National Stockpile (SNS) distribution
- Ability to assist with staging areas and resource management
  - Ground and air operations
  - Communication and GPS resources for mutual aid units
  - Equipment caches and tailgate training for newly issued equipment
- Addressing issues of water, food, and utilities
- Public messaging for follow-up treatment, self decontamination at home, etc.
- Potential of assuming command and control operations, ICP, EOC, or parts thereof, for impacted jurisdiction

### **Situational Awareness**

During the initial development of command and control, post detonation communications, or the lack thereof, will be a determining factor in the effectiveness of the command organization. It is essential that information flow from all levels of command to operations, and through all disciplines. Damage to

communication systems has the potential to affect the ability of responders, ICPs, and EOCs to share information, plans, and situational awareness. Damage to infrastructure could reduce or eliminate the capability for public messaging. Pre-incident planning and the IAP must include alternative methods of communication as well as policies and protocols for personnel and commands.

Before incident objectives can be established, command and control personnel must obtain, prioritize, interpret, and disseminate situational awareness. The IND incident will require a much broader set of situational awareness reports in order to allow field units and command to develop effective operational plans and maintain a level of safety for personnel. Sources of situational awareness must be expanded to include those from all typical and atypical resources. Data that will assist command and control with incident planning should include: (NSTec/CTOS, 2013a; 2013b; 2013c; Buddemeier, 2011)

- Radiation Reports, with location
  - Radiation Levels (Dangerous Fallout Zone, Hot Zone, or Cold Zone)
  - Arrival time of the fallout
  - Time of maximum radiation level (time fallout ceases to fall at that location)
- Status of response assets equipment / personnel
- Status of
  - Critical infrastructure
  - Critical facilities

## **How do neighboring and/or affected jurisdictions coordinate with the state?**

In an IND response, all of the ICPs in the region are expected to be requesting state and federal resources. The local EOC in each jurisdiction serves as the conduit to the state EOC, which will coordinate and resolve these competing requests for resources. To accomplish this, the local and state EOCs could use a Multiagency Coordination (MAC) system.

### **Multiagency Coordination (MAC) System**

A MAC system is a combination of facilities, equipment, personnel, procedures, and communications integrated into a common system with responsibility for coordinating and supporting domestic incident management activities. (USFA, 2006).

The regional or state MAC system will play a pivotal role in the coordination of resources for various commands. This formal group will ensure effective interagency and inter-jurisdictional operation support. Regional planning can be achieved with the adoption of Joint Power Agreements (JPAs) or Memoranda of Understanding (MOUs). The MAC system can be activated early in the incident, allowing for quicker resource support to local incident commands. Since an IND response will require a large scale deployment of state and federal assets, the MAC system function would also be established at those levels to support operations. See Figure 1. Multiagency Coordination System.

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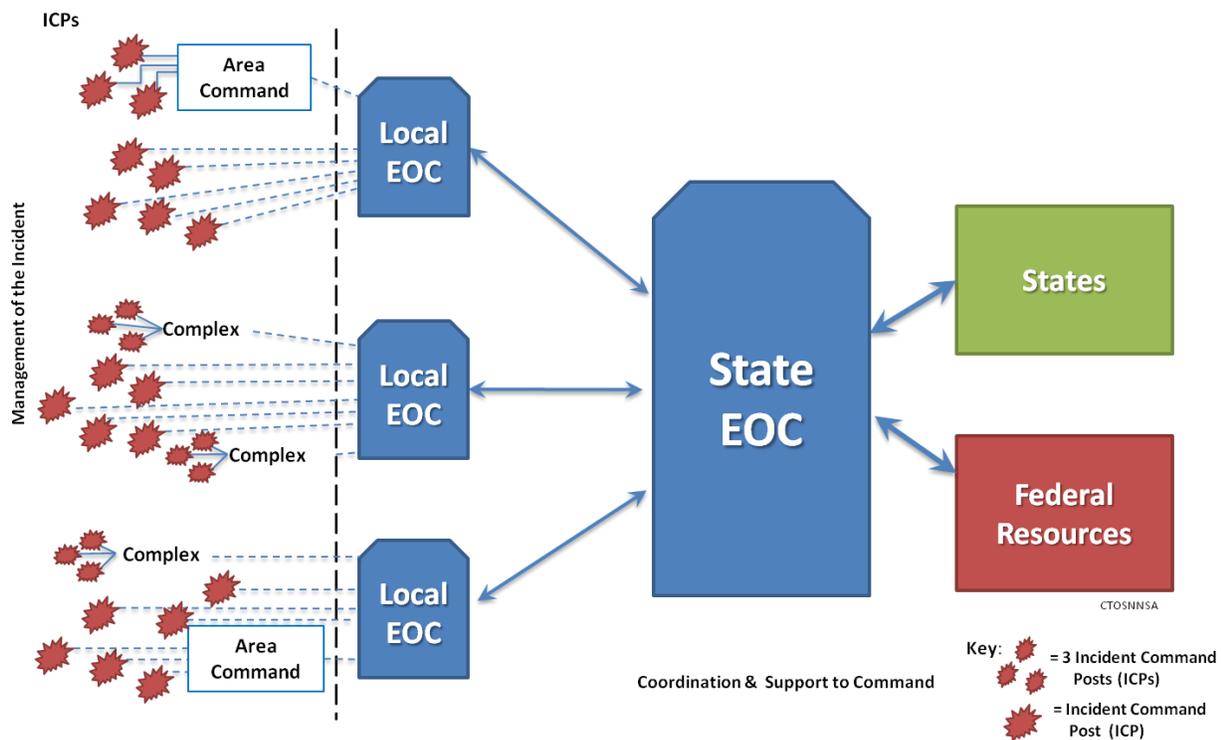


Figure 1. Multiagency Coordination MAC System  
Graphic Credit: NSTec/CTOS

**If the target area’s command and control infrastructure is destroyed or disabled, how could neighboring jurisdictions assist with command and control of the targeted jurisdiction?**

Following an IND detonation, the targeted city may be unable to establish some of its basic command and control functions. In this situation, surrounding jurisdictions may need to temporarily assume or assist in those operations until the target city is able to establish and restore its operations.

Establishing critical command and control functions for a neighboring jurisdiction cannot be efficiently accomplished without preplanning and agreements prior to the incident. During the planning phase for a response to an IND detonation, regional planners should consider the potential of the targeted jurisdiction needing this type of assistance. The support may be in the form of incident command, emergency management, and/or communications.

During the planning phase, in order to enhance the ability to execute delegation of authority documents, jurisdictions should include the adoption of JPAs, or MOUs that allow for a quick transfer, or the initial establishment of duties.

## **How would public health and medical services fit into the command and control structure?**

Involvement of public health and medical services early in the preplanning and response phase for an IND will be a key factor in successful command and control operations.

When comparing impacts on response disciplines, the medical community will be shouldered with one of the largest and most significant roles during the response and recovery phases of an IND detonation. Local command and control must partner with and support the medical community from the inception of the incident in order to develop a plan of action to render care to a hundred thousand plus individuals that will require varying degrees of assistance after the incident. Although most current models for public health and emergency medical services conclude public safety's involvement when the patient is transferred to hospital care, an IND response will require a whole community approach throughout the incident to effectively treat the impacted population. Senior staff representatives from public health and local health care should be included in the unified incident command structure, planning section and the emergency operations center.

Local, state, and federal resources from throughout the response community including NGOs and atypical volunteers will be needed to triage, decontaminate, treat, and transport the victims of the IND detonation.

Local command staffs and emergency managers should work closely with the medical community to:

- Provide timely care and assistance to the population requiring urgent care
- Screen the population to determine required actions

Transport and transfer patients - Focus will be on basic care in the first hours or days because of limited, or no access to higher care facilities and transport capabilities. It may be more important for local agencies to coordinate and prepare for the movement of patients prior to the arrival of the assets/resources required for the operation. These assets/resources may include air, military, and civil reserve, transport strike teams, and Federal Disaster Medical Assistance Team (DMAT). Triage, stabilization, contamination, and decontamination issues required for treatment and transport should be developed and agreed upon by transport providers, receiving facilities, and cities.

A policy should be developed that ensures that when there is a demand for service and a lack of resources that no longer allow conventional patient care, CSC methods be implemented. Additionally, consideration should be given to a new algorithm for patient triage that includes evaluation of traumatic injuries and radiation dose, along with availability of definitive care and the time to access it. (Coleman, et al., 2011; Casagrande, et al., 2011). This scaled approach, based on patient numbers and resource capability, should be adopted across all disciplines that will have patient contact.

## **How can pre-planning and common policies improve coordination and response effectiveness?**

No single agency, jurisdiction, region or even state will have the capabilities needed to mount a comprehensive response to an IND. Planning and the adoption of policies and procedures will serve as the basis to executing an effective response operation.

### **Pre-planning**

A concern that seems to be shared by many in the response and planning community is that immediately following an IND detonation, various local resources and capabilities would be lost, ineffective, or immediately overwhelmed, regardless of planning. Even though resources are expected to be overwhelmed, extensive regional planning and preparation become the foundation for success by averting otherwise uncoordinated response activities that might result in thousands of preventable injuries and deaths.

Planning that clearly defines roles, responsibilities, and expectations for individuals, job positions and agencies will provide the additional benefit of improved response to other more common catastrophic incidents experienced by jurisdictions throughout the nation. A useful tool employed by many jurisdictions involves the use of play books based on specific positions within the Incident Command Post (ICP) and Emergency Operations Center (EOC). Play books clearly define the duties and responsibilities of each position. They have proved to be very beneficial to individuals such as administrative staff and elected officials who do not have the advantage of frequent emergency operations. Jurisdictions should be encouraged to incorporate newly developed response plans and policies into “everyday operations” to increase operational preparedness and capabilities.

Pre-incident planning, specific to command and control (e.g., identifying, training, and equipping facilities, and personnel throughout the jurisdiction and across all disciplines) should maximize the jurisdiction’s options and ability to establish a Unified Command structure immediately following an incident.

Planning concerns that should be addressed are: (NSTec/CTOS, 2013b)

- Providing multiple levels of redundancy and expanding the Continuity of Operations Plan (COOP)
- Making use of uniformed and non-uniformed staff within public safety agencies to establish command and control for an incident
- Addressing the need to rapidly establish command in the least affected and most operational district/area
- Planning for immediate or rapid expansion to Unified Command
- Identifying critical assets throughout the area required for the management and command of a catastrophic incident, including suitable ICP and EOC (may be temporary until personnel are able to access better equipped and sized facilities capable of supporting the incident)
- Exercising advanced ICS/NIMS principles

- Merging local command with larger command groups such as the Type 1 Incident Management Teams (IMTs) and area commands

Planners should assume the worst when faced with the potential of widespread communication failures. Procedures for pre-established notifications, messaging and initial actions should be formulated. A communications issue not directly related to command and control during the operation is a pre-incident public education program. This program will relieve the strain being placed on public safety. It will prove beneficial to both the first responders and command and control group. Individuals in communities that have received pre-incident guidance on preparation, sheltering, evacuation, and self-protective actions, including decontamination, will be better prepared to take care of themselves and their families.

### **Regulatory Issues**

A significant area to be addressed in the planning efforts should be the requirement to deal with regulatory and policy concerns. As described in the DHS *National Preparedness Goal*, legal, policy, and regulatory waivers/exemptions/exceptions will be required to achieve many of the operational targets selected by command and control. Development of policy through the consensus process will be required. Local, state, and federal agencies must adopt action levels for operations, PPE requirements, and contamination levels that are achievable, scalable, and realistic.

To be most effective, these standards should be universally accepted on a national basis as new norms by all agencies and disciplines, such as:

- NGOs operating shelters and reception centers
- Federal and civilian agencies performing transport of patients and general population
- First responders including specialized teams from throughout the nation
- Medical providers and facilities
- Receiving states' radiation health offices

Without the adoption and acceptance of these operating standards, continuity of operations will be negatively impacted and will result in delays and road blocks to providing timely and effective care to the citizens who need it most.

Regulatory issues addressing radiation exposure limits and acceptable contamination levels for first responders and the general population must be discussed. Command and control functions can be streamlined if operational action levels and waivers are developed and adopted prior to the incident. The action levels and waivers would be determined by occupational and enforcement agencies using a scaled approach based on resource capability. Specific regulatory areas that should be examined are: (NSTec/CTOS, 2013a; 2013c)

- Action Levels for Contamination
  - A consensus on action levels for contamination on people, vehicles, equipment, and cargo should be developed to allow organizations, agencies, and facilities to maintain efficient operations
  - The concept of “clean enough for now” should be considered in order to maintain the flow of patients, commerce, and response operations to support the incident
  - Different decontamination requirements between medical facilities, transport providers, and emergency medical services could prevent the efficient transfer or transport of patients from one facility to the next
  - Equipment or vehicles, that would normally be thoroughly decontaminated before reuse, will need to be used with limited or no decontamination, especially if the risk from the contamination is offset by the gain in continuing the operation
  - In the early days of the response, low-level cross contamination from people, vehicles, and equipment leaving the contaminated areas will be widespread and should not prevent or stop necessary operations
  - Consistent guidelines should be adopted before the incident
  - These guidelines should include scalable action levels for contamination that become more stringent as the urgency decreases and resources increase
- Personal Protective Equipment (PPE); a framework for assessing the need for and the selection of PPE, for responders, public health, private sector workers, and volunteers should be developed, to include:
  - Minimum standards for respiratory protection related to radiation and debris dust issues
  - Discipline specific needs
  - Job specific needs
- Action levels for dose including first responders, public health and other response assets that will participate in an IND response
- Action levels for dose rate
  - Planning Guidance for Response to a Nuclear Detonation (EOP, 2010) and NCRP Report No. 165, Responding to Radiological and Nuclear Terrorism: A Guide for Decision Makers (NCRP, 2010) both recommend zone boundaries of 10 mR/h for the Hot Zone and 10 R/h for the Dangerous Fallout Zone (DFZ)
  - Additional guidance regarding operations in areas higher than 10 R/h should be provided

The adoption of PPE standards should include language allowing for a scaled approach. These standards would provide command and planning staffs the flexibility to establish a response and refine operations as time and resources allow.

Finally, through the preplanning process, planners should identify and adopt agreements and/or contracts with agencies providing resources that will be required for the IND response, such as: (NSTec/CTOS, 2013b)

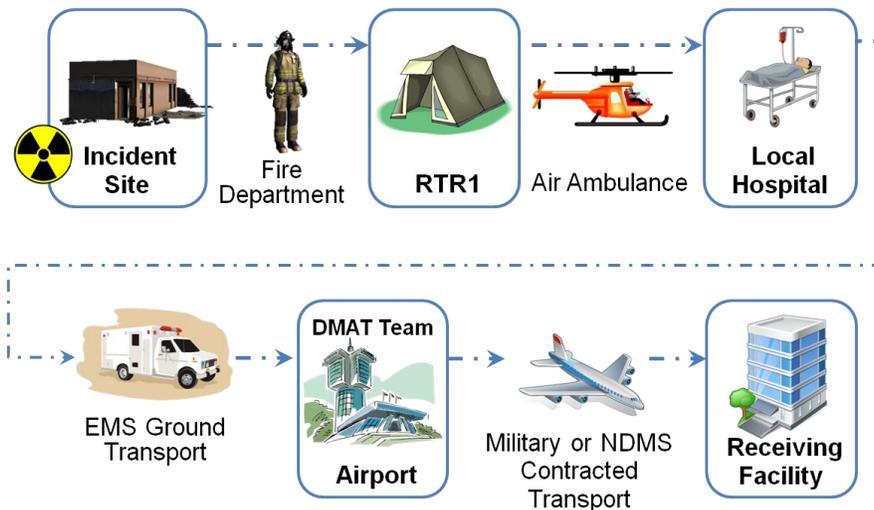
- Medical care facilities and agencies
- Pre-Planned Radiation Triage Treatment and Transport (RTR) Sites

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- Warehousing areas to handle incoming supplies
- Public and private critical transportation assets
- Pre-established evacuation centers
- Pre-established distribution points, Type 1,2,3
- Emergency response staging and base camp areas for 300 to 2,000 personnel
- Airports, type, capacity, available space; that is, empty hangars and ramp space
- Food, medicine, equipment, all-purpose department/grocery stores, road construction companies, private utilities/water, private air assets, private transportation assets, and private security firms
- Each contract or agreement will be documented in the Appendix using the format identified by the IND working group
- Community Emergency Response Teams (CERT)
- Atypical community resources
  - Faith based groups
  - Civic organizations
  - Spontaneous volunteer groups, NGOs

See Figure 2. Example of Victim/Patient Flow - Imagine the impact and delays if the organization at each step has different policies/requirements/action levels for triage system, stabilization, contamination action level, and decontamination requirements.



**Key**

- DMAT-Disaster Medical Assistance Team
- EMS-Emergency Management Services
- NDMS- National Disaster Medical System
- RTR-Radiation Triage, Transport, and Treatment Site

Figure 2. Example of Victim/Patient Flow  
Graphic Credit: NSTec/CTOS

## **Where can public health officials get federal guidance on radiation, contamination and other health and safety issues for IND response planning and operations?**

In order to avoid having many jurisdictions make similar requests to multiple federal contacts for guidance, advice, and recommendations, the state and local public health officials can work with the federal agencies to identify and resolve gaps and likely questions in advance. After an actual IND incident, the state and local public health officials can request guidance, advice, and recommendations from the Advisory Team for Environment, Food, and Health, using the EOCs as the conduit.

### **Pre-Incident**

In order to avoid delays in making critical decisions in the aftermath of an IND detonation, the public health officials should determine their current gaps in policies and procedures regarding contamination and radiation health and safety issues for an IND response. Once solutions are determined, they should be incorporated into jurisdiction policies and procedures. The policies and procedures should be coordinated with partners at the local, regional, state, and federal levels. It would be best to work out questions and solutions in advance and have them adopted throughout region and nationwide. If adopted, trained, and exercised by the responder and public health agencies in their jurisdiction, these standardized action levels and procedures could be rapidly implemented during an actual IND response, and avoid the delays in submitting questions, getting responses, and disseminating guidance.

Many of the current knowledge and capability gaps for IND response are being worked on by the National Improvised Nuclear Device Response and Recovery Forum, co-sponsored by the FEMA-Chemical, Biological, Radiological, Nuclear, and high-yield Explosives (CBRNE) Branch and the DHS – Office of Infrastructure Protection (IP). If a gap or issue identified by state and local public health is not already being worked on, this forum might be able to address the question.

Also, a pair of documents is under development to aid in IND response planning, training, and operations: the *Health and Safety Planning Guide for First Responders Following a Nuclear Detonation* and the *Health and Safety Handbook for First Responders Following a Nuclear Detonation*. This Guide is directed at Incident Commanders, Safety and Radiation Safety Officers, Police and Fire Chiefs, etc. at all levels who are likely to be responsible for leading emergency response operations following the detonation of an improvised nuclear device. The Guide is designed to be used in pre-event planning and training, as well as be available for reference at the scene of an event. The Handbook is aimed directly at the responders themselves, and is designed to provide guidance for the first 72 hours until the Federal Incident Command team is assembled and prepared to provide coordinated assistance to local jurisdictions. The Handbook is recommended for use in pre-event responder training, as well as in on-the-spot briefings for emergency response personnel prior to entry into the response areas.

## **During the IND Response**

During the IND response, questions and requests for guidance, recommendations, and advice on health and safety can be directed to the Advisory Team for Environment, Food, and Health (Advisory Team). Rather than having multiple ICPs and EOCs sending similar questions to many different federal agency contacts, questions and requests for advice/recommendations can be routed through the state EOC to the Advisory Team. As the Advisory Team provides responses, the state EOC can distribute the information to all operational EOCs.

The Advisory Team includes representatives from Environmental Protection Agency (EPA), the Department of Agriculture (USDA), the Food and Drug Administration (FDA), the Centers for Disease Control and Prevention (CDC), and other federal agencies as needed (DHS, 2008). The Advisory Team develops coordinated federal advice and recommendations on environmental, food, health, and animal health matters for the Incident Command/Unified Command (IC/UC), DHS, the Joint Federal Office (JFO) Unified Coordination Group, and/or state, tribal, and local governments as appropriate. A key point about the Advisory Team is that they can provide not just information on federal guidance but can also offer advice and recommendations to the state and locals. They do not make policy decisions or issue commands to the state and locals. The Advisory Team will be available remotely within 2 hours (CRCPD, 2009) of the IND detonation and, when they arrive on scene, will integrate into the planning section at the ICP and/or collocate with the Federal Radiological Monitoring and Assessment Center (FRMAC). The Advisory Team will also provide liaisons at state and local EOCs.

## **Conclusions**

The response to a detonation of an IND in an American city will result in one of the largest emergency responses in our nation's history. If we are to provide our citizens with an appropriate level of response we must be willing to plan for, develop, and adopt the new norms that will be required for success.

One of the keys to an effective response to an IND is pre-planning with the partners throughout the region, state, and federal government, including the atypical whole community partners. "Those who lead emergency response efforts must communicate and support engagement with the whole community by developing shared goals and aligning capabilities to reduce the risk of any jurisdiction being overwhelmed in times of crisis. Layered, mutually supporting capabilities of individuals, the private sector, NGOs, and governments at all levels allow for coordinated planning in times of calm and effective response in times of crisis." *FEMA National Response Framework-Working Draft, 2012* (DHS, 2012).

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