

Improvised Nuclear Device (IND) Response Workgroup: Products to Facilitate Hospital and Health System Planning

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GREATER NEW YORK HOSPITAL ASSOCIATION

*Over 100 years of helping hospitals deliver the
finest patient care in the most cost-effective way.*

Workgroup Genesis and Objectives

- In 2018, New York City Emergency Management began developing an IND response plan for NYC for 0-72 hours post detonation.
 - DOHMH invited GNYHA to co-host a workgroup to inform the city plan, as well as develop a healthcare response framework for the region for this hazard.
- We designed the workgroup to advance health care sector planning AND inform government planning, by developing two products:
 1. Hospital Key Actions Grid – organized by Joint Commission six critical areas + incident command, for three time periods, for hospitals in three geographic zones
 2. Recommendations/Considerations Document to be shared with government response agencies, to inform ongoing planning
- We decided to make this a regional initiative. The materials have been developed in such a way that a facility can use the materials regardless of where the detonation occurs.

Workgroup met for One Year: Summer 2018 to Summer 2019

- August 7, 2018
 - Initial meeting – reviewed existing modeling, information from previous exercises, and broke into moderate damage, light damage and beyond damage zone groups
- October 1, 2018, November 5, 2018, and January 18, 2019
 - Held back-to-back zone-specific meetings to work through the post detonation time periods of 0-24, 24-48, and 48-72 hours
 - At each meeting, discussed likely actions being taken by government response agencies during this period
- May 29th Summit
 - Sought detailed feedback on hospital key actions grid document resulting from the previous workgroup meetings
- July 31st Meeting
 - Workgroup members provided feedback on recommendations/considerations document to be shared with government partners

Informed Deliberation and Planning

Reviewed Existing Plans and Models

- Existing Modeling
- Two previous RITN exercises
- Indian Point planning work
- Gotham Shield Exercise Series
- NYC Level D MCI planning

Moderate Damage Zone -- 0.5-1.0 miles from detonation

Light Damage Zone – 1-3 miles from detonation

Beyond Damage Zone – farther than 3 miles from detonation

Gathered Relevant Information

- Radiation medicine specialists
- Staff of relevant agencies including Environmental Protection Agency, Department of Defense, Department of Energy, ASPR - Strategic National Stockpile
- Radiation Injury Treatment Network
- Community Reception Center capabilities based on other plans

General Conclusions We Reached

Behavior and Planning Assumptions

Behavior	Communications	Patient Triage and Transport
<ul style="list-style-type: none">• Hope is that individuals will heed “get inside, stay inside” public messaging• Post shelter-in-place period, individuals who are able to will move outward from detonation zone seeking help and safety• Anticipate enormous volume of worried well	<ul style="list-style-type: none">• Hospitals in moderate and light damage zones may not receive official communication about the IND detonation due to communication interruptions• Will be little (if any) communications and information from government sources in the first few days• In impacted jurisdictions first responder personnel will be operating in a decentralized fashion	<ul style="list-style-type: none">• Government planning concepts predicated on spontaneous assembly and medical centers• From these locations individuals will be triaged and moved toward definitive care outside of the region• Calculating radiation exposure to prioritize patients will be extremely challenging

Posture/Assumptions by Zone

- Fallout zone will not be established for some time therefore ALL hospitals should assume their facility is IN the fallout zone and act accordingly.

- Hospitals in **Moderate Damage Zone** will not be able to maintain services due to infrastructure and security challenges; foci during initial 72 hours will be:
 - Maintaining safety of staff and patients in facility;
 - Working to limit incoming patients to those who are critically ill/injured;
 - Working toward evacuation of patients to outlying areas;
 - Working toward closure/partial closure of hospital

Posture/Assumptions by Zone (con't)

- Hospitals in **Light Damage Zone** –
 - Large zone (1-3 miles from detonation) – situation may vary considerably within zone. If security and infrastructure is significantly compromised, will act more like moderate zone facilities.
 - If situation is more stable, will likely serve as a way station both for evacuating patients from moderate damage zone hospitals and individuals injured from the IND detonation
 - Will focus on stabilization and forward movement
 - Will be critical to gain situational awareness about assembly points, and medical capabilities in beyond damage zone

- Hospitals in **Beyond Damage Zone**
 - Largest initial challenge will be managing worried well and preserving limited resources for critically ill coming from moderate and light damage zones
 - Huge focus will be on maintaining staffing and supplies
 - Linchpin to the success of broader state and federal patient evacuation plans

Hospital Key Actions Grid

- Uses Joint Commission 6 Critical Areas + Incident Command as organizing principle
- Key Actions are presented in two different ways – by zone and by topic area

HOSPITAL KEY RESPONSE ACTIONS BY ZONE – MODERATE DAMAGE

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MODERATE DAMAGE ZONE

Topic: Incident Command

0–24 HOURS POST-DETONATION Themes: Surviving, Assessing & Planning	24–48 HOURS POST-DETONATION Themes: Surviving, Gathering Information & Preparing to Leave	48–72 HOURS POST-DETONATION Theme: Evacuating
<ul style="list-style-type: none"> • Activate Hospital Incident Command System (HICS); fill roles with onsite staff. Stand up Emergency Operations Center (EOC). Ensure a staff person with radiation knowledge is on the leadership team. • Establish forward planning team. • Establish brief operational periods to continuously reassess needs and approaches. • Create taskforce to manage altered standards of care/ degradation of services. Taskforce should include: clinical subject matter experts, legal, facilities, supply chain, and ethicist if available. Consider patient age and co-morbidities, especially when using equipment in short supply such as ventilators. • IC should focus on obtaining situational awareness, and maintaining safety and security, and communications. • Work closely with Communications group; use available situational awareness information to inform actions. 	<ul style="list-style-type: none"> • While Shelter in Place (SIP) order will likely be lifted at ~24 hours, facility will likely continue to SIP for safety and security reasons. • Use brief operational periods to continuously reassess needs and approaches; use situation reports (Sit Reps) to drive frequent communication with staff and others in the hospital. • Shift forward planning to evacuation. • Obtain situational awareness of the incident via communications pathways and area reconnaissance methods such as drones to inform actions. • Based on ongoing environmental monitoring and situational awareness, determine when fallout risk subsides. • IC should focus on obtaining situational awareness and maintain safety and security, and communications. 	<ul style="list-style-type: none"> • Use brief operational periods to continuously reassess needs and approaches; use Sit Reps to drive frequent communication with staff and others in hospital. • Continue to focus on obtaining situational awareness and maintaining safety and security, and communications. Work closely with Communications group; use available situational awareness information to inform actions. • Seek information from local fire and police (via precincts or firehouses nearby). Police and fire personnel may visit hospitals to ascertain status. Be prepared to articulate staffing and other priority needs. • Goal for 48-72 hours is to prepare hospital for evacuation, focusing on moving least-acute patients first to reduce overall census. • Termination of hospital operations in coordination with government response partners will be a secondary goal after evacuation.

Topic: Communications

In addition to activating the hospital's emergency operations plan:

PRE-PLANNING	0–24 HOURS POST-DETONATION Themes: Surviving, Assessing & Planning	24–48 HOURS POST-DETONATION Themes: Surviving, Gathering Information & Preparing to Leave	48–72 HOURS POST-DETONATION Theme: Evacuating
<ul style="list-style-type: none"> • All facilities should have emergency capabilities to receive messages such as 700/800MHz radios and hand-crank radios. 	<ul style="list-style-type: none"> • Participate as possible in jurisdictional roll call and update protocol, and share information gleaned with facility's Incident Command. 	<ul style="list-style-type: none"> • Participate as possible in jurisdictional roll call and update protocol, and share information gleaned with facility's Incident Command. 	<ul style="list-style-type: none"> • Participate as possible in jurisdictional roll call and update protocol, sharing information gleaned with facility's Incident Command.

Government Considerations Document

Briefing paper from DOHMH, GNYHA and workshop participants which contains:

1. Purpose and structure of the workgroup
2. Participant conclusions for IND response & requests for federal assistance
3. Recommendation to continue planning with appropriate federal and state partners to better couple hospital strategy to overall government response

Table 1 – Identified Acute Care Response Needs from Local, State and Federal Partners – General Guidance Requests

Requests	Description:	Applies To:	Time Period Required in:
1. Basic and practical radiation monitoring guidance	A) Guidance on use of radiation monitoring equipment including portal monitors, survey meters, and personal radiation dosimeters in damage zones for all operational periods. B) Support recommended pre-planning efforts including the following pre-emergency tasks: Prepare and make available "How-to-Use" documents for survey meters and portal monitors; and make available all equipment manuals in hardcopy form.	MDZ, LDZ, and BDZ hospitals	Planning phase
2. Shelter-in-Place (SIP) checklist of protective actions	Recommendations for safety and security personnel while sheltering in place. Methods for decreasing risk of external and internal contamination.	MDZ, LDZ, and BDZ hospitals	Planning phase
3. Simplified Acute Radiation Sickness (ARS) triage toolkit	Toolkit to help providers assess for ARS and categorize patients. The ARS toolkit should help standardize the terminology and lexicon regarding ARS to communicate accurately among sending and receiving hospitals	MDZ, LDZ, and BDZ hospitals/Helpful for outpatient-primary care	Planning phase
4. ARS Just-in-Time Training (JITT)	Training materials on the identification and triage of ARS + subsequent care of patients. Includes training on triage toolkit (see previous item), serial evaluation, timing, standard order sets, and symptom documentation tool or SOAP notes.	MDZ, LDZ, and BDZ hospitals/Helpful for outpatient-primary care	Planning phase
5. Crisis Standards of Care	A) Guidance on allocation of limited medical resources e.g., ventilators, blood products, antibiotics, etc. B) Create recommendations for those involved in setting/re-setting the alternate standards of care in all phases of the response. Personnel may include: lawyer, clergy or ethicist, internist, critical care physician, pediatrician.	MDZ, LDZ, and BDZ hospitals	Planning phase

Workshop participants would find a comprehensive "Nuclear Detonation Guide" that includes items 1 to 4 in Table 1 to be of great value.

Radiological assessment of the indoor environment was recognized as a function of the on-site radiation safety officer (RSO) and staff. These staff will also be invaluable for determining if the HVAC system has been contaminated and whether air-filters can be safely replaced. These functions will likely be fulfilled in-house assuming enough radiation safety staff are on-site at the time of the incident. Performing radiological surveys and interpreting the results is a skill that RSOs should be able to perform under post-detonation circumstances. However, the radiation safety staff will be taxed to perform other tasks (dosimetry and incoming patient contamination surveys). If the RSO staff is not on-site, their vital contribution to the hospital response will be missing.

→ State and federal partners should recognize the importance of the RSO and other hospital radiation specialists to the hospital response. A JITT on basic radiation safety with relevance to a nuclear detonation and for conducting personnel surveys would be useful. Relevant for MDZ, LDZ and BDZ hospitals.

Acute Radiation Syndrome (ARS) is unknown to most emergency room physicians and other staff due to its rarity. And it has a few unique clinical indicators, making detection and triage challenging.

→ A toolkit and education campaign (or Just-in-Time-Training) for diagnosing and triaging ARS is crucial to the medical response given the potential of 1 million or more casualties. Ideally the toolkit is a concise course in Acute Radiation Syndrome available electronically but with an advisory to create hard copy versions

² SOAP notes are a cross-disciplinary method used by healthcare providers to track a patient's progress. They are a component of the electronic medical records system utilized in most hospitals.

Workgroup Member Reflections

- Approach to development of hospital key actions grid
- Experience of being a part of this workgroup
- Relevance to internal hospital planning
- How I will use these documents within my facility and health system

Where To Find This Information

The screenshot shows the GNYHA website interface. At the top left is the GNYHA logo. A search bar contains the text "Search for topics, people, events...". Navigation links for "Topics", "Events", "Directory", and "Programs" are visible, along with a "Log In" button. The main heading is "Explosive and Mass Casualty Events". Below this is a paragraph: "Hospitals in the New York region must be ready to respond to mass casualty incidents. GNYHA supports member hospitals in the development and testing of their own plans and has created a number of resources to guide members through their response to a variety of explosive and mass casualty events." Below the paragraph, it says "25 Items in Explosive and Mass Casualty Events". To the right are sorting options: "Sort Results", "Relevant", "Oldest", "Newest", and a "Filter" button with a list icon. Two search results are shown, each with a red vertical bar on the left, the title "Hospital Key IND Response Actions by Topic" and "Hospital Key IND Response Actions by Zone", the date "January 22, 2020", and a bell icon for notifications. The breadcrumb trail for both is "Emergency Preparedness / All Hazards Preparedness / Explosive and Mass Casualty Events".

GNYHA Search for topics, people, events... Topics Events Directory Programs Log In

Explosive and Mass Casualty Events

Hospitals in the New York region must be ready to respond to mass casualty incidents. GNYHA supports member hospitals in the development and testing of their own plans and has created a number of resources to guide members through their response to a variety of explosive and mass casualty events.

25 Items in Explosive and Mass Casualty Events Sort Results Relevant Oldest Newest Filter

Tool January 22, 2020
Hospital Key IND Response Actions by Topic
Emergency Preparedness / All Hazards Preparedness / Explosive and Mass Casualty Events

Tool January 22, 2020
Hospital Key IND Response Actions by Zone
Emergency Preparedness / All Hazards Preparedness / Explosive and Mass Casualty Events

These Planning Documents are a Good Base for Other Catastrophic Planning

- For MDZ and LDZ anticipate loss of communications, little ability to get in new staff, infrastructure damage, and quickly dwindling resources
- Similar circumstances to other catastrophic events
- Therefore may want to consider using this document to inform other catastrophic planning activities

Thank you.

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