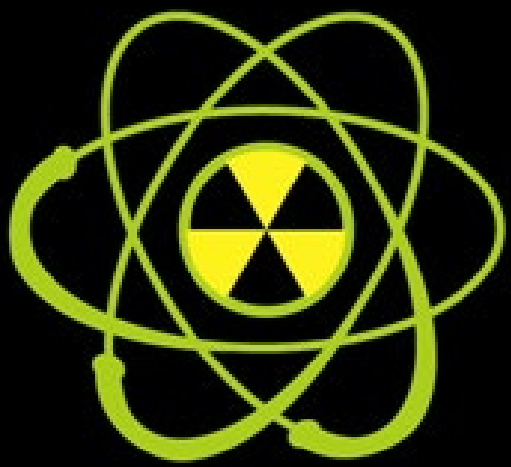
2020

Illinois EMS Region 8 Healthcare Coalition Medical Response to an Improvised Nuclear Device Workshop



After Action Report/Improvement Plan
Exercise Date: February 28, 2020
Report Date: March 3, 2020

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EXERCISE OVERVIEW

Exercise Name	Region 8 Medical Response to an Improvised Nuclear Device (IND) Workshop
Exercise Date	February 28, 2020
Capabilities	Public Health & Medical Services and Operational Coordination
Objectives	1. Identify needs for alternate care in areas within close proximity (i.e. not within the fallout zone and outside of the physical damage areas) of the IND detonation. 2. Identify needs for laboratory testing (e.g. rapid dosimetry, CBCs) to determine early treatment needs. 3. Determine sources for making baseline dose estimates (e.g. through geo-epi, lab testing, etc.). 4. Identify a process for identifying and differentiating medical evacuees with traumatic injuries as well as radiation-only injuries. 5. Address high demand/short supply resources (e.g. clinicians, lab testing, medical countermeasures, equipment, etc.) that need to be considered in austere environments leading to crisis standards of care.
Threat or Hazard	Nuclear (Improvised Nuclear Device)
Scenario	Medical surge due to a detonation of an Improvised Nuclear Device (IND) in a nearby urban area.
Sponsor	Radiation Injury Treatment Network® (RITN)
Point of Contact	Curt Mueller Exercise Coordinator, Radiation Injury Treatment Network Curt.Mueller@nmdp.org Paul Banks, MBA, IPEM Loyola University Medical Center pabanks@lumc.edu

EXERCISE ANALYSIS OF CAPABILITIES

The workshop began with presentations from the Radiation Injury Treatment Network (RITN), the U.S. Department of Health and Human Services (HHS) Assistant Secretary for Preparedness and Response (ASPR), and the Illinois Medical Emergency Response Team (IMERT). RITN and IMERT provided overviews of their programs and role for this IND scenario. The ASPR presentation explained the Exposure and Symptom Triage (EAST) tool to assess radiation exposure and prioritize nuclear detonation survivors for evacuation and bone marrow cytokines.

Participants were seated at tables representing their hospitals or other organization types that they represented such as: emergency management, public health (state and local), and federal/other response partners (e.g., FBI, IMERT, Argonne National Laboratory).

Module 1: Setting Up and Resourcing Alternate Care Site

For this module public health, emergency management and Regional Hospital Coordinating Center (RHCC) groups were tasked with developing strategies and supply lists for establishing Community Reception Centers (CRCs) and centralized Alternate Care Sites (ACS). Hospital groups were asked to internally review plans to set up ACS at their location, decompression, patient receiving sites, and blood supplies.

Strengths

Strength 1: Emergency Management partners understood their role and articulated how they would be supporting public health in locating equipment and staff for the surge, identifying CRC sites (i.e., privately owned, large convention centers), and collaborating to develop and disseminate public messaging showing the exposure zones and providing instructions about evacuation or shelter-in-place, symptoms, and blood collection sites.

Strength 2: IMERT referred to ACS website that provides resources and planning tools to establish a site (https://imert.org/readiness-response-community/links/, Alternate Care Site Planning and Temporary Medical Treatment Station Planning link from this page).

Strength 3: AMITA hospital reported out and had robust plans for off site locations to take the non-critical (trauma) patients with radiation exposure and the ability to reach to the larger AMITA system to draw upon resources and staff for the surge. Their mass casualty plan is in place across all campuses to assist with identifying/addressing equipment needs, screening protocols and receipt of spontaneous arrivals.

Areas for Improvement

Area for Improvement 1: Quick reference guides or Just-In-Time trainings are needed for medical and hospital support staff regarding radiation exposure incidents; these could be added to the Learning Management System (LMS). RITN trainings are available at: https://ritn.net/training/

Area for Improvement 2: Blood supplies will be in short supply; hospitals have a limited capacity to collect and irradiate blood and would rely on independent blood collection facilities to perform this function. Emergency management and other partners, such as the Red Cross, would be integral in identifying the collection facilities (including support from other regions and/or states)

Area for Improvement 3: Additional planning may be necessary for this type of scenario where water supply is contaminated and how to perform decontamination if instructed not to use the water. The recommendation during the exercise was to continue to use the potentially contaminated water.

Area for Improvement 4: Medication availability will be limited and prioritization strategies are not well understood for patients/staff with radiation injury.

Area for Improvement 5: Public messaging will need to address the surge in people that want to donate blood, directing them to regional donation centers rather than individual hospitals.

Module 2: Symptom Triage and Lab Testing at Alternate Care Site(s)

This module asked public health, emergency management, and RHCC groups to explore screening and decontamination procedures at the CRCs and ACS as well as determine the reporting chain for patients requiring evacuation and addressing the laboratory surge capabilities to test a large number of exposed person blood collections. Hospital groups were asked to apply the EAST tool or other radiological triage methods to prioritize medications and/or evacuation as well as to determine a decontamination strategy to be used at the hospital.

Strengths

Strength 1: Hospitals at the exercise had a good understanding of how to triage and treat the patients based on their triage category/exposure level. Messaging would be provided to those in the fall out zone to shelter in place. Those outside that zone will be triaged/treated right away; those with exposure estimates of 2-6 Gy will be treated per the guidelines. Patients with trauma

injuries due to the blast or other health issues (e.g., heart attack, psychological) will not be bypassed just because they don't have radiation injuries. Guidelines to treat trauma injuries before decontamination will be followed – but how that process may affect the teams working on the patients must be considered and planned for.

Areas for Improvement

Area for Improvement 1: There is less experience with radiological decontamination; it requires more time than a chemical decontamination (more steps). Additional staff need to be identified to conduct the radiation monitoring/screening and decontamination. Hospitals can work with the Radiation Safety Officer (RSO) to implement the training and reference material availability.

Area for Improvement 2: There are no mobile/point of care rapid detection technologies available at this time. It is necessary to have centralized laboratories for complete blood count (CBC) analysis to perform baseline testing and testing over time. These centralized laboratories need to be identified and informed of the possible role they would play in blood collection/testing following an IND or similar large scale radiation event.

Area for Improvement 3: A patient tracking database needs to be identified for both the blood collection/testing sites (e.g., specimen identification) and providers to record the patient status and track progress/treatment over time.

Hot Wash

- There are many considerations other than the immediate actions such as family reunification, patient tracking across state lines, and identifying housing/services for family members arriving to the area.
- Storage for hazardous waste (e.g., clothes) at the ACS.

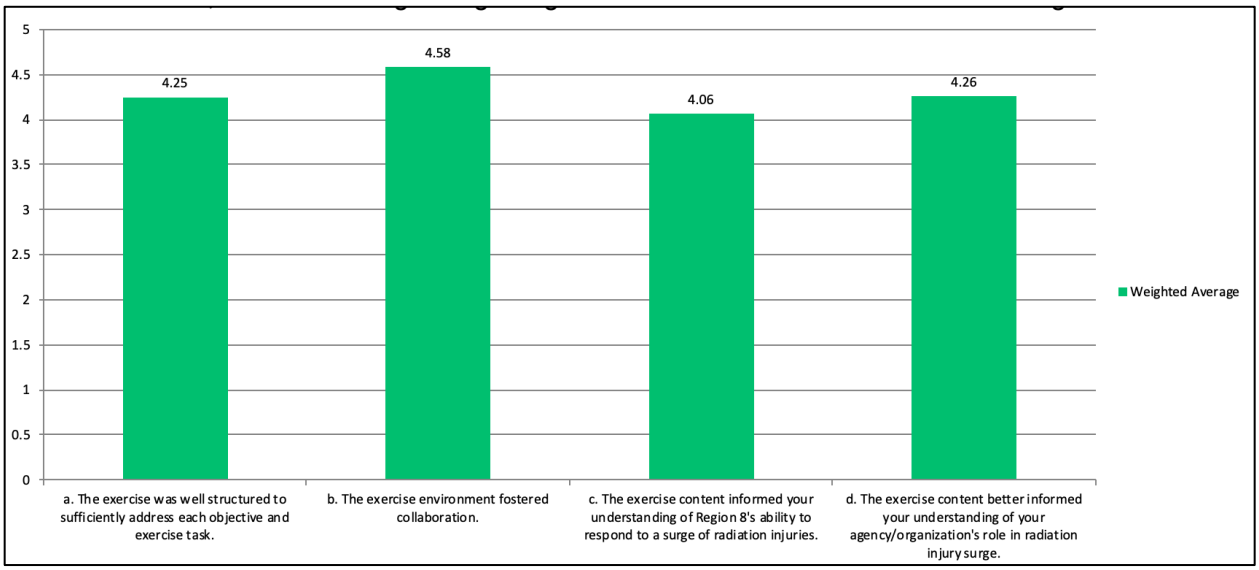
APPENDIX A: EXERCISE PARTICIPANTS

Organization
Federal
Argonne National Laboratory
Department of Health and Human Services
Federal Bureau of Investigations
State Agencies / Organizations
Illinois Emergency Management Agency
Illinois Health and Hospital Association
Illinois Medical Emergency Response Team
County/Municipal
Broadview Fire Department
Cook County Emergency Management and Regional Security
Chicago Fire Department
DuPage County Office of Homeland Security and Emergency Management
Lake County Health Department
Orland Fire Protection District
Village of Oak Park
Will County Health Department
Healthcare
Advocate Aurora Health
Advocate Children's Hospital
Advocate Good Samaritan Hospital
Alpine Fireside Health Center
AMITA Health Adventist Medical Center Glenoaks
AMITA Health - Hinsdale
AMITA Health Medical Center – La Grange
Edward Elmhurst Health
Froedtert Hospital and the Medicine College of Wisconsin
Gottlieb Memorial Hospital
Hospital Safety Services
Loyola University Health System
North Riverside
North Shore
Northwestern Medicine

Organization
Superior Ambulance
Vista Health System
Wellspring Healthcare Services
NGOs
American Red Cross
Starved Rock Trail Safety

APPENDIX B: PARTICIPANT FEEDBACK

Following the exercise, a questionnaire was provided to all participants to obtain additional feedback on their thoughts on both the collective performance of the participants during the exercise and the content and structure of the exercise. Feedback was received from 53 participants.



Strengths

- Identified ACS and decontamination locations
- Knowledgeable staff and resources available
- Large volunteer force for blood donation and reunification
- Triaging presenting patients
- Disaster preparedness plans are in place and access to the RSO
- Access to a large blood collection center with capacity for tissue typing and blood banking
- Radiation detection equipment available and staff trained to use it
- Strong response as part of the Coalition; collaboration with cross-discipline and multi-jurisdictional partners; mutual aid
- Ability to get resources and staff from network hospitals or from areas farther away
- Experience in public information and knowledge of capabilities in the region
- Number of physical off site care locations

- Strong radiation safety/nuclear medicine team

Areas for Improvement

- Handling of pediatrics, psych patients
- Provide surrounding areas references/plans for awareness
- List of potential resources available
- Shortage of available staff
- Reunification
- Patient triage
- Communication with other agencies/chain of command
- Education and training for ED staff on radiation treatment and decontamination
- Maintaining supply chain, scarce resources/prioritization of resources
- Define patient transport needs
- Large volumes of patients that need ongoing care especially outpatients
- Public versus private ACS
- More radiation detection equipment
- Learn more about regional and local response capabilities
- Further testing of plans for this scenario
- Simplify EAST tool for frontline staff
- Written plans and/or just-in-time training guides for staff in addition to training
- Availability of blood products
- Develop CRC plan and identify areas to work on
- Public information
- More training on decontamination process
- Need formal ACS plans

Region 8 Collective Capabilities to Respond to this Scenario

- Communication with other regions
- Regional plan and exercise
- List of resources available and point of contact list
- Formalize and identify resources in Southern Illinois and neighboring states

- Engaging partners from Department of Energy (e.g. Argonne National Laboratory)
- Conduct more regular meetings like this to identify gaps, raise awareness and train; bring in subject matter experts
- Ensure that regional blood supplier appropriately handles all voluntary donors
- Additional tents/structures to conduct triage in inclement weather
- Region-wide radiologic response plan
- Clear communications between EMS and hospital systems for patient surge

Recommendations for Future Exercises

- Include other staff such as pharmacists and laboratorians, also FEMA
- Include pediatrics and other access/functional needs patients for consideration
- Focus on the medical supply system and patient transportation
- Include more organizations/resource representatives to provide more information on capabilities
- Tools for surveying and monitoring decontaminated patients
- Use of the EAST tool
- Radiological decontamination versus chemical decontamination
- Mobilization of federal resources
- Initial incident response/management needs at the hospital level
- Coordination and collaboration across disciplines
- Use of ACS
- NIMS response framework
- Hands on decontamination training
- Power or water impacts (e.g., contaminated water)
- Continuity of operations
- Protection of care providers
- Family reunification and support system for housing arriving family and friends
- More training on radioactive materials and standardized protocol for assessment and decontamination
- Region-wide tabletop exercise followed by full scale exercise

APPENDIX C: ACRONYMS

Acronym	Term
AAR	After Action Report
ACS	Alternate Care Site
ASPR	Assistant Secretary for Preparedness and Response
CBC	Complete Blood Count
CRC	Community Reception Center
EAST	Exposure and Symptom Triage (tool)
EMS	Emergency Medical Service
FBI	Federal Bureau of Investigation
HHS	Health and Human Services
IMERT	Illinois Medical Emergency Response Team
IND	Improvised Nuclear Device
LMS	Learning Management System
NMDP	National Marrow Donor Program
RHCC	Regional Hospital Coordinating Center
RITN	Radiation Injury Treatment Network
RSO	Radiation Safety Officer