RITN Tabletop Exercise (TTX) After-Action Report/Improvement Plan

Exercise Date: August 7, 2024
Report Date: August 20, 2024

EXERCISE OVERVIEW

Exercise Name	2024 RITN Tabletop Exercise (TTX)
Exercise Date	August 7, 2024
Scope	The exercise was a distance-based tabletop exercise scheduled for 2.5 hours. Exercise play was limited to RITN facilities to examine the response by RITN hospitals to accommodate patient surge and care to include identifying alternate care sites, and address crisis standards of care.
Mission Area(s)	Response
Capabilities	Medical Surge
Objective	**Objective 1:** RITN hospital staff can determine their hospital's capacity to accept a patient surge from a distant Improvised Nuclear Device (IND) detonation to include staff, space, and supplies. **Objective 2:** RITN hospitals identify alternate care sites that can be used for patient triage, screening, and treatment. **Objective 3:** RITN hospitals discuss the procedures for implementing Crisis Standards of Care (CSC) to include citing plans and expertise that would be leveraged and key decisions.
Hazard	Radiological
Scenario	Medical surge from a distant radiological incident
Sponsor	Radiation Injury Treatment Network® (RITN) Office of Naval Research (ONR)
Participating Organization	Allegheny Health Network (New York) Mount Sinai Hospital (New York) University of Wisconsin Hospital and Clinic (Wisconsin) MedStar Georgetown University Hospital (Washington, D.C.) University of Miami (Florida) West Virginia University Hospitals (West Virginia) Temple University (Pennsylvania) Western Pennsylvania Cancer Institute (Pennsylvania) Roger Williams Medical Center (Rhode Island)
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EXERCISE SUMMARY

On August 7, 2024, ten Radiation Injury Treatment Network (RITN) centers participated in an online tabletop exercise (TTX) to determine their hospitals' capacity (e.g., staff, equipment, supplies) to receive inpatient and outpatient causalities through the National Medical Disaster System (NDMS) following a mass casualty radiological event. A facilitated series of exercise tasks were provided to participants for their consideration, response, and group discussion organized by the exercise scenario summary below.

Scenario Summary: The following points illustrate the scenario events considered for participant discussion:

Exercise Scenario

- A 10-kiloton Improvised Nuclear Device (IND) was detonated in a major metropolitan area.
- The blast occurred at least 500 miles from your hospital and there is no concern of fallout affecting your location.
- RITN Control Cell staff begin to monitor the situation and start sending out daily Situation Reports (SitReps).
- Expect many people to arrive in the next week.
    - Those with mild to moderate trauma and those seeking evaluation for radiation exposure will self-evacuate to other metro areas.
    - Other patients experiencing radiation exposure will be evacuated in the coming days through the NDMS.

ANALYSIS OF CAPABILITIES

Module 1: Patient Surge Capacity

Exercise participants were tasked to complete the RITN Exercise Survey and provide feedback on compiling the necessary data to complete the report along with any challenges experienced. Eight (8) out of 10 participating hospitals submitted their responses via the RITN Exercise Survey. Hospitals provided the following list of key initial actions they would undertake to prepare for patient surge:

- Initiate command center;
- Assess supplies, staff, and available bed space;
- Activate decontamination teams;
- Assess throughput and non-essential services;
- Begin coordination with Healthcare Coalitions and supply chain partners.

Eight (8) hospitals reported the ability to immediately receive anywhere from 10 to more than 100 inpatients with the ability to accept more over time. Hospitals would be able to begin implementing changes immediately with full stand up within one to three days. These changes could be sustained for several weeks, if needed, depending upon staffing, space, and supply limitations. Patients seeking elective surgery, general medicine, non-critical procedures, and generally lower-acuity patients could be transferred or referred out to either facilities with existing agreements or to other facilities within hospitals' systems. Six (6) facilities indicated the ability to support from two to 150+ outpatients for radiation monitoring and care. One (1) hospital indicated having on-site radiation detectors but did not provide an estimate for how many outpatients could be monitored and the last facility reported that they could support "many" outpatients for radiation monitoring and care. Factors that would affect these numbers included available staffing, supplies, capacity, housing, and general census. Seven (7) out of eight responding hospitals reported having a plan for large-scale, long-term complete blood count (CBC) collection from patients arriving from the area surrounding the scene.

The mental health of staff and patients would primarily be supported by internal resources such as mental health resilience programs for staff, mental health response teams, social workers, Just-in-Time education, and teams of psychologists. Coordination of messaging with healthcare coalitions would be facilitated through Marketing/Media departments and Public Information Officers (PIOs). Messaging would have to be coordinated to ensure consistent information across platforms and agencies and would rely on expertise from internal subject matter experts (SMEs) as well as external SMEs such as RITN.

Strengths

The following strengths were demonstrated:

Strength 1: All eight responding hospitals were able to identify either system-level facilities or facilities with existing agreements to direct patients/procedures to help facilitate decompression.

Strength 2: Seven (7) out of eight responding hospitals reported having a plan for large-scale, long-term CBC collection from patients arriving from the area surrounding the scene.

Strength 3: All eight responding hospitals outlined clear resources available to support staff and patient mental health.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: Only six facilities were able to provide a specific number or range for the number of patients that they would be able to support for radiation monitoring and outpatient care. It is recommended that facilities document minimally a range or percentage for number of outpatients that can be supported.

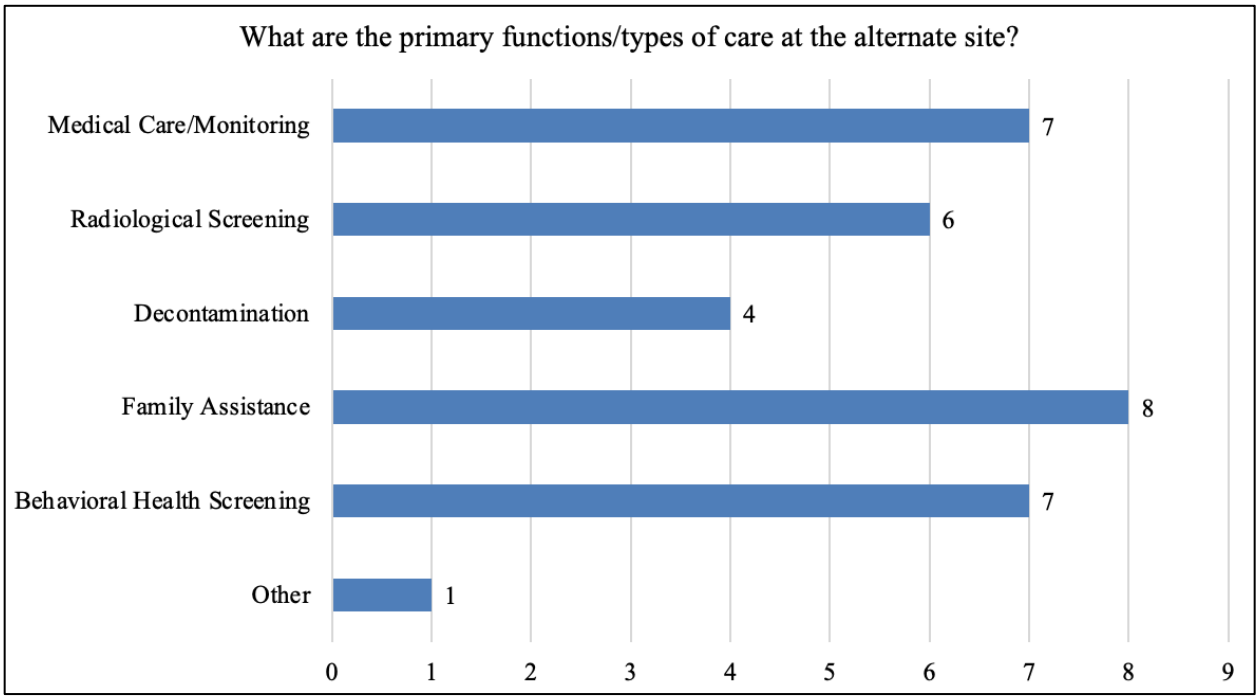
Module 2: Alternate Care Sites

This module focused on alternate care and the resources required to maintain alternate care sites including staff, physical space, and training.

Hospitals identified spaces either within or outside their facilities that could serve as alternate care sites (ACS) including internal spaces such as conference rooms, ambulatory clinic spaces, and closed units, as well as external spaces including other system-level locations.

Adverse weather that is not considered extreme or severe would not greatly impact decisions. Most facilities also had solutions to common weather-related concerns for their facilities such as housing staff who may not be able to travel back forth to their homes due to weather-related obstacles or avoiding open-air ACSs during hurricane and tropical storm season. The primary impact the weather could have would be on staff and patient transport/travel.

Below is a graphic illustrating the functions/types of care hospitals reported to be offered at ACSs:



ACSs will be staffed by a combination of both internal staff such as ambulatory staff, medical oncology staff, and staff from elective procedures in addition to agency staff.

Four (4) hospitals would require the use of volunteers to staff an ACS while the other four hospitals either would not or were unsure if volunteers would be necessary in this scenario. Volunteers would be obtained from internal volunteer resources, the American Red Cross

(ARC), contractors, AmeriCorps, and local Emergency Management Agencies (EMAs). Just-in-time (JIT) training would primarily include education on radiation syndrome and its management, refresher training for those that need it, and would also be dependent upon what roles are needed within the ACS. Six (6) hospitals positively indicated that staffing ratios would be increased based on patient acuity. Two (2) facilities did not provide a response to staffing ratio adjustments but did respond similarly that decisions about staffing ratios would be made after assessment of patient acuity, need, and volume. Only one facility was uncertain whether or not waivers would be requested or implemented as part of the surge in this scenario. With adequate staffing and resources, ACSs could be sustained as long as is needed with re-evaluations taking place regularly and with the understanding that patient care would most likely be impacted immediately.

Strengths

The following strengths were demonstrated:

Strength 1: Plans and procedures already exist for standing up ACSs; hospitals are also able to draw on previous experience with patient surge and ACS operations from the COVID-19 pandemic.

Strength 2: Numerous resources exist for staffing ACSs including volunteers, staffing agencies, and other external agencies such as the ARC.

Strength: Six (6) out of eight responding hospitals are prepared to adjust staffing to patient ratios to some degree depending upon staff availability and patient acuity.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: The length of time an ACS could remain activated and the impact on routine patient care is reliant upon the resources available, especially staff.

Area for Improvement 2: Three (3) out of eight hospitals were unsure if volunteers would be required to staff a ACS. It is recommended that these hospitals clarify this (e.g., thresholds and triggers that would warrant volunteers) and outline it in any existing ACS plans.

Area for Improvement 3: One (1) facility was not certain whether or not waivers would be requested or implemented in this scenario. It is recommended that this be clarified either through further education on what waivers are designed to do and circumstances warranting waivers.

Module 3: Crisis Standards of Care

For half of the responding facilities, CSC is triggered or handed down by a local/state/federal agency. For the other half of responding facilities, CSC is initiated when supply exceeds demand for any critical resource. Existing strategies to prolong care capacity given a shortage of resources include implementation of the Sequential Organ Failure Assessment (SOFA) score as well as enacting the Scare Resource Triage Protocol. Additionally, some facilities have internal protocols or plans such as Continuity of Operations Plans (COOPs) that they would rely on to prolong care capacity given a shortage of resources. Six (6) out of eight hospitals reported that a national disaster declaration would be sufficient to implement CSC while one facility responded that it would not be sufficient and another facility responded that they were unsure. Additionally, four of the responding hospitals have an internal CSC plan while four would rely on overarching guidance from the state. Seven (7) out of eight responding hospitals reported having a committee to make decisions regarding the implementation of CSC while the final facility was unsure. Half of responding hospitals indicated having ethical codes/guidance in place at the state/city/county level regarding the use of CSC. The remaining four facilities were either unsure or responded that ethical codes or guidance do not exist at the state/city/county level. For those facilities who responded that there are not ethical codes or guidance in place, the priority factors to consider for making decisions on use of resources include the severity of exposure as well as the likelihood of survival.

When integrating CSC guidance into public messaging, hospitals indicated that standardized messaging across systems and platforms is crucial and that information provided to the public should focus being proactive but also sensitive to the current public sentiments. Coordination on public messaging would take place with internal departments such as Government Affairs, Communications, and Media Relations as well as with external agencies such as local Emergency Management Agencies (EMAs) and Departments of Health.

Strengths

The following strengths were demonstrated:

Strength 1: Hospitals are aware of and understand the triggers or factors that exist either within their facilities or at the state/federal level for implementing CSC.

Strength 2: Ethical codes, policies, or other priority determining factors exist across all hospitals regarding decision-making on the use of resources. One facility even has their own set of ethical codes that they follow.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: One (1) facility was unsure if a national disaster declaration is sufficient to implement CSC or if there is a legal authority at the state level that makes that determination. It is recommended that facilities determine and document authorities required for CSC implementation.

APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2024 RITN Tabletop Exercise conducted on August 7, 2024. RITN centers can utilize this table to organize the opportunities for improvement to augment and develop their own corrective actions. The improvement plan is intended to strengthen the response of RITN hospital core capabilities identified in this report.

Core Capability	Issue/Area for Improvement	Corrective Action	Capability Element[1]	Primary Responsible Organization	Organization POC	Start Date	Completion Date
Core Capability 1: [Capability Name]	1. [Area for Improvement]	[Corrective Action 1]					
		[Corrective Action 2]					
		[Corrective Action 3]					
	2. [Area for Improvement]	[Corrective Action 1]					
		[Corrective Action 2]					

[1] Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations		
Organization	Name	Email Address
Allegheny Health Network	Anthony Zoroya	
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Temple University Hospital	Marcus Sharp	
Temple University Hospital	Margaret Bellerjeau	
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UW Health	Erica Dill	
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UW Health	Jason Larrabee	
UW Health	Jason Rusch	
UW Health	Jon Haas	
UW Health	Julie Thiry	
UW Health	Kendra O'Connell	
UW Health	Leshil Yager	
UW Health	Nina Gleichalef	
UW Health	Rodney Punzel	
UW Health	Rusty Clifton	
UW Health	Sara Schoen	
UW Health	Sydney Carrabel	
UW Health	Tanner Jeffries	
West Virginia University Hospitals	Ashley Barrill	
West Virginia University Hospitals	Crystal Peck	
West Virginia University Hospitals	Dave Keefover	
West Virginia University Hospitals	Elizabeth Garrasi	
West Virginia University Hospitals	Guang Yu	
West Virginia University Hospitals	Joshua Cook	
West Virginia University Hospitals	Kelly Ross	
West Virginia University Hospitals	Lindsey Gladish	
West Virginia University Hospitals	Melanie Douglass	
West Virginia University Hospitals	Phoebe Weiler	

APPENDIX C: PARTICIPANT FEEDBACK

RITN Centers were asked to provide feedback via an online questionnaire following the exercise. The comments below are organized by observed strengths, challenges, and recommendations for future exercises.

Participating hospitals in the August 7, 2024, exercise were asked to rank the usefulness of the tabletop exercise; **87.5% rated it as "Very Useful" and 12.5% rated it as "Somewhat Useful."**

Strengths

- *96 hour plans for supply chain and resource as well as our Internal Decon Team.*
- *Having several areas that can be used for patient surge and care.*
- *Multi-disciplinary coordination of efforts during a surge event. Infrastructure changes based on lessons learned from COVID to handle surges of both inpatients and outpatients.*
- *MGUH has a strong focus on emergency preparedness. Through various plan, partnerships and organizations, we are able to maintain operations through a disaster for as long as needed. Our location within the nation's capital allows to take advantage of many of the other local and federal organizations that exist within our vicinity.*
- *Participation and active engagement by key leaders. Recent blood shortages and COVID have strengthened our capabilities to respond to crises.*
- *Organization of main hospital campus geographically to allow for several ACS, as well as large health care system footprint which would enable offloading of care.*
- *We do have multiple centers all within a 10-mile radius with centers some that specialize in cancer, and the knowledge base for treating patients with low blood counts and marrow toxicity. We also have multiple labs to draw from when needing a large number of tests. In addition, we have a robust radiation safety program that covers all of the hospital centers.*
- *We have previously implemented our plans during a regional functional exercise to test our preparedness. Emergency Command Center enhancements have occurred at our*

facility within the past 3 years that allow us to carry out essential functions. Our decontamination processes are being reviewed at this time to ensure preparedness.

- *Rhode Island as a small state has a very strong coalition that meets every month. This is a tremendous advantage over large states.*

Challenges

- *Slight challenge with ongoing just-in-time training for staff.*
- *Making sure the blood supply if needed is accessible.*
- *Uncertainty of the surge volume of patients initially.*
- *Supplies, staffing and space.*
- *MGUH would explore partnering with our Medical School and developing an MOU to use space in the event of an emergency.*
- *Staffing is a challenge today, without a crisis. Our center is not an emergency care or radiation decontamination site.*
- *High hospital occupancy and outpatient volumes would present challenges to bed availability and creation of ACSs.*
- *Staffing is a common and overarching concern in current healthcare environment, which would be worsened by the described scenario.*
- *Staffing will always be a concern as well as supplies.*
- *Communication within and without the health system to ensure clear, concise and accurate information is being disseminated.*
- *Staffing would be a challenge but length of time to prepare prior to patient arrival would be beneficial.*
- *Alternative sites of care planning and implementation would be a multi-disciplinary lift.*
- *Biggest challenge is hospital system currently changing ownership. Also small size of facility.*

Future Exercises

- *Staffing Ratios, Supply Chain, Crisis Communications, and Public Messaging.*

- *Transport of patients through RITN and receiving them at the hospital.*
- *More focus on the aspect of medical operations. What patient care decisions would need to be made and what involvement is needed from the BMT program.*
- *To construct a mock message that could be sent to staff or the public addressing the radiation event.*
- *Management of "worried well" as these can occupy resources that may be put to better use.*
- *Maybe roles outside the clinical aspect. Such as ethic committees, family services, education for staff, patients and their families.*
- *Support and function of emergency management agencies may be a key component to address/explain for future exercises.*
- *Need for MOU's with hotel systems.*

APPENDIX D: ACRONYMS

Acronym	Term
AAR	After Action Report
ACS	Alternate Care Site
ARC	American Red Cross
ARS	Acute Radiation Syndrome
BMT	Bone Marrow Transplant
CBC	Complete Blood Count
COOP	Continuity of Operations Plan
CSC	Crisis Standards of Care
EAP	Employee Assistance Program
EMA	Emergency Management Agency
IND	Improvised Nuclear Device
JIT	Just-in-Time
MRC	Medical Reserve Corps
NDMS	National Medical Disaster System
ONR	Office of Naval Research
PIO	Public Information Officer
RITN	Radiation Injury Treatment Network
SitReps	Situation Reports
SME	Subject Matter Expert
SOFA	Sequential Organ Failure Assessment
TTX	Tabletop Exercise