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

Exercise Date: August 6, 2024
Report Date: August 20, 2024

EXERCISE OVERVIEW

Exercise Name	2024 RITN Tabletop Exercise (TTX)
Exercise Date	August 6, 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	Franciscan St. Francis Health (Indiana) Scripps Green Hospital (California) Emory University Hospital (Georgia) University of Chicago Medicine (Illinois) Roswell Park Cancer Institute (New York) University of Utah (Utah) University of Pennsylvania Medical Center (Pennsylvania) University Hospitals of Case Medical Center (Ohio) May Clinic Rochester (Minnesota) University of Colorado Hospital (Colorado)

Point of Contact	RITN Control Cell RITN@NMDP.ORG (612) 884-8276

EXERCISE SUMMARY

On August 6, 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. Ten (10) hospitals submitted their responses to the survey. Hospitals provided the following list of key initial actions they would undertake to prepare for patient surge:

- Initiate command center and Incident Command/Emergency Response Team;
- Assess capabilities to set up screening areas;
- Activate surge protocol and decontamination teams;
- Assess throughput and non-essential services;
- Notify other system locations;
- Begin coordination with local Healthcare Coalition.

Ten (10) hospitals reported the ability to receive anywhere from 10 to about 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 four days. These changes could be sustained for several weeks, if needed depending upon current patient volumes and available supplies. Patients seeking infusion services, lab draws, provider visits, non-essential procedures, elective procedures, and non-acute care cases could be transferred or referred out to either facilities with existing agreements or to other facilities within hospitals' systems. Five (5) facilities indicated that they would be able to support for radiation monitoring and outpatient care anywhere from 50-300 outpatients. Four (4) hospitals did not provide a numeric response to this question and one hospital indicated that this question's answer is a takeaway for them to look into after the exercise. Factors that would affect these numbers included available staffing, supplies, capacity, housing, and existing patient populations. Eight (8) out of 10 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 social work, pastoral/spiritual care, Just-in-Time training, and Employee Assistance Programs (EAPs). One responding hospital indicated that this is an area for growth at their facility. When coordinating public messaging with their healthcare coalitions, hospitals would act as subject matter experts (SMEs) in addition to providing resources, support, and information to help educate the public.

Strengths

The following strengths were demonstrated:

Strength 1: All 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: Eight (8) out of 10 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.

Strength 3: Nine (9) out of 10 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: Several facilities indicated that it would take three or more days to implement changes in order to receive additional inpatients. It is recommended that these facilities examine ways to decrease this timeline to more quickly receive inpatients.

Area for Improvement 2: Only five facilities were able to provide a 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 hospitals ensure processes are in place to rapidly assess the number of outpatients that can be supported. Hospitals can also, as part of further plan development, identify the locations, staff, and resource needs to accommodate an outpatient sure, with approximate (or a range) of numbers associated with the plan.

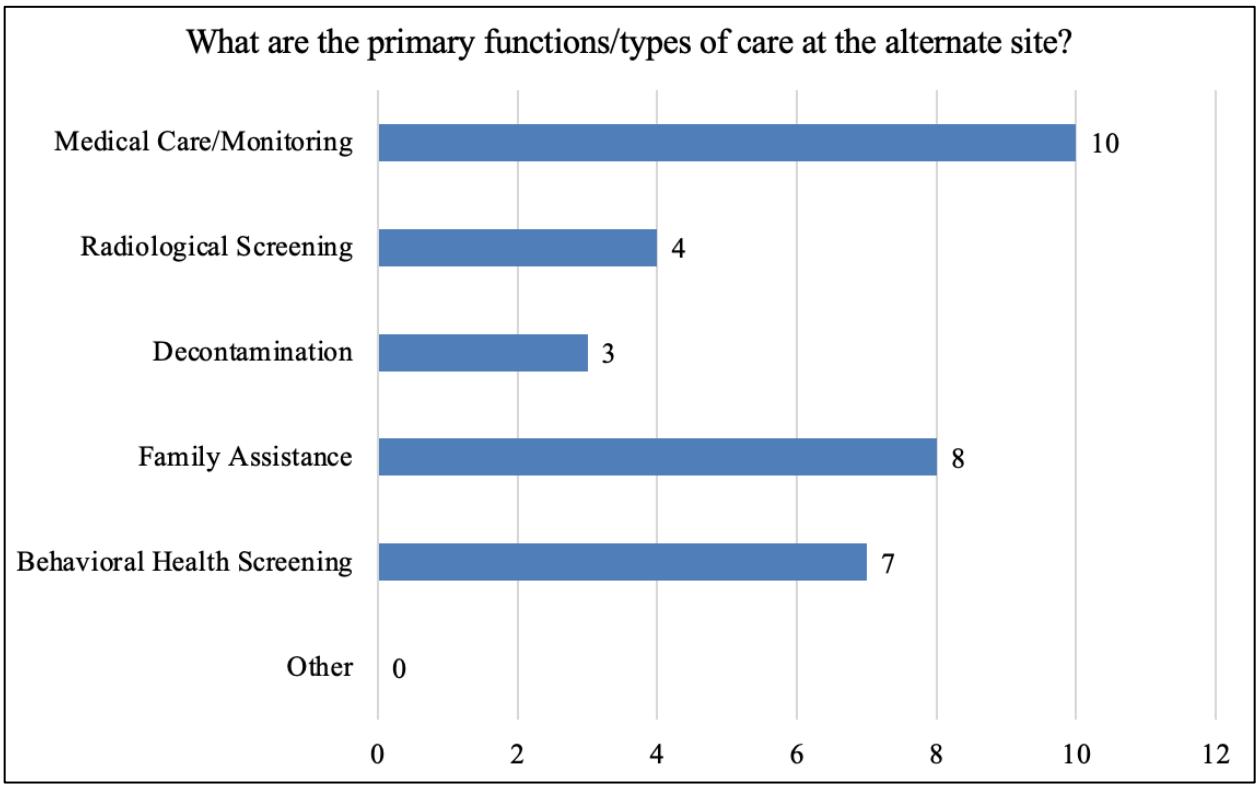
Module 2: Alternate Care Sites

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 their facilities or outside their facilities that could serve as alternate care sites (ACS) including internal spaces such as conference rooms, gymnasiums, and outpatient centers, as well as external spaces including parking lots, mobile hospital sites, and other system-level spaces.

Adverse weather that is not considered extreme or severe would not greatly impact decisions. Most hospitals reported that their ACS's are located in physical, permanent structures to avoid any potential weather-related issues or in mobile/tent sites that have air conditioning or heating but most facilities also had solutions to common weather-related concerns for their facilities. The primary impact the weather would be on 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 internal medicine, general medicine, hematology/oncology, nursing, ambulatory services, and/or bone marrow transplant teams. However, for the most part, it is not the responsibility of any one particular unit or department to staff the ACS.

Six (6) 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 services, nursing or medical school students, Medical Reserve Corps (MRC) members, and retired clinical and non-clinal volunteers. Just-in-time (JIT) training would primarily include use of radiation detection equipment, personal protective equipment (PPE) donning and doffing, epic, electronic medical records (EMR), radiation safety, and medication. All hospitals indicated that staffing ratios would or could be adjusted as a result of an increase in patient numbers, increase in patient acuity, and/or resource allocation. Waivers would need to be requested for modifications to care standards, medication administration triage, building code/occupancy variances, etc. With adequate staffing and resources, ACSs could be sustained for a few weeks as needed 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 and nursing/medical students.

Strength 3: All 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 (to include thresholds or triggers that would warrant volunteers) and outline it in any existing ACS plans.

Module 3: Crisis Standards of Care

There is no single trigger for implementing CSC, however, several contributing factors include the nature and severity of the emergency, staffing levels, resources available, and, generally, when the demand exceeds the amount of available resources. Existing strategies to prolong care capacity given a shortage of resources include conservation of resources, flexible algorithms for patient care, alter standard of blood draws, reduce dosages of medication where possible, implementation of medication alternatives, rationing, and split resources. Six (6) out of 10 hospitals reported that a national disaster declaration would be sufficient to implement CSC. Additionally, four of the responding hospitals have an internal CSC plan while four would rely on overarching guidance from the state and two were unsure of whether there is an internal CSC plan or if they would rely on guidance from the state. Eight (8) out of 10 responding hospitals reported having a committee to make decisions regarding the implementation of CSC. All but one responding hospital indicated having ethical codes/guidance in place at the state/city/county level regarding the use of CSC and the remaining hospital was unsure.

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 on symptoms to watch out for, when to visit the emergency room, and ensuring regular updates.

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.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: Two (2) facilities indicated that they were unsure if they have an internal CSC plan or if they would rely on guidance from the state for implementing CSC. It is recommended that facilities understand where their CSC guidance comes from and whether external guidance is required, then document this in plans (or refer to plans as appropriate).

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 6, 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
Emory University Hospital	A. Isaha	
Emory University Hospital	Amanda Mohammed	
Emory University Hospital	Amelia Langston	
Emory University Hospital	Angela Adams	
Emory University Hospital	Catherine Maloney	
Emory University Hospital	Dorie McKenna	
Emory University Hospital	Ijeni Masagara	
Emory University Hospital	Jeff Rasmitutn	
Emory University Hospital	Joseph Ebersole	
Emory University Hospital	Michael Hall	
Emory University Hospital	Rachel Veldman	
Emory University Hospital	Robin LaRocco	
Emory University Hospital	Sarah Wyman	
Franciscan Health Central Indiana	Amanda Kalwg	
Franciscan Health Central Indiana	Charlie Randolph	
Franciscan Health Central Indiana	Dorann Jackson	
Franciscan Health Central Indiana	Jane Eason	
Franciscan Health Central Indiana	Kara Solomon	
Franciscan Health Central Indiana	Richard Witmer	
Franciscan Health Central Indiana	Riley Stegner	
Franciscan Health Central Indiana	Stacy Dickerson	
Mayo Clinic	Andrew Pennock	
Mayo Clinic	Hassan Alkhateeb	
Mayo Clinic	John Larsen	
Mayo Clinic	Laura Larsen	
Mayo Clinic	Rachel Askelson	
Mayo Clinic	Xiuhua Rao	
Scripps Green	Candice Hsu	
Scripps Green	James Mason	
Scripps Green	Laurie Cobarrubia	
Scripps Green	Rob Hudnet	
Scripps Green	Tracy Fulton	
UH Seidman Cancer Center	Auryana DeChick	
UH Seidman Cancer Center	Erin Santavicca	
UH Seidman Cancer Center	Jeffrey Luk	
UH Seidman Cancer Center	Jessica Fetter	
UH Seidman Cancer Center	Kathrina Consing	
UH Seidman Cancer Center	Leland Metheny MD	
UH Seidman Cancer Center	Lucina Todl	

Participating Organizations		
UH Seidman Cancer Center	Merle Kolk	
UH Seidman Cancer Center	Robert Sabol	
UH Seidman Cancer Center	Victoria Cary	
University of Chicago Medicine	Christine Ramos	
University of Chicago Medicine	Grace Miller	
University of Chicago Medicine	Jennifer Palombizio	
University of Chicago Medicine	Kelli Buckley	
University of Chicago Medicine	Maria Padron-Dielle	
University of Chicago Medicine	Marsha Sumner	
University of Chicago Medicine	Michael Clifford	
University of Chicago Medicine	Mylove Mortel	
University of Chicago Medicine	Rachel Hensley	
University of Chicago Medicine	Shannon Parikh	
University of Chicago Medicine	Terese Anderson	
University of Colorado	Beth Prabhakar	
University of Colorado	Charlie Little	
University of Colorado	Christine Taylor	
University of Colorado	Daniel Rice	
University of Colorado	Dustin Handley	
University of Colorado	Erin Stohner	
University of Colorado	Ingrid Cannon	
University of Colorado	Jacob Lebin	
University of Colorado	Jamie Nordhagen	
University of Colorado	Jason Persoff	
University of Colorado	Jessica Ryder	
University of Pennsylvania	David Dinh	
University of Pennsylvania	David Porter	
University of Pennsylvania	Jack Welsh	
University of Pennsylvania	Jeffrey Henne	
University of Pennsylvania	Jonathan Bar	
University of Pennsylvania	Joshua Omlor	
University of Pennsylvania	Kevin Duffy	
University of Pennsylvania	Marni Kessler	
University of Pennsylvania	Tyler McCardell	
University of Utah	Annette Matherly	
University of Utah	Cassidy Kotobalavu	
University of Utah	Francesca Paglione	
University of Utah	Kevin Windsor	
University of Utah	Nicole Felkel	
University of Utah	Rachel Carlson	

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 6, 2024, exercise were asked to rank the usefulness of the tabletop exercise; **60% rated it as "Very Useful" and 40% rated it as "Somewhat Useful."**

Strengths

- *4 sister hospitals all within 20 mins drive; 16 hospitals in the county.*
- *The extensive healthcare system we have at Emory is a significant strength for us. It allows us to expand our capacity to care for patients by dispersing current patients across 11 hospitals internally before impacting our regional healthcare system.*
- *Another strength we have is our ability to utilize our Emory University resources to recruit volunteers to support operations as well as mental health services and utilization of our Conference Center and Hotel.*
- *Another strength is our partnership with our Regional Coordinating Hospital and the GA Poison Control Center.*
- *We have gone through a nursing union strike which necessitated huge preparations and SOPs and agreements in place, including being able to activate a large contingent of agency staff. Couple this with the COVID experience, we are prepared for this type of emergency. We are also frequently called on to prepare to assist with potential scenarios due to large events (e.g. democratic national convention, major concert events, etc.), being a major medical center in the city of Chicago, so we have a well-organized HICS command center that can be stood up and activated for any emergencies.*
- *Many plans are already in place for alternate care places and staffing situations for the institute. Having plans in place allows our response time in preparing for a surge of patients less. In addition already having staff trained in disaster mental health support is a great resource for staff to maintain and function in these conditions.*
- *Our Emergency Management is strong in the areas of having a plan in place to intake these patients.*

- *Our lab capabilities are strong, and we have multiple sites for inpatient transition and outpatient triage. ED nurses would work with oncologists to triage patients. The Environmental Health & Radiation Safety (EHRS) office would be an important resource.*
- *Our program continues to grow and involve other disciplines within the hospital. We are expanding our preparedness and response capabilities. Further, we have the support of our leadership.*
- *Ability to surge is important due to the multiple sites located within a small distance.*
- *High-functioning HICS organization for MCIs would be leveraged for management an incident of this size to get back to normal operations in as quick a time as possible.*
- *CBC triage and alternative spaces.*

Challenges

- *Staffing and training - longevity of resources.*
- *Need help with state and federal supply.*
- *One challenge for us is explore more than one ACS. We have the space, but need to flesh out plans and agreements as well as explore how staffing would factor into these spaces.*
- *Another challenge is our need to revisit and revise our CSC as it was used during COVID and with new research we want to unsure our CSC is unbiased and ethical as much as possible.*
- *Ability to manage limited supply/resources if the shortage impacts the whole country and is expected to be prolonged.*
- *Housing will be an issue for us as a medical center.*
- *Staffing is always a challenge when talking about increasing care provided and patient volume. Difficult to plan for supply issues when we are uncertain what those might be and how available our alternative plans would be.*
- *Need to create a plan on how to best utilize the outpatient setting and resources.*
- *The main challenge for our hospital would be displacing existing patients and making room for surge patients given limited physicians, inpatient rooms, outpatient infusion suites, and other resources. There is also no clear crisis standard of care provided by the state of Pennsylvania.*

- *Mental health of staff in an already challenging environment.*
- *Further development of plans and education on the plans for better understanding of roles and responsibilities.*
- *The changing in the guard with many of our members getting close to retirement*
- *Staffing and staff training is always a challenge. We will be working on a core provider group with doctors, nursing and advanced practice providers to get a better understanding of the needs for large radiation events like this.*
- *Crisis standards of Care challenges are real, and we need to relook at our own plans in place and how we would implement these types of challenges.*

Future Exercises

- *Provide internal introduction to RITN to the Scripps Emergency Management Committee.*
- *Look into implementing internal CSC.*
- *We really enjoyed the discussion regarding operations of our ACS. For future exercises, we would be interested in discussion how federal assets would tie into our facilities operations (Strategic National Stockpile, etc.).*
- *I think this exercise was perfect and have hit many of the necessary elements that we as a center should be thinking about.*
- *Communication and education to other local hospitals/resources that might be utilized- making sure local agencies are aware that an RITN center is in the area.*
- *Focus more on the medical management of these patients.*
- *Crisis standard of care implementation, allocation of resources (staff, medication, physical space), government response and aid, communication networks between medical entities, health care coalitions.*
- *Review of initial notification from RITN, patient planning for receiving hospitals and the triage form.*
- *Renewing engagement with the hospital administration.*

- *We should look at the how sites could interact together for resource sharing or information sharing. How would we integrate as an organization, RITN as a whole.*
- *Transportation with decontamination considerations.*

APPENDIX D: ACRONYMS

Acronym	Term
AAR	After Action Report
ACS	Alternate Care Site
ARS	Acute Radiation Syndrome
BMT	Bone Marrow Transplant
CBC	Complete Blood Count
CSC	Crisis Standards of Care
EAP	Employee Assistance Program
IND	Improvised Nuclear Device
JIT	Just-in-Time
MRC	Medical Reserve Corps
NDMS	National Medical Disaster System
ONR	Office of Naval Research
RITN	Radiation Injury Treatment Network
SitReps	Situation Reports
SME	Subject Matter Expert
TTX	Tabletop Exercise