2024

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

Exercise Date: August 15, 2024
Report Date: August 20, 2024

EXERCISE OVERVIEW

Exercise Name	2024 RITN Tabletop Exercise (TTX)
Exercise Date	August 15, 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	Nebraska Medicine (Nebraska) City of Hope National Medical Center (California) Froedtert Memorial Lutheran Hospital (Wisconsin) Memorial Sloan-Kettering Cancer Center (New York) Barnes-Jewish Hospital at Washington (Missouri) Children's Hospital of Wisconsin (Wisconsin) MD Anderson Cancer Center (Texas) University of California at Davis (California) Avera McKennan Transplant Institute (South Dakota) Children's Hospital of Alabama (Alabama)

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

EXERCISE SUMMARY

On August 15, 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) 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:

- Activate Incident Command and Command Center;
- Assess supplies, staff, and available bed space;
- Initiate coordination with RITN;
- Assess current census and cancel non-urgent procedures;
- Begin coordination with off-site alternate care sites (ACSs).

Eight (8) hospitals reported the ability to immediately receive anywhere from 10 to more than 50 inpatients with the ability to accept more over time. The remaining two hospitals stated that the ability to provide care for inpatients would be dependent upon current census, discharges, and transfers. Hospitals would begin implementing changes immediately and be able to sustain for several weeks, if needed, depending upon staffing, space, and supply limitations. Patients seeking elective surgery, ambulatory patients, and generally lower-acuity patients could be transferred or referred out to either facilities with existing agreements or to other facilities within hospitals' systems. However, only seven facilities indicated that they have current or existing agreements in place to direct patients to other hospitals or healthcare facilities. Two facilities reported not having agreements in place and one facility did not provide a response to this question.

Two (2) facilities provided estimates for the number of outpatients they could support for radiation monitoring – anywhere from 40 to 150. Most hospitals were unable to provide an estimate without knowing the number of patients that could be transferred or discharged first but that they would be able to support "quite a few" outpatients and would not turn away those seeking care. Factors that would affect these numbers included available staffing, supplies, capacity, housing, and general census. Seven (7) out of ten 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 Employee Assistance Programs (EAPs) for staff, peer support for staff, psychologists on staff, social workers, and patient and family assistance teams. The primary form of support that hospitals would provide to their healthcare coalitions would be subject matter expertise, especially regarding patient care, radiation in general, and health physics.

Strengths

The following strengths were demonstrated:

Strength 1: Seven (7) out of ten 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 ten 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 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 two facilities were able to provide a specific number or range for the number of patients that could be supported for radiation monitoring and outpatient care. It is recommended that facilities It is recommended that facilities document minimally a range or percentage for number of outpatients that can be supported in both a best case and worst case scenario.

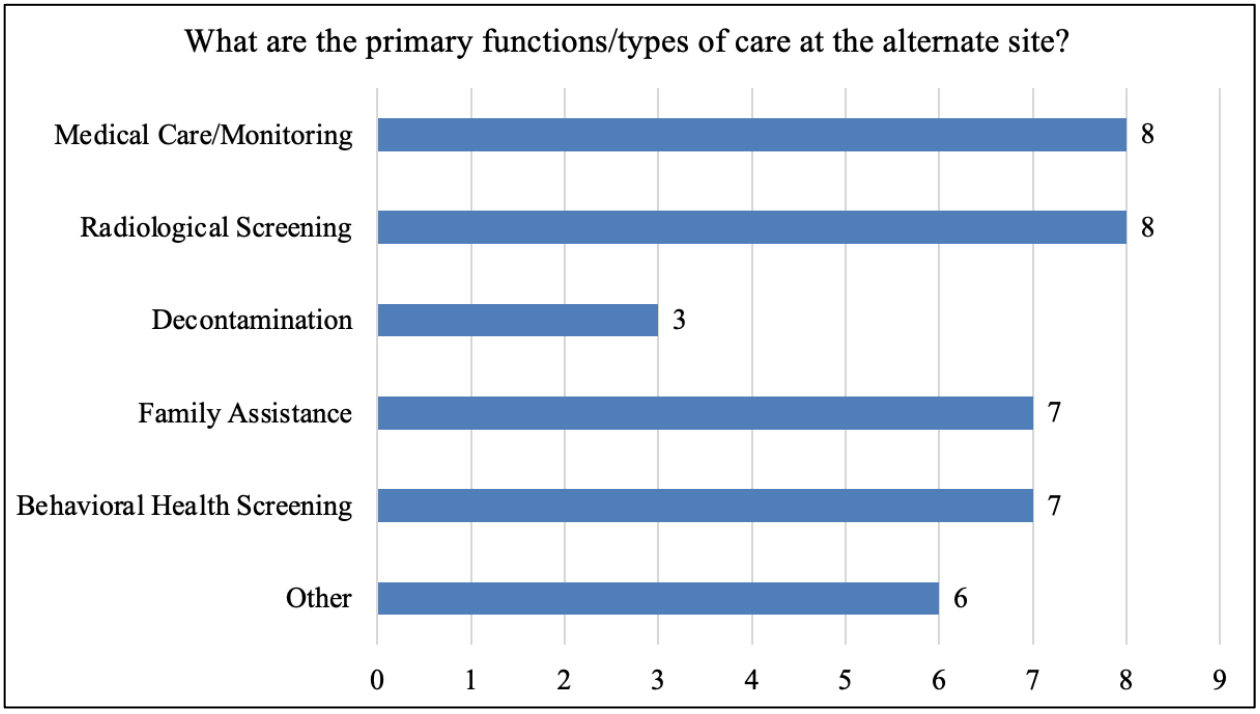
Module 2: Alternate Care Sites

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 ACS including internal spaces such as conference rooms, clinic spaces, and auditoriums, as well as external spaces including other system-level locations and mobile field hospital tents set up outside the facility.

Adverse weather that is not considered extreme or severe would not greatly impact decisions. Some facilities indicated that their ACS are already located completely indoors or have heating/cooling capabilities that would be able to combat severe temperatures. The primary impact the weather could have would be on staff and patient transport/travel and potential issues with medication storage.

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



"Other" functions that could be supported at ACSs include family reunification, caring for unaccompanied minors, and, if supported, the ability to perform the functions listed in the above graph via telehealth.

ACSs will be staffed by a combination of both internal staff such as from the resource/float pool, primary care physicians, Emergency Department (ED) staff, and staff from all other clinical departments, if available.

Four (4) hospitals would require the use of volunteers to staff an ACS while the other six 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), the National Guard, and other external agencies. The other four hospitals would prefer to either minimize the use of volunteers or to not use them at all. Just-in-time (JIT) training would primarily include education on radiation safety and would be dependent on the roles needed at an ACS. The majority of hospitals indicated that staffing ratios would be increased based on patient acuity and demand. Only one facility reported that staffing ratios would not be adjusted. The majority of hospitals also indicated that waivers would be requested. 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, reallocation of existing staff, and other external agencies such as the ARC.

Strength: Nine (9) out of 10 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.

Module 3: Crisis Standards of Care

For the majority of facilities, CSC is triggered or initiated by an internal mechanism or decision, while at least two facilities reported that an emergency declaration would be the initial trigger. Existing strategies to prolong care capacity given a shortage of resources include reuse of certain resources, implementation of standard surge protocols, conservation of resources, resource sharing with other healthcare institutions. At least one facility reported that they would be able to implement strategies used during the COVID-19 pandemic. Five (5) out of 10 hospitals reported that a national disaster declaration would be sufficient to implement CSC while the rest responded that it would either not be sufficient or that they were unsure. Additionally, seven of the responding hospitals have an internal CSC plan, one would rely on overarching guidance from the state, and two were unsure. Eight (8) out of 10 responding hospitals reported having a committee that makes decisions regarding the implementation of CSC while the other two facilities either do not have a committee or were unsure. Additionally, seven (7) responding hospitals indicated that there are ethical codes/guidance in place at the state/city/county level regarding the use of CSC. The remaining three facilities were either unsure or responded that there are not ethical codes or guidance in place 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 age, comorbidities, and life expectancy.

When integrating CSC guidance into public messaging, information provided to the public should be proactive but also sensitive to the current public sentiments. Facilities were split regarding how much information would be provided regarding CSC. Some facilities believe that messaging should focus less on the specifics of CSC and more on how the public may be impacted while other facilities would be transparent regarding CSC. Coordination on public messaging would take place between internal departments such as risk management, communication, and patient relations and external agencies such as local/state health departments and state and county officials.

Strengths

The following strengths were demonstrated:

Strength 1: Hospitals are aware of and understand the triggers or factors that exist especially within their own facilities 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: One (1) facility indicated that they are unsure if a national disaster declaration is sufficient to implement CSC. It is recommended that hospitals understand the impact that a national disaster declaration will have on operations, especially as it relates to triggering CSC.

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 15, 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
Avera McKennan	Brent Garner	
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Nebraska Medicine	Lauryn Brubridge	
Nebraska Medicine	Lindsay Gage	
Nebraska Medicine	Lindsay Neemann	
Nebraska Medicine	Maureen Harvey	
Nebraska Medicine	Michaela Burke	
Nebraska Medicine	Michaela Newman	
Nebraska Medicine	Michelle Freeman	
Nebraska Medicine	Missy Kneifl	
Nebraska Medicine	Nandi Bruns	
Nebraska Medicine	Rachele Sledge	
Nebraska Medicine	Shelly Schwedhelm	
Nebraska Medicine	Taylor Wilson	
Nebraska Medicine	Theresa Woodrum	
Nebraska Medicine	Tiffany Marco	
Nebraska Medicine	Tiffany Whitney	
Nebraska Medicine	Tom Strudl	
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University of California Davis	Alana Martin	

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University of California Davis	Timothy Sanchez	
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UT MD Anderson	Cherie Plouff	
UT MD Anderson	Fanny Fredrick	
UT MD Anderson	Fidel Calrillo	
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UT MD Anderson	Kathie Nemeth	
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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 15, 2024, exercise were asked to rank the usefulness of the tabletop exercise; **70% rated it as "Very Useful" and 20% rated it as "Somewhat Useful," and 10% were "Neutral."**

Strengths

- *History of dealing with COVID Pandemic and Ebola Outbreak has helped us to develop and implement various processes that could be used in a radiation mass casualty incident.*
- *Many areas for alternate sites.*
- *We have our Emergency Operations Plan in place that is visible to all staff on how to address any emergency and that includes Radiation disaster. We also have a hospital-wide communication system that alerts all the members of the team for any disaster or emergencies to alert everyone and give them instructions.*
- *One of the biggest strengths of Froedtert Hospital is that we are a large academic medical center with a lot of resources and clinical experts. We have several community sites/partners that would be able to be called upon in the event of an emergency.*
- *Pediatric oncology capacity and research, alternate care facilities and staffing, and bone marrow transplant capacity.*
- *We are able to use multiple teams and supports to provide care. The large nature of our organization allows us to provide care to a large number of patients and not be as critically staffed or short on supplies as some other centers.*
- *Coordination between the whole campus, which has multiple organizations.*
- *We have many experts in radiation, SCT, and treating pseudo ARS patients as a cancer center. We have a very robust EM dept and access to a lot of resources in the med ctr and beyond.*

- *We have a lot of radiation safety experts. COVID made us consider a lot of these factors and we can adapt documents created during COVID to respond to other incidents.*
- *Already have RITN incident command notification system in place which will lend well for the situation.*
- *Group familiar with annual table top. Appreciate forum for us to discuss situations and brainstorm how situation would be handled.*
- *We have a robust team that has worked through many different disaster strategies. We have resources of SME.*

Challenges

- *Supply chain disruption and lab supplies.*
- *Our number one challenge is bed availability and also ensure that there would be sufficient staffing available to address this patient surge. We also need to provide radiation safety training to our staff to increase their awareness in taking care of RITN patients.*
- *Staffing is always a challenge- in a workforce staffing crisis. Many roles within healthcare organizations are sitting vacant which would make the response to an emergency not as efficient.*
- *Will need to validate NYC/NYState, New Jersey, and internal policy regarding treatment of unescorted minors.*
- *Verify state waivers that will impact our RITN processes.*
- *Verify staff awareness of decontamination capabilities.*
- *We would really like to be able to have our state have CSC to help with difficult situations.*
- *Consider broadening waivers to many different aspects of healthcare, including ADA.*
- *Need to be flexible and leverage content experts.*
- *We have a lot of resources but need more planning on implementation of these resources in such an event. We need more awareness of RITN and the possibility of a surge to our center staff and how it will affect so many departments.*

- *It is slow to get large systems to respond. Because it requires action from the state and then our hospital, adaptations needed may be slow.*
- *Covid burnout is real and affecting staffing. Burnout would likely happen faster in another large incident.*
- *Crisis Standards of Care already in place; but could also be improved upon with comfort & familiarity.*
- *Housing for outpatients.*
- *If disaster is deliberate, would likely remove military / air-guard from staffing.*
- *Will need to assess lab capabilities and volunteer needs and roles.*

Future Exercises

- *Details to support patients/families arriving to our facility who are outpatient (hotel support, transportation, meals, etc.).*
- *Ideas to deal with supply chain disruption.*
- *I am hoping that RITN would be able to generate handouts that we can provide to patients and staff about radiation safety.*
- *Security and facilities operations related to walking wounded.*
- *We would like to see some more medical based exercises.*
- *Clinical data collection and management.*
- *The last few exercises have really concentrated on EM side. Can there be another, different scenario?*
- *An exercise stepping through movement of patients through NDMS and the information with them would be interesting.*
- *Appreciate flow of event w/ small trickle of patients and then receiving more patients at a later date.*

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