2023

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

Exercise Date: August 9, 2023

EXERCISE OVERVIEW

Exercise Name	2023 RITN Tabletop Exercise (TTX)
Exercise Date	August 9, 2023
Scope	The exercise was a distance-based tabletop exercise scheduled for 2 hours. Exercise play is limited to RITN facilities and their response partners' collective challenges and considerations for improved and effective response.
Mission Area(s)	Response
Capabilities	Medical Surge
Objectives	**Objective 1:** RITN hospital staff can determine their hospital's capacity to receive casualties (inpatient and outpatient) through the National Medical Disaster System (NDMS) following a mass casualty radiological incident. **Objective 2:** RITN hospital staff can identify staff, equipment, and other resource needs to support patients receiving outpatient care.
Hazard	Radiological
Scenario	Medical surge from a distant radiological incident
Sponsor	Radiation Injury Treatment Network® (RITN) Office of Naval Research (ONR)
Participating Organizations	Baylor University (Dallas, TX) Children's Hospital of Alabama (Birmingham, AL) Mayo Clinic Comprehensive Cancer Center (Rochester, MN) University of Alabama-Birmingham (UAB) Hospital (Birmingham, AL) University of Oklahoma Cancer Center (Oklahoma City, OK) University of Minnesota Masonic Cancer Center (Minneapolis, MN) University of Virginia Cancer Center (Charlottesville, VA)
Point of Contact	RITN Control Cell RITN@NMDP.ORG (612) 884-8276

EXERCISE SUMMARY

On August 9, 2023, seven RITN centers, and the RITN Control Cell participated in an online tabletop exercise to determine hospital capacity (e.g., staff, equipment, supplies) to receive inpatient and outpatient causalities through the National Medical Disaster System (NDMS) following a distant, 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 illustrate the scenario events considered for participant discussion:

Exercise Scenario

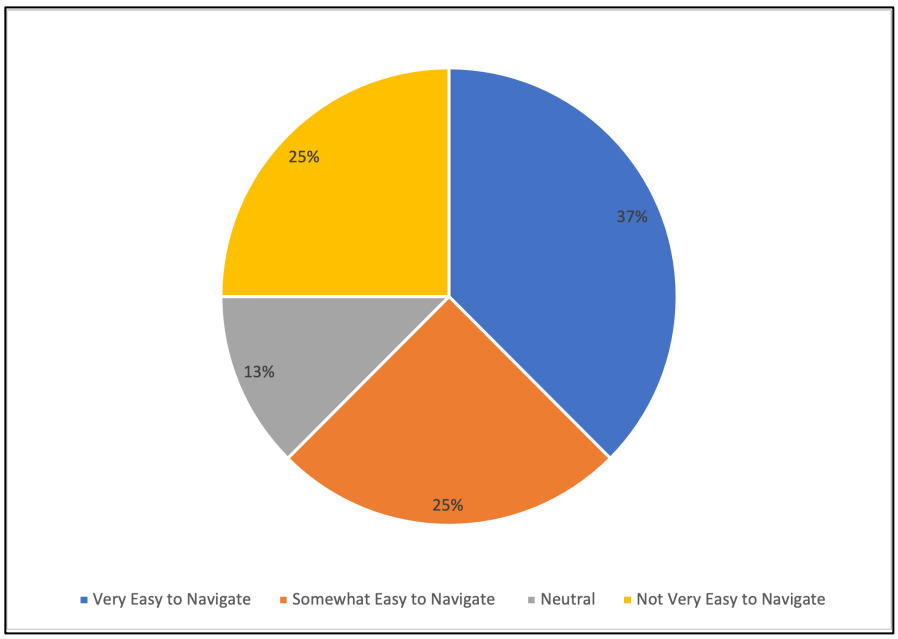
- A 10-kiloton Improvised Nuclear Device (IND) was detonated yesterday approximately 500 miles away from your facility. No threat of fallout and no utility interruptions.
- RITN Control Cell staff begin to monitor the situation and start sending out daily situation reports (SitReps) to hospitals.
- RITN hospitals have been requested to start completing their capabilities report and submitting it daily using the RITN Portal.
- Hospitals were instructed to use their current census for exercise purposes when completing the capabilities report.

ANALYSIS OF CAPABILITIES

Exercise Discussion Module 1: Capabilities Report

Exercise participants were tasked to utilize the RITN Portal to complete the Capabilities Report and provide feedback on the process for compiling the necessary data along with any challenges experienced. The Capabilities Report gathers information on adult and pediatric hematology/oncology and bone marrow transplant (BMT) beds available, ability to provide outpatient care to both adults and pediatrics, and various pharmaceutical quantities available at the hospital to care for acute radiation syndrome (ARS) patients. Participating RITN hospitals had mixed impressions as to the ease of accessing the portal and completing the report.

Figure 1. Ranked Ease of Use for the RITN Portal and Capabilities Report



Those reporting the CR as fair to mildly difficult recognized that it takes some practice to become familiar with completing it and the definitions for the data fields. Depending on the time of day, it may also require time to contact key staff to provide data such as pharmacy, emergency management, BMT team, hematology/oncology unit, inpatient and outpatient adults/pediatrics, infusion clinics, laboratory, supply chain, and blood bank. Recent turnover in staff complicated this process. Some of the hospitals indicating only having one person trained and with access to the RITN Portal and/or a lack of proficiency due to recent staff turnover.

Six participating hospitals were part of the NDMS and three were part of the American Burn Association (ABA). A question was posed as to how they would deconflict available bed counts when reporting to those organizations as well as to RITN. Those that are part of NDMS relayed

the process initiated when the Federal Coordinating Center (FCC) is placed on alert or activation status, thereby routing all bed reporting to the VA Area Emergency Manager who advises federal agencies as to beds and ensures that duplication of resources does not occur.

Strengths

The following strengths were demonstrated:

Strength 1: Hospitals demonstrated strong representation across multiple departments and the ability to leverage clinical experts to advise on outpatient surge presented in the scenario.

Strength 2: Involving representatives from the local emergency management agency and healthcare coalition in the RITN tabletop exercise is a strength and enables discussion of the response and additional resources beyond the impacted hospital.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: A number of hospitals participating in this exercise cited staff turnover as a key issue to rapidly obtain data for completion of the CR. Hospitals need to review and update the points of contact and established call groups/paging system to ensure the correct personnel can be contacted to rapidly gather data for the CR.

Area for Improvement 2: RITN hospitals may want to consider designating an on call group or paging system to ensure rapid contact can be made with the other key hospital departments to provide information for the Capabilities Report (e.g., pharmacy, emergency management, nursing resource coordinator, patient flow team).

Area for Improvement 3: More clarity on the Capabilities Report data fields would enable non-clinical personnel to more easily enter information. For example, using consistent verbiage with NDMS reporting (e.g., staffed beds, available beds) on bed availability as space/beds may exist but require different clinical capabilities depending on the patient needs.

Area for Improvement 4: RITN hospitals should clearly characterize clinical or outpatient supportive care capabilities to ensure accurate data for providing outpatient care.

Area for Improvement 5: Hospitals that are part of more than one federal/national association (i.e., NDMS, ABA, RITN) require more opportunity to test deconfliction of bed reporting using software or other methods described in this exercise.

Area for Improvement 6: While hospitals generally had good representation from units essential to this response, there is a need to further integrate pediatrics, pharmacy staff, and individuals new to their role in RITN.

Exercise Discussion Module 2: Outpatient Planning

This module focused on the planning and capability for hospitals to receive a surge of outpatients affected by radiation injury, such as surge capacity (e.g., patient care, laboratory testing), communications, and mental/behavioral health considerations.

Outpatient Care: The biggest concerns with regards to outpatient care was staffing, daily case load, current available space/treatment rooms, and ability to expand patient care areas. Lab draw and infusion capacities as well as acuity of patients were evaluated to determine the number of additional RITN patients to which care could be expanded; however, not all hospitals had processes in place to calculate outpatient capacity. Outpatient care would occur at the main hospital campus, designated outpatient clinics/laboratories, and infusion centers. Contracted private laboratories (e.g., LabCorp) would also be leveraged to support laboratory draws/testing. By focusing on patients requiring radiation therapy it would be possible to surge the patients not needing radiation to other areas of the hospital or region.

The majority of hospitals (all but one) in this exercise described plans and practices in place day-to-day to care for outpatients to including housing (hotels, charities), transportation (university shuttles), and mental health resources (social services team, family/employee assistance programs, chaplain services). If affiliated with a university, the hospital can also leverage students/staff from the schools of medicine and nursing. It was not discussed how these operations could be expanded for a large surge of patients/families requiring mass care.

Literature: Most participating hospitals (75%) do not have tailored materials on radiation exposure for both staff and patients/families given this scenario. The CDC radiation emergency resources were cited as a source to leverage to create just-in-time education materials. One hospital has a resource that was created by a third-party vendor and may be able to share with the RITN network after approvals are received.

Screening Questions: Most participating hospitals (75%) indicated having a set of screening questions specific to radiation exposure/treatment; there are screening tools available for the BMT unit to use with transplant patients that includes psycho-social assessment.

Strengths

The following strengths were demonstrated:

Strength 1: Participating RITN hospitals had a reasonable understanding of where outpatients could receive care and laboratory services.

Strength 2: Most participating hospitals have a set of screening questions specific to radiation exposure and treatment that includes a psycho-social assessment. These should be shared to other RITN hospitals.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: Staffing and resources are the major limiting factor for hospitals to respond to any medical surge event to include radiation injury patients. Just-in-time training and other available online training can be offered to staff to build capability internally (to respond to radiation incidents). Further work on prioritization of patient care (e.g., home infusion treatments) based on condition would also streamline staffing needs.

Area for Improvement 2: Radiation exposure literature needs to be incorporated into plans. This can be accomplished by leveraging the information available on the RITN website (https://ritn.net/resources/response-planning-and-guidance-resources). One hospital participating in this exercise has third-party developed literature; this should be shared once approval is received for other hospitals to leverage.

Area for Improvement 3: Hospitals require further work to determine total outpatient capacity; models utilized by other hospitals should be incorporated to ensure this process is robust and rapid in this type of disaster. Improved definition of what encompasses outpatient care would improve the process.

Area for Improvement 4: Hospitals require more planning and exercises focused on the mass care components of managing a RITN patient surge, to include how to work with local, state, and federal agency partners and expanding day-to-day models for housing and transportation as possible.

Area for Improvement 5: Additional education on the RITN program is needed particularly for new staff and expanded to emergency management and the RSO.

APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2023 RITN Tabletop Exercise conducted on August 9, 2023. 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			
Last Name	**First Name**	**Email Address**	**Organization**
Morton	Robin		Baylor University
Skaggs	Todd		Baylor University
Cartwright	Katie		Baylor University
Lugo	Brian		Baylor University
Lara	Brandi		Baylor University
Wallace	Melissa		Children's of Alabama
Rost	Jessica		Children's of Alabama
Payne	Drew		Children's of Alabama
Kent	Danielle		Children's of Alabama
Proctor	Rebekah		Children's of Alabama
Moore	Caitlin		Children's of Alabama
Hays	Kathryn		Children's of Alabama
Davidson	Jamie		Children's of Alabama
Phadnis	Sheetal		Children's of Alabama
Chewnily	Joseph		Children's of Alabama
Paladi	Iris		Children's of Alabama
Grifenhagen	Hannah		Children's of Alabama
Donahue	Andrew		Children's of Alabama
Baudi	Francis		Mayo Clinic
Larsen	John		Mayo Clinic
McCarthy	Malloree		Mayo Clinic
Rao	Xiuhua		Mayo Clinic
Collins	Shannon		OU Health
Holtker	J		OU Health
Blanton	Megan		OU Health
Adams	Joan		OU Health
Kohrt	Nancy		OU Health
Yazdanipowz	Zakia		RMRS/EMSA/ OU Health
Franklin	Rachel		RMRS/OU Health
Miller	Shayna		RMRS/OU Health
Long	Kevin		OKCPD/OU Health
Hadley	Colin		OU Health
Posey	Rachel		OU Health
Cothran	Tracy		OU Health
Moffett	Brent		OU Health
Swenton	Regina		OU Health
Abbitt	Michele		OU Health
McRae	Natalie		UAB Hospital
Rodgers	Melinda		UAB Hospital
Teer	Teresa		UAB Hospital
Taylor	Romy		UAB Hospital
Hooper	John		UAB Hospital

Rudolph	Sandra		UAB Hospital
Hayes	Tiffany		UAB Hospital
Mims	Lakeidra		UAB Hospital
Prater	Duane		UAB Hospital
Mayfield	Bill		UAB Hospital
Kauffman	Judy		University of Virginia
McGuire	Brandi		University of Virginia
Brady	Tom		University of Virginia
Henry	Brooke		University of Virginia
Grubbs	Carly		University of Virginia
Monge	Gus		University of Virginia
Porch	Carlee		University of Virginia
Kenyon	Jay		University of Virginia
Darrell	Nick		University of Virginia
Anderson	Shane		University of Virginia
Farmer	David		University of Virginia
Saeed	Ainy		Univ. of Minnesota
Muhammad	Nathan		Univ. of Minnesota
Herzog	Patti		Univ. of Minnesota
Bink	Kristin		Univ. of Minnesota
Fangel	Laura		Univ. of Minnesota
Hausman	Vanessa		Univ. of Minnesota
Elm	Jenny		Univ. of Minnesota
Brumm	Jenny		Univ. of Minnesota
Roeder	Allison		Univ. of Minnesota
Entgelmeier	Jenny		Univ. of Minnesota
Paik	Christina		Univ. of Minnesota

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 9, 2023 were asked to rank the usefulness of the tabletop exercise; **37% rated it as "Very Useful" while 63% rated it as "Somewhat Useful"**. There were no ratings lower than this.

Strengths

- Coordination across multiple departments and ability to leverage clinical experts to address the surge (depth of services and disciplines represented).
- Knowledge of ARS.
- Resources within the hospital or locally that could be leveraged for the response.
- System and hospital preparedness plans ini place that include RITN for partner awareness and support.
- Collaboration of inpatient and outpatient teams to provide the best care.
- Nursing and pharmacy units rapidly provided bed count and drug information for the CR.

Challenges

- Difficult to get an accurate picture of beds available due to large outpatient population; need to define a method to calculate outpatient capacity.
- Patient education.
- Improve understanding of what patients could transition to home infusion.
- Resource limitations.
- Patient prioritization against current resources available.
- Staffing, in particular for outpatient care.
- Hospital departments can be territorial and not always work well together.
- More awareness and education about the RITN program; opportunity to further collaborate with emergency management and the RSO.

Future Exercises

- Send actual patient numbers to each institution to work through an actual surge number (levels of exposure, clinical attributes).
- Patient prioritization, transfer to home infusion care could serve as deeper dives on this current scenario.

- Clarity on what encompasses outpatient care – staff, space, lab throughput, supplies.
- Inclusion of community partners and federal entities.
- Mass hysteria and public information.
- Continued portal submission practice opportunities to maintain proficiency.

APPENDIX D: ACRONYMS

Acronym	Term
ABA	American Burn Association
AAR	After Action Report
ARC	American Red Cross
CBC	Complete Blood Count
CR	Capabilities Report
FCC	Federal Coordinating Center
ICS	Incident Command System
IND	Improvised Nuclear Device
MOU	Memorandum of Understanding
NMDP	National Marrow Donor Program
NDMS	National Disaster Medical System
ONR	Office of Naval Research
RITN	Radiation Injury Treatment Network
RSO	Radiation Safety Officer
TTX	Tabletop Exercise