2023

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

Exercise Date: July 27, 2023

EXERCISE OVERVIEW

Exercise Name	2023 RITN Tabletop Exercise (TTX)
Exercise Date	July 27, 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	Banner University Medical Center (Phoenix, AZ) Barnes-Jewish Hospital (St. Louis, MO) Children's Hospital of Philadelphia (Philadelphia, PA) Franciscan Health (Indianapolis, IN) Northside Hospital (Atlanta, GA) University of Mississippi (Oxford, MS) University of Pennsylvania (Philadelphia, PA) Veterans Administration
Point of Contact	RITN Control Cell RITN@NMDP.ORG (612) 884-8276

EXERCISE SUMMARY

On July 27, 2023, seven RITN centers, representatives from the Veterans Administration, 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 to complete the report 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. All participating RITN hospitals said there were no challenges with accessing the portal or answering the questions to complete the report; having the definitions for each data field easily accessible was helpful as long as appropriate inpatient/outpatient resources at the hospital are understood. The challenges had to do with ensuring access for multiple users at the hospital to serve as backups in an incident, training for backup staff, and a suggestion to update the Job Aid for the Capabilities Report (i.e., screen shots don't match the most recent online version).

The other hospital units that were cited to support data collection for the report categories included bed capacity/management (standard daily bed reporting plus inquiry to understand number that can be discharged and/or expected to be incoming in the next 24 hours), RITN leadership, inpatient/outpatient pharmacy, emergency management, radiation safety, clinical team, inpatient/outpatient service teams, laboratory, outpatient oncology, and nursing. In at least one case, it took time to get current information from the oncology outpatient unit as people were not in their offices and required multiple attempts to connect for the information. Another hospital would rely upon the Veterans Administration (VA) hospital to help with activating federal level systems and understanding what is available around the state. Satellite ambulatory clinics and other off campus resources would also be assessed to understand the full capacity to support the surge.

Five participating hospitals reported being part of the NDMS, none were part of the American Burn Association (ABA), and one hospital was not sure of their affiliations. A question was posed as to how they would deconflict available bed counts when reporting to those organizations as well as to RITN. Overall, it was not clear at the hospital level how systems communicated with each other once beds are reported via multiple platforms (e.g., VA/NDMS, RITN, other). One hospital recently exercised bed data entry and identified that the oncology/BMT beds would not be part of the routine reporting that is reviewed by the state and shared to NDMS in a disaster, so those would be solely reported to RITN. Clarity in reporting to

all systems (NDMS, RITN, and state resource groups) is essential to have a common understanding that beds are a total and have been shared to each federal/state report.

Strengths

The following strengths were demonstrated:

Strength 1: There were no challenges with using the RITN Portal to enter bed and pharmaceutical data necessary to respond to patient care needs. Information was entered into the Capabilities Report as part of the exercise.

Strength 2: Leveraging the local/state VA hospital when activated will enable an understanding of bed and resource availability around the state and can improve the process of reporting beds to various federal systems (avoid double counting).

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: The majority of hospitals had no (or limited) backup staff identified who can access and are trained on the RITN Portal for completion of the Capabilities Report. It is recommended that RITN hospitals review personnel with access and ensure a minimum of 1-2 backup staff then perform a functional drill to evaluate access to the system for data entry.

Area for Improvement 2: Hospitals require a common understanding of how to report bed counts to various federal and state entities during a disaster. RITN reporting requirements differ from other disasters so guidance and training on the correct procedure to ensure there is a standard practice is recommended.

Area for Improvement 3: Update the Job Aid for the Capabilities Report (i.e., screen shots don't match the most recent online version).

Exercise Discussion Module 2: Outpatient Planning

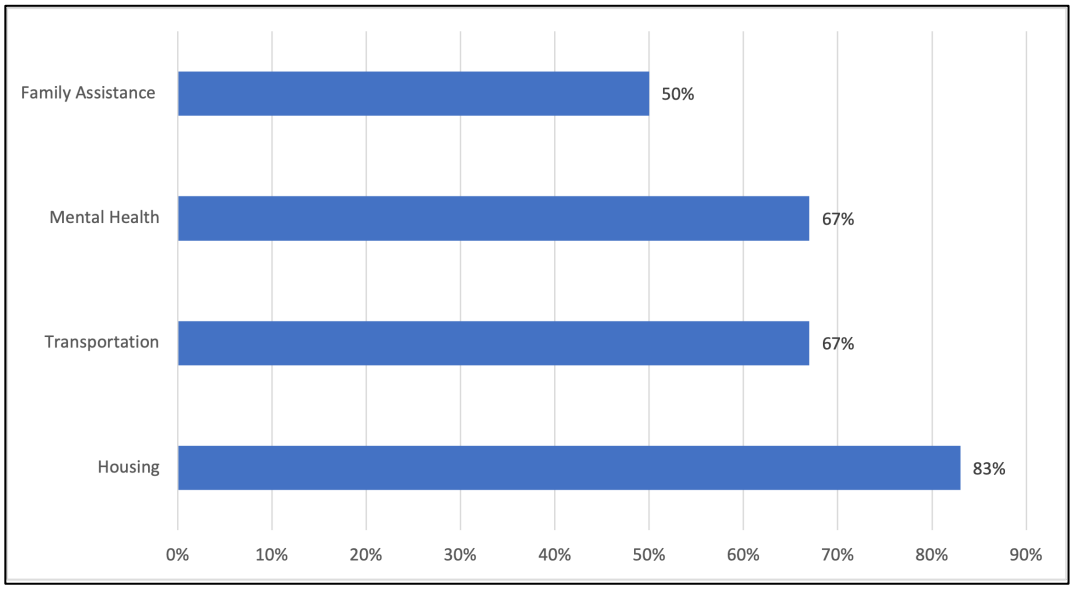
This module focused on the planning and capability for hospitals to receive a surge of outpatients affected by radiation injury, such as surge capacity (e.g., patient care, laboratory testing), communications, and mental/behavioral health considerations.

Outpatient Care: The biggest concerns with regards to outpatient care was staffing, daily case load, space (e.g., infusion suites), and ability to transfer patients out of the hospital. Much supportive care would take place in the emergency department but evaluation of cases that could be delayed or transferred to another facility would also occur. Hospitals generally had a good understanding of the outpatient care capacity for the hospital campus but for some knowing what surge support would be available across the hospital system at large (other satellite location) was not well-characterized.

In addition to established affiliated/satellite clinics for outpatient laboratory work and checkups, it would be possible to implement models such as those used for COVID-19 testing to set up space and staff areas for additional patient throughput. Due to daily demand already at labs and outpatient clinics, setting up a surge area would be a priority at some participating hospitals.

The majority of hospitals have plans for outpatient care needs for example in their NDMS plan or hospital disaster plans (see Figure below). This includes contracts with local hotels, use of nearby university dormitories, and transportation arranged through hospital services (expanded from daily operations). Housing plans were not described as robust and would generally require close coordination with NDMS and local emergency management agencies.

Figure 1. Outpatient Care Plans



Human resource departments would lead family assistance plan execution to include ensuring that mental health resources are available to support the patient (+ family) population. Hospitals had varied level of preparedness for family assistance and mental health support.

Literature: Participating hospitals do not have tailored materials on radiation exposure for staff or patients/families. Many cited the resources and templates available from the RITN website as the main source of information. Oncology units have information available but this has not been collated with the RITN materials into a single literature packet for a radiation emergency. A resource (https://www.oncolink.org/cancer-treatment/radiation) that describes radiation therapy and patient support was provided by Children's Hospital of Philadelphia (CHOP).

Screening Questions: In general, participating hospitals did not have a list of screening questions for this radiation injury disaster. Frontline staff have received radiation training that includes screening questions but there is not material that is readily available to be widely implemented for a patient surge.

Strengths

The following strengths were demonstrated:

Strength 1: Mechanisms were strengthened during the COVID-19 pandemic to calculate available beds and outpatient support capacity to include expanding care into surge spaces. These can be leveraged for any disaster to include radiation patient surge.

Strength 2: Participating hospitals have plans in place to provide outpatient support in the areas of housing, transportation, and social support services; however it is not as well-characterized how this could be expanded for a patient surge and prolonged length of care.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: Staffing is 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).

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) and documenting the procedures for rapid dissemination of the information in plans. Connecting with internal radiation oncology and behavioral health departments may identify other tools or guidelines that also should be referenced in plans. Additional literature reference: https://www.oncolink.org/cancer-treatment/radiation

Area for Improvement 3: Specific screening questions for radiation injury outpatients do not exist at the majority of hospitals. Hospitals should incorporate tools that exist for transplant patients into plans for this specific incident response. It is recommended that hospitals with more robust screening question sets share out to other RITN hospitals as a follow up action to this exercise series.

Area for Improvement 4: Conduct additional planning on outpatient surge capability to include satellite hospital/clinic locations in the area to better characterize the total surge capacity and type of care that can be provided.

Area for Improvement 5: Some participating hospitals should dedicate resources to strengthen family assistance plans to include mental health services using this type of disaster as a scenario to identify the necessary staff, space, and other resources to accommodate a patient surge along with displaced family members. Planning assumptions should consider both the availability of a Service Access Team (SAT) and the potential for not having this federal resource.

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 July 27, 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**	**Organization**
Sharp	Marcus	Banner University
Preble	Candice	Banner University
McPheeters	Laura	Banner University
Husnain	Muhammed	Banner University
Pryor	Julie	Banner University
Bunker	Patrick	Banner University
Pan	Congshan	Banner University
Nesbitt	Cary	Banner University
Smith	Lexie	Banner University
Weiss	Grace	Banner University
Windall	John	Banner University
Peterson	Ann	Banner University
Taylor	Heather	Barnes Jewish
Fugate	Donna	Barnes Jewish
Campbell	Jason	Barnes Jewish
Reid	Wendy	Barnes Jewish
McCullough	Courtney	Barnes Jewish
Freeman	Paul	Barnes Jewish
Peters	Byron	Barnes Jewish
Cressman	Melanie	Barnes Jewish
Parmentier	Jason	Barnes Jewish
Johnson	Marie	Barnes Jewish
Wassmer	Kris	Barnes Jewish
Perhamn	Eric	Veteran's Admin
Seif	Alix	CHOP
Hankins	Patricia	CHOP
Barth	Brian	CHOP
Walker	Allison	CHOP
Le	Vanessa	CHOP
Kabir	Raynooka	CHOP
Beale	Jocelyn	CHOP
Beckett-Ansa	Adrienne	CHOP
Croy	Colleen	CHOP
Dickerson	Stacy	Franciscan Indianapolis
Solomon	Kara	Franciscan Indianapolis
Cacavias	Anastasia	Northside Hospital
Hinton	Lori	Northside Hospital
Jones	Cheryl	Northside Hospital
Nemetz	Fiona	Northside Hospital
Kisala	Dana	Northside Hospital
Bearman	Rachel	Northside Hospital
Craig	Reese	Northside Hospital
Duley	Paula	Northside Hospital
Draper	Stephanie	Northside Hospital
Damaschler	Karin	Northside Hospital
Solomon	Scott	Northside Hospital

Arinder	Wendy	University of Mississippi
Thompson	Susan	University of Mississippi
Herrin	Vincent	University of Mississippi
Posey	Kristen	University of Mississippi
Holman	Tereza	University of Mississippi
Rouse	Jennifer	University of Mississippi
Farris	Pam	University of Mississippi
Lofton	Ford	University of Mississippi
Aguilar	Roney	University of Mississippi
Dukes	Rebecca	University of Mississippi
White	Griffin	University of Pennsylvania
Henne	Jeffrey	University of Pennsylvania
Wierzbowski	John	University of Pennsylvania
Hexner	Elizabeth	University of Pennsylvania
Cunningham	Kathleen	University of Pennsylvania
Kubitza	Michael	University of Pennsylvania
Perham	Eric	VASTLHCS

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; **67% rated it as "Very Useful" while 33% rated it as "Somewhat Useful"** (n=6).

Strengths

- Ability to be flexible and adapt to circumstances; creative solutions
- Cooperation with other facilities allows for expansion of capabilities and to surge for patient care.
- Ability to quickly gather status and initial capacity.
- Many spaces that can be leveraged throughout the local area for triage and patient support.
- Strong plan for patient education; Radiation Oncology Team ability to create patient education and quick guides for information.
- Multi-disciplinary group with a core group that has been working with RITN for some time; established strong communications.
- Well-established statewide emergency disaster medical team housed at the hospital.
- Easy access to the numbers of inpatient capability and pharmacy inventory.
- Strong community partnerships.

Challenges

- Need standardized processes.
- Include OEM representative in RITN discussions related to housing, transportation, and patient distribution. There are options but there is not a primary location/services so it is required that we work with the government agencies and rely on other organizations for assistance and guidance.
- Staff education and information about caring for patients with radiologic injuries.
- Timely access to national reserve resources.
- Additional work to translate housing/transportation processes in place for other responses (e.g., Operation Allies Welcome) to a RITN event.
- Consistent messaging and literature for patients and families across all RITN centers.
- Better connection to outside institutions; multiple hospital networks in the community that would serve as excellent partners.

- Due to the distributed nature of the organization, may need to consider levels of staff activation as the situation/response becomes more clear.
- Staffed beds.
- Lines of authority.
- Further develop plans for outpatient capabilities.
- Learn more about mental health services partnership (new to the hospital).
- Provide stronger psychosocial and behavioral health support.

Future Exercises

- Prolonged staffing demands.
- Resource assessment.
- Integration of bed reporting with other systems (e.g., state level, NDMS) for a widespread disaster.
- Integration with non-RITN hospitals in providing consultative services and/or support to patients that may need to be maintained at outside facilities.
- Strategic planning, assessment of readiness level.
- Radiation literature for community.
- Patient screening models (what happens as far as screening in the local/impacted area).

APPENDIX D: ACRONYMS

Acronym	Term
ABA	American Burn Association
AAR	After Action Report
ARC	American Red Cross
CBC	Complete Blood Count
ICS	Incident Command System
IND	Improvised Nuclear Device
NMDP	National Marrow Donor Program
NDMS	National Disaster Medical System
ONR	Office of Naval Research
RITN	Radiation Injury Treatment Network
RSO	Radiation Safety Officer
SAT	Service Access Team
TTX	Tabletop Exercise