

2023

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

Exercise Date: August 16, 2023



EXERCISE OVERVIEW

Exercise Name	2023 RITN Tabletop Exercise (TTX)
Exercise Date	August 16, 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	<p>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.</p> <p>Objective 2: RITN hospital staff can identify staff, equipment, and other resource needs to support patients receiving outpatient care.</p>
Hazard	Radiological
Scenario	Medical surge from a distant radiological incident
Sponsor	Radiation Injury Treatment Network® (RITN) Office of Naval Research (ONR)
Participating Organizations	<p>Boston Children's Hospital (Boston, MA)</p> <p>Corewell Health (Michigan)</p> <p>Dana Farber Cancer Institute (Boston, MA)</p> <p>Dartmouth Cancer Center (Hanover, NH)</p> <p>MD Anderson Cancer Center (Houston, TX)</p> <p>Orlando Health Cancer Institute (Orlando, FL)</p> <p>University of Miami Sylvester Cancer Center (Miami, FL)</p> <p>University of Utah (Salt Lake City, UT)</p>
Point of Contact	RITN Control Cell RITN@NMDP.ORG (612) 884-8276

EXERCISE SUMMARY

On August 16, 2023, eight 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 casualties 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 (CR) 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 reported that the Portal was either very easy to navigate (64%) or somewhat easy to navigate (36%). Challenges described for data entry into the Portal Capabilities Report included:

- Ability to define the scope for supportive outpatient care (e.g., blood monitoring) to include the impacts of staffing and space used. The parameters for the CR need to be better defined, for example frequency, time of day, within a 24-hour period.
- Data entry window closes when you click on the hospital name to see what has been submitted before. Suggestion to lock the window until “save” or “close” is selected so as not to lose data.
- Ability to find all locations with G-CSF stocks.
- Ability to characterize total outpatient support across a large medical system.
- More experience using the Portal to build proficiency.

Other hospital teams that would be contacted to provide data for the CR included BMT, incident command, pharmacy, inpatient/outpatient units, laboratory, and bed availability. Facilities reported out on the staff member(s) that were responsible for entering the data to include the BMT Project Manager, RITN Coordinator, emergency management, and hospital administrator. A recommendation was made to have a generic log in or account to ensure multiple backups at the hospital.

Seven of ten 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; for hospitals where multiple federal reporting streams would be required there was not a clear understanding of how to deconflict at present.

Strengths

The following strengths were demonstrated:

Strength 1: There were minimal challenges with using the RITN Portal to enter bed and pharmaceutical data necessary to respond to patient care needs. All information was completed as part of the exercise.

Strength 2: Hospitals had a clear understanding of the departments/teams that need to be involved to quickly obtain data for completion of the CR.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: The majority of hospitals had 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. Functional drills to evaluate access to the system and improve proficiency are recommended.

Area for Improvement 2: Capacity is a major issue for several participating hospitals; in some cases this is due to the inability to expand BMT beds and for others there is the ability to increase beds but the limiting factor would be staff and resources.

Area for Improvement 3: The parameters around outpatient care need to be better defined; what capabilities it encompasses and the associated time frame that should be reported.

Area for Improvement 4: Hospitals that are part of a large medical system have challenges calculating the total capacity for outpatient support; more work is required in this area to characterize the capability to rapidly report the number in an emergency.

Area for Improvement 5: Obtaining the number of total doses of G-CSF available in the region remains a challenge for some RITN hospitals (i.e., know and query all places that have stocks).

Area for Improvement 6: 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 9: A future tabletop exercise is recommended that focuses on true surge for a RITN disaster to evaluate how many beds can be created based on space, staff, and other operational assumptions.

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 flex routine schedule of appointments. Using daily bed reporting and consulting the surge plans, outpatient volume can be determined to include prioritization of patients and the need to implement expansion models (i.e., COVID-19 response). Outpatient care would occur primarily on the main campus of RITN hospitals as well as satellite outpatient clinics, infusion centers, expansion (as needed) into auditoriums or atriums, and implementation of telehealth.

The majority of hospitals (82%) in this exercise have plans and practices in place to care for existing outpatients to including housing, transportation, family assistance, and mental health resources (one respondent was unsure, one reported no for all areas). Hospitals expressed concern over the ability to expand care for a large surge of patients, in particular housing, other than requesting support from local/state emergency management partners. Challenges included financial indemnification and post-response recovery as well as the need to integrate social workers into the mental health and family assistance components of the mass care plan.

Literature: Only 36% of participating hospitals reported having tailored materials on radiation exposure for both staff and patients/families. One hospital said an affiliated hospital may already have something developed for this scenario and type of outpatient hospital so could partner with them to implement consistent literature. Hospitals also would consult the RITN website or CDC resource (<https://www.cdc.gov/nceh/radiation/emergencies/symptoms.htm>) to develop incident-specific materials for incorporation into the RITN plan (then can be tailored to specific incident).

Screening Questions: Half of participating hospitals indicated having a list of screening questions for a radiation injury disaster, upon discussion it appeared that these were standard questionnaires for behavioral health (e.g., psySTART tool) but not modified for this type of scenario or necessarily available to the clinical and support staff that would be engaged to care for radiation injury patients. A guide or standardize set of questions from RITN would be beneficial for consistency.

Strengths

The following strengths were demonstrated:

Strength 1: Hospitals have strong plans in place to expand outpatient care to other units or temporary sites (e.g., auditoriums) following the COVID-19 pandemic response; the use of telehealth is also a best practice.

Strength 2: Hospitals that have radiation injury literature developed should share with the RITN network to strive towards consistency in the messaging and educational tools.

Strength 3: The majority of hospitals have plans in place for housing, transportation, and social care of arriving patients and families; however it is not clear to what extent this can be expanded in a surge.

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: Post-event recovery and financial indemnification processes are not well understood for a RITN activation. Future exercises and planning should focus on this component.

Area for Improvement 3: Radiation exposure literature needs to be incorporated into plans. It is recommended that RITN develop this literature for consistency around the RITN network since the care models intertwine nationwide. Individually, hospitals can reference information currently available on the RITN website (<https://ritn.net/resources/response-planning-and-guidance-resources>) or CDC(<https://www.cdc.gov/nceh/radiation/emergencies/symptoms.htm>).

Area for Improvement 4: Specific screening questions for radiation injury outpatients do not exist at half of the participating hospitals. Hospitals should augment standard transplant patient screening tools with radiation incident/exposure specific questions (informed by radiation subject matter experts). A guide or standardize set of questions from RITN would be beneficial for consistency.

Area for Improvement 5: Several hospitals should seek opportunities to internally socialize their affiliation with the RITN network and at a high level what a response entails.

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 16, 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

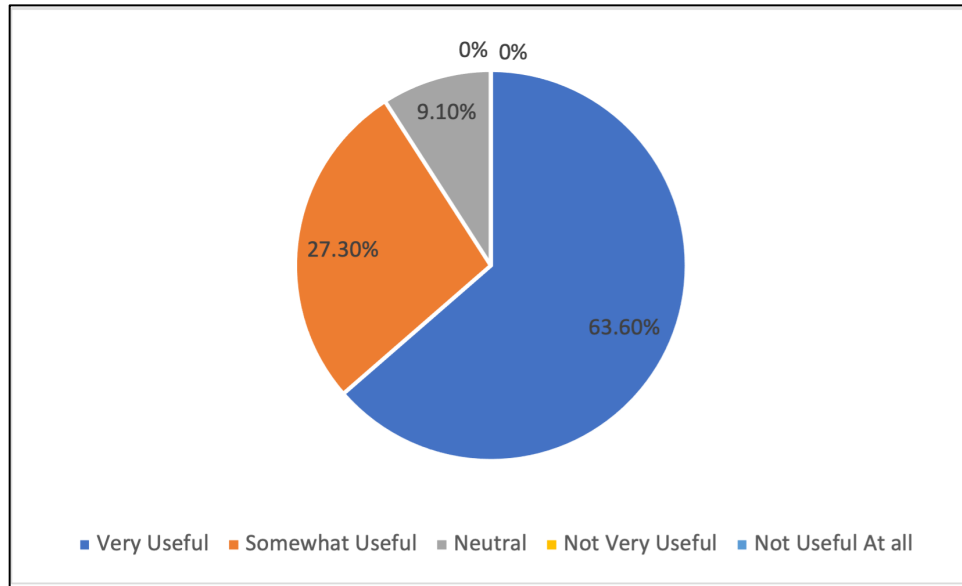
Participating Organizations		
Last Name	First Name	Organization
Cotron	Kathryn	Boston Children’s Hospital
Vieira	Paulette	Boston Children’s Hospital
Cummings	Jennifer	Boston Children’s Hospital
Manzi	Shannon	Boston Children’s Hospital
Waitt	Julie	Boston Children’s Hospital
Keikamp	Emily	Boston Children’s Hospital
Salah	Asha	Boston Children’s Hospital
Raeke	Patrick	Boston Children’s Hospital
Miller	Ashely	Boston Children’s Hospital
Devine	Mary	Boston Children’s Hospital
Devries	Doug	Corewell Health
Bristol	Ellen	Corewell Health
Yared	Alex	Corewell Health
Corbine	Scott	Corewell Health
Groesser	Matt	Corewell Health
Quigg	Troy	Corewell Health
Rykse	Melissa	Corewell Health
Schuileman	Kurtis	Corewell Health
Lemkuil	Amanda	Corewell Health
VanDyle	Mark	Corewell Health
Bakinowski	Emily	Dana Farber
Dunn	Abby	Dana Farber
Almeida	Nathaniel	Dana Farber
Nerette	Ralph	Dana Farber
Tierney	Jill	Dana Farber
Mequanent	Kidest	Dana Farber
Timmerman	Michael	Dartmouth
Howard	Cristan	Dartmouth
Hill	John	Dartmouth
Fillingame	Beverle	Dartmouth
Coughenour	Charlotte	Dartmouth
Sparks	Jay	Dartmouth
Szoreplorkowski	Zblgmew	Dartmouth
Miller	Wesley	Dartmouth
Fifield	Hunter	Dartmouth
Dunbar	Nancy	Dartmouth
Grag	Andrea	Dartmouth
Nemeth	Kathie	MD Anderson
Cox	Carrie	MD Anderson
Allen	Bryce	MD Anderson
Ramirez	Sandra	MD Anderson
Griffin	Lori	MD Anderson
Cone	Angela	MD Anderson
Bartels	Trace	MD Anderson
Anderson	Telyssa	MD Anderson

Tewari	Pritl	MD Anderson
Redmond	Michael	MD Anderson
Wilson	Sean	U of Miami Sylvester
Menendez	Enrique	U of Miami Sylvester
Ajib	Rabih	U of Miami Sylvester
Correras	Giancarlo	U of Miami Sylvester
Temple	Ashely	U of Miami Sylvester
Cobbett	Shari	U of Miami Sylvester
Seiglie	Bed	U of Miami Sylvester
Hernandez	Diana	U of Miami Sylvester
McNiece	Peggy	U of Miami Sylvester
Vota	Joseph	U of Miami Sylvester
Garcia	Daniela	U of Miami Sylvester
Pagan	Paula	U of Miami Sylvester
Sandoval	Karen	U of Miami Sylvester
Carvajal	Jenny	U of Miami Sylvester
Alvarado	Alexandra	U of Miami Sylvester
Martinez	Jessica	U of Miami Sylvester
Hernandez	Niria	U of Miami Sylvester
Gomez	Martha	U of Miami Sylvester
Aguiar	Melissa	U of Miami Sylvester
S	Kristopher	U of Miami Sylvester
Swathwood	Katelyn	U of Miami Sylvester
Lee	Brian	U of Miami Sylvester
Edwards	Claudette	U of Miami Sylvester
Shah	Shuya	U of Miami Sylvester
Torres	Vincent	U of Miami Sylvester
Lamer	Walter	U of Miami Sylvester
Pereire	Denise	U of Miami Sylvester
Norat	Juliana	U of Miami Sylvester
Leimer	Darby	Orlando Health
Alberts	Eric	Orlando Health
Butler	Miles	Orlando Health
Brunson	Claire	Orlando Health
Friday	Cedah	Orlando Health
Safeek	Aliya	Orlando Health
Patton	Phillip	Orlando Health
McFerrin	Matthew	Orlando Health
Smith	Megan	Orlando Health
Lacasse	Dane	Orlando Health
Lambert	Lisa	Orlando Health
Larson	Lori	Orlando Health
Quinones	Yerika	Orlando Health
Windsor	Kevin	University of Utah
Povey	Darcie	University of Utah
Paglione	Francesca	University of Utah
Matherly	Annette	University of Utah

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 16, 2023 were asked to rank the usefulness of the tabletop exercise; **63.3% rated it as “Very Useful” while 27.3% rated it as “Somewhat Useful”** and one respondent (9.1%) ranked the exercise as neutral in value.



Strengths

- Strong HICS structure with current SOP and Emergency Preparedness plans.
- Ability to move inpatients within the main hospital floors to create space.
- Ability to use alternative spaces to expand lab draws and screening.
- Fast coordination, thorough understanding of roles across multiple departments.
- Used to and capable of shifting appointments and expanding care.
- Communication.
- Medication supply and bed availability to treat patients.
- Identified different interdisciplinary areas to support response efforts, institution-wide participation in RITN.
- Collaboration with community partners.
- Representation from many disciplines and departments.

Challenges

- Staffing.
- Timely access to national reserve resources.
- Capacity and physical space are low at the hospital as the only pediatric center in the region.
- Bed availability.
- Potential for panic.
- Lack of patient education material; uniformity of literature.
- Need to update SOP/EOP to reflect current practice.
- Financial liability.
- Need to know more about arriving patient condition to prepare adequately. Scenario that explores clinical management of patients at all points of care (transplant, pharmacy, social, psychology, emergency management).
- Clarify how to provide assistance to families traveling to the site (monetary issues); recommend RITN have a general statement to help families know what to expect and establish boundaries for housing and transportation support.
- Documentation is not standardized (questionnaires, order sets, literature).
- Update plans in the designated outpatient space due to construction.
- Utilize a planned internal “safety moment” session to further build awareness within the institution of the organization as a RITN center.
- Pre-identified literature provided by RITN for consistency.

Future Exercises

- NDMS role with local RITN.
- Tabletop involving the regional RITN centers (e.g., Midwest).
- Tracking and bed reporting between NDMS and RITN, resolution of double counting.
- Continue multi-disciplinary involvement, tasks for all.
- Strengthen communication and capabilities with other RITN centers.
- More intensive clinical scenario coupled with the administration portion of the response.
- Collaborative exercise with local emergency management.
- Expectations when it comes to funding; explore the aftermath of an activation (recovery).

- Different scenarios across RITN centers (simultaneous); initial receiving site versus transfer site.
- Logistics.
- External components, e.g., test the assumptions around patient arrival, triage to hospitals (number, type), and coordination with the state partners for housing etc.
- Test provision of subject matter expertise for telemedicine to a remote geographical area (impacted).
- More interaction amongst facilities during the exercise (discuss questions internally in advance).
- Better explain modules and questions in the exercise.

APPENDIX D: ACRONYMS

Acronym	Term
ABA	American Burn Association
AAR	After Action Report
ARC	American Red Cross
ARS	Acute Radiation Syndrome
ASPR	Administration for Strategic Preparedness and Response
BMT	Bone Marrow Transplant
CBC	Complete Blood Count
COOP	Continuity of Operations
CR	Capabilities Report
EMT	Emergency Medical Technician
HHS	U.S. Department of Health and Human Services
ICS	Incident Command System
IND	Improvised Nuclear Device
MOU	Memorandum of Understanding
NMDP	National Marrow Donor Program
NDMS	National Disaster Medical System
NSO	National Specialty Organization
ONR	Office of Naval Research
RDHRS	Regional Disaster Health Response System
RITN	Radiation Injury Treatment Network
RSO	Radiation Safety Officer
TTX	Tabletop Exercise