2023

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

Exercise Date: August 8, 2023

EXERCISE OVERVIEW

Exercise Name	2023 RITN Tabletop Exercise (TTX)
Exercise Date	August 8, 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	Avera-McKennan Hospital & University Health Center (Sioux Falls, SD) City of Hope Comprehensive Cancer Center (Duarte, CA) Mount Sinai Hospital (New York City, NY) Nebraska Medicine (Omaha, NE) Stanford Health Cancer Center (Palo Alto, CA) Thomas Jefferson University Hospital (Philadelphia, PA) University of Chicago Comprehensive Cancer Center (Chicago, IL)
Point of Contact	RITN Control Cell RITN@NMDP.ORG (612) 884-8276

EXERCISE SUMMARY

On August 8, 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. All participating RITN hospitals said there were no challenges with accessing the portal or answering the questions to complete the report ("very easy to navigate" n=6, "somewhat easy to navigate" n=1); activation of hospital incident command would support data gathering and outreach to the appropriate entities (i.e., emergency management, social work, central supply, pharmacy, laboratory, clinical/nursing). Electronic daily bed reporting systems would be leveraged to understand the capacity to receive patients. The challenges included understanding the number of outpatient cases that could be diverted to another appointment date in order to accept arriving RITN patients, the number of scheduled surgeries, difficulty identifying unit managers due to staff turnover (e.g., pediatric), and numerous pharmacy locations making it challenging to get an accurate total count of medications. Some but not all participating hospitals had at least one backup RITN staff member with access to the Portal and Capabilities Report. Roles identified to access and enter data into the Portal included: RITN Coordinator(s), emergency manager, quality and safety manager, and back up RITN team members.

Of the seven participating hospitals, six were part of the NDMS and three were part of the American Burn Association (ABA). A question was posed as to how available bed counts would be deconflicted when reporting to those organizations in addition to RITN. As an example, hospitals in California use the ReddiNet™ system to report bed totals to the state on a daily basis or as directed in an emergency; the state reviews bed numbers to alleviate double counting as data is reported to the different federal entities (e.g., RITN, NDMS). Others would collaborate with their bed board team and work within hospital command to ensure appropriate communication of bed types available.

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. All information was completed as part of the exercise.

Strength 2: The use of hospital incident command systems and electronic bed tracking/reporting tools were an observed best practice to avoid or reduce double counting beds to different federal programs (i.e., NDMS, RITN).

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: Several 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 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: Additional exploration into the how the broader health system (outside of the RITN hospital campus) can be leveraged to off-load existing outpatients or support the surge of incoming patients that require outpatient care.

Area for Improvement 3: One hospital noted that they are still listed on the ABA website as a designated hospital for the association but has not been the case for at least 12 years. Designation as ABA or NDMS should be reviewed by facilities and communicated to the programs to ensure the online references are correct.

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), supply chain, and ability to expand patient care areas as was done for the COVID-19 pandemic testing/vaccination operations. Outpatient care would occur primarily on the main campus of RITN hospitals with options to expand into other units such as designated outpatient transplant treatment areas/clinics, wellness centers, and temporary care areas if patient volume was significant.

The majority (6 out of 7) of hospitals have a plan for outpatient care needs for example in their NDMS plan, annex to the RITN plan, and/or hospital disaster plans. This includes contracts with local hotels, memoranda of understanding (MOU) with university housing, as well as with transportation resources such as Uber Health, buses, and similar. Healthcare coalition and county/state level resources were critical elements that would be engaged to support housing, transportation, and family assistance components of a mass care operation. The model of working through state and local partners to support asylum seekers was provided by at least one participating hospital. Grants and donation funds are utilized on a routine basis for these services but it is recognized that in a disaster this would not be sufficient.

Hospitals cited mental/behavioral health plans and ability to leverage social workers for patient and family services and support in this scenario. At some university affiliated hospitals, it would be possible to utilize residents or interns to support mental health care (i.e., psychology department).

Literature: Most participating hospitals (71%) do not have tailored materials on radiation exposure for both staff and patients/families. Educational resources, CDC guidance, and RITN materials can be leveraged to create messaging and information for patients and family members specific to this situation. Information should include symptoms to be aware of based on expected radiation dose and recommendations on actions to take plus who to contact.

Screening Questions: Slightly less than half of participating hospitals (4 of 7) do not have a list of screening questions for this radiation injury disaster. Current psychological/social assessment tools for BMT patients could be adapted in collaboration with hospital radiation experts to include questions that gather information on the location/time of exposure and other key patient behaviors and demographics. Unaccompanied minors (or adults with significant mental issues)

arriving to the hospitals is an anticipated gap and would require external support from the county/state/federal level.

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., tents) following the COVID-19 pandemic response; the patient volume that would warrant this type of expanded care model is also well-characterized and could be applied for a radiation injury event.

Strength 2: Hospitals participating in this exercise had documented plans to address outpatient mass care needs as well as partnerships with coalition members and/or state/county agencies to support in a patient surge. Models such as receipt of asylum seekers and other natural disasters would be leveraged.

Strength 3: Hospitals associated with universities plan to leverage residents and interns to support patient and family mental health care in a disaster. Others would rely on community services and specialists trained in this area to expand 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 other sources (CDC, educational institutions).

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. RITN guidance to develop these questions would also be beneficial.

Area for Improvement 4: Arrival of unaccompanied minors (or adults with mental health issues) requires further exploration to determine the resources and procedures needed to accept and provide care to them in this type of scenario.

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 8, 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**
Thompson	Mary		Avera McKennan
Spittler	Jalisa		Avera McKennan
Ver Hoeven	Dawn		Avera McKennan
Crisp	Alexis		Avera McKennan
Roberts	Lacey		Avera McKennan
Redenivs	Nancy		Avera McKennan
Schenk	Lisa		Avera McKennan
Klanch	Autumn		Avera McKennan
Gearms	Jason		Avera McKennan
Oltmanns	Stesha		Avera McKennan
Rentschler	Rochelle		Avera McKennan
Skokan	Candice		City of Hope
Shah	Devangi		City of Hope
Cabrera	Genesis		City of Hope
Cabanillas	Christina		City of Hope
Esquivel	Estela		City of Hope
Parmintuan	Armida		City of Hope
Munaretto	Monica		City of Hope
Boirng	Areias		City of Hope
Patel	Suke		City of Hope
McDougall	Shannon		City of Hope
Tomlinson	Kelly		City of Hope
Gribetz	Anna		Mount Sinai
Franklin	Raquel		Mount Sinai
Ahmed	Tanjina		Mount Sinai
Arinsberg	Suzanne		Mount Sinai
Sala	Joseph		Mount Sinai
Nelson	Amy		Mount Sinai
Park	Daniel		Mount Sinai
Cardone	Don		Mount Sinai
Case	John		Mount Sinai
Jakubowski	Rita		Mount Sinai
Villacara	Al		Mount Sinai
Curry	Joan		Mount Sinai
Olmedo	Ruben		Mount Sinai
Keyzner	Alla		Mount Sinai
Decenteo	Lad		Mount Sinai
McZeno	Jairo		Mount Sinai
Williams	Alaysia		Mount Sinai
Katz	Craig		Mount Sinai
Betancourt	Adolfo		Mount Sinai
Jackson	Kimberly		Mount Sinai

Baine	Ian		Mount Sinai
Vargas	Yamina		Mount Sinai
Kamen	Jacob		Mount Sinai
Soledad	Imelda		Mount Sinai
Pokorny	Kim		Nebraska Medicine
Jourdan	Dawn		Nebraska Medicine
Rutar	Frank		Nebraska Medicine
Eischeid	Kim		Nebraska Medicine
Theis	Mark		Nebraska Medicine
Schwedhelm	Shelly		Nebraska Medicine
Nelson	Cyndi		Nebraska Medicine
Walker	Jerry		Nebraska Medicine
Straub	Dawn		Nebraska Medicine
Kneifl	Missy		Nebraska Medicine
Woodrum	Theresa		Nebraska Medicine
Winkelbauer	Laurie		Nebraska Medicine
Duchman	Becky		Nebraska Medicine
Haman	Joel		Nebraska Medicine
Cates	David		Nebraska Medicine
Matya	Jared		Nebraska Medicine
Ruzsa	Amy		Nebraska Medicine
Watson	Justin		Nebraska Medicine
Piotrowski	Jennifer		Nebraska Medicine
Tune	Jill		Nebraska Medicine
Bruns	Nandi		Nebraska Medicine
Von Vorrhis	Matt		Stanford Health
Vander Lee	Robby		Stanford Health
Stapleton	Jennifer		Stanford Health
Patton	Denise		Stanford Health
Ahmed	Nayeenne		Stanford Health
Smith	Regan		Stanford Health
Vermeulin	Alicia		Stanford Health
Jasper	Edward		Thomas Jefferson
Anton	Joseph		Thomas Jefferson
Dugan	Michael		Thomas Jefferson
Gergis	Usama		Thomas Jefferson
O'Hara	Bill		Thomas Jefferson
Hughes	Bill		Thomas Jefferson
Hughes	Michelle		Thomas Jefferson
Donnelly	Julie		Thomas Jefferson
Mortel	Mylove		University of Chicago
Parikh	Shannon		University of Chicago
Marsicek	James		University of Chicago
Dielle	Maria		University of Chicago
Clifford	Michael		University of Chicago
Collins	Jennifer		University of Chicago

Kosuri	Satya		University of Chicago
Ramos	Christine		University of Chicago
Robateau	Latasha		University of Chicago

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.

All participating hospitals in the August 8, 2023 tabletop exercise rated it as "Very Useful", there were no lower rankings than the highest level.

Strengths

- Strong emergency management response being part of the NDMS and ABA.
- Business continuity unit has experienced several real world scenarios (e.g., nursing strike) to test and strengthen preparedness.
- Access to university resources to augment the hospital in terms of mass care resources.
- Helpful to have a RITN tabletop exercise every year to get the group together and talk through scenarios.
- ReddiNet™ or other electronic bed/resource reporting system is very helpful to obtain the government assistance needed in a disaster.
- Ability to leverage coalition hospitals and the experience from COVID-19 and other natural disasters to build response experience.

Challenges

- This type of incident has never happened so it is recognized that there will be things we cannot anticipate.
- Tracking of large numbers of patients arriving to the hospital and local area.
- Family education materials specific to radiation safety.
- Screening questions for use by the social work/behavioral health teams (RITN assistance in developing the questions would be appreciated).
- Availability of space and sufficient staffing.
- Housing of patients and families.
- Inability to sufficiently prepare, in advance, for the arrival of unaccompanied minors.

Recommendations for Future RITN Exercises

- Tracking and follow up for a large number of RITN victims (to include self-transports)
- Training for outpatient areas (typically resource-strained)
- Focus on community resources and partnerships with other RITN organizations
- Patient management as done in previous tabletops (i.e., ARS)

APPENDIX D: ACRONYMS

Acronym	Term
ABA	American Burn Association
AAR	After Action Report
ARC	American Red Cross
CBC	Complete Blood Count
CDC	Centers for Disease Control
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