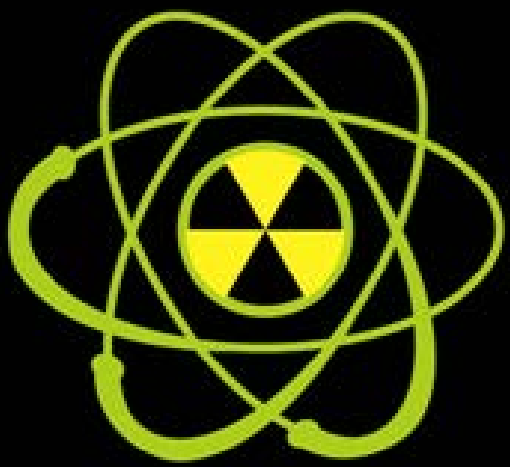
# 2016

# After-Action Report/Improvement Plan
## June 28, 2016



# EXERCISE OVERVIEW

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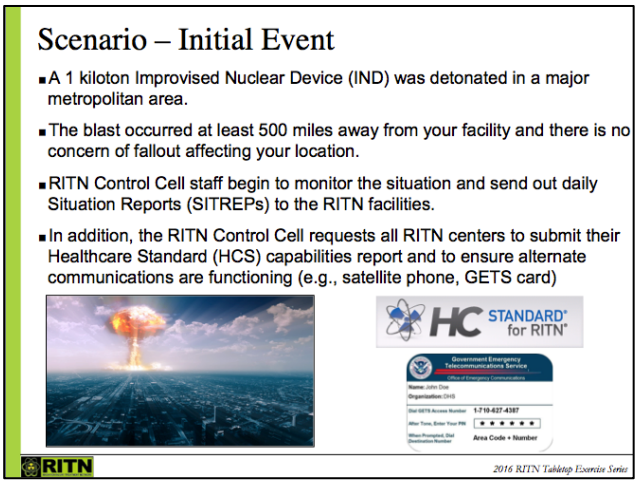
| **Exercise Name** | 2016 RITN Tabletop Exercise (TTX) |
| **Exercise Date** | June 28, 2016 |
| **Scope** | This exercise is a distance-based tabletop exercise planned for 2 ½ hours. Exercise play is limited to RITN facilities and their response partners' collective challenges and considerations for improved and effective response |
| **Mission Area(s)** | Response |
| **Capabilities** | Public Health & Medical Services |
| **Objectives** | **Objective 1:** Conduct internal and external communications that include staff, patients, and visitors as well as the media and other response partners.<br>**Objective 2:** Describe the procedures for establishing a Family Information Center and how information will be shared with family members both on-site and at distant locations.<br>**Objective 3:** Identify just in time training requirements and the resources needed to meet those needs.<br>**Objective 4:** Describe their approaches used for hematopoietic cell transplantation (HCT) in casualties who appear to have received myeloablative doses of radiation. |
| **Threat or Hazard** | Radiological |
| **Scenario** | Medical surge from a distant radiological incident |
| **Sponsor** | Radiation Injury Treatment Network® (RITN)<br>National Marrow Donor Program (NMDP)<br>Office of Naval Research (ONR) |
| **Participating Organizations** | Dartmouth – Hitchcock Medical Center – Lebanon, NH<br>Duke University Medical Center – Durham, NC<br>University of Texas MD Anderson Cancer Center – Houston, TX |

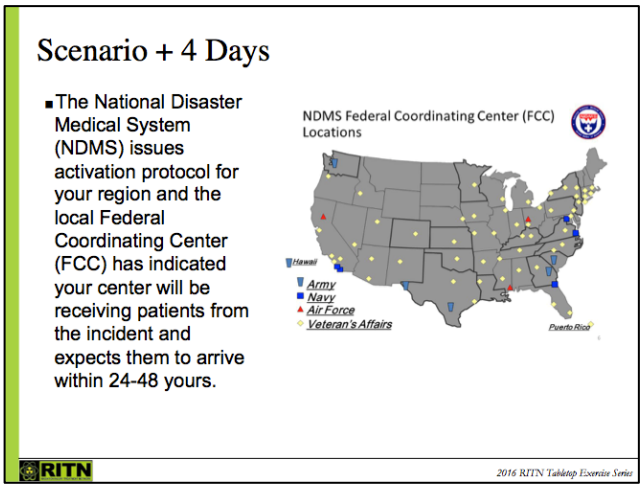
| | |
|---|---|
| | University of Wisconsin Hospital and Clinics – Madison, WI |
| **Point of Contact** | RITN Control Cell<br>RITN@NMDP.ORG<br>(612) 884-8276 |

# EXERCISE SUMMARY

On June 28, 2016, RITN centers and the RITN Control Cell participated in a tabletop exercise to discuss initial triage and treatment of transported patients who were exposed to a radiological exposure device. 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:



# ANALYSIS OF CAPABILITIES

## Module 1: Planning for Patient Arrival

Staff Training: Hospital incident command would be activated immediately with 24-48 hours advanced notice of patients arriving to their facilities. All staff (clinical and non-clinical) would be required to complete/attend refresher training and staff would review hospital emergency operations plan, radiation safety/exposure, triage, and disaster protocols. Once center indicated that staff would receive a situational briefing of the incident in order to discuss exposure risks. Centers indicated both classroom and online just-in-time training would be offered; one participated center indicated a majority of the JITT would be conducted in a classroom style format. Training and informational content discussed by all centers was generally led by Radiation Safety/Radiation Department and would include:

- Staff roles and responsibilities
- Risk to caregivers, current patients and families, and the community
- Signs and symptoms
- Screening patients for contamination (refresher)
- Staff PPE

Participating centers stated their existing radiation safety training would be updated based on the information available in the RITN SITREPS. Centers stated RITN and CDC materials would be primarily used as the content for the JITT. One center stated training materials and delivery to staff would rely heavily on their experiences and lessons learned from pandemic influenza and Ebola Virus Disease planning and exercises.

Information Provided to Current Patients/Families/Others: All of the participating centers would utilize a JIC to review and disseminate public information content. All information communicated would be developed/reviewed by a combination of the following prior to dissemination:

- BMT Medical Director (and other team members)
- Radiation Safety
- Senior Leadership (Administration and Medical)
- Hospital Incident Commander
- Medical/Technical Specialists
- Public Affairs/Public Information Office-Officer/Public Relations
- Federal Coordinating Center

Hospital website, social media, radio, print media (letters/flyers with FAQs) were discussed as being the most readily available manner in which information would be disseminated to those in the hospital as well as the general public.

External Message Coordination: Outside agency coordination would occur between local emergency management agency, FCC, and the hospital's EOC. All centers indicated their hospital liaison officer working in collaboration with local public health, FCC, and a JIC would jointly develop and disseminate all messaging with outside agencies. Finally, participating RITN centers stated the 24-48 hours prior to patient arrival would allow them sufficient time to coordinate messaging.

### Strengths

The following strengths were demonstrated:

**Strength 1:** All RITN centers demonstrated the ability to rapidly train their staff (especially with as much as 48 hour notice) and augment their existing training materials quickly.

**Strength 2:** RITN centers indicated immediate use of a JIC to establish and maintain consistency in managing public messaging and as a means of rumor and min-information control.

### Areas for Improvement

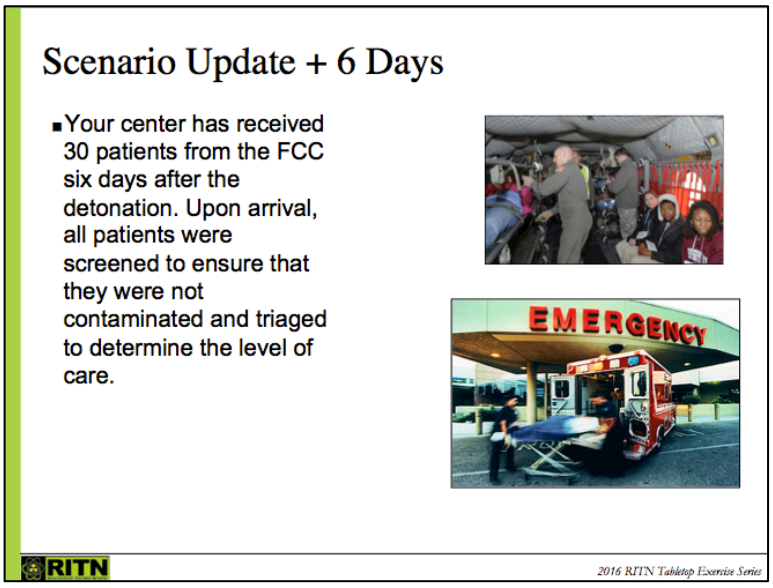
The following areas require improvement:

**Area for Improvement 1:** All RITN centers should develop internal and external risk communication messaging related to the receipt of NDMS patients. As with radiological training materials, the general messaging content can be developed as part of the annual emergency operations plan (EOP) review and updating process. Messaging templates can be developed for current patients/families/those receiving care at your facility as well as messaging templates and FAQs intended for use by local media). Readily available resources include: RITN, NMDP, CDC, and REACTS.

**Area for Improvement 2:** All RITN centers should actively coordinate with their local FCC to update their EOPs as well as their radiation training materials.

## Module 2: Family Information Center

Participants were provided the following update to the scenario to further facilitate discussion.




Plan for Family Information Center: Three participating centers currently have plans/protocols to activate, setup, and operate a FIC (or a Family Resource Center). Centers indicated their incident command teams would activate their Family Information/Resources Centers as soon as they were notified of receipt of NDMS patients. Guest Services and Media Relations would lead these Centers. Insurance coverage was raised as an anticipated concern/question being asked by those coming to the FIC. If the disaster medical system is fully activated, NDMS reimburses RITN centers at their Medicare reimbursement rate + 10%, which comes through U.S. Health and Human Services to the FCC to the RITN center.

Activation & Demobilization of FIC: All centers indicated a FIC would be activated as one of the primary objectives by their incident command teams (e.g. upon notification). The FIC would remain operational until all family members have been reunited and then demobilization would begin. Centers acknowledged that FIC operations may continue for weeks and even months, and Centers would be able to provide the staffing necessary to meet the needs required.

Staffing FIC: The FIC would be staffed from a variety of hospital departments, such as:

- Social Services
- Psychology (and all support services)
- Ethicists

- Patient Advocacy
- Chaplain
- Patient Representatives
- Child Life Specialists
- American Red Cross
- Support would be requested from local public health departments (e.g. mental/behavioral health staff)

Two of the 4 centers indicated having 24-hour operational capability if needed.

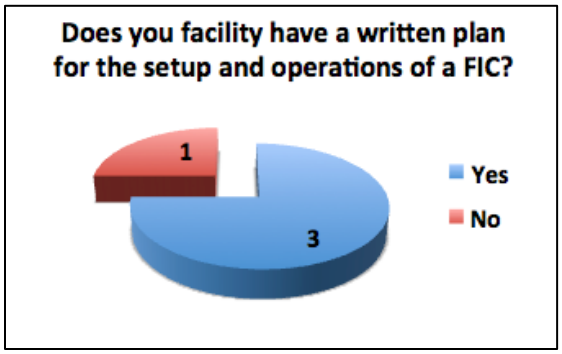
HIPAA Policy: Centers discussed currently having an emergency incident health insurance portability and accountability act (HIPAA) policy, although all centers stated following their current HIPAA policies for the events described in this scenario and consultation with their Legal Departments or Regulatory Compliance Departments for any explanations or modifications needed. Once center indicated having their Compliance Officer prepare a briefing on HIPAA privacy in emergency situations for their incident command team and their hospital emergency preparedness staff.

Minors at the FIC: Centers indicated social services/social work staff at the outset would address the needs of any unaccompanied minors, but their local children's hospital would be contact immediately to assume care and management of unaccompanied minors. All centers indicated having plans and protocols in place for the management of unaccompanied minors, which would not differ under the events described in the scenario. Generally, minors would not accompany a patient, but there have been instances (e.g. Hurricane Katrina) as well as plans in place for an IND event for minors to accompany a patient to a RITN center. In such instances, the support and resources at the FCC level are available and would be coordinated through the local EMA.

Polls:

Participating facilities were asked if they had a written plan for the setup and operations of a family information center.

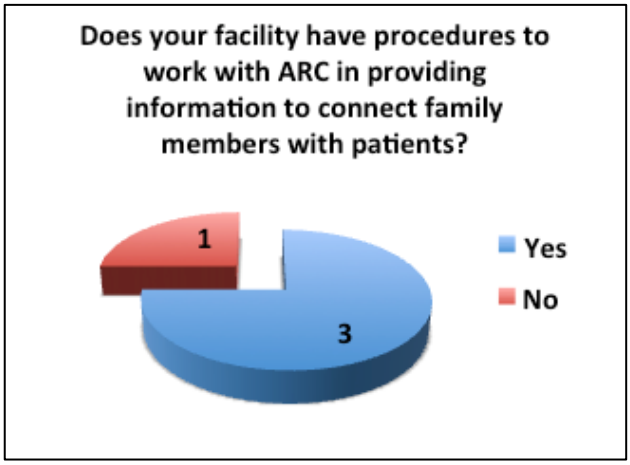
Of the 4 participating facilities, 3 centers indicated having a family information center (FIC) plan while 1 of the centers currently did not have a FIC plan.





Facilities were also polled regarding risk communication messaging templates. Of the 4 participating facilities that responded to this poll question, 3 centers do not currently have template risk communication messages in the event of a surge of radiation-injury casualties while 1 of the responding centers indicated having template risk communication messages in the event of a surge of radiation-injury casualties.

Participating RITN facilities were polled regarding existing procedures to work with an external organization such as the American Red Cross (ARC) for family reunification.




Three of the 4 participating centers (75%) stated they have current procedures to contact the American Red Cross to lead efforts to connect family members with patients.

## Strengths

The following strengths were demonstrated:

**Strength 1:** Once incident command activated the Family Information Center, all participating RITN centers discussed plans and procedures to staff the FIC across various departments including staff and plans to provide behavioral and mental health services to those in need.

**Strength 2:** RITN centers demonstrated protocols and involvement of their legal resources (e.g. compliance officer) to adequately accommodate any needed HIPAA interpretation or requirements for an emergency response event.

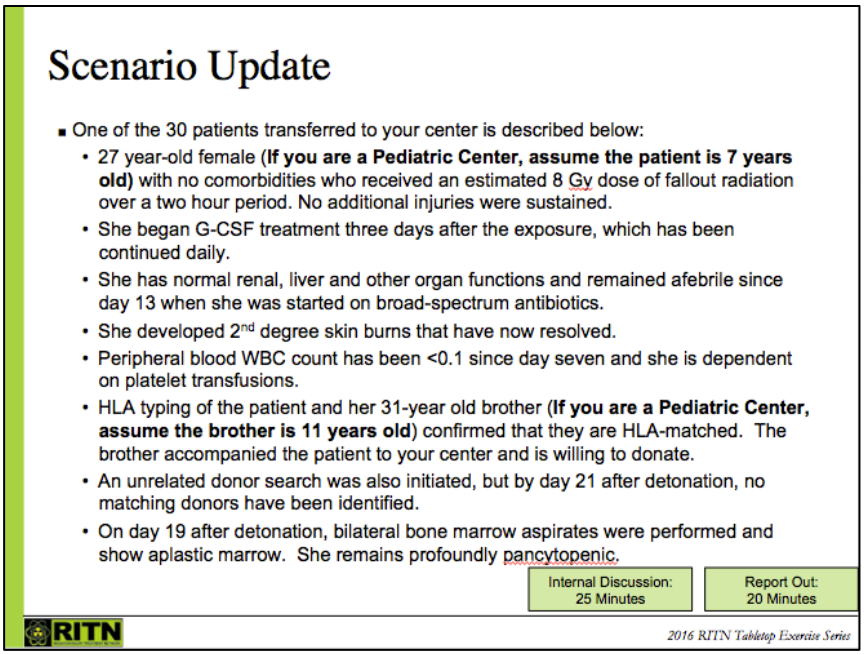
### Areas for Improvement

The following areas require improvement:

**Area for Improvement 1:** All participating RITN centers should coordinate with their local FCC regarding protocols, processes, and documentation needed for NDMS cost reimbursement. Additionally, RITN centers should discuss plans and procedures with their local FCC on caring for minors who accompany a patient. The FCC should discuss their resources available to assist RITN centers provide for minors. Local children's hospitals should be included in these coordinating discussions.

## Module 3: Patient Treatment

Participants were provided the following update to the scenario to further facilitate discussion.




Patient Treatment (27 year old): All of the participating RITN Centers would proceed with HCT, as the patient remains profoundly pancytopenic as well as aplastic at day 21 since detonation. One center stated historically transplant does not have successful outcomes under conditions as stated in the scenario. These 4 centers were consistent in their preparative regimen: For a related match, Cytoxan-ATG regimen would be used, as this is the least toxic to the patient. If the donor were unrelated, a Flu/Cytoxan/ATG regimen would be used. If the brother matched only for 1 haplotype, Centers indicated there would be no in their regimen as this would still be best option if no MUD donor is available. Cytoxan based still least toxic with such extensive radiation exposure.

All centers indicated the course of action would not be impacted if the patient was 67 years old and the brother was 64 years old provided there is confirmation of no comorbidities (one center indicated switching to PBSCs with no comorbidities in the patient).

If patient was 1 year old and brother was 3 years old, the pediatric RITN center participating would proceed with transplantation and would not repeat a marrow assessment. If available, the parent's marrow would be used. The preparative regimen remained unchanged. If the pediatric patient had a haplotype match, one center would consider performing an *ex vivo* T cell depletion using PBSCs from the donor.

Lastly, one of the participating centers inquired as to the RITN capabilities available to assist in transport of a transplant patient from 1 RITN center to another. RITN does not have transport assets and relies on NDMS for transport assets in coordination with ASPR. RITN is able to establish a tele-consultation between RITN centers to discuss patient medical management. The best available options for a RITN center regarding patient transport are in conjunction with their local healthcare coalition as well as the regional FCC.

Polls:

Participating RITN facilities were asked to indicate the types of just-in-time training that can be conducted. The following table illustrates their responses.

| Training Type | Number of Facilities |
|---|---|
| *HLA Typing* | 2 |
| *Medical Countermeasures* | 2 |
| *Patient Triage* | 4 |
| *PPE for Staff* | 4 |
| *Risk Communication* | 4 |
| ***TOTAL Participating RITN Centers*** | **4** |

Four participating RITN centers responding to the poll indicated the ability to provide the following just-in-time training: Patient triage, PPE for staff, and risk communication, while 2 of the 4 responding RITN centers are able to provide JITT for HLA typing and medical countermeasures.

### Strengths

The following strengths demonstrated:

**Strength 1:** Each participating RITN center demonstrated capability to medically manage a patient in need of a transplant 21 days following detonation/significant radiation exposure including discussing altering medical care (if appropriate) for an elderly patient and pediatric patient as stated in the exercise scenario.

**Strength 2:** All RITN centers indicated plans and procedures to conduct just-in-time training for patient triage, PPE for staff, and risk communication in preparation to receive NDMS patients.

### Areas for Improvement

The following areas require improvement:

**Area for Improvement 1:** RITN should consider providing a daily briefing (via teleconference call) to RITN centers during NDMS activation. Participating RITN centers requested RITN consider instituting a daily briefing as part of their CONOPS in order for centers to have a forum

to interact with one another via teleconference call as opposed to email communication or message boards.

**Area for Improvement 2:** All participating RITN centers should develop and or augment their existing just-in-time training (based on the poll results) for HLA typing and medical countermeasures pertaining to the receipt of victims that were exposed to radiological material. This training should be developed as part of improvement planning following this exercise.

**Area for Improvement 3:** RITN centers treating adult only patients should confirm their plans and procedures to prepare and transport a pediatric patient receiving radioactive fallout dosage to a pediatric facility that can provide transplantation services and a continuum of medical and social services care. The adult RITN centers stated they would arrange transport of a pediatric patient, but did not discuss details such as: receiving pediatric hospital/medical, existing contract with an ambulance provider that will transport patients exposed/received radiological material, air transport vendor that would transport this type of patient, and medical team (if needed) to accompany the patient.

# CONCLUSION

This report augments existing planning/training/exercising programs related to RITN center triage and medical management of radiologically exposed patients transported to their center and their capabilities to communicate internally and externally. The strengths validate well-established aspects of the plans while the opportunities for improvement provide information to enhance, refine, or improve existing plans, protocols, procedures, and systems. It is anticipated that the improvement plan will be incorporated into the efforts of each participating RITN center to strengthen the response of the radiation injury treatment network of hospitals and healthcare systems as it relates to the core capabilities identified in this report.

# APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2016 RITN Tabletop Exercise conducted on June 28, 2016. RITN centers can utilize this table to organize the opportunities for improvement to augment and develop their own corrective actions.

| 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] | | | | | |
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[1] Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

# APPENDIX B: EXERCISE PARTICIPANTS

| Participating Organizations | | |
|---|---|---|
| Dartmouth-Hitchcock Medical Center | Josh Hickman | Joshua.d.hickman@hitchcock.org |
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| Dartmouth-Hitchcock Medical Center | Charlotte Coughenhour | Charlotte.m.coughenhour@hitchcock.org |
| Duke University Medical Center | Not provided | Not provided |
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| University of Texas MD Anderson Cancer Center | Shaun Miller | Spmiller1@mdanderson.org |
| University of Texas MD Anderson Cancer Center | Brian Owoseni | oaowoseni@mdanderson.org |

| Participating Organizations | | |
|---|---|---|
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| University of Wisconsin Hospital and Clinics | Marisa Bartlett | Not provided |
| University of Wisconsin Hospital and Clinics | Ruth Oetzman | Not provided |
| University of Wisconsin Hospital and Clinics | Elaine Gerke | Not provided |

## Members of the Incident Response Team Activated for the Exercise

| Position | Duke University Medical Center | UT MD Anderson Cancer Center |
|---|---|---|
| RITN Medical Director | ☐ | ☐ |
| RITN Primary Coordinator | ☐ | ☐ |
| RITN Alternate Coordinator | | ☐ |
| Additional physician(s) | | |
| Nursing staff | ☐ | |
| Admission process rep | | |
| Admin / hospital executive | ☐ | ☐ |
| Emergency mgt staff | ☐ | ☐ |
| Pharmacy staff member | ☐ | |
| Radiation safety officer / Health physicist | ☐ | |
| Social services rep | | |
| Psychiatry/psychology rep | | |
| Blood center rep | | |
| Emergency department rep | ☐ | |
| Quality rep | | |
| Regulatory rep | | |
| Infectious disease specialist | | |
| Cell processing lab rep | | |
| Environ health and safety rep | | |
| Ethicist | | |
| Burn center rep | | |
| Public information rep | ☐ | |
| VA/NDMS rep | ☐ | |
| Public Health rep | ☐ | |
| County/city/state emergency manager | ☐ | ☐ |
| Poison control center rep | | |
| Healthcare coalition rep | | |
| Other | | |

# APPENDIX C: PARTICIPANT FEEDBACK

RITN Centers were asked to provide some brief feedback on an online questionnaire following the exercise. There were three questions asked with related responses are included below. The comments below are not in any particular order and are provided unedited to avoid intent changes.

**Note: The average rating provided by the participating RITN centers for this exercise was 5.0 (out of 5.0).**

| Based on discussions today, please briefly describe the 1 or 2 strengths demonstrated by your organization's ability to respond to a radiation mass casualty incident as described in this exercise scenario. | |
|---|---|
| Duke University Medical Center | *I think we have a very good framework for communication and cooperation between the hospital, the FCC, and city/county emergency response. Within our division, which would be, the primary group providing care to victims, there is a good knowledge of RITN.* |
| University of Texas MD Anderson Cancer Center | *Our center has great oncology and hematology as well as transplant knowledge and support. We have the ability to work with severely neutropenic/pancytopenic individuals. The TX Medical Center has a great network of hospitals.* |

| Based on discussions today, please briefly describe the 1 or 2 challenges demonstrated by your organization's ability to respond to a radiation mass casualty incident as described in this exercise scenario. | |
|---|---|
| Duke University Medical Center | *A lot of the emergency response plans for the hospital are done as generic frameworks that are meant to be tailored to a specific situation. We do not have much pre-prepared material dealing with radiological events specifically but would plan to use CDC/RITN materials for just in time training.* |
| University of Texas MD Anderson Cancer Center | *We do not have bed availability as we usually run at capacity. We also need to revamp and expand our response plans to these types of incidents.* |

| List and briefly discuss elements to address for future RITN exercises. | |
|---|---|
| Duke University Medical Center | *Could revisit the issue of a marrow toxic chemical spill. Combined injury patients in scenario? Would also be good to add in a couple of questions on biodosimetry. i.e. Are you aware that people are working on that. How* |

| List and briefly discuss elements to address for future RITN exercises. | |
|---|---|
| | *would you coordinate sending samples to a central lab to get a read. Lacking a new assay, do you know to do serial CBC and calculate lymphocyte depletion kinetics.* |
| University of Texas MD Anderson Cancer Center | *It would be great to have an actual exercise take place that all centers could participate in that would be more realistic than just a tabletop. Something online/webinar but more real time.* |

# APPENDIX D: ACRONYMS

| Acronym | Term |
|---|---|
| AAR | After Action Report |
| ARC | American Red Cross |
| ARS | Acute Radiation Syndrome |
| ASPR | Assistant Secretary for Preparedness and Response |
| ATG | Anti-Thymocyte Globulin |
| BMT | Bone Marrow Transplantation |
| Cy | Cyclophosphamide |
| EOP | Emergency Operations Plan |
| FCC | Federal Coordinating Center |
| FIC | Family Information Center |
| FluBu2 | Fludarabine, intravenous Busulfan |
| GCSF | Granulocyte Colony-Stimulating Factor |
| GETS | Government Emergency Telecommunications Service |
| GVHD | Graft Versus Host Disease |
| Gy | Gray |
| HCT | Hematopoietic Cell Transplantation |
| HHS | Health and Human Services |
| HIPAA | Health Insurance Portability and Accountability Act |
| HLA | Human Leukocyte Antigen |
| HSCT | Hemetopoietic Stem Cell Transplantation |
| IND | Improvised Nuclear Device |
| JITT | Just In Time Training |
| NMDP | National Marrow Donor Program |
| NDMS | National Disaster Medical System |
| ONR | Office of Naval Research |
| PB | Peripheral Blood |
| PPE | Personal Protective Equipment |
| REACTS | Radiation Emergency Assistance Center/Training Site |
| RITN | Radiation Injury Treatment Network |
| SITREP | Situation Report |
| SNS | Strategic National Stockpile |
| TBI | Total Body Irradiation |

| Acronym | Term |
|---|---|
| TTX | Tabletop Exercise |
| WBC | White Blood Count |