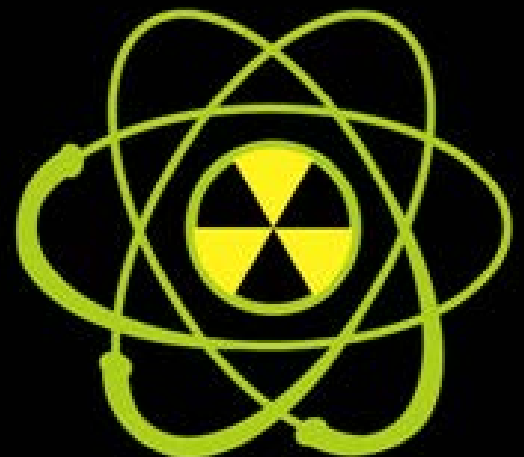


2016

**After-Action Report/Improvement Plan
May 24, 2016**



EXERCISE OVERVIEW

Exercise Name	2016 RITN Tabletop Exercise (TTX)
Exercise Date	May 24, 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	<p>Objective 1: Conduct internal and external communications that include staff, patients, and visitors as well as the media and other response partners.</p> <p>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.</p> <p>Objective 3: Identify just in time training requirements and the resources needed to meet those needs.</p> <p>Objective 4: Describe their approaches used for hematopoietic cell transplantation (HCT) in casualties who appear to have received myeloablative doses of radiation.</p>
Threat or Hazard	Radiological
Scenario	Medical surge from a distant radiological incident
Sponsor	<p>Radiation Injury Treatment Network® (RITN)</p> <p>National Marrow Donor Program (NMDP)</p> <p>Office of Naval Research (ONR)</p>
Participating Organizations	<p>City of Hope Medical Center – Duarte, CA</p> <p>Temple University Health System – Philadelphia, PA</p> <p>University of California – San Francisco – San Francisco, CA</p>



University of Florida Shands Cancer Hospital – Gainesville, FL
University of Minnesota Medical Center – Minneapolis, MN
University of Rochester Strong Memorial – Rochester, NY
West Virginia University Hospital – Morgantown, WV



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EXERCISE SUMMARY

On May 24, 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:

Scenario – Initial Event

- A 1 kiloton Improvised Nuclear Device (IND) was detonated in a major metropolitan area.
- The blast occurred at least 500 miles away from your facility and there is no concern of fallout affecting your location.
- RITN Control Cell staff begin to monitor the situation and send out daily Situation Reports (SITREPs) to the RITN facilities.
- In addition, the RITN Control Cell requests all RITN centers to submit their Healthcare Standard (HCS) capabilities report and to ensure alternate communications are functioning (e.g., satellite phone, GETS card)

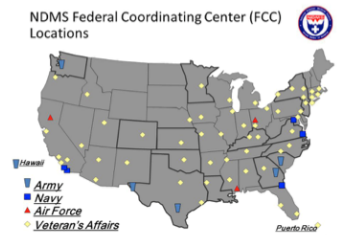


RITN

2016 RITN Tabletop Exercise Series

Scenario + 4 Days

- The National Disaster Medical System (NDMS) issues activation protocol for your region and the local Federal Coordinating Center (FCC) has indicated your center will be receiving patients from the incident and expects them to arrive within 24-48 hours.



RITN

2016 RITN Tabletop Exercise Series

ANALYSIS OF CAPABILITIES

Module 1: Planning for Patient Arrival

Staff Training: Centers indicated partial activation of their command centers along with activation of initial notification processes and mass casualty plans with 24-48 hours advanced notice of patients arriving to their facilities. Notification would be made to the medical teams, nursing teams, BMT team, and public information officer. Those in the command center would address bed availability, supplies, and anticipated staffing needs. In particular, the radiation safety officer would consult on the patient screening and patient triage plans/protocols. The medical director, radiation safety officer, and other technical specialists would contribute to content development focusing on radiation safety and patient care (e.g. clinical considerations). A combination of computer-based and face-to-face training would be used (several facilities indicated face-to-face training as the only option) and all staff would be encouraged to complete training, but BMT staff would be required to complete the training. Several centers also stated new hires must complete pre-identified training requirements for receiving radiological casualties. With 24-48 hour notice, RITN website would be used for additional computer-based training of staff and REACTS would be consulted to provide more specific technical information to medical and patient care staff.

Information Provided to Current Patients/Families/Others: Several centers indicated use of their patient education centers/education centers as a clearinghouse while others used media relations departments if current patients, their families, members of the community receiving care, and outside partners were to be notified/informed. Centers would make FAQs and education sessions, for example, available as well as update any printed materials. Though the FAQs may require modification, they would include more specific information regarding the incident, radiation from the incident, health impacts, types of patients received, and general information about RITN centers. All information communicated would be developed/reviewed by the medical staff initially and then would go through internal media relations reviewed prior to being disseminated.

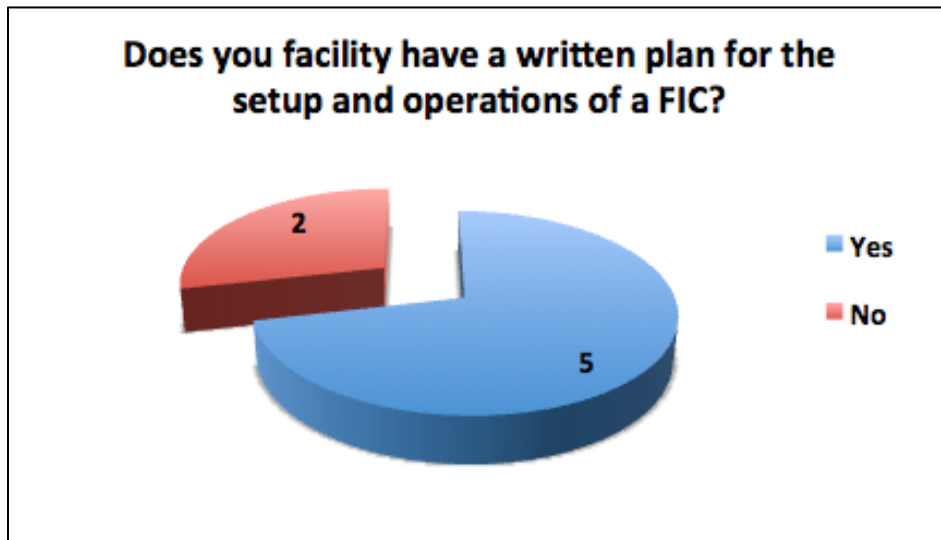
External Message Coordination: Website, traditional media, and social media used for education as well as request for blood products. Local media would be brought in and made partners in the education plan.

Outside partners informed are FCC, local EMA, health departments, and healthcare coalitions and the RITN center would follow established notification protocols. Communication with

external partners would be coordinated with the public information officer and the liaison officer in the hospital command center.

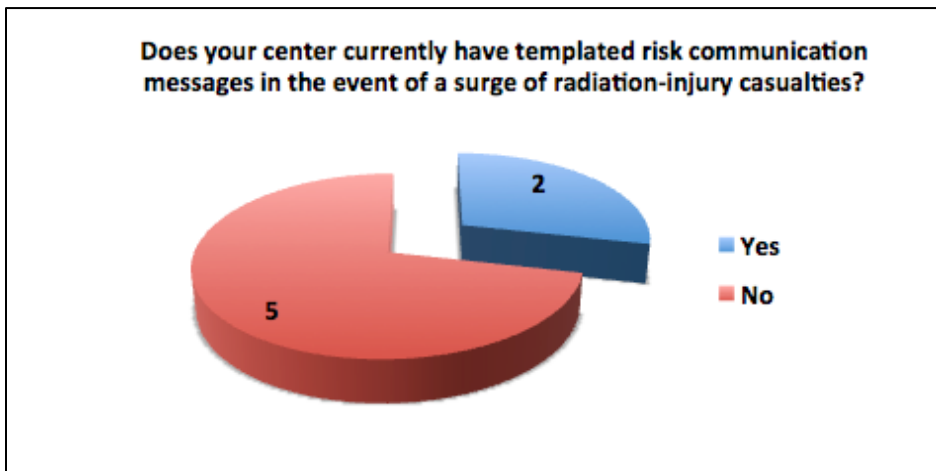
Polls:

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



Of the 7 participating facilities, 5 indicated having a FIC plan and 2 centers did not have a FIC plan.

Facilities were also polled regarding risk communication messaging templates.



Of the 7 participating facilities, only 2 currently have template risk communication messages in the event of a surge of radiation-injury casualties.

Strengths

The following strengths were demonstrated:

Strength 1: All RITN centers demonstrated the capability to rapidly educate and train their staff to triage, treat, and medically manage radiological patients using a range of resources to augment existing materials (i.e. RITN website, REACTS).

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: RITN centers should develop the training materials needed for staff to be educated and prepared to receive radiological patients. Though nuances of an incident are vital, the general medical and clinical information for the triage, treatment, and management of a patient exposed to radiological material or ARDS patient applies to any radiological incident and can be developed in advance of an incident or receipt of NDMS patients.


Area for Improvement 2: RITN centers should continue to develop internal and external 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 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.

Module 2: Family Information Center

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

Scenario Update + 6 Days

- Your center has received 30 patients from the FCC six days after the detonation. Upon arrival, all patients were screened to ensure that they were not contaminated and triaged to determine the level of care.



RITN 2016 RITN Tabletop Exercise Series

Plan for Family Information Center: All centers indicated their incident command centers would direct activation, staffing, and demobilization of their family information center. Two of the participating centers did not have a plan/policy currently in-place for operating a family information center.

Activation & Demobilization of FIC: All centers indicated their incident command teams would activate their family information center once notification received that NDMS patients were being sent to their facility. The incident command team would determine when to demobilize the FIC; however centers stated the FIC would be demobilized as the demand for those services decreased. RITN centers identified a physical location for the FIC and centers. Centers with pediatric and adult capabilities would establish a FIC for each. The FIC would address the immediate needs of lodging, food, and transportation.

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

- Social work (or social services)
- Chaplain (or pastoral care)
- Patient relations
- Psychiatric services

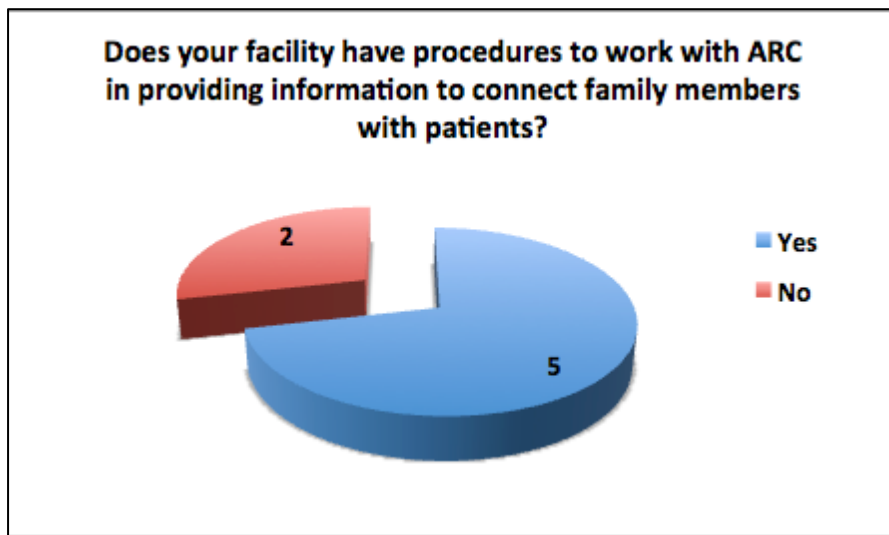
All centers indicated a 24-hour call rotation to operate the FIC, which would then be downgraded based on the incident command’s decision as demand decreased.

HIPAA Policy: Centers did not indicate 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. Risk Management staff and/or the center’s HIPAA Compliance Officer would be consulted to review and update current policies once the center is notified of receipt of NDMS patients.

Minors at the FIC: Contact other family members. Likely parents would receive input and would access services as needed as if the child were an outpatient. Get social work involved as well as city social work to provide care and placement of the minors. Other agencies stated

Polls:

Participating RITN facilities were polled regarding existing procedures to work with an external organization such as the American Red Cross for family reunification. Five of the 7 participating



centers stated they have current procedures to contact the American Red Cross to lead efforts to connect family members with patients.

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
<i>HLA Typing</i>	5
<i>Medical Countermeasures</i>	7
<i>Patient Triage</i>	6
<i>PPE for Staff</i>	7

Training Type	Number of Facilities
<i>Risk Communication</i>	7
<i>TOTAL Participating RITN Centers</i>	7

All 7 participating RITN centers are able to provide the following just-in-time training: Medical countermeasures, PPE for staff, and risk communication, while 6 RITN centers are able to provide patient triage just-in-time training, and 5 RITN centers are able to provide HLA typing just-in-time training.

Strengths

The following strengths were demonstrated:

Strength 1: Two RITN centers shared their draft FIC plans with other centers that did not currently have a FIC plan, which demonstrated the significant value of the online exercise platform to connect centers nationwide to collaborate on plans and procedures to receive, triage, treat, and medically manage NDMS patients and their families.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: RITN centers should consider developing a HIPAA policy for receipt of NDMS patients. Utilize Risk Management staff and the HIPAA Compliance Officer to augment the language to cover an emergency situation.

Area for Improvement 2: All RITN centers should develop a family information center plan as part of their EOP. As a result of the exercise discussion, two participating RITN centers agreed to share their FIC plan with those centers that did not have a draft FIC plan.

Area for Improvement 3: All participating RITN centers should develop just-in-time training for HLA typing and patient triage (based on the poll results). This training should be developed as part of improvement planning following this exercise.

Module 3: Patient Treatment


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

Scenario Update

- One of the 30 patients transferred to your center is described below:
 - 27 year-old female (**if you are a Pediatric Center, assume the patient is 7 years old**) with no comorbidities who received an estimated 8 Gy dose of fallout radiation over a two hour period. No additional injuries were sustained.
 - She began G-CSF treatment three days after the exposure, which has been continued daily.
 - She has normal renal, liver and other organ functions and remained afebrile since day 13 when she was started on broad-spectrum antibiotics.
 - She developed 2nd degree skin burns that have now resolved.
 - Peripheral blood WBC count has been <0.1 since day seven and she is dependent on platelet transfusions.
 - HLA typing of the patient and her 31-year old brother (**if you are a Pediatric Center, assume the brother is 11 years old**) confirmed that they are HLA-matched. The brother accompanied the patient to your center and is willing to donate.
 - An unrelated donor search was also initiated, but by day 21 after detonation, no matching donors have been identified.
 - On day 19 after detonation, bilateral bone marrow aspirates were performed and show aplastic marrow. She remains profoundly pancytopenic.

Internal Discussion:
25 Minutes

Report Out:
20 Minutes

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Patient Treatment (27 year old): Centers would proceed with HCT as the patient remains profoundly pancytopenic as well as aplastic at day 21 since detonation. The marrow assessment would not be repeated until day 30, which is following transplantation. Participating centers did not agree in the following:

- Whether or not to give a preparative regimen.
- T-cell depletion

For those centers giving a preparative regimen, Cytoxan (Cy) and ATG would be given. All centers indicated using the brother's bone marrow product as one means of minimizing the risk of GVHD (graft versus host disease). If the brother matched for one haplotype, then a haplotransplant would be performed, as a search would likely be very time consuming.

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. One of the main reasons provided for maintaining the course of action was that the patient still remained aplastic at 21 days after detonation.

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 until a time determined by the medial team following the transplant surgery. The preparative regimen would

include ATG with GVHD prophylaxis. Bone marrow from the brother would be used unless preoperative infection was present. The haplotransplant would be performed along with *in vitro* T-cell depletion. All other participating centers indicated their top priority would be to identify a pediatric facility capable of providing care and arranging transport to that facility.

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.

Areas for Improvement

The following areas require improvement:

Area for Improvement 1: 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 May 24, 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]					

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

APPENDIX B: EXERCISE PARTICIPANTS

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Members of the Incident Response Team Activated for the Exercise

Position	City of Hope Medical Center	Shands Hospital at the Univ. of Florida	Temple University Hospital	UCSF Medical Center	University of Minnesota Medical Center	Univ. of Rochester Strong Memorial Hospital	West Virginia University Hospitals
RITN Medical Director			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RITN Primary Coordinator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RITN Alternate Coordinator		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional physician(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Nursing staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Admission process rep					<input type="checkbox"/>		
Admin / hospital executive	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
Emergency mgt staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy staff member	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiation safety officer / Health physicist	<input type="checkbox"/>			<input type="checkbox"/>			
Social services rep	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Psychiatry/psychology rep							
Blood center rep	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency department rep					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality rep	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>
Regulatory rep		<input type="checkbox"/>			<input type="checkbox"/>		
Infectious disease specialist							
Cell processing lab rep	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environ health and safety rep	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ethicist							
Burn center rep							
Public information rep	<input type="checkbox"/>				<input type="checkbox"/>		
VA/NDMS rep							
Public Health rep						<input type="checkbox"/>	<input type="checkbox"/>
County/city/state emergency manager						<input type="checkbox"/>	
Poison control center rep							
Healthcare coalition rep							<input type="checkbox"/>
Other	Case Management				Facilities		

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 4.71 (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.	
City of Hope Medical Center	<i>We are dedicated to the care of these patients and were able to discuss some needed items for review like family assistance and staff education plans.</i>
Shands Hospital at the University of Florida	<i>That we do have a mass casualty plan in place, that covers a lot of the scenarios in place.</i>
Temple University Hospital	<i>Great organization and layout.</i>
UCSF Medical Center	<i>Good coordination between BMT nursing, attending, emergency management and radiation safety. Well developed crisis communication plan with Public Information Officer.</i>
University of Minnesota Medical Center	<i>SOPs are in place. Experienced HICS structure. Expert depth of provider and staff knowledge.</i>
University of Rochester Strong Memorial Hospital	<i>Communications with state and federal well established, good community disaster planning already in place, with all local hospital know we are an RITN center</i>
West Virginia University Medical Center	<i>We have a process to notify all necessary staff of disasters and emergencies through Live Process. We practice this often and have used it for other situations with good response. Our local agencies and hospitals work well together. We also have a better understanding of the resources available from local agencies to help in setting up our FIC.</i>

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.	
City of Hope Medical Center	<i>Challenges noted would be to provide unified education and communication tools. Assuring that staff and others are also giving out good information to patients and families of existing COH customers.</i>
Shands Hospital at the University of Florida	<i>That we may need to refresh some policies.</i>
Temple University Hospital	<i>None</i>
UCSF Medical Center	<i>We need to develop written SOPs for the Family Information Center, interaction with Red Cross, and privacy Risk Management.</i>
University of Minnesota Medical Center	<i>Template for communication not developed. .JIT module or key messages needed</i>
University of Rochester Strong Memorial Hospital	<i>Continue to discuss how we would share this with the community and who would be the individual to deliver,</i>
West Virginia University Medical Center	<i>We have identified that we need to develop yearly CBL's in medical and non-medical training for RITN to keep the information in the forefront. We are also developing just in time training for a refresher to assign in the event of an incident. While we have developed SOPs to address the set up of our FIC, we are still working to better educate and involve addition resources to provide a comprehensive service.</i>

List and briefly discuss elements to address for future RITN exercises.	
City of Hope Medical Center	<i>Questions on austere care and altered standards of care of good questions, what does this look like, how do you coordinate offloading patients to other hospitals, etc.</i>
Shands Hospital at the University of Florida	<i>More case studies</i>
Temple University Hospital	<i>I think it was wonderful, thank you!</i>
UCSF Medical Center	<i>Input from the Federal Coordination Center regarding their resources and involvement in an RITN activation</i>

List and briefly discuss elements to address for future RITN exercises.	
University of Minnesota Medical Center	<i>Triage get through ED and coordination of communication with providers</i>
University of Rochester Strong Memorial Hospital	<i>Continue with reviewing regional systems that work with our local departments, mass hysteria and how to deal with</i>
West Virginia University Medical Center	<i>We like the scenarios that have multiple patients to triage to services other than Hem/Onc and transplant. This involves multiple departments throughout the hospital so a greater number of staff is aware of the process.</i>

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
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
HIPPA	Health Insurance Portability and Accountability Act
HLA	Human Leukocyte Antigen
IND	Improvised Nuclear Device
JITT	Just In Time Training
NMDP	National Marrow Donor Program
NDMS	National Disaster Medical System
ONR	Office of Naval Research
PPE	Personal Protective Equipment
REACTS	Radiation Emergency Assistance Center/Training Site
RITN	Radiation Injury Treatment Network
SITREP	Situation Report
SNS	Strategic National Stockpile
TTX	Tabletop Exercise