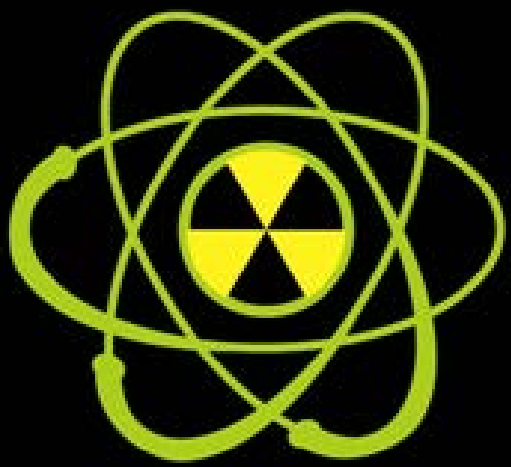
2016

Charleston Regional RITN Tabletop Exercise After-Action Report/Improvement Plan



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EXERCISE OVERVIEW

Exercise Name	Charleston Regional RITN Tabletop Exercise (TTX)
Exercise Date	July 20, 2016 8:30 AM – 12:00 PM
Capabilities	Public Health & Medical Services Operational Coordination, Medical Surge, Responder Safety & Health, Mass Care
Objectives	**Objective 1:** Clarify the organizational roles and responsibilities of participating agencies in responding to a surge of casualties with radiological injuries to the Charleston region. **Objective 2:** Identify the process for casualty reception and distribution within the National Disaster Medical System (NDMS) framework. **Objective 3:** Identify the critical resources available to assist hospitals and treatment centers during a surge of radiation-injured patients and discuss resource gaps. **Objective 4:** Anticipate guidance that non-Radiation Injury Treatment Network (RITN) hospitals will need with regard to receiving radiation-injured patients; of particular concern is triage, treatment, tracking and surveillance of self-referral cases from the area of radiation impact and distribution of medical countermeasures. **Objective 5:** Identify the responsibilities and resources necessary for mass care capabilities to support RITN patients and their families during ongoing treatment at Charleston RITN treatment centers.
Threat or Hazard	Radiological
Scenario	Medical surge due to a distant detonation of an improvised Nuclear Device (IND)
Sponsor	Radiation Injury Treatment Network® (RITN) National Marrow Donor Program (NMDP) Office of Naval Research (ONR)
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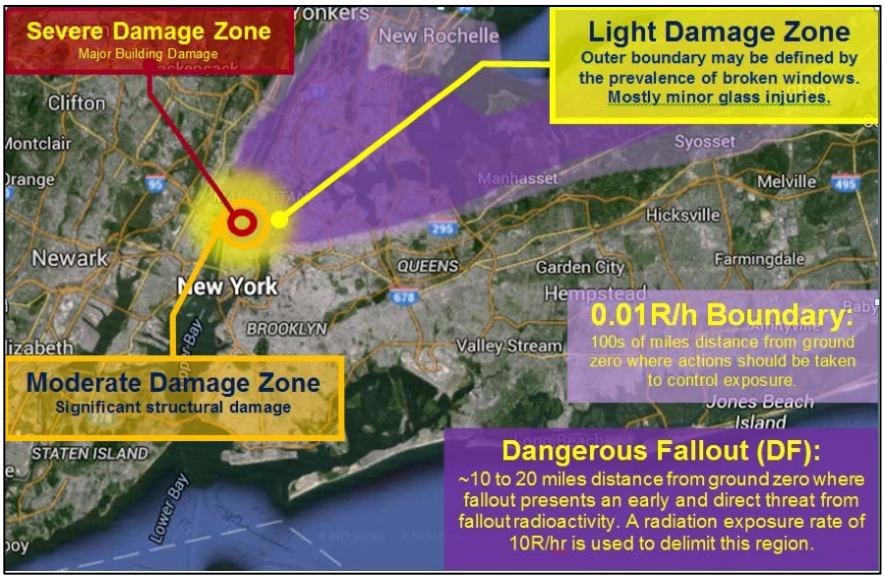
EXERCISE SUMMARY

On July 20, 2016, the Medical University of South Carolina (MUSC), Roper St. Francis Mount Pleasant Hospital, the South Carolina Hospital Association (SCHA), Charleston County Emergency Management, the South Carolina Department of Health and Environmental Control (DHEC), the Salvation Army, Veterans Administration (VA), the National Disaster Medical System (NDMS) Federal Coordinating Center (FCC), the U.S. Department of Health and Human Services (HHS) Assistant Secretary for Preparedness and Response (ASPR), and the RITN Control Cell participated in a tabletop exercise to discuss the organizational roles and responsibilities of key agencies, identify resources required to provide treatment for a surge of radiation injury patients, describe medical management of patients (to include inpatient, outpatient and self-referral), discuss casualty reception and receipt within the FCC model, and identify resource needs for mass care/shelter operations. Exercise participants addressed these objectives in a scenario-driven, facilitated discussion based on a surge of casualties with radiological injuries arriving to the Charleston area.

Exercise Scenario

Initial Event

- On July 4th, 2016 a ten-kiloton Improvised Nuclear Device (IND) was detonated in New York City.



- Estimated casualties:
  - 300,000 fatalities in the Severe Damage Zone; 150,000 in Moderate Damage Zone.

  - 60,000 urgent casualties in Moderate Damage Zone; 90,000 in Light Damage Zone.
  - 40,000 non-urgent casualties in Moderate Damage Zone; 60,000 in Light Damage Zone.
  - 300,000 worried well across geographical area.
  - 16,400 radiation casualties across geographical area.
- Secretary of Health and Human Services (HHS) declares a Public Health Emergency and activates the HHS Emergency Management Group.
- The National Marrow Donor Program (NMDP) activates the RITN Control Cell. Control Cell staff begin to monitor the situation and send out Situation Reports (SITREPs) to the RITN facilities as well as notification to fill out and submit the HCS capacity survey.

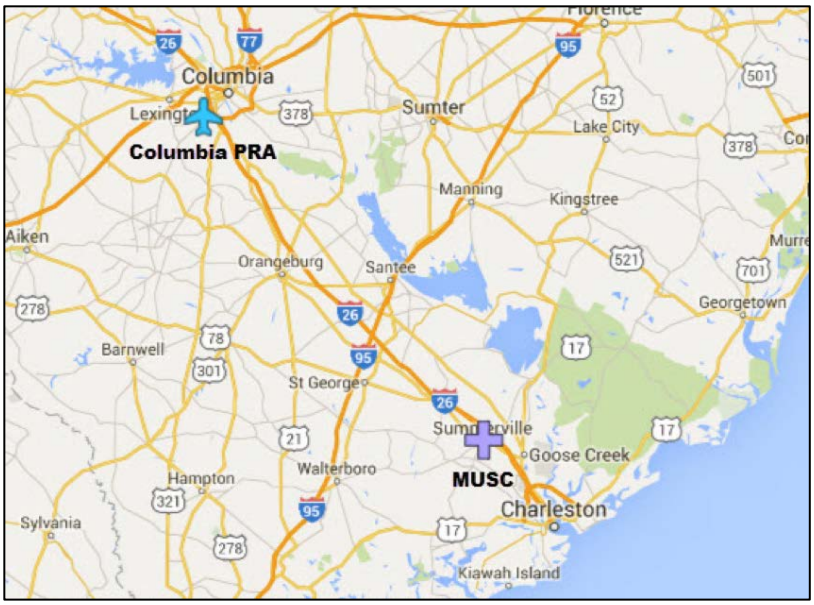
Initial Event +4 Days

- National Disaster Medical System (NDMS) issues activation protocol for Charleston, indicating the region will be receiving casualties from the disaster zone via NDMS.
- The Department of Defense initiates actions to establish a Patient Reception Area (PRA) FCC at Columbia Metropolitan Airport, where NDMS patients will be received.

Initial Event +5 Days

Approximately five days after the detonation patients start to arrive at the FCC established at Columbia Metropolitan Airport. Upon arrival patients will be screened and triaged for transportation to the local RITN hospital (Medical University of South Carolina [MUSC]) for treatment. MUSC is expected to receive 60 adult and pediatric patients with marrow toxic injuries. These patients typically will arrive in waves of 30-45 patients and may be spread out over the next 1-2 days.

Some RITN patients are anticipated to be treated on an outpatient basis. Mass care services for patients and family members are also anticipated.



Exercise Objectives and Core Capabilities

The following exercise objectives in Table 1 describe the expected outcomes for the exercise. The objectives are linked to core capabilities, which are distinct critical elements necessary to achieve the specific mission area(s). These objectives and aligned core capabilities are guided by elected and appointed officials and were selected by the Exercise Planning Team.

Table 1. Exercise Objectives and Associated Core Capabilities

Exercise Objective	Core Capability	Healthcare Preparedness Capability
Objective 1: Clarify the organizational roles and responsibilities of participating agencies in responding to a surge of casualties with radiological injuries to the Charleston region.	Public Health & Medical Services	Emergency Operations Coordination
Objective 2: Identify the process for casualty reception and distribution within the Federal Coordinating Center model.	Public Health & Medical Services	Emergency Operations Coordination
Objective 3: Identify the critical resources available to assist hospitals and treatment centers during a surge of radiation-injured patients and discuss resource gaps.	Public Health & Medical Services	Medical Surge
Objective 4: Anticipate guidance that non-Radiation Injury Treatment Network (RITN) hospitals will need with regard to receiving radiation-injured patients; of particular concern	Medical Countermeasures Dispensing	Responder Safety & Health

Exercise Objective	Core Capability	Healthcare Preparedness Capability
is triaging, treatment and tracking/surveillance of self-referral cases from the area of radiation impact and distribution of medical countermeasures.		
Objective 5: Identify the responsibilities and resources necessary for mass care capabilities to support RITN patients and their families during ongoing treatment at Charleston RITN treatment centers.	Mass Care Services	Emergency Operations Coordination

ANALYSIS OF CAPABILITIES

Question Block 1: Pre-Arrival of Patients

The following are the primary concerns at this point in the scenario for:

Emergency Management (City, County, State)	South Carolina Department of Health and Environmental Control (DHEC)	MUSC (RITN Facility)	Non-RITN Hospitals	Columbia FCC
• Establish and maintain communications; ensure that public information is disseminated (e.g., what is their risk, any disruptions anticipated at the hospitals, and address concerns). • Joint messaging between city and county emergency management and the hospital (establish JIC). • Coordinate any logistical needs related to patient movement from Columbia to Charleston.	• Coordinating public information via the JIC • Leaning forward to support the needs of healthcare facilities in the region	• Determine what patients can be discharged • Update RITN bed availability to RITN network	• Prepare to accept patients discharged from MUSC • Situational awareness communications to understand healthcare system needs and support • VA would also support getting vehicles to move patients • Hospital coalition liaison would be involved in the communications	• Establish the patient reception area at the air base in Columbia • Facilitate information sharing on patient arrival time and status between the air force and Charleston/ MUSC • Coordinate transport vehicles for patient movement to Charleston.

Activation: The Columbia FCC would receive an alert for activation from the U.S. Department of Health and Human Services (HHS), which would initiate activities for opening the FCC and the Patient Reception Area (PRA). The HHS Secretary Operations Center (SOC) determines the patient distribution strategy across all NDMS hospitals.

RITN and NDMS/HHS Coordination: The role of RITN would be to provide the specialty RITN bed data/reports to HHS but then would rely on the established HHS processes to manage the incident. HHS will review the bed data and provide the information to the regional coordinators (e.g., FCC, EOC). Currently the RITN beds are not part of the HAvBED system; there is support for the integration but it has not happened to date. MUSC also only provides the RITN specific bed information to RITN and it is not shared within the state (e.g., public health, hospital association). It may be useful to update protocols to include direct sharing of this information to the FCC and public health so there is more immediate awareness of the capability/capacity and not necessary to wait for the information to come back down from HHS.

Operation of the FCC: The Columbia PRA is supported by the American Red Cross (ARC) and Salvation Army to help with feeding and sheltering, basic first aid, and communications with family members. The primary needs identified would be transport vehicles to move the patients from Columbia to Charleston and triage capabilities (potentially to include blood testing) to facilitate determining the level of care (i.e., inpatient or outpatient).

Transport assets for moving patients from the Columbia PRA to Charleston/MUSC (~2-hour drive) were not specifically discussed. The VA and MUSC mentioned having assets that could be utilized. There was a discussion about setting up MUSC staffed triage at the PRA so that patients could be sent to their end destination rather than sending all to MUSC and then having a number of them be determined as outpatients and transported a second time to their lodging location. The FCC also advocates for MUSC to perform this function at the Columbia FCC. Transport vehicles will already be moving from Charleston to Columbia so a triage team could be deployed along with vehicles.

Patient tracking for NDMS is done using the HHS Joint Patient Assessment and Tracking System (JPATS); this is accessed by either the Service Action Team (SAT) or the FCC team. MUSC is not familiar with using the JPATS system but believe they would be able to scan the JPATS barcodes into their system to facilitate patient tracking.

There used to be an FCC in Charleston with the ability to establish the PRA locally; this was used in the Hurricane Katrina response. During the exercise participants discussed whether in this scenario (i.e., a large number of patients needing to come to MUSC for treatment) it would be possible to move the FCC/PRA to Charleston. To do so would require authorization at the NDMS/HHS level to be approved for a third PRA. In addition, staffing and logistics of where to set up the PRA would be need to be determined.

Notification of Hospitals: All hospitals would be notified of the inbound patients in order to decompress and/or move patients throughout the hospital system to make room for the RITN patients. There would also be a need to notify hospitals of the incident because prior to the RITN patients arriving, it may be possible that trauma patients are also sent by NDMS to South Carolina.

Strengths

Strength 1: The Columbia PRA, Charleston City and County response partners, and MUSC have a strong working relationship with the Salvation Army and American Red Cross. These entities will be extremely valuable in supporting the feeding and family reunification needs for NDMS patients moved into the area for care.

Strength 2: The South Carolina Hospital Association would be able to rapidly communicate and coordinate to decompress the system in order to prepare MUSC for receiving the RITN patients.

Areas for Improvement

Area for Improvement 1: Continue to develop/revise the MUSC RITN protocols using information from this exercise, such as the planning considerations related to receive one non-medical attendant with each patient, local housing and transportation needs, the potential to receive unaccompanied minors, and clear expectations for decontamination once the patients arrive to the hospital. This includes ongoing discussion with the Regional HHS/ASPR contact and FCC/PRA lead to fill information gaps identified throughout this report.

Area for Improvement 2: Continue to explore the possibility of (re)-establishing a PRA in Charleston. This may include joint meetings with the Columbia FCC and the hospital and city/county response partners in Charleston to determine what the needs are for establishing a PRA, further discussion about the utility in this scenario, and identifying next steps should the formal request need to be made to NDMS/HHS.

Area for Improvement 3: Public messaging strategies for this type of incident (i.e., radiological/nuclear detonation that results in radiation injuries) should be developed in advance and incorporated into existing emergency response plans. References to assist with messaging strategies and templates include, but are not limited to:

- U.S. HHS Radiation Emergency Medical Management (REMM) website - Information Resources for Public Information Officers. http://www.remm.nlm.gov/remm_pio.htm
- FEMA. "Improvised Nuclear Device Response and Recovery: Communicating in the Immediate Aftermath" – June 2013. http://www.fema.gov/media-library-data/20130726-1919-25045-0618/communicating_in_the_immediate_aftermath__final_june_2013_508_ok.pdf

The MUSC Radiation Safety Officer should be involved in message development in advance and during the incident.

Area for Improvement 4: Establish a MUSC triage team that can be deployed to the FCC in Columbia to assess the incoming NDMS patients to determine if they require inpatient or outpatient care and transport them appropriately. Further logistical discussions are required to determine the potential for onsite CBC laboratory testing, 24/7 coverage, and notifications to the triage team.

Area for Improvement 5: Incorporate the use of JPATS into future NDMS or RITN exercises to increase hospital familiarity with how this system might integrate with local patient tracking systems.

Question Block 2: Arrival of Patients

Even though the assumption is that arriving NDMS patients would have been decontaminated, MUSC would perform screening of patients to ensure that 1) people were not missed for decontamination, 2) for medical care awareness should patients have embedded fragments or ingested contamination, and 3) to reassure staff along with the messaging. There are equipment and trained personnel available locally to support the monitoring (e.g., power plants in South Carolina and Georgia); contact information for these resources will be provided and included in the MUSC RITN plan.

Standard indicators would be used to determine whether the patient required inpatient or outpatient care, such as having an active infection, bleeding, uncontrolled vomiting, and/or the inability to take fluids. The IND scenario and ARS patients would utilize the same criteria to evaluate bone marrow transplant (BMT) patients on a routine basis.

Outpatient and Mass Care Considerations: Housing and transportation are the two biggest issues for supporting outpatient care. It would be ideal for the outpatients to stay in somewhat isolated conditions/rooms and not all be housed in one open environment such as a gymnasium. Consensus was not reached during the exercise as to how the outpatients (~38-45 people in this scenario) and their caregivers would be housed but some of the suggested options for further consideration included: military base/federal law enforcement training center barracks, hotels in the area, and the Roper St. Francis Mount Pleasant Hospital. The strengths and drawbacks for each of these options are summarized below:

Location	Strengths	Drawbacks
Military Base/Federal Law Enforcement Training Center Barracks	Ability to isolate Built in security, food, transportation assets Ability to stage nursing and laboratory services on site	Federal Government may take over this space (or restrict civilian access) following an IND
Area Hotels	If patients were centralized at several hotels, medical/home health/other service teams could be deployed to those locations for onsite care rather than having to transport outpatients to the hospital Availability if look anywhere within 45 min (25 miles) from MUSC; e.g., North Charleston	Would need to provide education to hotel staff in advance to accept ARS patients Potential occupancy issues depending on time of year Cost may be high Logistics of moving patients
Roper St. Francis Mount Pleasant Hospital	Low census, open beds regularly Patient isolation Medical care	Balance the need to keep these hospital beds open for other types of patients/emergencies Waivers, licensing, and staffing

At this time, if the City or County did not have direction from the federal partners on housing, they would coordinate lodging. It would be expected that MUSC would submit the ICS 213 Resource Request Form to the City Emergency Operations Center (EOC) requesting lodging for the outpatients and their companions. This request would follow the established ICS process of adjudicating the request first at the city level, then the county and state levels as needed. Because these patients are arriving as part of a federal program (NDMS), more clarity is needed on reimbursement. The planning assumption is that the local area will need to provide housing for 75% of the expected number of patients (outpatient number) and that the initial activation call is when this topic should be specifically discussed between the local jurisdiction and federal partners. The outstanding questions/issues identified during the exercise included:

- Role of MUSC and federal partners required more discussion and plan development
    - Normally transplant patients are responsible for arranging their own accommodations but this is a disaster so need clarity
    - Federal support would be available once the locality identified their needs
- Mechanism for reimbursement; is housing coordinated and paid directly by the federal government or are housing costs reimbursable
    - Time window to submit reimbursement for NDMS patients
- Costs that are covered and those that are not, assumptions about outpatient care were not clear and requires follow up by HHS
    - Patient care is lengthy (average of 6 weeks) and the cost of operations has the potential to bankrupt the healthcare system/MUSC if reimbursement is not planned for appropriately.
- South Carolina would also need to have a disaster declaration if patients were moving from the disaster epicenter into their area in order to implement the Stafford Act and help with costs/ reimbursement.

It was recognized that many of these questions may remain unanswered and decisions/actions will need to be made in real time. To that end, it will be very important for MUSC to document everything related to patient care. MUSC has been working with Epic to flag RITN patients in their electronic record system. The plan is also to flag those patients by code so that it will be easy to query for these patients and costs in the years following the disaster.

Resource Request Process and Prioritization of Limited Resources: MUSC would establish Hospital Command to evaluate resource needs and make requests to the city or county EOC. The level of activation at the Charleston County EOC would be situation dependent, and may include a

limited activation or just sending a liaison from the County to MUSC to support resource requests. The level of activation would likely depend on the number and type of resources being requested.

Behavioral Health Resources: Resources that exist to provide mental health support to patients, family members and hospital staff are somewhat limited at MUSC (short staffed), but other options were discussed. These included utilizing the MUSC Institute of Psychiatry (e.g., leverage the special programs that are designed to work with Post Traumatic Stress Disorder [PTSD] patients), the South Carolina Department of Mental Health, conducting telemedicine support therapy groups, deployment of local and state crisis teams (e.g., DHEC), the American Red Cross, and the Salvation Army disaster preparedness providers. MUSC resources would be prioritized for staff and the local/state resources would be utilized for patients and their families.

Strengths

Strength 1: RITN facility (MUSC) clinicians are able to rapidly and effectively triage patients to inpatient or outpatient status given basic lab/cell count information.

Strength 2: Hospital and Emergency Management partners were familiar with the ICS resource request process and will implement this to fulfill lodging needs in the absence of federal plans for housing NDMS patients and non-medical companions.

Strength 3: While the mental health resources at MUSC are somewhat limited, there are other community, state, and non-governmental organization assets that can be leveraged.

Areas for Improvement

Area for Improvement 1: Continue planning discussions for outpatient and mass care considerations at the local and federal level to include further exploration of the options for lodging, reviewing and integrating federal/NDMS plans (as appropriate), leveraging best practices of other RITN centers, and engaging all relevant partners such as the ARC and Salvation Army. A key component is collaboration with federal partners to clarify the reimbursement process.

Area for Improvement 2: MUSC does not currently have a plan in place to house outpatients; however, there are hotels that they work with on a regular basis. It is necessary to address concerns about cost, hotel availability and willingness to take Acute Radiation Sickness (ARS) patients and adapt existing contracts/plans that are already in place with hotels to add RITN considerations.

- Develop plans and supporting documentation that demonstrates the process for hotel reimbursement or payment on the front end to identified hotels on the front end
- Educate hotel staff in advance to include housekeeping (non-medical radiation training)

Area for Improvement 3: Regardless of the lodging option that is utilized, centralize outpatients in a maximum of 3-4 locations to streamline provision of mass care services to include transportation, feeding, security, mental health support, patient tracking, and limited onsite patient care.

Area for Improvement 4: Continue discussions about performing laboratory draws for outpatients at the venue where they are being housed. Engage the telemedicine staff on this topic as they are familiar with the process and reimbursement.

Area for Improvement 5: Ensure that contact information for radiation monitoring equipment and trained staff is provided to MUSC and included in the updated RITN annex.

Area for Improvement 6: Create an annex to the MUSC RITN Appendix that addresses the ARC response to a RITN scenario.

Area for Improvement 7: Offer staff education opportunities on radiation to reduce anxiety and ensure that people come to work during a disaster. There should be training modules that can be delivered in advance as well as just-in-time; these should be offered both to medical staff as well as support staff such as administrative and environmental services (as well as to hotel staff and other relevant community members that may support mass care operations).

- Explore RITN sponsored Radiation Emergency Assistance Center/Training Site (REAC/TS) training for medical personnel (https://orise.orau.gov/reacts/capabilities/continuing-medical-education/default.aspx)
- Conduct and promote RITN trainings (http://ritn.net/training/) and consider downloading to have access in the event that infrastructure goes down.

Area for Improvement 8: Conduct additional education and training on use of the JPATS system in order to determine if/how this can integrate with the MUSC patient tracking system. Consider conducting subsequent exercises of the patient tracking process as needed.

HOTWASH

Strengths

- MUSC can accommodate the blood supply needs for this scenario.
- MUSC is currently developing/updating plans to include an annex specific to the RITN patients and a Crisis Communication plan that will incorporate the unique aspects of this program.
- MUSC staff can take care of the RITN patients and augmenting that with mobilizing a MUSC triage team to the FCC will further streamline the patient care process.
- There is a strong partnership between MUSC and the Salvation Army which would serve as a valuable asset (along with the ARC) in providing patient/companion support resources.
- The ARC has access to teams all over the country that can be leveraged for disaster support in South Carolina. Local call out would mobilize in 45-90 minutes to include mental health, a call bank, family information center, and delivered meals.

Improvement Planning

- More clarity on how to handle outpatients, in particular the cost/reimbursement issues. This requires additional information from the federal partners as well as further planning at the local level.
- Need to find a balance between local and state and/or federal emergency management recommendations as it pertains to management of an incident such as this (e.g., population level screening, mass sheltering).
- Educate and prepare the hospital staff and community that a plan exists for this type of disaster as well as providing opportunities for radiation specific training needed for staff at the hospital or lodging facilities.
- Continue to get clarity on the roles and responsibilities for sheltering and feeding, ASPR/ NDMS colleagues to provide the federal plans so that local planning can integrate appropriately.
- Recognize that the community and mental health issues will be overwhelming and MUSC cannot take care of the worried well in addition to the patient care.
- Transportation issues between the Columbia PRA and Charleston require more attention to include continuing discussions about re-opening the Charleston FCC/PRA.
- Link NDMS fatality management guidance with MUSC policies.
- Roper St. Francis Mount Pleasant Hospital has BMT capability and should explore through the South Carolina Hospital Association how they can specifically support a RITN response.
- Gaps remain in the NDMS patient movement system; it is a recognized gap to have a RITN facility that is not close to the FCC/PRA and requires evaluation at the federal level.

Exercise Feedback

- Great participation and representation across the key stakeholders
- Opportunity to raise awareness at the state level that MUSC is part of the RITN program and insight into their plan development and review process for this program
- Regional TTXs facilitate identification of common themes across all RITN hospitals in order to address specific concerns with federal partners and to share after action reports across facilities. Continue the feedback loop through multiple forums
- Insight into other RITN sponsored training and exercise opportunities

APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2016 RITN Regional Exercises. The Medical University of South Carolina and partner organizations 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.

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APPENDIX C: ACRONYMS

Acronym	Term
AAR	After Action Report
ARC	American Red Cross
ARS	Acute Radiation Syndrome
ASPR	Assistant Secretary for Preparedness and Response
BMT	Bone Marrow Transplant
DHEC	Department of Health and Environmental Control
EOC	Emergency Operations Center
FCC	Federal Coordinating Center
FEMA	Federal Emergency Management Agency
HHS	Health and Human Services
ICS	Incident Command System
IND	Improvised Nuclear Device
JIC	Joint Information Center
JPATS	Joint Patient Assessment and Tracking System
MUSC	Medical University of South Carolina
NDMS	National Disaster Medical System
NMDP	National Marrow Donor Program
PRA	Patient Reception Area
PTSD	Post-Traumatic Stress Disorder
REAC/TS	Radiation Emergency Assistance Center/Training Site
REMM	Radiation Emergency Medical Management
RITN	Radiation Injury Treatment Network
SAT	Service Action Team
SCHA	South Carolina Hospital Association
SITREP	Situation Report
SME	Subject Matter Expert
SOC	Secretary Operations Center (DHHS)
TTX	Tabletop Exercise
VA	Veterans Administration