

2018

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

Report Date: August 29, 2018

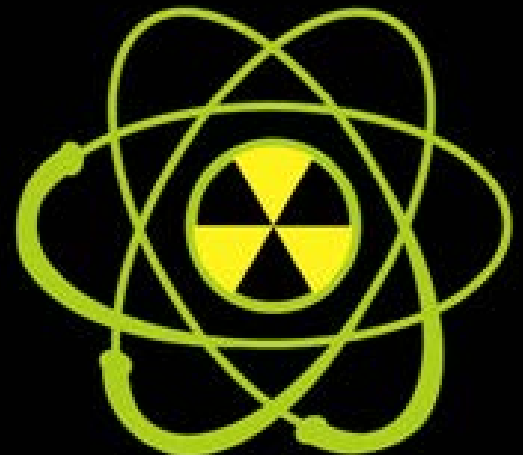


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EXERCISE OVERVIEW

Exercise Name	2018 Pittsburgh Regional RITN Tabletop Exercise (TTX)
Exercise Date	August 29, 2018 (8:30 AM – 12:00 PM)
Capabilities	Public Health & Medical Services Operational Coordination, Medical Surge, Responder Safety & Health, Mass Care
Objectives	<p>Objective 1: Clarify the organizational roles and responsibilities of participating agencies in responding to a surge of casualties with radiological injuries to the Pittsburgh region.</p> <p>Objective 2: Identify the process for casualty reception and distribution within the National Disaster Medical System (NDMS) framework.</p> <p>Objective 3: Identify the critical resources available to assist hospitals and treatment centers during a surge of radiation-injured patients and discuss resource gaps.</p> <p>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.</p> <p>Objective 5: Identify the responsibilities and resources necessary for mass care capabilities to support RITN patients and their families during ongoing treatment at Pittsburgh RITN treatment centers.</p>
Threat or Hazard	Radiological
Scenario	Medical surge due to a distant detonation of an Improvised Nuclear Device (IND)
Sponsor	Radiation Injury Treatment Network® (RITN)
Point of Contact	<p>Curt Mueller Exercise Coordinator, Radiation Injury Treatment Network Curt.Mueller@nmdp.org (612) 294-4539</p> <p>Lori Stover, Administrative Director, Division of Hematology & Cellular Therapy, Allegheny Health Network lori.stover@ahn.org (412) 578-4392</p>

EXERCISE SUMMARY

On August 29, 2018, 68 participants representing 16 local organizations as well as the U.S. Department of Veterans Affairs and the Radiation Injury Treatment Network (RITN) took part in a tabletop exercise (TTX) to discuss radiation injury patient reception using the National Disaster Medical System (NDMS) framework. The organizations included:

- Allegheny County
- Allegheny County Airport Authority
- Allegheny County Health Department
- Allegheny Health Network (AHN West Penn Hospital)
- C4CS
- City of Pittsburgh
- Heritage Valley Health System
- Highmark Health
- Hyatt House
- Pittsburgh International Airport
- State of Pennsylvania
- TCV Community Services
- University of Pittsburgh Medical Center (UPMC)
- University of Pittsburgh Medical Center Shadyside Hospital
- University of Pittsburgh Medical Center Children's Hospital
- 911th Airlift United States Air Force
- U.S Department of Veterans Affairs Pittsburgh Healthcare System
- Radiation Injury Treatment Network (RITN)

Exercise participants addressed five objectives (see Table 1 below) in a scenario-driven, facilitated discussion based on a surge of casualties with radiological injuries arriving to the Pittsburgh area.

Exercise Scenario

Initial Event

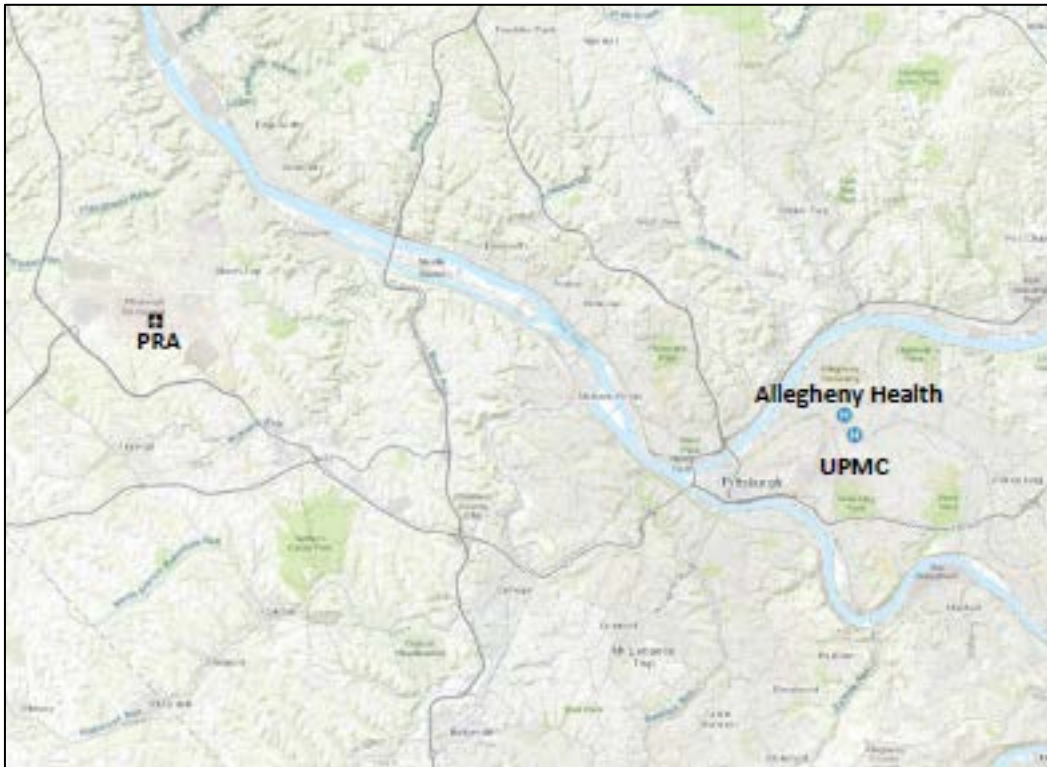
- On August 20, 2018 a ten-kiloton Improvised Nuclear Device (IND) was detonated in New York.



- Estimated casualties:
 - 143,000 fatalities in the Severe Damage Zone; 121,000 in Moderate Damage Zone.
 - 47,000 radiation casualties determined to have received an expectant exposure level (>8.3 Gy)
 - 12,000 radiation injury only casualties in the severe exposure range (5.3-8.3 Gy)
 - 51,000 radiation injury only casualties in the moderate exposure range (1.5-5.3 Gy)
 - 91,000 casualties with mild radiation exposure (.75-1.5 Gy)
 - 300,000 worried well 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 +7 Days

- National Disaster Medical System (NDMS) issues activation protocol for the Pittsburgh Federal Coordinating Center (FCC), indicating the city will be receiving casualties from the disaster zone via NDMS.
- The Department of Veterans Affairs initiates actions to establish a Patient Reception Area (PRA) FCC at the Pittsburgh International Airport, where NDMS patients will be received.



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 Pittsburgh region.	Public Health & Medical Services	Emergency Operations Coordination
Objective 2: Identify the process for casualty reception and distribution within the National Disaster Medical System (NDMS) framework.	Public Health & Medical Services	Emergency Operations Coordination
Objective 3: Identify the critical resources available to assist hospitals and treatment	Public Health & Medical Services	Medical Surge

Exercise Objective	Core Capability	Healthcare Preparedness Capability
centers during a surge of radiation-injured patients and discuss resource gaps.		
<p>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 triaging, treatment and tracking/surveillance of self-referral cases from the area of radiation impact and distribution of medical countermeasures.</p>	<p>Medical Countermeasures Dispensing</p>	<p>Responder Safety & Health</p>
<p>Objective 5: Identify the responsibilities and resources necessary for mass care capabilities to support RITN patients and their families during ongoing treatment at Pittsburgh RITN treatment centers.</p>	<p>Mass Care Services</p>	<p>Emergency Operations Coordination</p>

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	Public Health/ Healthcare Coalition	RITN Hospitals	Non-RITN Hospitals	Pittsburgh FCC
<ul style="list-style-type: none"> • Activating the Allegheny County EOC, which includes an ESF-8 activation. • Requesting an operational response of REACTS once the Pittsburgh PRA is activated. • Activating the Joint Information Center (JIC) to coordinate public messaging and addressing misinformation, especially from social media. 	<ul style="list-style-type: none"> • Activating ESF-8 at the county levels. • Developing guidance by the public health department epidemiology staff. • Disseminating of situational awareness information. • Notifying coalition hospitals via the Pennsylvania Department of Health Knowledge Center™ Health Incident Management System (KC-HIMS). 	<ul style="list-style-type: none"> • Educating medical and non-medical hospital staff responsible for NDMS patient care and provision of patient services. • Re-triaging of patients received from the FCC. • Tracking of patients and system interface/integration (manual data entry from JPATS to hospital patient tracking system). • Decompressing BMT units to accommodate NDMS patients requiring in-patient care. 	<ul style="list-style-type: none"> • Receiving reliable situational awareness in a timely manner. • Educating staff on the NDMS and RITN programs. • Receiving and caring for patients decompressed from RITN centers. 	<ul style="list-style-type: none"> • Preparing to receive multiple aircraft at the U.S. Air Force 911th Airlift Base jointly shared with the Pittsburgh Internal Airport. • Notifying/coordinating with Pittsburgh International Airport Operations. • Notifying hospitals that are going to receive patients. • Determining staffing for the PRA between federal assets and local volunteers (hospital staff, MRC, etc.) • Developing and conducting just-in-time (JIT) training for patient unloading. • Establishing patient tracking processes for financial reimbursement. • Assessing bed availability at RITN centers.

Activation: Following the federal disaster declaration, the Pittsburgh Federal Coordinating Center would receive an alert for activation from the U.S. Department of Health and Human Services, which would initiate activities for opening the FCC and the Patient Reception Area. The HHS Secretary Operations Center (SOC) determines the patient distribution strategy across all NDMS hospitals to include the RITN hospitals for radiation injury patients. It is critical to get accurate bed counts and understand where patients can be sent from the PRA for acute radiation sickness (ARS) care determinations. The Joint Patient Assessment and Tracking System (JPATS) would be activated to enter patients and track for reimbursement. Staff and vehicles would also be activated to support the aircraft unloading process and transport to hospitals.

RITN and NDMS/HHS Coordination: The role of RITN is to provide the specialty RITN bed data/reports to HHS. The RITN centers would update their RITN beds in HealthCareStandard® (HCS) with current availability and availability 24-hours later. Hospitals also update information on Granulocyte-Colony Stimulating Factor (G-CSF) availability and outpatient capabilities. RITN consolidates the information for all RITN centers and sends that information to the HHS/Assistant Secretary for Preparedness and Response (ASPR) who reviews and utilizes the bed information from across the country to make determinations about where to send patients. RITN requests updates every day following the incident by 2:00 PM Eastern Standard Time (EST) in order to provide a briefing report to HHS/ASPR by 4:00 PM EST. Locally, county-level emergency operations centers would be activated to include Emergency Support Function-8 (ESF-8) representatives. The FCC would begin notification (via telephone) of hospitals that would receive patients.

RITN will also develop and distribute a daily Situation Report to partners nationwide. Based on the information provided from the RITN centers during the initial data request, the RITN Control Cell will provide an estimate of patient numbers to expect at each RITN location. The revised form now requests information on both inpatient and outpatient capability.

Operation of the FCC: The FCC/PRA operates at the U.S. Air Force 911th Air Wing base alongside the Pittsburgh International Airport. The patients will be entered into the JPATS tracking system to ensure federal reimbursement for their care. All NDMS patients will be re-triaged at the FCC (as well as at the RITN center) prior to transport. HHS/ASPR and NDMS would coordinate with the FCC on the Pittsburgh Region's capability to receive pediatric patients. Though Children's Hospital of Pittsburgh is not a designated RITN center, the FCC would notify and request that Children's Hospital of Pittsburgh receive NDMS pediatric patients.

Participants were unclear regarding patient tracking from TRACES, JPATS, and the local KC-HIMS. Hospital participants, in particular, were unclear regarding the triage performed at the FCC and whether those triage decisions and basic disposition are included in the information received at the RITN center. Additionally, long-term care of the NDMS patients is a concern at the RITN center because conversation of hospital space to provide long-term care is a significant endeavor and comes at a significant cost to the RITN center (regardless of federal reimbursement) in terms of staffing, assets, and resources needed for long-term care. Hospitals should need to evaluate the number of patients coming because most of the received patients will require outpatient follow-up care.

FCC discussed multiple transportation assets available to assist disposition of NDMS patients to RITN centers so that hospital and county EMS assets are not overburdened. For example, the VA

Pittsburgh Healthcare System has several resources that can be utilized to avoid depleting the local ambulance pool, such as vehicles that can transport between 10 and 11 patients sent to the same RITN center.

Strengths

Strength 1: Coordination among Pittsburgh Region RITN centers (West Penn Hospital and UPMC and UPMC Shadyside Hospital) to receive and provide medical care for NDMS patients.

Strength 2: Capability and coordination of the Pittsburgh International Airport to support the operational needs of the FCC, especially current plans to support operations during time of the base construction.

Strength 3: Existing plans and protocols to ensure rapid, coordinated development and dissemination of public messaging across RITN centers, Allegheny County, and the City of Pittsburgh EOCs as well as local public health departments and the hospital coalition given the events as described in this scenario.

Areas for Improvement

Area for Improvement 1: Standardized nuclear/radiological educational training for RITN center staff. The training content should focus on mitigating hospital staff fears about reporting to the hospital to work and the safety of the medical treatment of those NDMS patients to be received by Pittsburgh Region RITN centers. Currently, training is available at the RITN website (<http://ritn.net/training/>) to educate and training non-medical staff (e.g. security, house keeping, food service) at the RITN center.

Area for Improvement 2: Conduct planning in advance to assess the ability to convert RITN center space to care for NDMS patients requiring BMT beds; i.e., what units can be converted for medical treatment and long-term care, training of additional medical and non-medical staff for these BMT beds, and housing for patient families.

Area for Improvement 3: Local processes to share bed information with the FCC were articulated during the exercise; however, it remains a gap as to how information from the federal level (i.e., HHS/ASPR determinations for patients arriving to the Pittsburgh Region) is communicated to the FCC, in particular understanding which patients are arriving with ARS care needs as opposed to those being evacuated with trauma injuries. This is something that should be elevated to the federal level to determine ways to share the information with the FCC prior to patients arriving at the FCC.

Area for Improvement 4: Internally, the RITN centers should ensure that procedures are in place so that emergency department staff responsible for generating the bed availability data do not double count beds and staff (i.e., hematology/oncology beds and oncologists) given the events as described in this scenario.

Area for Improvement 5: Review definitions for the beds included in polling by RITN (bed types needed for RITN patients) so the numbers are accurate in the initial polling. RITN has these definitions and can provide for inclusion in local plans and polling platforms. RITN centers will be requested to update their RITN beds in HealthCareStandard® (HCS) with current availability and availability 24-hours later and responsible staff should be trained on access and system operation.

Question Block 2: Arrival of Patients

Eight days after the IND detonation, RITN patients would arrive to the FCC in waves of approximately 30-45 people per aircraft possibly spread over several days. Pittsburgh area hospitals are expected to receive both pediatric and adult patients with marrow toxic injuries. The aircraft arriving to the FCC/PRA will contain a passenger manifest and some limited medical information, at most the estimated radiation dose based on proximity to the blast site.

Inpatient/Outpatient Triage

The Radiation Emergency Medical Management (REMM) guidelines would be used to help make determinations as to inpatient or outpatient based on the estimated exposure levels. Phlebotomist and other medical professionals may be sent to the FCC to triage patients prior to transport. UPMC would set up a temporary registration and triage area at the Hillman Conference Center (and not the emergency department). At West Penn Hospital and Children's Hospital of Pittsburgh, direct patient registration would be performed and triage done in a location other than the emergency department.

All adult inpatients (i.e. marrow toxic injuries) would need to be assessed because there are a significant number of considerations for underlying comorbidities (e.g. advanced liver and kidney disease, malignancies). HLA typing would be performed to determine haploid donor availability. Participants stated that unrelated donors would be very time consuming as well as highly resource intensive to the RITN center. West Penn Hospital has the capability to perform outpatient transplants and agreements are in-place at a local hotel (Hyatt Place) for housing of these transplant patients as well as outpatients with 1-2 Gy dose and mild ARS. The outpatients would be instructed to return to the hospital daily, but this would depend on whether the patient has a caregiver to assist with transportation. For all patients staying at the Hyatt Place, transportation is available on an hourly basis to West Penn Hospital unless an emergency situation occurs. UPMC RITN centers, an agreement is currently in-place with Family House, which is the primary housing assistance option, but local hotels are available as needed. West Penn Hospital and UPMC indicated that the Radiation Safety Officer would be responsible for any just-in-time training for housekeeping staff. Generally, this training would focus primarily on the handling and disposal of any radiation waste, but there is not anything beyond their current care protocols that is anticipated with treatment of the NDMS patients as described in this scenario.

For pediatric patients unaccompanied by an adult, an escort would be assigned at the RITN center. These escorts are regarded as 'Temporary Guardians' and are assigned with coordination with the State of Pennsylvania and the HHS Regional Emergency Coordinator per existing state guidelines.

Unaccompanied pediatric patients must be admitted to the RITN center regardless of their condition.

Patient Tracking and Reimbursement

At the UPMC RITN centers, the BMT director and BMT coordinators collaborate on the transfers of patients. The JPATS number assigned to each patient is entered into the State's patient tracking system. Once the NDMS patient arrive at UPMC RITN centers or West Penn Hospital, they would be flagged in the electronic record system (both the electronic medical record and electronic billing systems) so that financial reimbursement can be processed for federal reimbursement; all spontaneous arrival patients would be tracked, entered into the electronic record system, and billed following processes for all other patients arriving to the emergency departments. In the West Penn Hospital electronic record system, a disaster module is available, which would be used to flag NDMS patients. Financial reimbursement to the RITN centers is anticipated to reflect the federal per diem rate. If electronic patient tracking systems are not operational due events associated with the detonation, low technology alternate methods (e.g. HAM radios, two-way pagers, paper-based record keeping) are currently in-place to ensure basic patient information is preserved throughout the NDMS patient management process. Lastly, plans are currently in-place at Pittsburgh Region RITN centers to request waivers if medical care is to exceed the standard 30-day NDMS treatment.

Resources

All hospital requests for additional resources would be made, reviewed, and adjudicated through ESF-8 at the Allegheny County EOC. The request would be made from the hospital to the county ESF-8 representatives. If local public health departments or hospitals required support, all requests would be made to the Allegheny County EOC ESF-8 representative, who would elevate these requests to the State of Pennsylvania EOC ESF-8 representatives. In sum, any resource requests for assets needed to support a medical surge would be made to ESF-8 representatives beginning at the county-level.

Behavioral/Mental Health Considerations

Behavioral/mental health was discussed regarding patients, non-medical staff, and hospital medical staff responding to the incident. A strain on the RITN center resources to provide M/BH support would quickly arise. External resources would include requests made through ESF-8 for psychological first aid teams, local crisis network teams (e.g. Critical Incident Stress Management Team), and staff from UPMC Western Psychiatric Institute. The Critical Incident Stress Management Team is a peers-helping-peers program being created at UPMC for use internally

throughout the UPMC system, but could be made available to support other Pittsburgh Region RITN centers.

EMA/ Public Health/Federal Assets

Emergency management agency (EMA) and public health department assets were not discussed in detail due to time constraints. EMA participants stated that one of their primary roles for an event as describe in this scenario would be coordination of resource requests and assisting ESF-8 representatives coordinate requested assets. Public health department representatives indicated one of their primary roles would be to develop and quickly disseminate public health guidance and participate in the development and coordination of the public messaging strategy, which would be done via the joint information center.

Strengths

Strength 1: The Pittsburgh Region RITN centers have plans in place to rapidly and effectively triage patients to inpatient or outpatient status.

Strength 2: Local/state patient tracking systems and billing systems have the capability to track NDMS patients throughout their RITN center and produce reports to ensure financial reimbursement for NDMS patient care.

Strength 3: Pittsburgh Region RITN centers currently have in-place housing assistance agreements with local hotels to care for NDMS outpatients and also have planned for transportation assistance to their RITN centers for outpatient medical care.

Areas for Improvement

Area for Improvement 1: Addressing the behavioral/mental health needs of the displaced patients and non-medical attendees (as well as staff) after a radiological incident as described in this scenario would be a challenge despite the crisis teams currently available. West Penn Hospital and UPMC planners may benefit by conducting planning meetings to identify additional mental/behavioral health that can be leveraged within Allegheny County and the Tri-State area to provide this type of support in a mass care setting.

Area for Improvement 2: Offer education opportunities to both medical staff and support staff such as administrative and environmental services (as well as 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 3: Public messaging for this type of incident (i.e., radiological/nuclear detonation that results in radiation injuries) was not discussed in detail during this exercise due to time constraints. Strategies 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

HOTWASH

Strengths

- Exercise highlighted the strengths of collaboration between West Penn Hospital and the UPMC System Hospitals as well as the cooperative care relationship with the Children's Hospital of Pittsburgh to accept pediatric patient transfers.
- Housing (e.g. local hotel) agreements that are already in place.
- Southwestern Pennsylvania Healthcare Coalition involvement in the RITN Program and how the Coalition can assist with patient distribution and transport across the healthcare system in Southwestern Pennsylvania.

Improvement Planning

- Local emergency management representatives indicated that further support of NDMS patients beyond the medical care setting (e.g. long-term housing assistance, M/BH support for an extended period of time, and transportation assistance) is needed.
- RITN centers should continue to recruit ESF-8 staffing participation at the Southwestern Pennsylvania Healthcare Coalition level and in the Allegheny County EOC.
- Medical staff will be needed to provide pediatric care that includes radiation burns or blast/burn injuries and preparation of the staff and the facility to medically treat and care for these patients as well as capability to handle/manage their families.
- More information is needed on how to bill for services and protocols needed in order for the hospital to be reimbursed. Need to get HHS ASPR and NDMS partners to provide information (e.g. lodging and the framework needed such as GSA rates, etc. Guidelines needed.).
- Identifying resources is needed to support care of NDMS patients (e.g. blood and blood products, IV fluids, specialized staff support) as part of the planning process so requests to the County and State can be more efficient during event response.

APPENDIX A: IMPROVEMENT PLAN

This improvement plan template has been developed specifically for the RITN centers participating in the 2018 RITN Regional Exercises. Pittsburgh RITN centers 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.

APPENDIX B: EXERCISE PARTICIPANTS

Name	Agency/Organization
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APPENDIX C: ACRONYMS

Acronym	Term
AAR	After Action Report
ARS	Acute Radiation Sickness
ASPR	Assistant Secretary for Preparedness and Response
BMT	Bone Marrow Transplant
ED	Emergency Department
EMA	Emergency Management
EOC	Emergency Operations Center
ESF-8	Emergency Support Function-8 (Health and Medical)
EST	Eastern Standard Time
FCC	Federal Coordinating Center
FEMA	Federal Emergency Management Agency
G-CSF	Granulocyte-Colony Stimulating Factor
Gy	Grey
HCS	Healthcare Standard (RITN data collection matrix)
HHS	Health and Human Services
HLA	Human Leukocyte Antigen
IND	Improvised Nuclear Device
IV	Intravenous
JIC	Joint Information Center
JPATS	Joint Patient Assessment and Tracking System
KC-HIMS	Pennsylvania Department of Health Knowledge Center™ Health Incident Management System
M/BH	Mental and Behavioral Health
NDMS	National Disaster Medical System
NMDP	National Marrow Donor Program
PRA	Patient Reception Area
REMM	Radiation Emergency Medical Management
RITN	Radiation Injury Treatment Network
SITREP	Situation Report
SOC	Secretary Operations Center (DHHS)
TRACES	Web-based patient tracking system
TTX	Tabletop Exercise
VA	Veterans Affairs (Medical Center)