



# Knox/East Tennessee Medical Countermeasure Movement Exercise

---

After-Action Report/Improvement Plan  
12/19/18

## EXERCISE OVERVIEW

<b>Exercise Name</b>	Knox/East Tennessee MCM Movement Exercise
<b>Exercise Dates</b>	December 19, 2018
<b>Scope</b>	This exercise was designed to meet an improvement area identified on the October 17 <sup>th</sup> , 2018 Full Scale Chempack exercise that was conducted by the Knox/East region. Post exercise planning and healthcare facility changes created the opportunity to address a gap, while exercising the MCM process.
<b>Mission Area(s)</b>	Response and Recovery
<b>Healthcare Preparedness Capabilities</b>	1: Foundation of Healthcare and Medical Readiness 2: Healthcare and Medical Response Coordination
<b>Objectives</b>	<p>The exercise planning team selected objectives that focus on evaluating emergency operations/ procedures, identifying areas for improvement, and achieving a collaborative attitude. This exercise focused on the following objectives:</p> <ul style="list-style-type: none"> <li>• Evaluate the ability of ETR-KCHD to notify and schedule 2 hospitals in the Knox/ETR for Duo-Dote kit pickup and successfully receive SNS products utilizing SNS Chain of Custody Form.</li> <li>• ETR/Knox will secure products in a manner that is easily transported, formalize process for transport and disseminate cache information to key partners.</li> </ul>
<b>Threat or Hazard</b>	Nerve Agent Release
<b>Scenario</b>	Storage of Duo-Dotes for hospital and first responders in the event of an intentional release of a nerve agent.
<b>Sponsor</b>	East Tennessee Region PHEP, KC-ETR HCC, KCHD PHEP Knox/ East Tennessee Healthcare Coalition (KET HCC)
<b>Participating Organizations</b>	<p>East Tennessee Regional Health Office PHEP                      Knox County Health Department PHEP                      Knox County Health Department Pharmacy                      Lakeway Regional Hospital                      Physicians Regional Medical Center                      Knoxville/East Tennessee Healthcare Coalition</p>

Point of Contact

Wanda Roberts,  
Regional Hospital Coordinator  
East TN Regional Health Office  
2101 Medical Center Way  
Knoxville, TN 37920  
(865) 549-5294  
[etrhc.health@tn.gov](mailto:etrhc.health@tn.gov)

Larry Hutsell,  
Emergency Response  
Coordinator  
Knox County Health Department  
140 Dameron Ave  
Knoxville, Tennessee 37917  
(865) 251-5161  
[larry.hutsell@knoxcounty.org](mailto:larry.hutsell@knoxcounty.org)



## ANALYSIS OF HEALTHCARE PREPAREDNESS CAPABILITIES

Aligning exercise objectives and healthcare preparedness capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. Table 1 includes the exercise objectives, aligned core capabilities, and performance ratings for each core capability as observed during the exercise and determined by the evaluation team.

Objective	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U) Unable to be Performed (U)
Evaluate the ability of ETR-KCHD to notify and schedule 2 hospitals in the Knox/ETR for Duo-Dote kit pickup and successfully receive SNS products utilizing SNS Chain of Custody Form	P			
ETR/Knox will secure products in a manner that is easily transported, formalize process for transport and disseminate cache information to key partners.		S		

Objective	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U) Unable to be Performed (U)
<p><b>Ratings Definitions:</b></p> <ul style="list-style-type: none"> <li>• Performed without Challenges (P): The targets and critical tasks associated with the healthcare preparedness capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws.</li> <li>• Performed with Some Challenges (S): The targets and critical tasks associated with the healthcare preparedness capability were completed in a manner that achieved the objective(s) and did not negatively impact the performance of other activities. Performance of this activity did not contribute to additional health and/or safety risks for the public or for emergency workers, and it was conducted in accordance with applicable plans, policies, procedures, regulations, and laws. However, opportunities to enhance effectiveness and/or efficiency were identified.</li> <li>• Performed with Major Challenges (M): The targets and critical tasks associated with the healthcare preparedness capability were completed in a manner that achieved the objective(s), but some or all of the following were observed: demonstrated performance had a negative impact on the performance of other activities; contributed to additional health and/or safety risks for the public or for emergency workers; and/or was not conducted in accordance with applicable plans, policies, procedures, regulations, and laws.</li> <li>• Unable to be Performed (U): The targets and critical tasks associated with the healthcare preparedness capability were not performed in a manner that achieved the objective(s).</li> </ul>				

**Table 1. Summary of Healthcare Preparedness Capability Performance**

The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.



## Capability 1: Foundation of Healthcare and Medical Readiness

Goal of Capability 1: The community's health care organizations and other stakeholders—coordinated through a sustainable HCC—have strong relationships, identify hazards and risks, and prioritize and address gaps through planning, training, exercising, and managing resources. (2017-2022 Health Care Preparedness and Response Capabilities

(<https://www.phe.gov/preparedness/planning/hpp/reports/documents/2017-2022-healthcare-pr-capabilities.pdf>)

**Objective 2:** Identify Risk and Needs The HCC should identify and plan for risks, in collaboration with the ESF-8 lead agency, by conducting assessments or using and modifying data from existing assessments for health care readiness purposes. These assessments can determine resource needs and gaps, identify individuals who may require additional assistance before, during, and after an emergency, and highlight applicable regulatory and compliance issues. The HCC and its members may use the information about these risks and needs to inform training and exercises and prioritize strategies to address preparedness and response gaps in the region.

**Activity 2.** Assess Regional Health Care Resources HCC members should perform an assessment to identify the health care resources and services that are vital for continuity of health care delivery during and after an emergency. The HCC should then use this information to identify resources that could be coordinated and shared. This information is critical to uncovering resource vulnerabilities relative to the HVA that could impede the delivery of medical care and health care services during an emergency. The resource assessment will be different for various HCC member types, but should address resources required to care for all populations during an emergency. The resource assessment should include but is not limited to the following:

- Clinical services – inpatient hospitals, outpatient clinics, emergency departments, private practices, skilled nursing facilities, long-term care facilities, behavioral health services, and support services (see Capability 4 – Medical Surge)
- Critical infrastructure supporting health care (e.g., utilities, water, power, fuel, information technology [IT] services, communications, transportation networks)
- Caches (e.g., pharmaceuticals and durable medical equipment)
- Hospital building integrity
- Health care facility, EMS, corporate health system, and HCC information and communications systems and platforms (e.g., electronic health records [EHRs], bed and patient tracking systems) and communication modalities (e.g., telephone, 800 MHz radio, satellite telephone)
- Alternate care sites
- Home health agencies (including home and community-based services)
- Health care workforce
- Health care supply chain
- Food supply
- Medical and non-medical transportation system
- Private sector assets that can support emergency operations

**Activity 3.** Prioritize Resource Gaps and Mitigation Strategies A comparison between available resources and current HVA(s) will identify gaps and help prioritize HCC and HCC member activities. Gaps may include a lack of, or inadequate, plans or procedures, staff, equipment and supplies, skills and expertise, services, or any other resources required to respond to an emergency. Just as the resource assessment will be different for different member types, so will efforts to prioritize identified gaps. HCC members should prioritize gaps based on consensus and determine 2017-2022 Health Care Preparedness and Response Capabilities | ASPR Foundation for Health Care and Medical Readiness 15

mitigation strategies based on the time, materials, and resources necessary to address and close gaps. Gaps may be addressed through coordination, planning, training, or resource acquisition. Ultimately, the HCC should focus its time and resource investments on closing those gaps that affect the care of acutely ill and injured patients. Certain response activities may require external support or intervention, as emergencies may exceed the preparedness thresholds the HCC, its members, and the community have deemed reasonable. Thus, during the prioritization process, planning to access and integrate external partners and resources (i.e., federal, state, and/or local) is a key part of gap closure.

**Objective 4:** Train and Prepare the Health Care and Medical Workforce Training, drills, and exercises help identify and assess how well a health care delivery system or region is prepared to respond to an emergency. These activities also develop the necessary knowledge, skills, and abilities of an HCC member's workforce. Trainings can cover a wide range of topics including clinical subject matter, incident management, safety and protective equipment, workplace violence, psychological first aid, or planning workshops. The HCC should promote these activities and participate in training and exercises with its members, and in coordination with the ESF-8 lead agency, emphasizing consistency, engagement, and demonstration of regional coordination.

**Activity 6. Share Leading Practices and Lessons Learned** The HCC should coordinate with its members, government partners, and other HCCs to share leading practices and lessons learned. Sharing information between HCCs will improve cross-HCC coordination during an emergency and will help further improve coordination efforts. The HCC should employ the following principles when sharing leading practices and lessons learned: • Ensure information is shared among HCCs after real-world events and exercises to identify gaps, leading practices, and lessons learned • Incorporate lessons learned from real-world events and exercises into HCC plans, training, and exercises • Utilize mechanisms to rapidly acquire and share new clinical knowledge for a wide range of hazards and threats during exercise scenarios and real-world events. Examples include:

- Utilizing the Office of the Assistant Secretary for Preparedness and Response (ASPR) Technical Resources, Assistance Center, and Information Exchange (TRACIE)
- Sharing hazardous material (HAZMAT) information from poison control centers
- Using virtual telemedicine platforms (e.g., Project ECHO49)
- Obtaining information from federal alert systems (e.g., Centers for Disease Control and Prevention [CDC], FDA, FEMA)
- Coordinating clinical treatment information on conference calls or webinars (e.g., CDC Clinician Outreach and Communication Activity [COCA]50)

### Exercise Objective 2:

ETR/Knox will secure products in a manner that is easily transported, formalize process for transport and disseminate cache information to key partners.

**Strength 1:** Knox/East Public Health work well together in planning, sharing resources, and distributing workloads, in order to increase community preparedness in the most efficient, expedient manner.

**Strength 2:** Overall strong and effective communication methods in place between multiple community partners. This has been fostered by years of exercising and training together allowing key contacts to be notified early in an event.

#### Areas for Improvement

**Area for Improvement 1:** Additional planning to formalize processes needs to be completed in order to effectively use the cache of Duo-Dotes and disseminate information to key community partners.

### Capability 3: Continuity of Health Care Service Delivery

Optimal emergency medical care relies on intact infrastructure, functioning communications and information systems, and support services. The ability to deliver health care services is likely to be interrupted when internal or external systems such as utilities, electronic health records (EHRs), and supply chains are compromised. Disruptions may occur during a sudden or slow-onset emergency or in the context of daily operations. Historically, continuity of operations planning has focused on business continuity and ensuring information technology (IT) redundancies. However, health care organizations and health care coalitions (HCCs) should take a broader view and address all risks that could compromise continuity of health care service delivery. Continuity disruptions may range from an isolated cyberattack on a single hospital's IT system to a long-term, widespread infrastructure disruption impacting the entire community and all of its health care organizations. A safe, prepared, and healthy workforce and comprehensive recovery plans will bolster the health care delivery system's ability to continue services during an emergency and return to normal operations more rapidly.

**Objective 3:** Maintain Access to Non-Personnel Resources during an Emergency Critical equipment and supplies for all populations should be available to ensure the ongoing delivery of patient care services. HCC members should assess equipment and supply needs that will likely be in demand during an emergency and develop strategies to address potential shortfalls.

**Activity 1.** Assess Supply Chain Integrity Each individual HCC member should examine its supply chain vulnerabilities by collaborating with manufacturers and distributors to determine access to critical supplies, amounts available in regional systems, and potential alternate delivery options in the case that access or infrastructure is compromised. The HCC should then collect and use this information to coordinate effectively within the region, in collaboration with the ESF-8 lead agency. The supply chain integrity assessment should include the following: • Blood banks • Medical gas suppliers • Fuel suppliers • Nutritional suppliers and food vendors • Pharmaceutical vendors • Leasing entities for biomedical (monitors, ventilators, etc.) and other durable medical equipment and beds • Manufacturers and distributors for disposable supplies • Manufacturers and distributors for PPE • Hazardous waste removal services The HCC should collaborate with health care organization members and other stakeholders to develop joint



understanding and strategies to address supply chain vulnerabilities. These vulnerabilities may be addressed at a health care organization and/or HCC level by decisions and mitigation strategies including but not limited to: • Accessing stockpile (or maintain and rotate higher stock levels) • Accessing vendor- and/or distributor-managed inventory/stockpile • Establishing secondary vendors • Developing ‘push’ or pre-event disaster supply procedures and triggers for activation 2017-2022 Health Care Preparedness and Response Capabilities | ASPR Continuity of Health Care Service Delivery 36 • Identifying alternate modes of delivery • Using bulk purchasing to benefit from advantages in pricing and availability across HCC members Health care organizations will need to determine whether additional new contracts or other agreements are needed prior to an emergency. In many cases, there is little redundancy in available vendors and little available inventory, which may contribute to rapid exhaustion of supplies in a major emergency. HCC agreements to share supplies may provide a critical resource during emergencies. These agreements should be developed and documented prior to an emergency (see Capability 1, Objective 2, Activity 2 – Assess Regional Health Care Resources). The HCC and its members should also be aware of the need for redundancies in backup planning (e.g., in events affecting all HCC members, individual facilities may plan for the same vendors to provide backup supplies or utilities). When these strategies fail, health care organizations and the HCC should consider implementing contingency plans, which may include conservation, substitution, adaptation, reuse, or reallocation. Additional strategies may include transferring resources from other HCCs and/or coordinating with the ESF-8 lead agency to request assets from the 61 Strategic National Stockpile (SNS).

**Objective 5:** Protect Responders’ Safety and Health The safety and health of clinical and non-clinical personnel are high priorities for preparedness and continuity as effective care cannot be delivered without available staff. Health care organizations, in coordination with the HCC, should develop processes to protect responders’ safety and health and align with various requirements, certifications, and standards (e.g., Occupational Safety and Health Administration [OSHA], 69 Joint Commission, etc.). Those processes should be implemented to equip, train, and provide resources necessary to protect responders, employees, and their families from hazards during response and recovery operations. PPE, medical countermeasures (MCMs), workplace violence training, psychological first aid training, and other interventions specific to an emergency are all necessary to protect health care workers from illness or injury and should be readily available to the health care workforce. This section addresses selected aspects of workforce safety and protection relevant to emergencies, but does not include the much broader spectrum of health care worker safety during routine operations

**Activity 1.** Distribute Resources Required to Protect the Health Care Workforce It is important to keep patients, responders, employees, and their families safe during emergencies. The health care organization should be prepared to distribute MCMs, using a closed point of dispensing 67 “Protecting the Healthcare Digital Infrastructure: Cybersecurity Checklist.” ASPR CIP Healthcare & Public Health Sector Coordinating Councils Public Private Partnership, 2016. PDF. Accessed 19 Jul. 2016. [www.phe.gov/Preparedness/planning/cip/Documents/cybersecurity-checklist.pdf](http://www.phe.gov/Preparedness/planning/cip/Documents/cybersecurity-checklist.pdf). 68 “Information Sharing and Analysis Organizations.” DHS, 13 Apr. 2016. Web. Accessed 20 Sept. 2016. <https://www.dhs.gov/isao>. 69 “OSHA: Regulations (Standards – 29

CFR).” OSHA, 2012. Web. Accessed 12 Sept. 2016.  
www.osha.gov/pls/oshaweb/owadisp.show\_document?p\_table=STANDARDS&p\_id=10051. 2017-2022 Health Care Preparedness and Response Capabilities | ASPR Continuity of Health Care Service Delivery 39 (POD) or other model, when there is potential or confirmed exposure to any chemical, biological, radiological, nuclear, and explosives (CBRNE) hazard for which MCMs exist. Access to such MCMs should be coordinated and planned for with the local public health department. This approach allows for organized and timely MCM distribution. In addition, PPE (e.g., respirators, protective clothing, gloves, face shields, etc.) should be available to response personnel across varying job functions to offer protection from a wide range of threats such as infectious diseases, radiation, chemical exposure, and various physical hazards. In certain situations, staff exposures may warrant pharmaceutical prophylaxis, which should be managed according to the health care organization’s infection control policies. Exposures may result from PPE failure, emerging infectious disease outbreaks, industrial accidents, natural disasters, or terrorist attacks. Providing access to food and sleeping arrangements is also key to protecting responders’ safety and health, increasing their ability and willingness to work during an emergency. The HCC should promote regional PPE procurement that could offer significant advantages in pricing and consistency for staff, especially when PPE is shared across health care organizations in an emergency. In circumstances where HCC members are part of a larger corporate health system, a balance between corporate procurement and regional procurement could be considered (see Capability 3, Objective 3, Activity 1 – Assess Supply Chain Integrity).

### **Exercise Objective 1:**

Evaluate the ability of ETR-KCHD to notify and schedule 2 hospitals in the Knox/ETR for Duo-Dote kit pickup and successfully receive SNS products utilizing SNS Chain of Custody Form

### **Strengths**

**Strength 1:** Healthcare facilities are familiar with outside agencies and key personnel to contact in the event of an emergency

**Strength 2:** Previous Chempack exercise provided opportunity to practice processes and familiarize staff with procedures. Chempack exercise Improvement Plan created a means to discuss variables and look for viable solutions. The Knox/East region worked strategically to address the gap, and secure SNS assets from hospitals that would soon be closing.

### **Areas of Improvement:**

None noted for this objective.

## APPENDIX A: IMPROVEMENT PLAN

This IP has been developed specifically for the Knox/East TN (KET HCC) Healthcare Coalition as a result of Knox/East Tennessee Healthcare Coalition Water Contamination Tabletop Exercise conducted on November 12, 2015.

- The KET HCC accepts responsibility for assuring that the improvement plan issues identified will be integrated into an exercise in this or the next budget period.

Issue/Area for Improvement	Corrective Action	Capability Element <sup>1</sup>	Start Date	Completion Date
<b>Core Capability 1: Foundation of Healthcare and Medical Readiness</b>				
1. Additional planning to formalize processes needs to be completed in order to effectively use the cache of Duo-Dotes and disseminate information to key community partners.	Knox/East PH will formalize processes for deployment of cache	Planning	12/19/18	06/19/19
	Cache information will be provided to regional partners through Region II EMS, the Knoxville/East Tennessee Healthcare Coalition and through partner distribution avenues.	Organization	06/19/19	10/19/19

<sup>1</sup> Capability Elements are: Planning, Organization, Equipment, Training, or Exercise.

## APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations				
Coalition Member Type	# in Coalition	% Coalition Member Participation	<i>Additional Participants (Non Coalition Members)</i>	<i>Total Participants</i>
<b>Federal Government</b>				
		1		
<b>State &amp; Local Government</b>				
Local Health Department	1	50	2	3
Regional Health Department	2	100	1	3
EMS				
Emergency Management				
<b>Non-government Coalition Members and Partners</b>				
Hospital	2	20	2	4
Mental Health				
Long Term Care Facilities				
Dialysis Centers				
Community Health Center				
Public Utilities				
Medic				
Fire				
Other				





