Mid-South Emergency Planning Coalition

Blues City Brewery Hazmat Event

After-Action Report/Improvement Plan

February 1, 2022

The After-Action Report/Improvement Plan (AAR/IP) aligns exercise objectives with preparedness doctrine to include the National Preparedness Goal and related frameworks and guidance. Specific to this report, the exercise objectives align with the Assistant Secretary of Preparedness and Response's (ASPR) National Guidance for Healthcare Preparedness and the Hospital Preparedness Program Measures. Exercise information required for preparedness reporting and trend analysis is included; users are encouraged to add additional sections as needed to support their own organizational needs.

061119Fv.1

EVENT OVERVIEW

Event Name	Blues City Brewery Hazmat Event
Exercise Dates	February 1, 2022
Scope	This is an evaluation of a real-world event affecting the Mid-South Emergency Planning Coalition geographic region. Event occurred on Tuesday, February 1 and subsequent Hot Wash was conducted on Wednesday, February 16 to capture participant responses.
Mission Area(s)	Mitigation and Response
Core Capabilities, Objectives, and Activities	**Hospital Preparedness Program (HPP)** *Capability 1: Foundation for Health Care and Medical Readiness* **Objective 2: Identify Risk and Needs** Activity 2: Assess Regional Health Care Resources Activity 4: Assess Community Planning for Children, Pregnant Women, Seniors, Individuals with Access and Functional Needs, Including People with Disabilities, and Others with Unique Needs Activity 5: Evaluate Exercises and Responses to Emergencies *Capability 2: Health Care and Medical Coordination* **Objective 1: Develop and Coordinate Health Care Organization and Health Care Coalition Response Plans** **Objective 2: Utilize Information Sharing Platforms** Activity 1: Develop Information Sharing Procedures **Objective 3: Coordinate Response Strategy, Resources, and Communications** Activity 1: Identify and Coordinate Resource Needs during an Emergency *Capability 4: Medical Surge* **Objective 1: Plan for Medical Surge** **Objective 2: Response to a Medical Surge**

Exercise Objectives	1. Identify strengths in current community burn care response capabilities. 2. Identify gaps in existing burn care capabilities, assets, and resources. 3. Establish agency and facility roles in a burn mass casualty incident. 4. Identify key items to incorporate into the MSEPC Burn Surge Annex based on the roles and capabilities of the involved partners.
Threat or Hazard	Mass casualty event resulting in burn patients needing transport, stabilization, and care across the Mid-South region.

Scenario	Chemical exposure of initially unknown chemical at local brewery. Fire/EMS responded to triage, treat, and decontaminate all patients on scene. Eleven patients in total and all transported with inhalation injuries.
	
	Questions utilized during the Hot Wash are included on the following pages. Findings reported within this AAR are based on collective answers and subsequent discussion conducted during the Hot Wash on February 16, 2022.
	
	Module 1: Incident Overview and Initial Response
	
	EMS:
	
	What is the EMS plan for local distribution of burn casualties? Which patients go to which hospitals if there are multiple potential receiving hospitals?
	
	Non-Burn Center hospitals:
	
	How could your facility access real-time expert assistance via consultation with a Burn Center Physician?
	
	Does your facility have telehealth / telemedicine agreements with a Burn Center or trauma center (if there is no regional burn center) for additional assistance?
	
	All Hospitals:
	
	What are your initial actions upon notification of this incident? What do you need to do to activate your disaster plan? Do you have a burn surge plan? If yes, how is it activated?
	
	What changes to your facility disaster plan are needed to accommodate a burn surge?
	
	Does your facility have Burn Triage cards or other quick reference resources?
	
	How many burn patients is your facility prepared to handle?
	
	    a. Do you provide burn inpatient care?
	
	    b. What supplies do you have on-hand to manage burn patients?

    c. What staff do you have on-hand to manage a surge of burn patients?

    d. What burn care training does your hospital emergency department and inpatient staff have?

    e. Do you have a plan to provide just-in-time burn care training?

If your facility's burn capacity is exceeded, or you do not provide burn services, how would you address referring these cases to a larger and/or burn specialty hospital?

    a. What is the current referral process for a critically ill patient and how would this change in this incident?

    b. How would you prioritize/triage multiple burn referrals *from* your facility?

    c. Does your facility have written agreements with burn referral centers to expedite patient transfer?

    d. What patient transportation resources would you need?

Other partners:

What role does your facility or agency play in a burn mass casualty?

Module 2: Patient Reception at Hospitals

EMS:
What emergency medical services (EMS) transport resources are available (both public safety and private services)? (EMS: consider both ground and air assets.)

All Hospitals:
When would you notify and request assistance from emergency management and what would you need?

Where would you obtain guidance or clinical advice for burn patient care prior to and during an event? What types of burn or other experts might be needed that are not yet included? How do you communicate with them (e.g., telephone/telemedicine)? Is there a role for bringing a burn provider and supplies to the community to assist / support? How would that be managed?

Did your facility use patient tracking successfully? How will the team coordinate sharing patient information across multiple facilities for patient tracking and family re-unification?

MSEPC:
What alerts and notification mechanisms are in place to ensure that the coalition members and partners are aware of the incident?

How does the HCC support this response?
  a. How does it interface with the EOC?
  b. How rapid is the activation? Who provides coordination and
     supports the healthcare needs?

What type of assistance (staff, space, resources, systems) could the HCC
and its members provide? Are there other partners that you should
coordinate with? Is this different from Emergency Support Function
(ESF)8 support?

Module 3: Lessons Learned
All groups (EMS, Hospitals, MSEPC, Other partners):
What worked well?
  • How should it be incorporated into the Burn Surge Annex?

What was difficult?
  • How can difficulties be addressed for improvement?
  • Procurement of resources?
  • Additional trainings?
  • Additional reference materials?

What key items should be addressed more directly for inclusion in our
Burn Surge Annex?

Other comments? Feedback?

Sponsor	Mid-South Emergency Planning Coalition
Participating Organizations	Participants in the real-world event included Memphis Fire Department, Memphis MedCom, Firefighter's Burn Center at Regional One Health, Baptist Memorial Hospital – Memphis, St. Francis Hospital – Memphis, and the Mid-South Emergency Planning Coalition. Participants in the Hot Wash included representatives from all above facilities as well as St. Francis Hospital – Bartlett, Methodist Le Bonheur Healthcare system (6 facilities), Baptist Memorial Healthcare (5 facilities), the Veteran's Medical Center Memphis. A full list of participants with name and facility are included in Appendix B.
Points of Contact	Heather Fortner, Executive Director HFortner@midsouthepc.org Jennifer Skelton, Vulnerable Populations Coordinator JSkelton@midsouthepc.org

ANALYSIS OF HEALTHCARE PREPAREDNESS CAPABILITIES

Aligning exercise objectives and healthcare preparedness capabilities allows for a more consistent approach to exercise evaluation 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. The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

Objective	Healthcare Preparedness Capability	Performed without Challenges (P)	Performed with Some Challenges (S)	Performed with Major Challenges (M)	Unable to be Performed (U)
Identify strengths in current community burn care response capabilities.	Capability 1 Capability 2 Capability 4	P			
Identify gaps in existing burn care capabilities, assets, and resources.	Capability 1 Capability 2 Capability 4	P			
Establish agency and facility roles in a burn mass casualty incident.	Capability 2 Capability 4		S		
Identify key items to incorporate into the MSEPC Burn Surge Annex based on the roles and capabilities of the involved partners.	Capability 2 Capability 4		S		

Ratings Definitions:
- 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.
- 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.
- 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.
- 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).

Table 1. Analysis of Healthcare Preparedness Capability Performance

EXERCISE FINDINGS

The Mid-South Region has the unfortunate reality of experiencing staff shortages, extreme numbers of traumas, extended EMS offload times, and limited bed availability on a nearly daily basis. Because of this, however, we are uniquely situated to obtain increased exposure to surge events that continue to test our capabilities and plans. Although we experience surges in patient volume on a routine basis, we do not, however, have increased experience with specialty surges – such as burn.

The MSEPC was in the process of developing a Burn Surge Annex in accordance with HHS grant deliverables when the Blues City Brewery Hazmat Event offered a real-world experience to review and offer insight into planning efforts. Normal surge response processes were followed and additional capabilities and necessary resources were identified during the hot wash that would further allow our region to respond to a surge of patients injured by fire, chemical, or other hazardous materials resulting in both physical burns and inhalation injuries.

Surge Planning and Response

All MSEPC facilities, including the Coalition itself, has surge plans to follow when experiencing an influx of patients that overwhelms the facilities resources. During this event, all facilities successfully activated their surge plans, including the effective notification of leadership. These surge plans allow for EMS to rapidly triage and transport injured residents while hospitals are simultaneously moving patients within the facility to open more beds to accommodate incoming patients.

What the surge plans do not have, however, are specific instructions for how to best triage, treat, and care for burn patients. Although the Mid-South has the state's only ABA-verified burn center in the state, and within a 250-mile radius as well, in the event of a large-scale burn event, local hospitals would need to be able to temporarily treat and care for burn patients until they could be transferred to a higher level of care. All local surge plans, including MSEPC's, should provide specific burn-related information, including both physical burns and inhalation injuries to assist facilities in this aspect.

Communication

The Healthcare Resource Tracking System (HRTS) has been used among Mid-South healthcare facilities and other response agencies for years and it worked well in this hazmat event. Facilities are responsive to the ask of reporting triage numbers for potential patient placement and other agencies including emergency management, local public health, and state public health successfully monitor the situation should additional resources be needed.

Several facilities reported, however, that some clinical staff do not have HRTS access and, therefore, do not receive timely notifications. MSEPC will produce a list of HRTS users for each

facility and will work facility leadership to ensure that all necessary clinical staff receive proper HRTS access to allow for timely notifications and alert messages.

The RMCC actively coordinated with EMS to locate available hospital beds and successfully relayed incoming patient information to receiving facilities. RMCC remains available to EMS and hospital facilities to facilitate transfer requests for both local and out of town or out of state facilities when needed.

Some additional, more specific, aspects of communication can be improved and will be addressed through more robust trainings. Further communication regarding the decontamination status of the patients would have saved the hospitals added time to prepare for decontamination that did not need to be completed, but the exercise in donning the appropriate equipment was helpful nonetheless.

Training and Exercises

All participants involved agree that more training, exercises, and other educational opportunities are needed to increase burn capabilities across the region. The Firefighter's Burn Center at Regional One is an excellent source of information. Using the Burn Center's own app, all participating facilities can take pictures and immediately receive consultation from a Burn Center physician. MSEPC also offers access to patient tracking software to all facilities, allowing for increased information sharing among facilities and to families and other agencies seeking victim statuses.

MSEPC and the Burn Center are actively collaborating to develop a training program that will be offered to all Mid-South facilities as well as facilities to the Coalition to our immediate east – WATCH. This training program will offer patient care information to clinicians and physicians taught Burn Center staff as well as programmatic information related to event activation and notification, resource requests, and patient tracking taught by MSEPC staff.

MSEPC will continue to include several burn patients regardless of the overall scenario in future scenarios as it has done in the past along with other vulnerable populations. MSEPC will establish a schedule to include routine patient tracking exercises, monthly at best and quarterly at least.

Supplies

Even with sufficient education, training, and exercises, facilities are not able to properly manage burn patents without added supplies. While some supplies, such as gauze and intravenous fluids are typically on hand at any hospital facilities, more specific supplies such as silvadene, other topicals, antimicrobials, and cyanokits are not stocked by hospitals that do not have burn centers. To address this issue and increase our burn capabilities region-wide, MSEPC is partnering with the Burn Center to develop an official supply kit that will be purchased and provided to all

facilities as they participate in the burn trainings organized jointly by the Burn Center and MSEPC.

Furthermore, the supply kits will be maintained by the facility where they are housed, but rotation of stock will be offered by the Burn Center to ensure all supplies are in date and available for use.

Information handouts including burn triage placards, poster, and quick reference materials will also be made available for all facilities upon request.

Additional, more specific, strengths and areas for improvement are listed below.

Incident Overview and Initial Response

Emergency Medical Services (EMS)

STRENGTHS
- Successful decon conducting on scene
- All patients appropriately triaged
- Confirmed bed availability prior to transport

AREAS FOR IMPROVEMENT
- Better communication from scene to healthcare facilities regarding decon status
- Obtain more robust education and supplies to perform additional treatments prior to hospital arrival

Regional Medical Communications Center (RMCC)

STRENGTHS
- Initiated HRTS alert for all local healthcare facilities and EMS services
- Notified receiving facilities without issue
- Confirmed bed availability prior to transport

AREAS FOR IMPROVEMENT
- Explore options for mass notification of all EMS users outside of HRTS alerts to increase awareness and visibility

Burn Center

STRENGTHS
- Internal communications worked well to notify staff of incoming patients
- Successful transition of beds to make room for surge of patients
- Successful consultation with other hospitals receiving burn patients
- Availability of burn app for other non-burn center hospitals

AREAS FOR IMPROVEMENT

- Obtain radios from RMCC to improve awareness of patient movement and status prior to arrival at facilities
- Increase training opportunities for EMS services reading triage and field medicine options

Non-Burn Center Hospitals

STRENGTHS
- Use of burn center for consultation

AREAS FOR IMPROVEMENT
- Increase awareness and education regarding burn app for improved consultation access
- Obtain more robust education and supplies to perform increased treatment options and hold burn patients longer

All Hospitals

STRENGTHS
- Activation and establish of incident command to oversee surge of patients
- Decon teams prepared to conduct decon if necessary

AREAS FOR IMPROVEMENT
- Review HRTS users and access with hospital staff to ensure accessibility

Patient Reception at Hospitals

Emergency Medical Services (EMS)

STRENGTHS
- EMS leadership is in continued communication with facilities until patients are successfully handed off to hospitals
- If additional transfers are needed, EMS is available to continue care

AREAS FOR IMPROVEMENT
- Obtain supplies to aid in burn patient treatment

Regional Medical Communications Center (RMCC)

STRENGTHS
- Available to coordinate facility-to-facility transfers for movement of burn patients
- Availability to coordinate out of town or out of state transfers if necessary

All Hospitals

STRENGTHS
- Burn center has posters, cards, and quick reference guides to aid in burn treatment
- Hospitals have individual surge plans

- Internal patient placement centers available to help with surge if necessary
- Burn Center will assist with out of town or out of state placement if necessary

AREAS FOR IMPROVEMENT
- Participate in offered trainings to increase burn treatment education
- Promote and distribute burn triage cards and quick reference materials as necessary
- Hospitals should incorporate aspects of the MSEPC Burn Surge Annex into their facility surge plans
- Obtain supplies to aid in burn patient treatment

Mid-South Emergency Planning Coalition (MSEPC)

STRENGTHS
- Coalition partners are engaged with all response participants
- All partners (including local and state) successfully utilize the HRTS message board during alerts
- Attention to specifics of burn surge and creation of burn-specific annex for the MSEPC response plan

AREAS FOR IMPROVEMENT
- Will offer training on patient tracking programs to increase successful usage among all hospital facilities
- Offer more exercise options (monthly, quarterly) to test the patient tracking system
- Incorporate inhalation injuries into burn annex

[CONTROLLED/UNCLASSIFIED]
Homeland Security Exercise and Evaluation Program (HSEEP)

APPENDIX A: ACRONYMS

Acronym	Term
AAR	After Action Report
ASPR	Assistant Secretary of Preparedness and Response
HPP	Hospital Preparedness Program
HRTS	Healthcare Resource Tracking System
HSEEP	Homeland Security Exercise and Evaluation Program
IC	Incident Command
MSEPC	Mid-South Emergency Planning Coalition
RMCC	Regional Medical Communications Center

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations
Acute Care Hospitals
Baptist Collierville
Baptist Crittenden
Baptist DeSoto
Baptist Memphis
Baptist Tipton
Baptist Women's and Children's
Le Bonheur Children's
Methodist Germantown
Methodist North
Methodist Olive Branch
Methodist South
Methodist University
Regional One Health
St. Francis Bartlett
St. Francis Memphis
Emergency Management
City of Memphis Office of Emergency Management
Emergency Medical Services
Memphis Fire Department
Government
Memphis MedCom – Regional Medical Communications Center
Veteran's Medical Center Memphis
Non-Governmental
Mid-South Emergency Planning Coalition

[CONTROLLED/UNCLASSIFIED]
Homeland Security Exercise and Evaluation Program (HSEEP)

APPENDIX C: IMPROVEMENT PLAN

This IP has been developed specifically for the Mid-South Emergency Planning Coalition as result of the real Blues City Brewery Hazmat Event on February 1, 2022.

Issue/Area for Improvement	Corrective Action	Capability Element[1]	Start Date	Completion Date
Surge Planning and Response				
Lack of plan to provide needed information regarding the proper treatment of burn patients by non-burn center facilities.	Finalize development of Burn Annex to include incorporation of burn-specific triage, treatment, and care for burn patients with both physical burns and inhalation injuries.	Capability 2	10/1/2021	06/30/2022
Communication				
HRTS does not always reach clinical staff providing direct patient care.	Review HRTS users for each facility to ensure that all active, clinical staff have accounts and proper access to receive notifications and view alerts.	Capability 2	7/1/2022	9/30/2022
Training and Exercise				
No training program related specifically to burn surge management	MSEPC and the Burn Center are actively collaborating to develop a training program that will be offered to all Mid-South facilities as well as facilities to the Coalition to our immediate east – WATCH. This training program will offer patient care information to clinicians and physicians taught Burn Center staff as well as programmatic information related to event activation and notification, resource requests, and patient tracking taught by MSEPC staff.	Capability 1	7/1/2022	6/30/2023
Supplies				
Facilities are not able to properly manage burn patients without added supplies.	MSEPC is partnering with the Burn Center to develop an official supply kit that will be purchased and provided to all facilities as they participate in the burn trainings organized jointly by the Burn Center and MSEPC.	Capability 4	7/1/2022	6/30/2022

---

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