TRACIE
HEALTHCARE EMERGENCY PREPAREDNESS INFORMATION GATEWAY

# Chemical Emergency Considerations for Healthcare Facilities

This resource can help healthcare facilities prepare for a chemical emergency by providing key information and considerations that can be used for planning and response purposes. Additional related resources can be found on the ASPR TRACIE CBRN Resources Page.

## Assumptions

Chemical emergencies may be accidental in nature (e.g., industrial, transportation-related) or intentional (e.g., a terror event or criminal chemical release). Regardless of the origin of the incident, several general assumptions should be considered while planning for/responding to a large-scale chemical incident, including:

- Hospital operations and response efforts will be directly impacted if a facility is in the path of a chemical release, if the facility is affected by an internal release, or if it is receiving patients from a chemical incident in the community. A large-scale incident may require prolonged response times and extensive resource management, further impacting traditional operations and patient care capacities.
- Critical healthcare infrastructure components (e.g., food, transportation, water, internet, utilities) may be affected. As a result, hospital services such as laundry, waste collection/disposal, and security may be diminished leading to additional operational challenges.
- Federal, state, and local emergency resources may be needed but mobilization may be delayed due to on-scene response, contamination, and/or decontamination.
- Victims are likely to leave an affected area and self-refer to hospitals, urgent care centers, outpatient medical offices, and fire/emergency medical system (EMS) stations. Fear of chemical exposure or the need to seek refuge may cause a surge of concerned residents to these same facilities. Similarly, residents may flee the impact zone, potentially overwhelming nearby healthcare facilities.
- External communication (via various social media and traditional channels) will be necessary for keeping residents informed and reassured.
- Staff may need to evaluate a large number of potential chemical exposures and/or contamination. They may be expected to identify exposure type; evaluate the magnitude/severity; assess contamination and related risks; and triage victims for the appropriate level of decontamination and medical care.
- Staff may also be impacted by exposure, fear of exposure, or family obligations (e.g., child/family care if schools/acute care facilities are closed/affected). This will have staffing implications.
- Secondary (indirect) effects of a chemical incident, such as heat, stress, and dehydration to frontline staff due to extended use of personal preparedness equipment (PPE) or psychological/mental health stress can impact response efforts over time.

### Select ASPR TRACIE Resources

- Chemical Hazards Topic Collection (TC)
- HCC Specialty Chemical Surge Annex Template
- Chemical Emergency Surge Annex TTX Toolkit
- Select CBRN Resources
- Hospital Surge Capacity TC
- Hospital Patient Decontamination TC
- Pre-Hospital Patient Decontamination TC

# Considerations

The following list of considerations is aimed at helping hospitals and other healthcare facilities prepare for and respond to a chemical emergency. It includes practices and preparedness activities that may help minimize disruptions to medical care capabilities amid a large-scale chemical incident.

## Preparedness

### Know the chemical risks and vulnerabilities specific to your community.

- ☐ Conduct a facility and/or community hazard vulnerability analysis (HVA) to identify potential emergency scenarios and better understand their impacts on facility services, operations, and the healthcare community. Utilize HVA results to update/develop plans that address response gaps.
- ☐ Be aware of nearby facilities that use or store hazardous materials/chemicals. Know the amount and type of chemicals being used/stored. Existing relationships (e.g., a local emergency planning committee [LEPC]) or the Environmental Protection Agency (EPA) toxic list inventory are good sources of such information.
- ☐ Consider any specific processes, decontamination procedures, patient care needs, or sheltering/evacuation protocols that might be driven by risks or vulnerabilities in your area.
- ☐ Work with those responsible for managing hazardous materials (HAZMAT) incidents in your jurisdictions to collaborate, coordinate, and integrate response operations for potential chemical emergencies. Integrating industry stakeholders and external experts into planning and response activities can support additional response needs.
- ☐ Establish a HAZMAT alert process to ensure all necessary first responder, first receiver, and emergency management agencies are informed of a chemical emergency incident.

### Understand impacts to hospital operations during a chemical release.

- ☐ Consider how entry control points, lockdown procedures, or contamination control zones will impact staff ability to report to and access the hospital, initiate decontamination procedures, and/or provide patient care and transportation needs.
- ☐ Have plans in place to shut down, or better filter, ventilation systems, divert ambulances, and alert the community it is unsafe to travel to the hospital if sheltering-in-place becomes necessary.
- ☐ Ensure the hospital has enough supplies to be self-sufficient/shelter-in-place for 96 hours (per the Joint Commission Emergency Management 96 Hour Plan).
- ☐ Have a mechanism to incorporate additional, or alternative, security and administrative operations to help manage access controls, increase in ambulatory patients presenting for evaluation, visitors, media, and those seeking refuge in the event of a HAZMAT release.
- ☐ Work with local, state, regional law enforcement and emergency management to devise a plan that allows healthcare facility staff to pass through security lines.
- ☐ Know what community- or healthcare coalition- (HCC) based surge protocols exist to manage contaminated and potentially exposed patients at the community level, particularly where exposed persons may be directed. Hospitals should treat the injured, while freestanding emergency departments or urgent care facilities conduct patient screening of those with minimal/no exposure and minimal to no symptoms.

### Understand options/plans if critical infrastructure become impacted (e.g., food, transportation, water, internet, utilities).

- ☐ Know what auxiliary power sources are available in the event of an outage.
- ☐ Address how decontamination and medical care can be conducted with possible loss of power.
- ☐ Plan ahead for loss of internet services by pre-downloading/storing/printing critical chemical emergency-related treatment regimens, decontamination guidelines (e.g., diagrams, flow charts, etc.) to ensure best practices are available offline.
- ☐ Identify print materials (e.g., reference books and guidance documents) that can be made available, and subject matter experts who can be contacted by phone if needed to supplement loss of access to information, internal resources, and the like.

**Detail regional resources and the roles and responsibilities of key agencies/ disciplines/partners in a regional chemical response plan.**

- ☐ Identify specific hospital representatives (and backups) to participate in chemical emergency planning.
- ☐ Ensure leadership/staff are familiar with regional (e.g., HCC) and facility-level chemical emergency plans, know how to access them, when they are updated, and how often to review.
- ☐ Ensure local emergency response partners and EMS are integrated into facility emergency planning. Include HCC, local health departments, environmental health agencies, emergency management, fire, law enforcement, HAZMAT teams, and LEPC, among others. Understand their capabilities, expectations, and limitations.
- ☐ Know the local resources and regulations specific to wastewater disposal. Note that environmental health agencies have a regulatory role and may be able to offer expert advice.
- ☐ Determine gaps in facility-/community-level plans and/or PPE and other response equipment needs; identify corrective actions to mitigate risks.

**Provide relevant training for leadership and staff that reflect their roles (particularly in awareness and operations) during a chemical emergency.**

- ☐ Develop exercises that plan for a variety of scenarios. Include considerations for populations with access and functional needs, particularly for decontamination procedures.
- ☐ Document and review shelter-in-place, lock down, and evacuation procedures. Include details on triggers, thresholds, and who has authority for enacting these plans. Ensure leadership that may need to make these decisions know and understand procedures.
- ☐ Implement ongoing and updated training on appropriate use of PPE and patient decontamination protocol.
- ☐ Identify who will coordinate with/ incorporate HAZMAT specialists, chemists, toxicologists, poison control centers, or other subject matter experts.
- ☐ Ensure leadership/staff understand, and adhere to, proper wastewater/contaminated waste protocols and regulations.

**Determine the types and amounts of space, supplies, and staff needed to provide ambulatory and non-ambulatory patient decontamination at your facility.**

- ☐ Ensure planning is in accord with OSHA's First Receivers Guidance for healthcare facilities.
- ☐ Include the throughput potential based on reasonable community scenarios.
- ☐ Consider PPE for staff; decontamination equipment (e.g., tridents, hoses, buckets, soap); dry decontamination/redress kits; space for pre-decontamination screening/triage; and space for healthcare self- decontamination.
- ☐ Ensure the supplies needed to comply with wastewater/runoff containment as regulated by EPA and state entities are available in your facility.
- ☐ Participate in community CHEMPACK planning. Establish and rehearse emergency response procedures for personnel performing decontamination.
- ☐ Know the agreed upon prioritization protocol for decontamination (e.g., non-ambulatory but living persons first); consider the needs of populations with access and functional needs (e.g., pediatric patients, those reliant on biomedical devices).

## Response Management

- ☐ Identify a secondary location, and a virtual format, for your facility's command center in the event a chemical emergency or hazardous material release compromises your planned primary location. Know what capabilities or limitations this secondary command center may have.
- ☐ Identify primary and alternate sources of information for situational awareness (e.g., EMS/fire, TV/radio, social media, first responder dispatch centers (911 centers), reverse 911).
- ☐ Understand what triggers/circumstances would initiate a shelter-in-place, lockdown, or evacuation order, how it will be coordinated, and how local authorities are involved (e.g., should the hospital be exempt from a mandatory evacuation order if the risk of evacuation for some patients exceeds the benefit?) This must be an active discussion with local emergency management offices).
- ☐ Create a list of:
  - ☐ Available local, regional, state, and interstate resources and activation procedures that can support a chemical incident response.
  - ☐ National, state, regional, and local experts available for consult (e.g., HAZMAT safety officers, chemists, toxicologists, poison control).
  - ☐ Regional Hazardous Materials Safety Assistance Teams (HMSAT)
  - ☐ The contact information and/or 24/7/365 emergency phone number to request Agency for Toxic Substances and Disease Registry (ATSDR) emergency response team assistance.

## Fatality Management

- ☐ Ensure your fatality management plan includes a protocol for managing contaminated decedents, and regional planning accounts for mass contaminated fatalities. Include details on decontamination of decedents and communication process for engaging local morticians, coroners, and medical examiners.
- ☐ Engage with local morticians, coroners, and medical examiners to advise on decontamination and handling of contaminated decedents.
- ☐ Maintain a list of local mortuary service contacts.
- ☐ Understand state and federal Disaster Mortuary Operational Response Team (DMORT) services.
- ☐ Determine the processes that need to be followed if the deceased are victims of crime. Bodies may not be able to be decontaminated, resulting in limited storage options. Loved ones may not be able to view contaminated victims at the hospital.

## Staffing

- ☐ Designate a lead for on-site response and "right to know" information (e.g., safety officer) and a lead for a decontamination response (e.g., emergency manager/ emergency department manager/ decontamination unit leader/ decontamination safety officer) to oversee education, training, exercises for each area.
- ☐ Comply with local, state, regional, and federal expectations for maintaining staff health and safety.
- ☐ Develop and implement a communication plan on hazardous materials exposure prevention measures and alerting procedures for all staff (awareness).
- ☐ Develop, implement, and maintain an operations-level training plan for staff that will be involved with contaminated patient assessment, triage, decontamination, and containment of exposure.
- ☐ Identify additional security/administrative/ auxiliary staffing needs that may be required and how these resources will be called back / sourced.
- ☐ Ensure leadership maintains and regularly updates a list of staff that have been specially trained, or are experienced in, responding to chemical emergencies.
- ☐ Know what sharing agreements or contracts are in place to share staff, utilize vendors, and share resources with non-impacted health systems/facilities.
- ☐ Have a secondary limited staffing plan in place in case critical staff need to shelter-in-place, are unable to travel, or if response needs extend beyond initial available staffing levels.
- ☐ Plan to establish staff rotations, multiple shifts, and/or longer operational days. Consider how these new shifts will be managed, who will oversee longer hours, and what documentation is needed.

## Supplies and Resources

- ☐ List essential supply information and specialized equipment availability for your facility. Include current capacity that can be shared across hospital networks (e.g., wet decontamination equipment, dry decontamination kits, containment supplies).
- ☐ Know what proper treatment, supplies, medical devices/equipment are available on site, or are quickly accessible (e.g., CHEMPACK).
- ☐ Ensure your hospital is familiar with how to engage the HCC/ESF #8 in contacting state/local jurisdiction to request medical resources. Ensure stockpile/materials release, distribution, replenishment, and sharing policies are clear (e.g., who gets what, when, and how). Include plans/protocol for accessing CHEMPACK resources.
- ☐ Consider the need for pre-incident consults with industry response teams, waste management experts, environmental health agencies, and water/food safety authorities should the management of contaminated waste become challenging.
- ☐ Ensure adequate, secure storage is available for bags of contaminated belongings. Some items (e.g., valuables) may safely be returned to patients depending on the chemical. Have plans in place to identify owners and return permissible items. Consider how to handle special items such as exposed/ contaminated law enforcement weapons.
- ☐ Utilize industry stakeholders/ external experts to support additional resource needs should emergency resource allocation be delayed. Understand local tribal/territorial considerations and resources.

## Patient Care

- ☐ Provide staff education and updates on toxidromes, chemical-specific treatment protocols (e.g., antidotal treatment, including regional plans for nerve agent/ organophosphate poisoning).
- ☐ Consider the need for just-in-time training and/or job aids for chemical events.
- ☐ Should an explosion occur along with a chemical incident, consider patient care needs for treating trauma in conjunction with chemical exposure.
- ☐ Know what chemical identification capabilities are available in the community, how to coordinate with local labs (or the Lab Response for Chemical Threats network) for analysis/collection of contaminated materials. Consider what this engagement will look like, who will be the point person.
- ☐ Have alternate space available, pre-decontamination, for assessment and "dry decon" of a large number of patients. Know what is needed to ready these spaces (e.g., implementing access control/ lockdown procedures to prevent building contamination). Note if the space is connected to the facility to ensure there is no recirculation of air within ventilation systems.
- ☐ Have specific plans in place to care for populations with access and functional needs.
- ☐ Plan for processing and registering exposed patients, belongings matching/ control, and assessment post-decontamination.
- ☐ Identify who will manage patient movement activities and matching patients with referral resources. First responders should have plans in place for management/transport of contaminated patients.
- ☐ Have a process in place for family reunification; this may separate from the healthcare facility depending on the contamination situation. Plan to address/ communicate family reunification needs with other healthcare facilities/HCCs.

## Communication

- ☐ Ensure staff are aware of how they will be contacted in case of a hazardous material release. Consider how on-site and off-site staff will be notified, if notification policies should include instructions for NOT reporting to the facility, and how emergency management, law enforcement, and/or the community will be notified if needed.
- ☐ Know what information will need to be collected and shared, including specific information on the substance, toxicology, treatment, affected area(s), evacuation/ sheltering, and when/where to seek or receive updates.
- ☐ Establish how the facility will share situational awareness information or essential data with/from local/state, HCCs, Medical Operations Coordination Centers (MOCC), or other organizations.
- ☐ Ensure staff wearing PPE can communicate with each other and HAZMAT sector leadership.
- ☐ Identify media-trained representatives to speak on behalf of the hospital. FEMA offers a Public Information Officer (PIO) training program to teach disaster communications.
- ☐ Establish a process to continually monitor media outlets, social media, and other news or messaging platforms to identify and dispel false information quickly and maintain control of the incident.
- ☐ Have a list of community contacts and organizations that can assist with messaging (e.g., media, grassroots organizations, religious and cultural organizations).

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## Resources

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