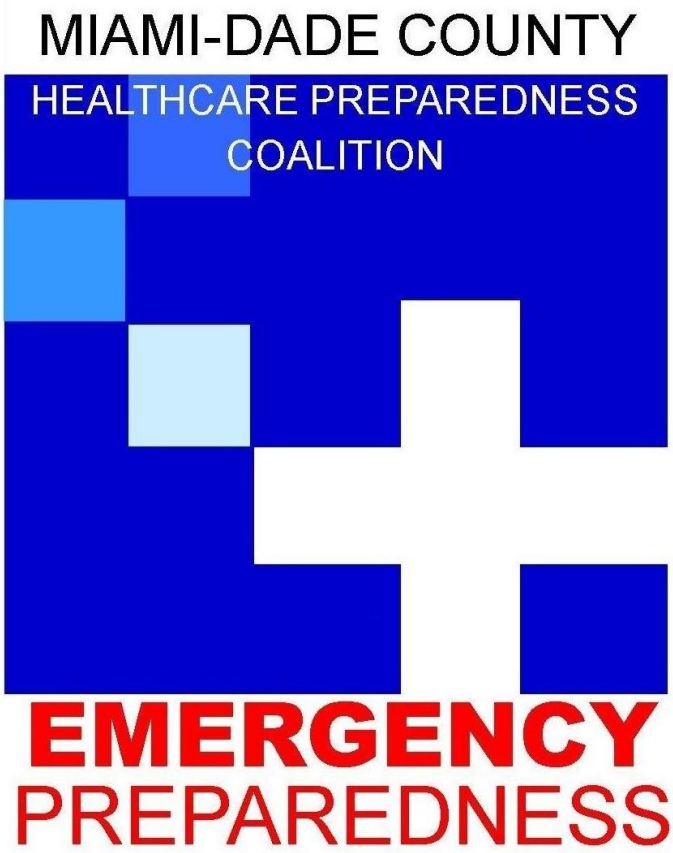

Miami-Dade County Healthcare Coalition
Chemical Emergency Surge Annex

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1. Introduction

1.1 Purpose

The annex provides guidance to support a coordinated healthcare response to a chemical emergency in which the number and severity of exposed and/or contaminated or possibly exposed and/or contaminated patients challenges the capacity and/or capability of The Miami-Dade County Healthcare Preparedness Coalition (MDCHPC) member facilities. The annex will outline specific incident response and treatment, protocols necessary to properly plan for, manage, and care for patients during a chemical emergency. This Annex does not replace other county or local emergency operations plans or procedures, but rather builds upon the existing plans and their annex.

1.2 Scope

This plan will be reviewed and updated as necessary by the MDCHPC. Lessons learned as they emerge from After Action Report/ Improvement Plans following real events or planned training exercises will be incorporated into the annex. This plan is not intended to supersede the authorities of the participating entities.

For the purpose of this annex, A chemical emergency can happen as the result of an accident or deliberate criminal act. Chemical emergencies can include:

- fire, explosion, or chemical spill at a fixed site like a warehouse
- leaking containers at a factory
- fuel or oil spills
- toxic black smoke - e.g., from a high-rise building or plastics factory
- Chemical agent spray or instilling Chemical agents in A/C system by Terrorists
- road or train accidents.

A Mass Casualty Incident (MCI) is an incident that generates a sufficiently large number of casualties whereby the available healthcare resources, or their management systems, are severely challenged or unable to meet the healthcare needs of the affected population.

This annex was collaborated on by MDCHPC leadership & staff, Miami-Dade County trauma and acute care centers, local emergency management, ESF-8, Miami-Dade Fire Rescue/HAZMAT, and the local Poison Control Center.

1.3 Overview/Background of HCC and Situation

1.3.1 Overview/Background of HCC and Situation

Chemical exposure can happen in three different ways:

- Breathing the chemical
- Swallowing contaminated food, water, or medication
- Touching the chemical, or coming in contact with clothing or things that have touched the chemical

There are numerous chemical hazards that can cause a surge in patients with varying injury types based on the nature of the chemical and its release type. Hazardous chemicals are commonly used in laboratory, industrial, agricultural, and military applications. Poisonings can result from various exposures, including inadvertent events or transportation mishaps; natural disasters; and hazardous substance releases that are intended to cause harm. Federal authorities estimate that more than 10,000 potentially consequential releases of hazardous substances occur annually.

Incidents involving the release of hazardous chemicals may result in widespread chaos and confusion, affecting the population, first responders and first receivers. Whether a chemical incident is accidental (e.g., a chlorine spill because of a derailed train) or intentional (e.g., a nerve gas poisoning on a busy subway), a rapid influx of critically ill victims with unfamiliar illnesses, as well as numerous low-risk but understandably anxious patients, potentially far out-numbering the seriously ill will pose significant challenges to hospital-based emergency care providers.

The most common hazardous chemicals are typically classified as:

- Biotoxins: poisons that come from plants or animals.
- Blister agents, or vesicants, are chemicals that severely blister the eyes, respiratory tract, and skin on contact.
- Blood agents are poisons that affect the body by being absorbed into the blood.
- Caustics, or acids, are chemicals that burn or corrode people's skin, eyes, and mucus membranes (the lining of the nose, mouth, throat, and lungs) on contact.
- Choking, or pulmonary agent chemicals that cause severe irritation or swelling to the respiratory tract, for example the lining of the nose and throat or lungs.
- Incapacitating agents temporarily and nonlethally impair the performance of a person by targeting the central nervous system.
- Long-acting anticoagulant poisons that can cause uncontrolled bleeding by interfering with clotting mechanisms.
- Some metals are toxic to the body.
- Nerve agents inhibit proper nervous system function.
- Organic solvent agents that damage the tissues of living things by dissolving fats and oils.
- Riot control agents, or tear gas, are highly irritating agents normally used by law enforcement for crowd control, or by individuals for protection.
- Toxic alcohols are poisonous alcohols that can damage the heart, kidneys, and nervous system.
- Vomiting agent chemicals that cause nausea and vomiting.

The regulatory, monitoring, compliance, and response authorities for chemical hazards are shared by multiple agencies within Florida including the Florida Department of Environmental Protection (DEP), Florida Department of Health (FDOH), and Florida Division of Emergency Management (FDEM).

The Hazardous Substances Emergency Events Surveillance (HSEES) system was established by Agency for Toxic Substances & Disease Registry (ATSDR) to collect and analyze information about acute releases of hazardous substances and threatened releases that result in a public health action such as an evacuation. Fourteen state health departments had cooperative agreements with ATSDR to participate in HSEES: Colorado, Florida, Iowa, Louisiana, Michigan, Minnesota, New Jersey, New York, North Carolina, Oregon, Texas, Utah, Washington, and Wisconsin. During 2003–2005, there were 231 events where vulnerable populations were within ¼ mile of the event and the area of impact was greater than 200 feet from the facility/point of release. Most events occurred on a weekday during times when day care centers or schools were likely to be in session. Equipment failure and human error caused most of the releases.

Those potentially at higher risk during a chemical emergency:

- Industrial/transportation workers
- EMS/first responders
- Elderly
- Those with limited evacuation options or in close proximity to a fixed chemical risk
- Children
- Populations with pre-existing diseases/altered metabolism
- Hospitalized patients
- Pregnant women and fetus
- Individuals with access and functional needs

After the HSEES Program concluded in 2009. The National Toxic Substances Incidents Program (NTSIP), modeled partially on HSEES, with additions suggested by stakeholders to have a more complete program began in 2010.

Based on the latest NTSIP report (2013-2014) the following conclusion were made:

- Incidents were approximately 1½ times more likely to occur in fixed facilities than during transportation-related events. Injured persons were disproportionately more likely (10 times) to be associated with fixed-facility incidents than transportation-related incidents.

- The same chemicals have been involved in the largest number of incidents in fixed facilities since 2010: natural gas, carbon monoxide, methamphetamine production chemicals, and ammonia. However, the top chemicals in transportation-related incidents have changed from previous years—from alkaline (potassium and sodium) hydroxides, sulfuric acid, and hydrochloric acid to alkaline hydroxide, natural gas, and sulfuric acid.

- Although the transportation and warehousing sector had the largest number of incidents, the educational services sector accounted for the largest number of injured persons.

For fixed facilities and materials in transit incidents, the responses generally would not depend on the initiating events. The coordinated response to contain or mitigate a threat or actual release of chemical hazardous material would be essentially the same whether it resulted from an accidental or deliberate act. For malevolent acts, the response would be further complicated by the magnitude of the threat and the need for specialized technical expertise/actions. Therefore, sabotage and terrorism would not be treated as separate types of emergencies rather, they would be considered a complicated dimension.

1.3.2 Coalition Overview

The Miami-Dade County Healthcare Preparedness Coalition membership includes hospitals and health systems, emergency management, public health, EMS providers, long-term care providers, behavioral and mental health providers, specialty service providers (dialysis, pediatrics, urgent care, district Medical Examiners, funeral directors, etc.), support service providers (laboratories, pharmacies, blood banks, poison control, etc.), primary care providers, community health providers, and other healthcare and response stakeholders. There are 32 acute care hospitals and 7 freestanding emergency departments in Miami-Dade County.

The MDCHPC Chemical Emergency Surge Annex was developed using its members and subject matter expert support. This multi-disciplinary group included emergency managers from acute care hospitals, Miami-Dade Fire Rescue (Hazmat), The County Department of health, The County's Department of Emergency Management, The Poison Control Center, and the coalition staff.

This plan will be reviewed and updated as needed by the MDCHPC. Lessons learned as they emerge from After Action Report/ Improvement Plans following real events or planned training exercises will be incorporated into the annex. Please see Appendix 3.6 for the Chemical Emergency Surge Tabletop Exercise After-Action Report and Improvement Plan. The After-Action report and Improvement plan was created after The MDCHPC and its members participated in a virtual functional exercise facilitated by MDCHPC staff (Medical Response & Surge Exercise). The exercise had a chemical surge scenario. The After-Action report addresses strengths, weaknesses, lessons learned, and identified gaps for the improvement plan.

MDCHPC Chemical Emergency Annex Taskforce Members:

Annex Taskforce Member	Contact Information	Associated Agency	Role
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Gerard Job	Gerard.job@miamidade.gov	Miami Dade Fire Rescue	Medical Director
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Dan Scarborough	Daniel.scarborough@miamidade.gov	Miami Dade Officeof Emergency Management	Emergency ManagementPlanner (CBRNE)
Kulsum Agha	Kulsum.Agha@miamidade.gov	Miami Dade Officeof Emergency Management	Emergency Management Planner
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Richard S. Weisman, MD	rweisman@med.miami.edu	University of Miami – Miller School of Medicine | FL Poison Control Center	Professor of Pediatrics & Medical Education | Director
Jeffrey N. Bernstein, MD	J.bernstein@med.miami.edu	FL Poison Information Center/Miami | Jackson Health System	Medical Director | Emergency Department Attending Physician
Abdul Memon	amemon@jhsmiami.org	Jackson HealthSystem	Chief Medical Officer/Disaster & Emergency Preparedness

1.3.4 Demographics

According to the Threat Hazard Identification Risk Assessment Plan (THIRA) 2020 that is routinely updated by Miami-Dade County Department of Emergency Management, the County identifies three main types of hazards in the following order: Natural, Technological, and Human-Caused. Natural hazards may include disease outbreak, drought, hurricanes, flooding, storm/storm surge,

lightning, wildfire, and more. Technological hazards may include coastal oil spills, hazardous material release, nuclear power plant release, structural fire, transportation incident, and water/wastewater incident. Human-caused incidents may include active shooter, civil unrest, food borne illness incident, terrorism (chemical, cyber, explosive, and radiological), and mass migration.

According to the aforementioned information presented in the THIRA, there are several hazards that can cause chemical emergency events in Miami-Dade County. Such hazards may include, but are not limited to, hazardous material release, transportation incidents, and terrorism. Planning for a chemical event is crucial. Miami-Dade County's potential vulnerability would impact a large population. It is the most populous county in Florida as well as a major tourist destination for local and international travelers.

1.3.5 Geography

Areas at higher risk of a chemical emergency in Miami-Dade County include heavily populated destinations that could potentially be prime targets for terrorists, The Port of Miami, Miami International Airport, Homestead Airforce Base, industrial/research facilities, locations close to railroads carrying chemical (hazardous material, and any facilities that may host highly populated events (conventions, concerts, sporting events, etc.).

1.3.6 Treatment Facilities

MDFR has two locations where hazmat antidotes (CHEMPACK) are stored and five stations capable of providing rapid hazmat treatment. Patients will be transported to any of the county's hospitals where emergency patients are treated for initial stabilization. All hospitals in Miami-Dade County are expected to accept chemical exposure/injury patients if an MCI occurs. Currently, Miami-Dade County has 7,526 Acute Care Beds. However, this number includes unstaffed beds, therefore the actual number may be lower.

1.3.7 Key Partners & External Resources

Key partners and external resources with the necessary Hazmat expertise needed to temporarily provide treatment, support, and recovery skills:

- **Jackson Memorial Hospital**
- **Mercy Hospital**
- **University of Miami Health System**
- **Baptist Hospital of Miami**
- **Miami-Dade Fire Rescue/HAZMAT**
- **Poison Control: 1-800-222-1222**
- **Centers for Disease Control / ATSDR: 1-800-232-4636 OR 1-770-488-7100**
- **ASTDR Assessment of Chemical Exposures Program (ACE) Hotline: 404-567-3256**
- **CHEMTREC: 1-800-424-9300**
- **Federal Bureau of Investigation (FBI): 1-202-324-3000 (Headquarters)**
- **Federal Emergency Management Agency (FEMA): 1-800-621-FEMA**

- **National Response Center (USCG): 1-800-424-8802**
- **EPA's Emergency Operations Center: 202-564-3850**

1.4 Assumptions

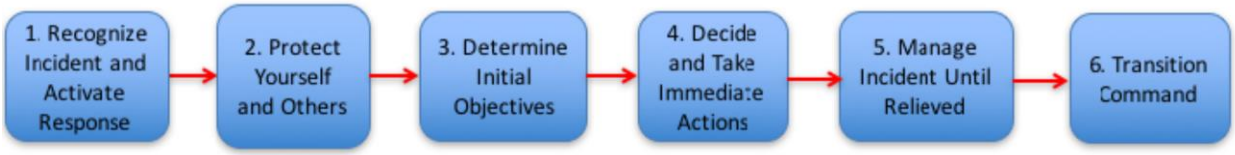
- Chemical incidents may be accidental in nature (e.g., industrial or transportation accident) or purposeful, require prolonged response and extensive resource management challenges.
- The coalition annex does not replace the need for protocols at each hospital and EMS agency.
- Different agencies may have authority over management of power plant, transportation, and terrorist incidents, including the authority to implement shelter-in-place and evacuation orders.
- The roles and responsibilities of agencies and organizations will change depending on the severity and scale of the incident and the respective level of activation by impacted jurisdictions and should be outlined ahead of an incident.
- Federal, state, and local emergency resources will all be needed during a large-scale event.
- Contamination assessments, proper Personal Protective Equipment (PPE) utilization, and decontamination efforts will be essential in protecting coalition partners, staff, and the public
- Staff at coalition facilities may be impacted by exposure, fear of exposure, or family obligations (e.g., child/family care if schools are closed, acute care facilities are affected).
- Fear from the incident will cause a worried well surge to the emergency departments and pharmacies.
- Public safety (e.g., police, fire, EMS) and other first responder personnel are considered a high-risk population; the implementation of protocols for monitoring control zones and effective contamination control measures will be essential for workforce protection.
- Federal resources (e.g., ambulance contracts, National Disaster Medical System [NDMS] teams) cannot be relied upon to mobilize and deploy for the first 72 hours.
- Management of contaminated waste from decontamination efforts should be managed in consultation with SMEs, EPA, and local water authorities.
- Each facility or healthcare organization should understand expectations specific to them as part of the coalition, especially within the first minutes and hours of a large-scale chemical incident.
- Hospitals may need to shelter in place (or, less likely, evacuate) in response to a chemical release or plume.
- There should be an understanding of the general expectations for EMS and fire/rescue personnel during a chemical incident response that is appropriate to regional resources.
- Hospitals must have appropriate plans, Personal Protective Equipment (PPE), and equipment to receive and decontaminate patients as self-referral is common.
- On-duty staff will need to quickly evaluate many real versus possible exposures.
- Job aids will be needed to help initiate response, decontamination, and treatment guidance for these uncommon events.

- Specialty consultation (e.g., poison control center, regional HAZMAT experts) will be needed quickly to provide specific care recommendations for agent type and magnitude of release.
- Depending on the scale of the chemical incident, establishment of alternate decontamination or screening locations may be required to assess low-risk patients and provide basic decontamination needs.
- There may not be an adequate local supply of specific countermeasures and antidotes for a large-scale chemical emergency.
- Health concerns, prolonged response requirements, fatigue, difficult work environments, and stress may contribute to behavioral health challenges among coalition members and the public.
- Depending on the scale, severity, and type of chemical emergency, it may be necessary to contract private organizations to assist with large-scale containment and clean-up efforts.
- It is not possible to provide comprehensive guidance for all chemical emergencies.
- Contamination monitoring, proper PPE utilization, and decontamination efforts will be essential in protecting coalition partners, staff, and the public.
- Staff at member facilities may be impacted by exposure, fear of exposure, or family obligations (e.g., child/family care if schools are closed, acute care facilities are affected).
- Fear from the incident will cause a worried well surge to the emergency departments and pharmacies.
- Public safety (e.g., police, fire, EMS) and other first responder personnel are considered a high-risk population; the implementation of protocols for monitoring control zones and effective contamination control measures will be essential for workforce protection.
- Allocation of limited/scarce resources, and their distribution, should be based on agreed upon prioritization systems/methods.
- Some individual healthcare facilities may require large-scale fatality management support.
- Health concerns, prolonged response requirements, difficult work environments, and stress may present behavioral health challenges among staff of coalition members and the public.

2. Concept of Operations

2.1 Activation

6 Steps for Initial Response to a Chemical HAZMAT Incident



Once the presence of a chemical agent is discovered or suspected, the responding agency should notify appropriate authorities, secure the scene, and establish incident command. Anyone responding to the scene and receiving patients at hospitals would wear appropriate PPE and follow

the guidance of the designated safety officer to ensure compliance with Emergency Worker Exposure Guidelines.

For events that affect a larger geographic area and/or large population of individuals, or for incidents in which the presence of hazardous materials (Chemical) is not quickly recognized, first responders and victims may unknowingly spread contamination to secondary locations before the chemical agent has been detected. Additional information for pre-hospital and hospital medical staff can be found at: Medical Management Guidelines (MMGs) | CDC Resources for Emergency Health Professionals.

Chemical exposure incidents and events involving the food and water supply pose a unique challenge because the identification of potentially exposed persons may be difficult and require the collection of a large number of human/environmental samples for testing to determine the size and scope of the incident. For example, pure Sarin is colorless, odorless, and has no flavor. It is heavier than air, so Sarin vapor sinks into low-lying areas or toward the bottom of a room. The chemical evaporates in air and mixes readily with water. Clothing absorbs Sarin and its mixtures, which can spread exposure if contaminated clothing is not contained.

For most chemical incidents, especially ones that seem intentional in nature, law enforcement officials will be involved as they investigate the cause of the emergency. The local Miami-Dade (and perhaps state, depending on the size of the incident) EOC may be activated, and the response operation may be managed by incident command/unified command. The Miami-Dade County Department of Health may serve as part of a unified command and/or the lead for ESF-8. The MDCHPC will be involved by assisting ESF-8 in coordinating hospital and healthcare preparedness and response.

In some chemical emergency events, there is the chance that individuals might not receive screening/decontamination at the scene of the incident. In this scenario, messages should be crafted to notify citizens of the event, provide instructions for self-care (e.g., at-home decontamination), and direct citizens to the most appropriate source/location for additional information, care, or follow-up. In general, citizens should be directed NOT to go to a medical facility so medical resources are available for those who are seriously injured or ill. ESF-8 may take a lead role in developing these messages.

But despite the public messaging, patients may still bypass prehospital care and arrive at the hospital unaware of or misinformed regarding the cause of their symptoms, with the potential to chemically contaminate bystanders and staff. Thus, prompt recognition of the chemical event is important so that ED staff and hospital emergency management personnel can secure hospital entrances and decontaminate contaminated patients before they enter the ED.

If a Community Reception Center is necessary, ESF-8 will play a key role in coordinating the activities of the CRC and providing staff for the CRC. Individuals potentially affected by the event should be instructed to report to the CRC in a prioritized fashion (based on proximity to the scene of the incident) to avoid overcrowding of the facility. CRCs allow for the screening of individuals

for chemical agent contamination and onsite decontamination and provide public health the opportunity to obtain demographic information for an exposure registry and to provide mental health services to those who may need them. Some CRCs may have capabilities to perform internal contamination monitoring and to obtain samples for chemical agent identification. As people exit the CRC, they will either be referred for additional care or discharged to their home, the home of a family member or friend, or to an emergency shelter.

While the long-term monitoring of health and the environment are not the focus of this annex, pre-event recovery planning is necessary for an effective response. Recovery planning is primarily the responsibility of the state/local government, with federal assistance available upon request. For example, The Centers for Disease Control and Prevention (CDC) may be able to assist with long-term health monitoring of affected individuals. The Consequence Management Advisory Division (CMAD) serves as EPA's national special team providing response capabilities for Chemical, Biological, Radiological, and Nuclear (CBRN), as well as all hazard events.

CMAD provides tactical options for:

- screening;
- sampling;
- monitoring;
- decontamination;
- clearance; and
- waste management.

Toxicological/exposure assessment during the decontamination of buildings during an incident involving releases of chemical contaminants is also provided.

This plan will be activated upon rapid identification and communication to the local jurisdiction of a potential Chemical Emergency Surge incident. This plan can be initiated by any of Miami Dade county's hospitals, health clinics and offices, local health departments, emergency medical services, or County Emergency Operations Centers when a potential event occurs.

A chemical Emergency Surge incident will result in patients that will exceed chemical agent (Hazmat) care resources available. EMS/Hospitals shall consult with the Poison Control Center and Centers for Disease Control and Prevention, if immediately available. ESF-8 activates the Chemical Emergency Surge Plan. The Miami-Dade County Department of Emergency Management is responsible for characterizing the incident severity level to establish accurate timelines, impact zones, and assess infrastructure damage (If any).

Note:

1. *DEM Duty Officer is notified by County Warning Point (CWP) of all MCIs above level 2 (20 patients)*

2.2 Notifications

The Coalition has redundant communication capabilities with its members and has demonstrated its effectiveness during real world incidents including the COVID-19 pandemic. During blue skies, the Coalition uses Constant Contact to share information on meetings, plans, trainings, and exercises with its members. During exercises and gray skies, the Coalition uses the Everbridge health alert network to share information with members. During a Chemical Emergency Surge incident, Everbridge system is the usual method of notification via mass notification alerts. The DEM or hospitals would notify each other of a possible chemical Emergency Surge incident depending on who receives the initial alert. The MDCHPC will maintain continuous communication with ESF-8 to ensure that all healthcare facilities receive the most up to date and accurate information, instructions, and alerts. The MDCHPC will also assist in the coordination of patient transfers, allocating additional resources, communicating with other agencies that have the capability to assist during such an event.

Notifications should include a short form of key information about the event, as prescribed by local protocol or SOG. In the absence of a local SOG, a variation of the widely used METHANE protocol can be used:

- **Incident**: Declare a HAZMAT, HAZMAT Mass Exposure Incident (MEI) or HAZMAT Weapons of Mass Destruction (WMD) Incident
- **Exact location**: The precise location of the incident
- **Type**: Chemical HAZMAT, Chemical MEI, or Chemical WMD Incident
- **Hazards**: Both present and potential
- **Access**: Best route for emergency services to access the site, or obstructions and bottlenecks to avoid
- **Numbers**: Estimate of numbers of contaminated, casualties, dead and uninjured on scene
- **Emergency services**: Which services are already on scene, and which others are required

2.3 Roles and Responsibilities

2.3.1 Command and Coordination

The Incident Command System (ICS) is a management system that is used to achieve optimal command and control within an organization as well as seamless inter-agency coordination during any type of emergency. It uses a clearly defined chain of command with a limited span of control. The overarching goal is to assist Emergency Management and Emergency Support Function 8 (ESF-8) with the National Preparedness Goals mission areas: Prevention, Protection, Mitigation, Response, and Recovery as it relates to healthcare disaster operations.

State Role:

Responsibilities of The Florida Department of Environmental Protection / Office of Emergency Response (OER):

- Responds to environmental pollution threats in every form.
- Responding to incidents involving petroleum spills caused by vehicle accidents to chemical plant explosions to coastal oil spills, OER provides technical and on-site assistance to

ensure threats to the environment and human safety are quickly and effectively addressed.

- Provide technical consultation and support to the Governor, the Division of Emergency Management, local governments, and CHDs
- Determine the severity of chemical emergencies when they occur and make recommendations as the primary assessment agency to the Governor, the State Coordinating Officer, and the emergency managers of Risk Counties on protective actions to be taken based on a technical analysis of the situation.
- Maintain liaison with State agencies, local governments, The National Weather Service (NWS), and other users of chemical agents for planning and operational purposes.
- Provide criteria and technical support for the decision to relax protective actions and allow for recovery and reentry into the affected area.
- Collect samples from public and surface water supplies, land, and air for analysis.
- Provide staffing and equipment
- The Florida Department of Health has a radiochemistry laboratory in Orlando with a full range of capability for analysis of environmental media, including air, fauna, milk, soil, vegetation, and water.
- Coordinate CHEMPACK supply

Regional Role: The State and local ICS structure will expand and contract as the situation warrants. If an area command or multi-agency coordination system (MAC) is used, it will follow Regional Domestic Security Taskforce (RDSTF) geographical boundaries.

Local Role: Ensure provision of health and medical services—Work with local area hospitals to establish "first receiver" facilities for contamination patients. Provide medical professionals with guidance on the medical management of patients affected by chemical agents as needed. Determine resource needs (e.g., staffing, medical countermeasures) and work through pre-established procedures to request additional resources from neighboring jurisdictions, the state, and/or the federal government (for Strategic National Stockpile, deployable medical teams, etc.). Mental health needs will be significant during and after a chemical emergency and The County Health Department should work with existing partners (private providers, community services board, voluntary organizations active in disaster, etc.) to ensure access to disaster mental health services for the general public and the responder community.

- Contribute to worker health and safety—Provide the safety officer with recommendations for protecting responder health and safety. This may include control around the scene of an incident, providing PPE recommendations, and/or issuing guidance on the safe handling of remains.
- Ensure emergency shelters are safe—Generally, public health is not the lead for shelter operations in a local community (which falls within the realm of ESF 6) unless it is a special needs shelter, in which The Miami-Dade County Health department will operate and staff. However, public health may need to take actions to ensure the safety/health of individuals who are referred to an emergency shelter after an incident. Potential actions may include performing environmental health assessments at shelter sites, providing onsite

health department staff to monitor shelter residents for health issues, ensuring shelters are accessible to persons with disabilities, and potentially monitoring for the presence of chemical agents (For example: off-gassing).

- Coordinate biological/environmental sampling—For the most effective medical management of patients, it is helpful to know what amount and type of chemical agent has affected the body (internally and externally). Monitoring for internal contamination or significant exposure will require biological samples (likely urine and blood) and specific laboratory capabilities. Local/state laboratory capabilities for such emergencies are generally limited. Federal laboratories will be called upon to contribute their expertise and expand available lab capacity. The CDC's Laboratory Response Network for Chemical Threats is able to detect a number of toxic chemical agents and analyze samples from a large number of exposed patients. Local public health may be able to assist by prioritizing specimens (from those individuals thought to be at higher risk of exposure) and by assisting with specimen collection.
- Ensure the safety of food, water, and air— ESF-8 may be asked to assist with the collection of environmental samples (water, soil and air) in the cold zone. Work with state/federal emergency response to perform environmental chemical monitoring, sampling, and assessment activities for the response.

EMS Role: During a Chemical Emergency Surge incident, EMS will transport exposed, ill and injured patients from the scene to local hospitals for initial treatment and stabilization. Depending on the event, EMS/HAZMAT may also execute gross decontamination of all individuals present at or near the site of the incident and open up their CHEMPACK cache.

- Patients with life threats will be treated immediately with available antidotes and/or supportive care.
- All non-life threats will be decontaminated in the field.

If burn/blast injuries are present:

- Major/critical burn patients or any burn patients that meet trauma criteria shall be transported to the nearest trauma center.
- Major/critical burn patients or any burn patients that does not meet trauma criteria shall be transported to the most appropriate burn center.
- Minor burn patients not meeting trauma criteria shall be transported to the most accessible receiving facility.
- Providers may use CAMEO Chemicals mobile application for Just-In-Time-Training (JITT).

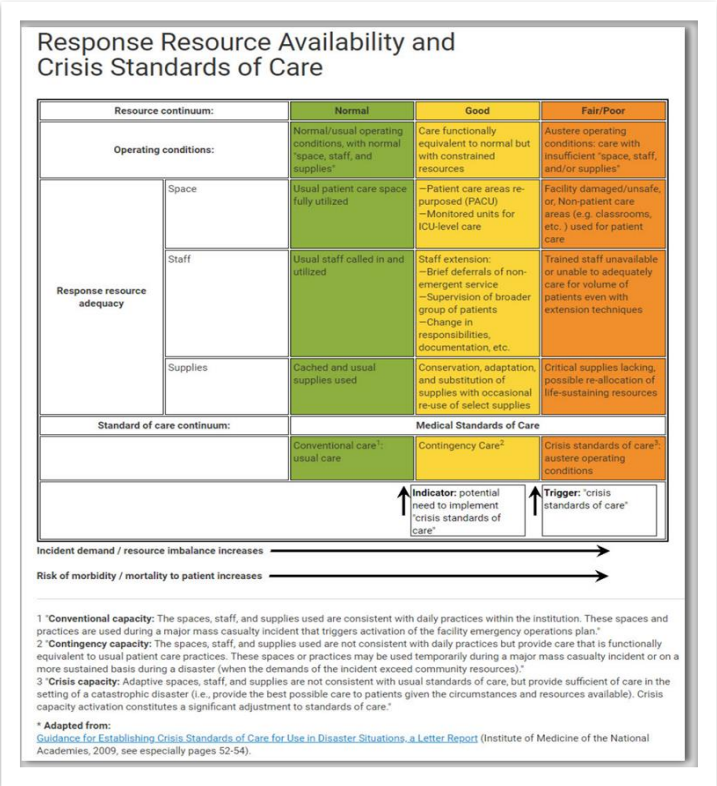
Hospital Role: Hospitals are responsible for acute health care service provision. All hospitals providing emergency services should be equipped to initially assess, decontaminate, and stabilize victims. Please refer to the following resources for hospital personnel just-in-time trainings: Appendix 3.3.1

- The MDCHPC can also be utilized to assist hospitals in identifying additional resources.
- Hospitals are to follow normal organizational transfer protocols.

- Hospitals are to follow their own established Crisis Standards of Care protocols when responding to a community-wide event with mass casualties and injuries.

Coalition Role: The Coalition's role in information sharing is to monitor communications from local and State ESF8 and share information with member organizations that is not provided via other partners, such as regional status. Informational posts are monitored, and relevant information is forwarded or included in the daily situation report. County situation reports are reviewed for situational awareness. The Coalition will also be a main source of information sharing among hospitals receiving patients during a chemical emergency to identify any supply needs, facilitate patient transfers, and coordinate supply delivery when needed.

Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: The table below describes the transition across different Standards of Care at individual medical venues, based on the imbalance between available resources and need. Transition from conventional (normal operations) to contingency indicates a functional equivalent of routine care through alterations in approach (e.g., repurposing units, extending staff, substituting supplies). In contrast, transition to crisis standards occurs when a functional equivalent of normal care cannot be maintained (e.g., severely injured casualties must be triaged to expectant care) because of inadequate resources. Initially resources will be used from the hospital, however those may deplete quickly. Mutual aid from regional partners may need to be requested once local resources have been exhausted. Some resources may be available through the Strategic National Stockpile (SNS) as regional resources run out. Facilities would need to contact their state SNS coordinator for inventory and request those available resources.



Response Resource Availability and Crisis Standards of Care

Resource continuum:		Normal	Good	Fair/Poor
Operating conditions:		Normal/usual operating conditions, with normal "space, staff, and supplies"	Care functionally equivalent to normal but with constrained resources	Austere operating conditions: care with insufficient "space, staff, and/or supplies"
Response resource adequacy	Space	Usual patient care space fully utilized	–Patient care areas repurposed (PACU) –Monitored units for ICU-level care	Facility damaged/unsafe, or, Non-patient care areas (e.g. classrooms, etc.) used for patient care
	Staff	Usual staff called in and utilized	Staff extension: –Brief deferrals of non-emergent service –Supervision of broader group of patients –Change in responsibilities, documentation, etc.	Trained staff unavailable or unable to adequately care for volume of patients even with extension techniques
	Supplies	Cached and usual supplies used	Conservation, adaptation, and substitution of supplies with occasional re-use of select supplies	Critical supplies lacking, possible re-allocation of life-sustaining resources
Standard of care continuum:		Medical Standards of Care		
		Conventional care[1]: usual care	Contingency Care[2]	Crisis standards of care[3]: austere operating conditions
			Indicator: potential need to implement "crisis standards of care"	**Trigger:** "crisis standards of care"

Incident demand / resource imbalance increases →

Risk of morbidity / mortality to patient increases →

1 "**Conventional capacity:** The spaces, staff, and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan."
2 "**Contingency capacity:** The spaces, staff, and supplies used are not consistent with daily practices but provide care that is functionally equivalent to usual patient care practices. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources)."
3 "**Crisis capacity:** Adaptive spaces, staff, and supplies are not consistent with usual standards of care, but provide sufficient of care in the setting of a catastrophic disaster (i.e., provide the best possible care to patients given the circumstances and resources available). Crisis capacity activation constitutes a significant adjustment to standards of care."

* **Adapted from:**
Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations, a Letter Report (Institute of Medicine of the National Academies, 2009, see especially pages 52-54).

2.4 Logistics

ESF-8 is responsible for resource management include logging, tracking, and vetting resource requests across the HCC and in coordination with the ESF-8 lead agency. The state uses WebEOC to track all mission requests. MDCHPC has a Supply Mitigation Strategy that can be used as a supporting document to this annex. Examples of supply or resource issues that may present during an emergency incident include staffing, PPE, clean water, decontamination equipment (tents, showers, etc.), lab supplies, and chemical agent treatment such as medication/prophylaxis.

2.4.1 Space

Under the direction of the County Department of Emergency Management, emergency shelters may be opened to the public for sheltering and/or environmental health assessments and mass prophylaxis. Miami-Dade County has pre-identified shelter sites using local public-school structures. Alternative Care Centers may be used depending on the incident. Hospitals should also have their own internal medical surge plans and procedures to follow during a MCI.

2.4.2 Staff

MDCHPC will utilize available health care facility and/or EPA emergency response staff to assist with critical decision making and response coordination. Consideration for cross-training staff on safety and response protocol and leveraging staff from Poison Control Center, EPA, pediatric critical care hospitals, acute care hospitals, trauma centers or other major medical centers will take place. All decontamination teams at Miami-Dade County hospitals have protocols in place to guide chemical agent decontamination activities within those facilities. Local healthcare facilities may also leverage existing government and non-governmental volunteer registration programs (e.g., Emergency System for Advance Registration of Volunteer Health Professionals [ESAR-VHP] or MRC personnel) or NDMS staffing support. During a Chemical Emergency Incident, hospitals may consider implementing plans to expedite credentialing, licensing, and onboarding while reducing liability, compensation policies for temporary staff.

Maintaining appropriate staffing in healthcare facilities is essential to providing a safe work environment for healthcare personnel (HCP) and safe patient care. Healthcare facilities must be prepared for potential staffing shortages and have plans and processes in place to mitigate them. Plans may include communicating with HCP about actions the facility is taking to address shortages, maintain patient and HCP safety and providing resources to assist HCP with anxiety and stress.

Health care facilities should be in communication with local healthcare coalitions, federal, state, and local public health partners (e.g., public health emergency preparedness and response staff) to identify additional HCP (e.g., hiring additional HCP, recruiting retired HCP, using students or volunteers), when needed. The state of Florida has an approved vendor list that includes nursing and support staff through contractual augmentation. This was tested in the real-world pandemic response.

2.4.3 Supplies

Resource management include logging, tracking, and vetting resource requests across the HCC and in coordination with the ESF-8 lead agency. This is done at the county level ESF-8. The state uses WebEOC to track all mission requests.

The process for redistribution of available resources in the event of a medical surge event is outlined below:

- If a Coalition member organization needs assistance during a disaster response (staff, equipment, supplies, or other resources), the member organization submits a request to the County Emergency Operations Center (EOC). It is the county's responsibility to try to fulfill the organization's request.
- If the County EOC is unable to fulfill the request, the County submits requests to the State EOC through WebEOC. Once a request has been received by the State EOC from a county, it is initially processed by the County Liaison Desk under the direction of the Operations Support Branch, who verifies the information. From there, it is assigned to the proper branch for tasking to the appropriate ESF. If the ESF can meet the provisions of the request, resource information is forwarded to the county EOC. If the ESF cannot provide the requested resources, it is then forwarded to the Logistics Section, who will work with either private vendors or through the Emergency Management Assistance Compact (EMAC) to secure the resources. If the resources are identified from private sources, the vendor information is given to the county emergency operations center.
- The Coalition has a cache of resources that may be available to coalition members among requests (Includes Zumro tents and Decon Showers).
- The Supply Chain Annex is also used as a reference during resource shortages and allocation.

The Strategic National Stockpile (SNS) is part of the federal medical response infrastructure and can supplement medical countermeasures needed by states, tribal nations, territories, and the largest metropolitan areas during public health emergencies. The supplies, medicines, and devices for lifesaving care contained in the stockpile can be used as a short-term, stopgap buffer when the immediate supply of these materials may not be available or sufficient. The SNS response time is at a minimum 12 hours.

Local facilities/agencies will go through the Emergency Operations Centers to request activation of the SNS.

2.4.3.1 CHEMPACK

To augment local stockpiles, The CDC provides CHEMPACK, a system of regionally based caches that can be quickly mobilized during a chemical incident. They contain antidotes (three countermeasures used concomitantly) for nerve agents and organophosphates. The CHEMPACK Program is envisioned as a comprehensive capability of the effective use of medical countermeasures in the event of an attack on civilians with nerve agents. This plan predetermines actions that would be taken in the event of a nerve agent incident in the affected areas by establishing a coordinated

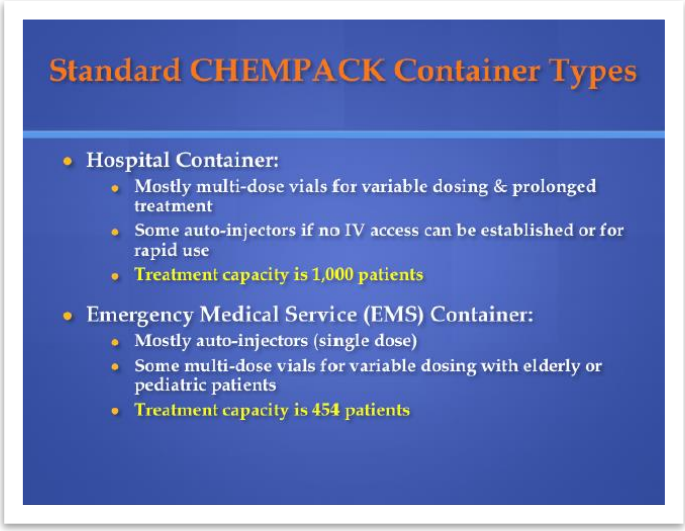
effort between the Department of Health and Human Services (DOHHS) and the Emergency Support Function (ESF) #8 of the State Disaster Plan.

Notification and Response Actions

- **Standby – Level 1.** If there is a potential (suspicion) of a hazmat MCI event, the local Emergency Management / Emergency Services Coordinator/designee will notify the local FDOH Coordinator / State Project POC of the potential event.
- **Alert – Level 2.** Confirmation of a hazmat MCI event has been established by a Competent Authority, usually from the scene of an incident. **It is important to note that at Alert – Level 2, an event is confirmed, but the use of Chemical/nerve agents has not been confirmed**.
- **Activation- Level 3.** A Competent Authority has determined that the use of chemical/nerve agents/organophosphates has occurred and that CHEMPACK assets are to be used.

Response time to incidents will be dependent upon the request process, activation, and distance to the scene.

-Federal laws prohibit the disclosure of any information to the public that identifies the location where SNS Program assets are stored.



2.5 Operations – Medical Care

The MDCHPC does not provide clinical guidance related to medical management of patients, nor decontamination procedures. However, this annex will provide crucial resources and JIT trainings regarding medical care and best practices when encountering toxic substances.

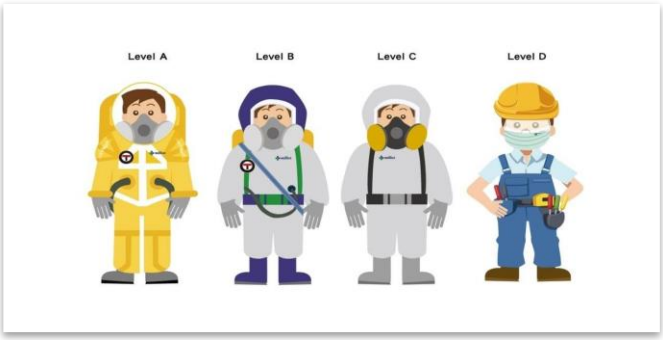
Basic approach to any chemical exposure incident will include the following steps:

1. PPE

2. Decontamination
3. Support
4. Antidote

There are four levels of PPE:

- **Level A**: Anyone working in the Hot Zone. Provides the highest level of respiratory protection and protective clothing
- **Level B**: Hospital personnel involved in decontamination of unknown hazardous material. Provides lesser level of skin protection
- **Level C**: Lower level of respiratory and skin protection. Adequate for radiation event response where other hazards have been ruled out
- **Level D**: Lowest level of respiratory and skin protection



2.5.1 Triage and Screening

Health care providers may use the online resources for triaging and JITT, the SALT Mass Casualty Triage, START Adult Triage Algorithm (Adults), and jumpSTART Pediatric Triage Algorithm (Children) for Trauma/Combined Injury for patients with injuries. Chemical agent specific triage should also be utilized.

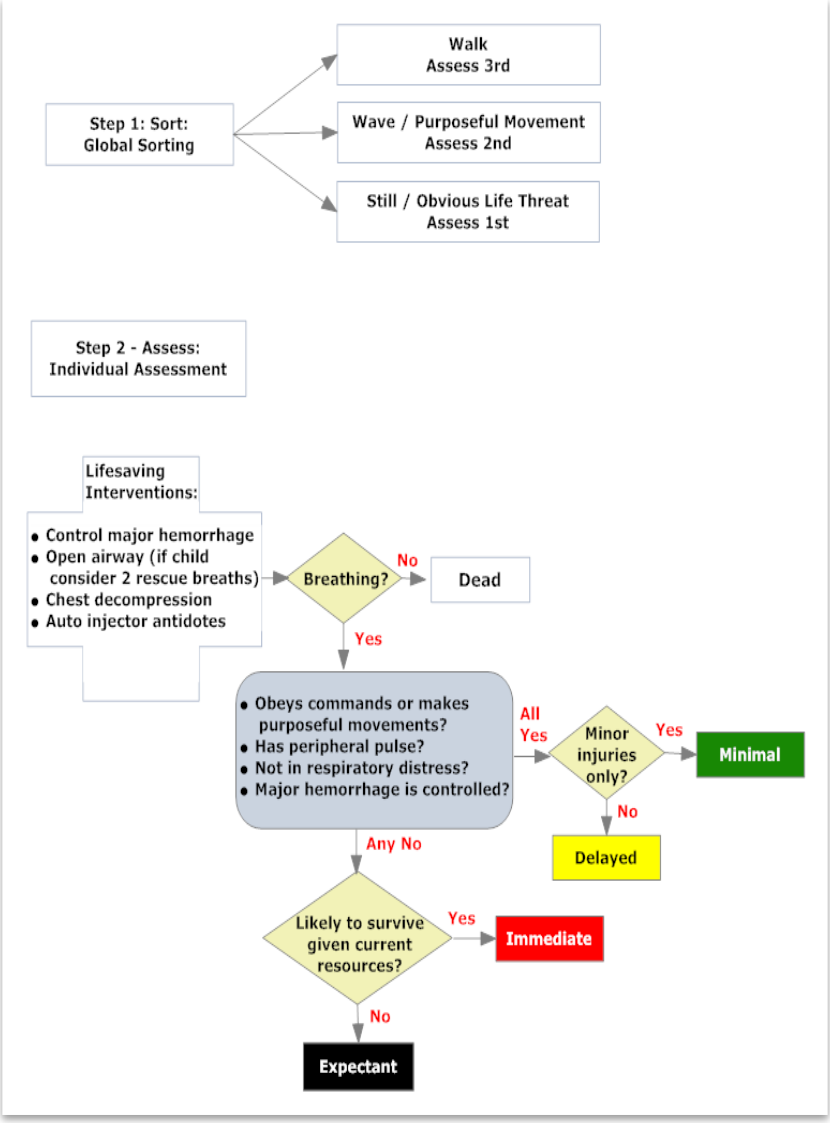
General principles of triage for chemical exposures

- Check triage tag/card for any previous treatment or triage.
- Survey for evidence of associated traumatic/blast injuries.
- Observe for sweating, labored breathing, coughing/vomiting, secretions.
- Severe casualty triaged as immediate if assisted breathing is required.
- Blast injuries or other trauma, where there is question whether there is chemical exposure, victims must be tagged as immediate in most cases. Blast victim's evidence delayed effects such as ARDS, etc.
- Mild/moderate casualty: self/buddy aid, triaged as delayed or minimal and release is based on strict follow up and instructions.
- If there are chemical exposure situations which may cause delayed but serious signs and symptoms, then over-triage is considered appropriate to the proper facilities that can observe and manage any delayed onset symptoms.
- Expectant categories in multi-casualty events are those victims who have experienced a cardiac arrest, respiratory arrest, or continued seizures immediately. Resources should

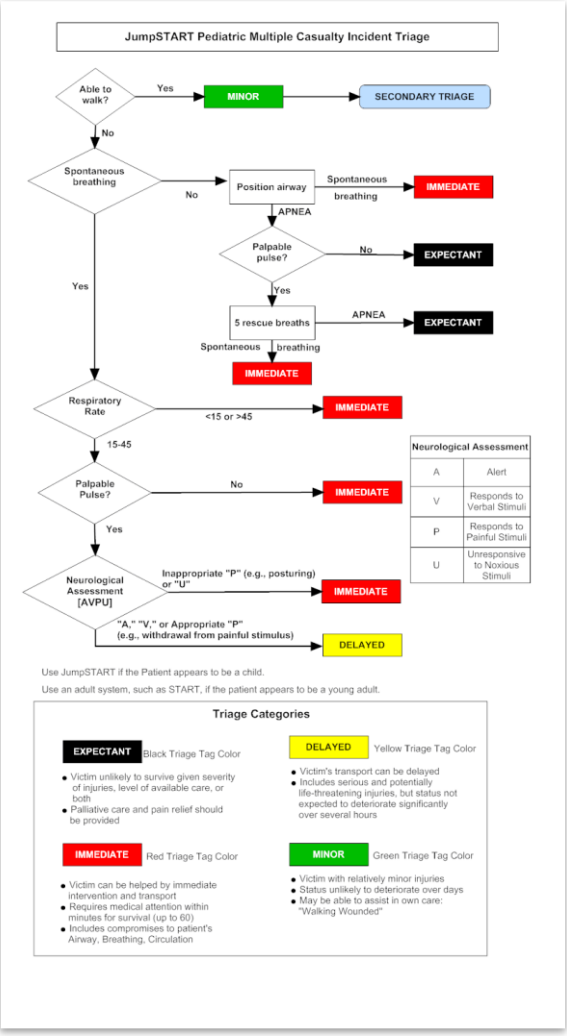
not be expended on these casualties if there are large numbers of casualties requiring care and transport with minimal or scant resources available.

- In a given category prioritize a child, pregnant woman over an non-pregnant adult

SALT Mass Casualty Triage (Government Recommended):



JumpSTART Pediatric Triage Algorithm:



ASSESSMENT, DECONTAMINATION, AND INITIAL TREATMENT OF PATIENTS

The primary goals for emergency personnel in a hazardous materials incident include cessation of patient exposure, patient stabilization, removal of the patient from danger, containment of the hazard to prevent further contamination, and patient treatment all without jeopardizing their own safety.

The potential for further injury to the patient or injury to response personnel prohibits any treatment other than basic life support inside the Exclusion /Hot Zone. Termination of exposure is best accomplished by removing the patient from the incident area and then decontaminating the patient.

The decontamination of skin, eyes, and wounds will minimize the risk of contact injury, reduces the dose that patients absorb, and improves their health outcomes, while reducing the risk of secondary contamination.

Essential requirements for any decontamination task are:

- A safe area to keep a patient while undergoing decontamination
- A method for washing contaminants off a patient
- A means of containing the rinse-aid water
- Adequate protection for personnel treating the patient
- Disposable or cleanable medical equipment to treat the patient

Gross Patient Decontamination

Primary assessment with initial patient stabilization can be undertaken while simultaneously performing gross decontamination. This consists of cutting away or otherwise removing all potentially contaminated clothing, including jewelry and watches. Then placing them in doubled plastic bags which are sealed and labeled.

Any obvious contamination should be brushed or wiped off, followed by a 1-minute-long rinsing from head to toe with tepid water. If the suspected chemical is water-reactive, a longer rinsing period and a greater volume of water is required. Care should be taken to protect any open wounds from contamination by covering them with a water-repellent dressing.

Secondary or Definitive Decontamination

When conditions permit (appropriate personnel, supplies, water, weather), a more deliberate decontamination process known as secondary or definitive decontamination should be initiated on each patient before transfer. This process includes washing the individual, usually with soap and water, in an organized and thorough manner. It should begin at the head and proceed downward, with initial attention paid to contaminated eyes and open wounds. Once wounds have been cleaned, care should be exercised not to re-contaminate them. This can be aided by covering the wounds with a waterproof dressing. For some chemicals, such as strong alkaline substances, it may be necessary to flush exposed skin and eyes with water or normal saline for a minimum of 15 minutes. Washing should be done using warm water, soft bristle brushes or sponges, and a mild soap, such as dishwashing liquid.

For hazardous material MCIs, obtaining quick control of the escaping crowd and initiating immediate decontamination procedures (if indicated) will be essential to minimize secondary contamination, morbidity, mortality and panic. Ambulatory patients should be allowed to decontaminate themselves under supervision to accelerate the process and reduce the need for response personnel. Instructions in multiple languages should be available.

Keep in mind that avoiding contact is the easiest method of decontamination.

In addition, large volumes of water from charged hose lines, specially-mounted nozzles or deluge guns on fire engines and aerial ladder trucks with special spray systems containing both soap and water (or bleach and water) maybe used to quickly rinse large numbers of individuals

Decontamination of non-ambulatory patients will be more difficult and labor-intensive; careful attention must be paid to the back, buttocks, axilla, hair and genitalia.

If a patient cannot be definitively decontaminated, then he or she should be loosely wrapped in a cocoon-like fashion with a blanket or sheet prior to being transfer or transported.

Pediatric Decontamination Considerations

The complexity of managing a hazardous materials incident is increased when children are involved. While protective to the wearer, PPE may be frightening to a young child, resulting in less cooperation and greater psychological trauma. Increased susceptibility to hypothermia is an important consideration in determining to what degree a child is decontaminated in the field as opposed to being grossly decontaminated, wrapped in a blanket for transport, and then given definitive decontamination at the hospital. Whenever possible, children and parents (or other adults known to them) should remain together while undergoing decontamination, medical treatment, and transport. At the hospital, a nurse should be assigned to stay with the child if unaccompanied.

Technical Decontamination of EMS and Hospital Staff

PPE used by decontamination personnel should be no less than one level below that used for entry into the hazardous environment. Responders and receivers must be familiar with the emergency procedures to be followed if a responder wearing PPE becomes ill or is injured and needs to be quickly decontaminated prior to the normal removal of his suit.

Technical decontamination is the process of removing or neutralizing harmful materials that have gathered on personnel and/or equipment during the response to a chemical incident. It involves the systematic removal of contaminants by physical methods, such as dilution, brushing, scraping, and vacuuming, and by chemical methods where the contaminant is degraded, neutralized, solidified, or disinfected through some type of chemical process.

Technical Decontamination Process

Personnel should remove protective clothing in the following sequence.

1. **Remove tape (if used) securing gloves and boots to suit.**
2. **Remove outer gloves, turning them inside out as they are removed.**
3. **Remove suit, turning it inside out and folding it downward. Avoid shaking.**
4. **Remove boot/shoe cover from one foot and step over the clean line.**
5. **Remove other boot/shoe cover and put that foot over the clean line.**
6. **Remove mask. The last person removing his/her mask may want to wash all masks with**
7. **soapy water before removing his/her suit and gloves. Place the masks in plastic bag and hand the bag over the clean line for placement in second bag held by another staff member.**
8. **Send bag for decontamination.**
9. **Remove inner gloves and discard them in a drum inside the dirty area.**
10. **Secure the dirty area until the level of contamination is established and the area is properly cleaned.**
11. **Personnel should then move to a shower area, remove undergarments and place them in a plastic bag.**
12. **Double bag all clothing and label bags appropriately.**

13. **Personnel should shower and redress in normal working attire and then report for medical surveillance.**

PATIENT TRANSPORT TO THE HOSPITAL

When transporting a contaminated patient (i.e., only gross decontamination performed) by ambulance, special care should be exercised to prevent contamination of the vehicle and subsequent patients.

During transport, ambulance personnel should use appropriate respiratory protection. Provide the maximum fresh air ventilation (e.g., open windows) that weather conditions permit to the patient's and driver's compartments, regardless of the presence or absence of odors.

The ambulance should park in an area away from the emergency room or go directly to a predesignated decontamination location, thereby limiting exposure to hospital facilities. The decontamination team should take the prepared stretcher to the ambulance, transfer the patient, and take him or her directly to the Decontamination Area along the predesignated route.

Upon release of the patient to the hospital, any non-disposable equipment that is believed to be contaminated should be double-bagged. Inquiries should be made at the hospital to determine where the ambulance can be safely decontaminated, and whether equipment is available for this purpose.

EMERGENCY DEPARTMENT PREPARATION

Every member of the emergency department should be familiar with the hospital's HazMat response plan and be required to participate in scheduled drills. A written copy of the plan should also be kept in a central location in the emergency department for quick reference. Preparation for arrival of a contaminated patient should include notification of all services involved, preparation of a decontamination area and suiting up of the decontamination team.

Decontamination Area Preparation

Any victim of a hazardous materials incident is considered to be contaminated until demonstrated otherwise. Therefore, the route from the emergency entrance to the Decontamination Area may also become contaminated and all persons along that route should be removed by security personnel prior to the arrival of the contaminated patient. Ideally, this area should be protected with a barrier of plastic or paper sheeting taped securely to the floor. Doorknobs, cabinet handles, light switches, and other surfaces that have contact with hands should be taped.

Security personnel should be stationed at the main entrance to the emergency department, close to the Decontamination Area, to prevent unauthorized entry, to control the entry of contaminated patients into the department, and to direct the vehicle(s) transporting the patient(s) to the appropriate area. A reception station should be set up just outside the emergency department entrance, where arriving patients can be screened for adequate decontamination before entering.

Weather permitting, the best place to evaluate and initially treat contaminated patients is outside, where ambient ventilation will keep airborne cross-exposure low.

INITIAL TREATMENT OF PATIENTS

- Assign highest priorities to ABCs and decontamination.
- Complete primary and secondary surveys as conditions allow.
- Treat for spinal injury, if indicated.
- In multiple patient situations, begin proper triage procedures.
- Administer antidotes and dosages per the attending physician and Poison Control Center.
- Delay prophylactic measures until the patient is decontaminated.
- Perform invasive procedures only in uncontaminated areas.
- Reassess the patient frequently because many chemicals have latent physiological effects.

Consideration for patients' treatments

Personnel must first address life-threatening issues and gross decontamination before taking supportive measures.

Contaminated open wounds allow for rapid absorption of hazardous materials and should be irrigated with copious amounts of normal saline.

Ocular decontamination is affected by removal of contact lenses (if present) and immediate gentle irrigation with balanced salt solution, lactated Ringer's solution, saline, or water. The stream of fluid should be diverted away from the inner corner so that it does not force material into the lacrimal duct. This may be facilitated with the use of local anesthetic drops and Morgan lenses.

Contaminated nares and ear canals should also be gently irrigated, with frequent suction to prevent any material being forced deeper into those cavities.

Caution must also be exercised when dealing with patients who are vomiting; off-gassing of a product or absorption through the skin or mucous membranes can occur from the emesis in some cases.

A clean member of the staff should stand on the clean side of the entrance to hand in supplies and receive medical specimens.

Antidote administration should be based on patient condition, antidote availability,
and proximity to the hospital since they can have significant side effects. Medication dosing for children must be carefully checked because they are most often administered on a mg/kg basis, and therapeutic and toxic levels can be very close.

Recommendations from the designated Poison Control Center and orders from the attending physician should be carefully followed.

Removal of Patient from Decontamination Room

After the patient has been decontaminated, place a clean piece of plastic on the floor for the patient and staff to use when exiting the clean area. If the patient is not ambulatory, a clean stretcher or wheelchair should be brought to the doorway by an individual who has not been exposed.

2.5.2 Patient Care/Management

Each hospital in or near a major metropolitan area should prepare for the contingency that it could be in the hot zone. The role of a hospital in chemical incident is to provide medical treatment for persons with significant injuries from the incident, medically significant internal contamination, life-threatening chemical agent doses, or a combination of these. Furthermore, the hospital still has responsibilities to care for those not involved in the incident. It is not the role of hospitals to decontaminate uninjured persons with external chemical agent contamination. Pre-incident planning is necessary to ensure appropriate triage of the victims of a chemical incident despite possible hindrances such as large numbers of patients with traumatic injuries; medical facilities being overwhelmed by uninjured patients concerned about possible exposure and contamination; and medical staff's lack of experience in triage of, and possibly fear of, such patients.

Depending on the chemical agent, internal or external, is not always immediately life-threatening and, therefore, treatment of significant medical conditions should always take precedence over agent identification or decontamination of the patient.

Critically ill patients require immediate resuscitation before or concurrently with decontamination. Resuscitation, which is performed by emergency personnel wearing PPE, includes airway, breathing and circulatory support (The ABCs), with empirical antidotal therapy provided when indicated.

Crisis Standards of Care Plans should be followed by each healthcare facility to ensure the appropriate treatment is given to save the most lives during austere conditions and limited resources.

The MDCHPC will facilitate communication between local government and all healthcare and long-term facilities affected by a chemical incident. The MDCHPC may assist in allocating additional resources, coordinating the communication between hospitals to move patients to receiving hospitals during the surge, and ensuring that all coalition members are supported and being provided with the latest information, guidance, and alerts.

The MDCHPC also has a Pediatric Surge and Burn Surge Annexes that can be referenced during an MCI.

2.5.3 Treatment

An accurate history or laboratory confirmation of substances released may not be immediately available, forcing providers to make initial clinical decisions based on incomplete or inaccurate

information. To help focus the initial evaluation and treatment in such cases, it is customary to look for a toxidrome.

Recognition of the characteristic features of opioid, cholinergic, and knockdown (asphyxiant) toxidromes may prompt hospital-based, empirical antidote administration.

The MDCHPC's main function is communication and resource sharing. The MDCHPC does not plan for and implement any monitoring and treatment protocols for Chemical exposed patients. The MDCHPC can assist in facilitating patient transfers to receiving facilities from overwhelmed hospitals experiencing a medical surge due to a chemical incident. The MDCHPC can facilitate the resource requests for treatments and prophylaxis that may be provided by the local and state government in collaboration with The Strategic National Stockpile and the CDC. The MDCHPC will also maintain engagement with the FL DEP, Poison Control, CHEMM and other similar organizations to stay up to date on currently approved treatment protocol and share the information with coalition members. Additional resources can be found in the Appendices section of this annex with just-in-time trainings and printable job aide sheets.

The Agency for Toxic Substances and Disease Registry (ATSDR) provides helpful resources for:

- Emergency Responders
- Healthcare Professionals and Clinicians and
- Health Departments and Partners

The U.S. Department of Health & Human Services | Chemical Hazards Emergency Medical Management also provides a plethora of useful information for chemical hazard incidents/emergencies:

- CHEMM Intelligent Syndromes Tool (CHEMM-IST)
- Acute Patient Care Guidelines
- Medical Countermeasures Database
- Guidance for the operational response to Chemical Incidents
- Information for Hospital Providers
- Decontamination Guidance

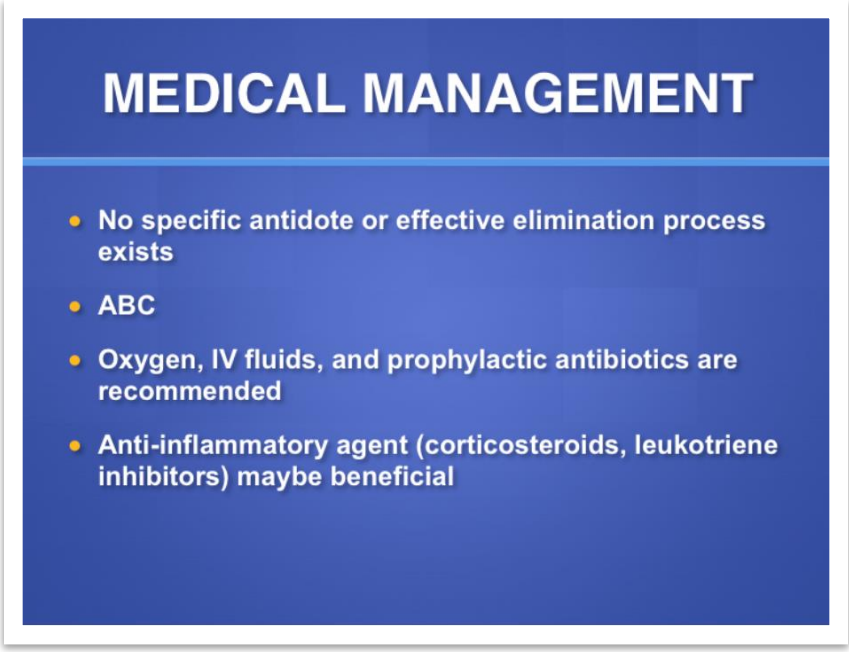
Basic guidance for the treatment of some Hazardous Substances

Primary Respiratory Irritants

Numerous agents that cause respiratory tract and pulmonary injury after inhalation exposure are among the most common substances involved in industrial incidents. These primary respiratory irritants injure mucous membranes by various mechanisms, including liberation of acids (chlorine, phosgene, sulfur dioxide, and nitrogen oxides) and alkali (ammonia), oxidant formation, and inflammatory-cascade initiation.

Highly water-soluble chemicals (e.g., ammonia) cause immediate irritant symptoms (burning sensation, tearing, sneezing, rhinorrhea, and cough) from exposed mucous membranes.

Water-insoluble respiratory irritants cause few symptoms or upper-airway signs before delayed-onset acute lung injury is manifested. Inciting agents include oxides of nitrogen (causing silo filler's disease) and phosgene. Patients may be unaware of exposure, presenting hours to days later with increased sputum production, chest tightness, and dyspnea on exertion.



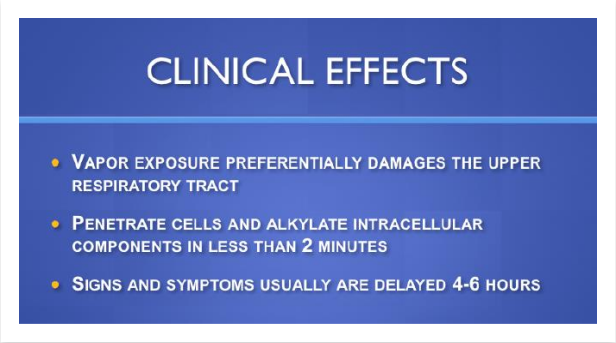
Vesicants

Initial identification through toxidrome recognition is challenging because the initial skin, eye, and respiratory symptoms from vesicants are similar to symptoms caused by other irritant corrosive chemicals.

Mustard is an alkylating agent, attacking cellular macromolecules and DNA and irreversibly damaging target tissues on contact, particularly skin, lung, and eye tissues Liquid mustard persists in the environment at room temperature and is primarily a dermal hazard.

Skin injury is manifested 2 to 24 hours after exposure, initially as erythema and burning pain, with subsequent formation of vesicles, which coalesce into large bullae.

Vapors, formed at higher ambient temperatures, or aerosolized liquids, are an inhalation hazard, and can penetrate clothes and concentrate in moist areas, which explains the high number of inguinal and axillary burns.



Hospital-based decontamination consists of immediate removal and safe disposal of clothing, copious eye irrigation and soap and water to wash skin and hair to limit the dose and prevent the spread of contamination.

Asphyxiant Agents

Simple asphyxiants (e.g., nitrogen and methane) act primarily through physical displacement of oxygen from inspired air, resulting in arterial hypoxemia. Some systemic or chemical asphyxiants (e.g., carbon monoxide and methemoglobin inducers) interfere with oxygen transport, and some (e.g., carbon monoxide, hydrogen sulfide, cyanide, phosphine, and azides) interfere with oxidative metabolism.

In the most severe exposures, particularly with carbon monoxide, cyanide, and hydrogen sulfide, rapid knockdown may occur, with a sudden loss of consciousness, collapse, and progressive cardiovascular compromise.

Carbon Monoxide

Carbon Monoxide interferes with the binding of oxygen to hemoglobin. Treated with oxygen via a non-breathable mask or in a hyperbaric chamber.

Hydrogen Sulfide

Hydrogen Sulfide is associated with a rotten- egg odor, is implicated in catastrophic occupational exposures involving workers (and unprotected coworkers attempting rescue) in sewers or other enclosed spaces. has serious irritant effects on the mucous membranes of the eye (with characteristic “gas eye” corneal ulcerations), nose, and respiratory tract and causes acute lung injury.

Cyanide

Cyanide exposure is associated with inhalation of smoke from house fires; additional sources of exposure include industrial and laboratory accidents, sodium nitroprusside therapy, cyanogenic chemical and plant ingestion, suicide attempts, and criminal or terrorist activity. Cherry red skin and bitter-almond breath odor have been described but those are uncommon findings. The antidote, hydroxocobalamin, exchanges a hydroxyl group for cyanide, forming cyanocobalamin (vitamin B12), which is nontoxic.

As a rule, management of asphyxiant poisoning begins with removal to fresh air, dermal decontamination for liquid exposures, advanced life support with 100% oxygen as the respired gas, and correction of metabolic acidosis.

Cholinergic Agents

Cholinergic compounds include organophosphate and carbamate pesticides, military nerve agents, and several commonly used medications, including neostigmine and physostigmine

Organophosphates act primarily by inhibiting acetylcholinesterase at neural junctions. Excess synaptic acetylcholine results in the cholinergic toxidrome involving the central nervous system (CNS), neuromuscular junction, and autonomic nervous system.

Lethality is due primarily to respiratory compromise from central apnea, severe airway narrowing, excessive pulmonary secretions, and respiratory muscle paralysis. Management includes decontamination by personnel in appropriate personal protective equipment (PPE), with consideration of gastrointestinal decontamination in the case of pesticide ingestion; meticulous supportive care, with special attention to clearing of airway secretions, supplemental oxygen, and early endotracheal intubation in severe cases; and rapid antidote administration.

- Atropine is administered for its antimuscarinic effects, particularly drying of pulmonary secretions, relief of bronchoconstriction, correction of hypotension and bradycardia.
- Pralidoxime, an oxime reactivates acetylcholinesterase before aging occurs.
- Autoinjectors containing both these antidotes are available for intramuscular administration in the case of mass casualties from exposure to nerve agents.

Consideration: Expect a large number of patients and difficulty identifying those needing immediate medical care. Try to avoid labelling patients as worried without objective diagnostic criteria.

2.5.4 Safety and Control Measures

The MDCHPC will facilitate communication and critical alerts to and between hospitals and long-term care facilities. Communications may include warnings, instructions, guidance from local government, or call for resource requests. A hospital should initiate its emergency Chemical Incident or HAZMAT response upon notification of an emergency. Designated personnel should immediately report to the individual in charge of the facility's decontamination and toxicology treatment program. Ambulance personnel should be notified which entrance has been designated for receipt of casualties for transport to the emergency room. Nonskid plastic sheeting can be placed as needed down the corridors where ambulance stretchers are wheeled to the ER. If injuries are not serious, the patient may be wrapped in clean sheets and transferred from the ambulance stretcher to a clean stretcher and then down the usual corridors with the contamination contained within the wrappings. By using a double sheet, contaminated clothing can be cut off and removed by rolling the patient from one side to the other to free the clothing. Clothing is wrapped in the inner sheet and removed to a plastic bag. The outer sheet remains around the patient.

Protective Actions are the steps taken to preserve the health and safety of emergency responders and the public during an incident involving releases of hazardous materials.

Initial Isolation and Protective Action Distances predicts the size of the area that could be affected by a cloud of toxic gas. People in this area should be evacuated and/or sheltered-in-place inside buildings - Isolation and Protective Actions Distances Matrix

Isolate hazard area and deny entry means to keep everybody away from the area if they are not directly involved in emergency response operations.

This "isolation" task is done to establish control over the area of operations. This is the first step for any protective actions that may follow.

Evacuate means to move all people from a threatened area to a safer place. To perform an evacuation, there must be enough time for people to be warned, get ready, and leave an area. If there is enough time, evacuation is the best protective action.
Even after people move to the distances recommended, they may not be completely safe from harm. They should not be permitted to gather at such distances. Send evacuees to a definite place, by a specific route, far enough away so they will not have to be moved again if the wind shifts.

Shelter-in-place means people should seek shelter inside a building and remain inside until the danger passes. **It is vital for first responders to maintain communications with sheltered-in-place people** so that they are advised about changing conditions.

Sheltering-in-place is used either when:

- evacuating the public would cause greater risk than staying where they are
- an evacuation cannot be performed

Direct the people inside to:

- close all doors and windows
- shut off all ventilating, heating and cooling systems
- stay far from windows to avoid shattered glass and projectile metal fragments in the event of a fire and/or explosion
- tune into local radio or TV stations, and stay inside until told it is safe to leave by first responders

Shelter-in-place may not be the best option if:

- the vapors are flammable
- it will take a long time for the gas to clear the area
- buildings cannot be closed tightly

Vehicles can offer some protection for a short period if the windows are closed and the ventilation systems are shut off. Vehicles are not as effective as buildings for in-place protection.

Healthcare facilities and first responder agencies must ensure that compliance with OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standards (including training, establishment of control zones, hot/warm/cold zones, and use of PPE). Best practices for safety and control measures at the hospital level can be found here.

2.5.5 Fatality Management

From a planning perspective, handling contaminated remains is very similar to screening and decontaminating living people. Responders and ME/Cs responsible for receiving and processing decedents should have access to either soap and water. Chemical contamination control methods should be included in plans to prevent the spread of harmful chemical agents to ME/Cs working to process fatalities. Generally, following decontamination, no special container or transport method will be required for contaminated remains. If remains still exceed contamination limits following decontamination, temporary internment or storage at the site may be necessary. As with all fatality management, care should be taken in planning to ensure respect for the remains is maintained throughout the process. Handling of contaminated remains still requires planners to accommodate the social, cultural, and religious considerations of the deceased and their families to the maximum extent possible. Please refer to The CHEMM Guidelines for Handling Chemically Contaminated Remains.

- All interacting with remains need to be in personal protective equipment (PPE) depending on the nature of the agent.
- All remains should undergo a detailed decontamination before any extensive morgue procedures are conducted.
- Decontamination involves scrubbing and cleansing all body orifices completely.
- Depending on the type of chemical and the level of contamination, and if remains are fragmented or have open body orifices, remains may need to be decontaminated a few times before contamination is mitigated.

2.5.6 Transport

Miami-Dade Fire Rescue agencies are responsible for the transport of patients to healthcare facilities. Patient transfers will be coordinated by ESF-8 with MDCHPC's support from the Emergency Operations Center (EOC) at the Miami-Dade County Department of Emergency Management System (DEM). In the event of a large-scale event, hospitals may operate while collaborating with The National Disaster Medical System (NDMS) and DMAT.

During a federally declared disaster or public health emergency, the number of patients that need to be evacuated or cared for may exceed state and local resources. When that happens, states can request federal assistance. In response, the National Disaster Medical System (NDMS), within the U.S. Department of Health and Human Services (HHS), provides medical teams and equipment to support the initial emergency response, transportation, and definitive care for patients who are at-risk or have become seriously ill or injured as the result of the disaster or emergency. Federal patient movement is a coordinated partnership between HHS, Department of Homeland Security (DHS), the Department of Veterans Affairs (VA), and the Department of Defense (DoD).

NDMS provides support for patient movement and evacuation from areas impacted by the disaster to designated reception facilities within the NDMS health care facility network. Patient movement is coordinated by 64 Federal Coordinating Centers (FCCs) across the country that are managed by DoD and VA. NDMS responders from Disaster Medical Assistance Teams (DMAT) and Trauma Critical Care Teams (TCCT) provide pre-hospital care and support patient transport in disaster zones during patient evacuation.

Transportation and Temporary Storage to Morgue

- To expand capabilities, incorporate the use of refrigerated trucks as an alternative resource to accommodate cases that exceed their normal transportation and storage capacity.
- Another option is to cool an area to 37°F with an industrial air conditioning unit.
- During the transporting and storing process, remains should not be stacked unless shelving units are used. If shelving units are used, personnel should not stack remains higher than waist level to prevent injury to those handling remains.
- The transportation and storage plan should minimize the number of times remains are moved.
- Moreover, contaminated remains might need to be packaged in a particular manner to safely transport them from one location to another.

2.5.7 Deactivation and Recovery

The MDCHPC is committed to its role in maintaining and promoting situational awareness. The MDCHPC has protocol for developing and sharing critical situational awareness information including availability of essential resources and burn beds, surge capacity status of hospitals, decontamination, shelter in place, evacuation status and locations and more.

2.6 Special Considerations

2.6.1 Behavioral Health

Disaster Behavioral Health responders work with survivors, families, responders, and the community to assist with the mitigation of emotional, psychological, and physical effects of a disaster, natural or man-made. Disaster behavioral health responders apply the concepts of psychological first aid to help those affected overcome the initial impact of shock, denial, and depression when confronting disasters. The MDCHPC will promote situational awareness on available resources for psychological first aid and/or stress first aid. The MDCHPC also has certified Stress First Aid instructors in its cadre that are available to deploy to any member facility and provide Stress First Aid to healthcare providers, staff, and first responders.

2.6.2 Pediatric and At-Risk Populations

The MDCHPC as a documented Pediatric Surge Annex that can be used as an additional resource to this annex. The Pediatric Surge Annex includes guidance and recommended actions to responding to a pediatric surge emergency in Miami-Dade County. Special considerations and care options are identified in the annex with emphasis on available resources for special populations during an emergency or MCI.

2.6.3 Communications

The MDCHPC has protocol for developing and sharing critical situational awareness information including availability of essential resources and burn beds, surge capacity status of hospitals, decontamination, shelter in place, evacuation status and locations and more. The MDCHPC uses email, Constant Contact, Everbridge Mass Notification Systems, and SMS to maintain and promote situational awareness. The MDCHPC will work with member organizations and local government to ensure streamlined communications efforts across the community to prevent the public from overwhelming healthcare systems. Mechanisms are in place to maintain awareness of current conditions within Miami-Dade County and surrounding areas, and every effort will be made to monitor multiple sources of information to identify and counter rumors and misinformation. The MDCHPC also ensures the marketing of FEMA's Public Information Office (PIO) course to its members on a regular basis to maintain readiness for any emergency.

2.6.4 Jurisdictional-Specific Considerations

Planners should be aware that pre-established relationships with neighboring communities are vital to facilitate message dissemination support during an emergency. The MDCHPC prioritizes collaboration with other healthcare coalitions in Florida, especially when it comes to exercising plans in a collective approach. This unified approach ensures that Florida healthcare coalitions can rely on each other when it comes to resource sharing and are aware of their planning strategies to hopefully establish a unified approach during an emergency.

3. Appendices (links)

3.1 Training and Exercises

The Miami-Dade County Healthcare Preparedness Coalition tested this Chemical Emergency Surge Annex through a functional exercise (The Medical Response & Surge Exercise) on January 17th, 2024. Players included local ESF-8, Department of Emergency Management, EMS/Fire Rescue, and trauma and acute care hospitals.

3.2 Legal Authorities

The annex provides guidance to support a coordinated healthcare response to a chemical emergency in which the number and severity of exposed or possibly exposed patients challenges the capability of The Miami-Dade County Healthcare Preparedness Coalition (MDCHPC) member facilities. This Annex does not replace other county or local emergency operations plans or procedures, but rather builds upon the existing plans and their annex.

3.3 Additional Resources/References

3.3.1 Just-in-time Training

- PPE, Decontamination, and Mass Triage: A Short Course
- CHEMM Intelligent Syndromes Tool (CHEMM-IST)
- Acute Patient Care Guidelines
- Medical Countermeasures Database
- Guidance for the operational response to Chemical Incidents
- Information for Hospital Providers
- Decontamination Guidance

3.4 Supporting Documents

Pediatric Surge Annex

Burn Surge Annex

CHEMPACK PROGRAM Overview | FLORIDA:

CHEMPACK Flyer.pdf

3.5 Additional Resources

- Community Reception Centers – with posters, video, job action sheets, and customizable job aids for CRCs.
- **NACCHO Advanced Practice Center (APC) Tools** (http://apc.naccho.org)
- 2020 Emergency Resource Guidebook

3.6 MDCHPC HAZMAT Response Cache

Item Id	Description	Location Id	Pallet ID	UOM Code	Lot/Serial	Qty On Hand	Qty Allocated	Qty Available	Inv Status
1072	Canopy, 10'x10'	JNMC	P0072	EA	NA	2	0	2	AVL
1095	Air Compressor, Portable	Jackson West	202307	EA	NA	1	0	1	AVL
1098	Computer, Laptop	Holtz	P0062	EA	5807110153	1	0	1	AVL
1098	Computer, Laptop	Holtz	P0063	EA	5475710153	1	0	1	AVL
1098	Computer, Laptop	Holtz	P0064	EA	5616310153	1	0	1	AVL
1098	Computer, Laptop	Holtz	P0065	EA	5482210153	1	0	1	AVL
1098	Computer, Laptop	Holtz	P0066	EA	5583710153	1	0	1	AVL
1098	Computer, Laptop	Holtz	P0067	EA	5478410153	1	0	1	AVL
1135	Air Conditioner, Portable	Jackson West	02231006X14/1...	EA	NA	5	0	5	AVL
1260	Oxygen Concentrator	JNMC	P0010	EA	E109480DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0011	EA	E108834DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0012	EA	E109853DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0013	EA	E110831DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0014	EA	E110899DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0015	EA	B192010176DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0016	EA	B192010165DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0017	EA	B194030469DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0018	EA	B194030463DS	1	0	1	AVL
1260	Oxygen Concentrator	JNMC	P0019	EA	N270795DS	1	0	1	AVL
1309	Portable Power Source	SMRT7 WH	1	EA	NA	1	0	1	AVL
1468	UPS (Uninterruptable Power Supply Unit)	SMRT7 WH	9	EA	NA	1	0	1	AVL
1468	UPS (Uninterruptable Power Supply Unit)	CHI	N/A	EA	NA	3	0	3	AVL
1602	Cart, Collapsible	SMRT7 WH	10	EA	NA	1	0	1	AVL
1791	Ventilator, LTV	JSMC	P0061		R02547	1	0	1	AVL
1953	MANEQUIN, CPR, ADULT	JMH	IU	EA	NA	2	0	2	AVL
2098	Power Station, Portable	SMRT7 WH	1	EA	NA	2	0	2	AVL
2098	Power Station, Portable	SMRT7 WH	2	EA	NA	1	0	1	AVL
2098	Power Station, Portable	SMRT7 WH	5	EA	NA	1	0	1	AVL
2330	Kit, Stop The Bleed	UM	N/A	EA	NA	45	0	45	AVL
2654	A/C, Portable	Keralty	P0009	EA	NA	4	0	4	AVL
2654	A/C, Portable	JSMC	P0020	EA	15ET00041	1	0	1	AVL
2654	A/C, Portable	JSMC	P0021	EA	15ET00042	1	0	1	AVL
2654	A/C, Portable	JSMC	P0022	EA	15ET00046	1	0	1	AVL
2654	A/C, Portable	JSMC	P0023	EA	15ET00047	1	0	1	AVL
2654	A/C, Portable	JSMC	P0024	EA	14ET00087	1	0	1	AVL
2654	A/C, Portable	JSMC	P0025	EA	14ET00089	1	0	1	AVL
2654	A/C, Portable	JSMC	P0026	EA	14ET00109	1	0	1	AVL
2654	A/C, Portable	JSMC	P0027	EA	14ET00110	1	0	1	AVL
2654	A/C, Portable	JSMC	P0028	EA	14ET00111	1	0	1	AVL
2654	A/C, Portable	JSMC	P0029	EA	14ET00112	1	0	1	AVL
2659	Radiation Detector, Portal	MDCOEM	P0055	EA	NA	5	0	5	AVL
4219	PAPR, Battery Pack, Lithium	JNMC	P0068	EA	4240-01-496-61...	10	0	10	AVL
4219	PAPR, Battery Pack, Lithium	JSMC	P0069	EA	NSN 4240-01-49...	30	0	30	AVL
4669	PAPR, System, Complete	UM	P0056	EA	B66705	1	0	1	AVL
4669	PAPR, System, Complete	UM	P0059	EA	B66799	1	0	1	AVL
4669	PAPR, System, Complete	UM	P0060	EA	B66639	1	0	1	AVL
5813		Keralty	P0053	EA	NA	20	0	20	AVL
6007	Fan, Blower, Portable	Keralty	P0008	EA	NA	10	0	10	AVL
6010	Chair, Evacuation	JMH	P0030	EA	21N454691	1	0	1	AVL
6010	Chair, Evacuation	JMH	P0031	EA	21N454696	1	0	1	AVL
6010	Chair, Evacuation	JMH	P0032	EA	20N429584	1	0	1	AVL
6010	Chair, Evacuation	JMH	P0033	EA	20N429586	1	0	1	AVL
6010	Chair, Evacuation	JMH	P0034	EA	19N410535	1	0	1	AVL
6010	Chair, Evacuation	JMH	P0035	EA	19N410536	1	0	1	AVL
6011	Sled, Evacuation, Standard	West Gables	P0006	EA	NA	6	0	6	AVL
6011	Sled, Evacuation, Standard	JMH	P0007	EA	NA	70	0	70	AVL
6012	Shelter, Decontamination	JSMC	P0001	EA	NA	1	0	1	AVL
6012	Shelter, Decontamination	JNMC	P0002	EA	NA	1	0	1	AVL
6012	Shelter, Decontamination	UM	P0003	EA	2182301PV	1	0	1	AVL
6012	Shelter, Decontamination	MSMC	P0004	EA	NA	1	0	1	AVL
6012	Shelter, Decontamination	Mercy	P0005	EA	21211901PV	1	0	1	AVL
6106	Air Scrubber, Portable	Jackson West	AB194853/AB1...	EA	NA	5	0	5	AVL
6276	Stretcher, Stryker	JSMC	P0038	ea	9503030198	1	0	1	AVL
6276	Stretcher, Stryker	JSMC	P0039	ea	9503030202	1	0	1	AVL
6276	Stretcher, Stryker	JSMC	P0040	ea	9503030192	1	0	1	AVL
6276	Stretcher, Stryker	JSMC	P0041	ea	9503030195	1	0	1	AVL

6276	Stretcher, Stryker	JNMC	P0045	ea	307055306	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0046	ea	101031191	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0047	ea	611081106	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0048	ea	9912033609	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0049	ea	701092556	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0050	ea	704090680	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0051	ea	311058049	1	0	1	AVL
6276	Stretcher, Stryker	JNMC	P0052	ea	408067177	1	0	1	AVL
6582	Respirator, AVEA, External Battery & Tank Holder	Holtz	P0036	EA	NA	12	0	12	AVL
6583	Cot, Special Needs, w/ IV Pole	MSMC	P0037	EA	DH5150-DH5249	100	0	100	AVL
6584	Training System, Fire Extinguisher, Digital	MSMC	P0054	EA	BP31-1526	1	0	1	AVL
6585	Pump, Utility	MSMC	P0070	EA	NA	5	0	5	AVL
6586	Flood Dam, Portable	MSMC	P0071	EA	NA	1	0	1	AVL
7201	Solar Panel	SMRT7 WH	3	EA	NA	1	0	1	AVL
7201	Solar Panel	SMRT7 WH	4	EA	NA	1	0	1	AVL
8702	Adapter, DC	SMRT7 WH	11	EA	NA	1	0	1	AVL
8844	Water System, Reverse Osmosis	UM	UM - 1	EA	UM - 1	2	0	2	AVL
8844	Water System, Reverse Osmosis	UM	UM - 2	EA	UM - 2	2	0	2	AVL
8875	Power Station, Portable, Expansion Battery	SMRT7 WH	11	EA	NA	1	0	1	AVL
8875	Power Station, Portable, Expansion Battery	SMRT7 WH	6	EA	NA	1	0	1	AVL
8875	Power Station, Portable, Expansion Battery	SMRT7 WH	7	EA	NA	1	0	1	AVL
8875	Power Station, Portable, Expansion Battery	SMRT7 WH	8	EA	NA	1	0	1	AVL

3.7 Abbreviations and Acronyms

AMA	American Medical Association
ARS	
ASPR	Assistant Secretary for Preparedness and Response
CDC	Centers for Disease Control and Prevention
CRC	Community reception center
CSTE	Council of State and Territorial Epidemiologists
DHS	Department of Homeland Security
DOE	Department of Energy
EMS	Emergency medical services
EOC	Emergency operations center
EPA	Environmental Protection Agency
ESF	Emergency support function
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
Hazmat	Hazardous materials
HHS	U.S. Department of Health and Human Services
LHD	Local health department
MRC	Medical Reserve Corps
NRF	National Response Framework
PIO	Public information officer
PPE	Personal protective equipment