October 2023

Healthcare Coalition

Chemical Emergencies Annex

Santa Cruz County

Health Services Agency

Emergency Preparedness Public Health

CRITICAL ACTION CHECKLIST: FIRST 12 HOURS

First 0-2 hours		
✓	**Description of Action Item**	**Responsible**
	Notifications Per MHOAC Activation JAS. Add EH, BH, HSD, PIO, EP, Coroner, Hospitals, Hazmat Team, and clinics to activation list	MHOAC, PH Director or designees
	Activate DOC, Request Activation of EOC	PH Director or MHOAC
	Provide Flash Report to RDMHS, verbally and/or via email	MHOAC, EMS
	Coordinate planning and response with Hazmat Team as needed	EOC
	Implement Incident Command System. Consider need for Area Command.	Everyone
	Activate Chemical Emergencies Plans	Everyone
	Hospitals activate HICS, chemical emergencies plan, surge plan. Clinics activate chemical plan, and disaster/surge protocols.	Hospitals, Clinics
	Identify Med-Health Branch Director, who immediately responds to EOC	PH Director, MHOAC
	PIO prepares and releases 1st Public warning in coordination with Public Safety, if not already completed by Public Safety	EOC PIO, DOC PIO
	Assure Fire, LE response	MHOAC, EMS
	Get Situation Status (sit-stat). This should include number of victims, chemical type, ambulance staging location, geographic footprint of exposure and dispersion modeling, protective measures needed for the community, protective measures for hospitals and responders, mass decontamination needs, etc.	MHOAC, EMS
	Implement surge strategies in the EMS system	EMS
	Put alert out on ReddiNet in MCI section, contact Soraya Peters (ReddiNet) for assistance with ReddiNet as needed.	EMS, MHOAC
	Identify Healthcare Facilities in Hot Zone and Shelter-In-Place zone and their needs	MHOAC, EMS, Med-Health Branch

First 0-2 hours		
✓	**Description of Action Item**	**Responsible**
	Identify residents with AFN in Hot Zone, Shelter-In-Place zone and determine plan for response	HSD
	Conduct 10-minute conference call with Leadership, EOC Director, EP, EMS, MHOAC, HSD Lead, Environmental Health Lead, BH lead, Fire representative, one hospital representative from each hospital: provide sit-stat, Identify size, needs, type of chemical(s), DOC Command structure, shelter lead, communication methodology, Op period lengths	MHOAC, EMS, PH Director
	Request Resources such as AST's, chemical experts, etc.	MHOAC
	Respond to incoming resource requests as needed	EMS, DOC Logs
	EMS representative travels to Netcom, assists with triage as needed, monitors EMS system and provides frequent updates to MHOAC	LEMSA or Ambulance Provider representative
	EMS representative travels to ICP for incident for coordination	EMS
	Ambulance provider representatives respond to ICP, EOC, and to ambulance main office (to coordinate incoming AST's and operations)	AMR
	Fill roles in the DOC and EOC for immediate response	HSA
	Provide patient management information to hospitals and clinics as needed	PH
	Provide PPE to staff as needed	Hospitals, EMS, HSD, EH, BH
	Hospitals and clinics prepare for decontamination of incoming patients in coordination with SCHMIT or Fire agencies	Hospitals, Clinics

2-12 Hours		
✓	**Description of Action Item**	**Responsible**
	Assess chemical exposure magnitude	EH, PH
	Create sit-stat report for RDMHS	DOC
	Create IAP and/or Medical Plan	EOC, DOC, HCC
	Prepare for and manage spontaneous volunteers and donations	EOC
	Provide decontamination and medical care for patients	Hospitals
	Plan for long-term ongoing surge of patients as needed	EMS, Hospitals, HCC
	Form JIC as needed	EOC, EOC/DOC PIO
	Update public information a minimum of every 15-30 minutes	EOC, PIO, JIC
	Set up CRCs for public information and decontamination. As needed	HSD, PH
	Set up evacuation shelters as needed	HSD, PH, Med-Health Branch
	Secure appropriate declarations and proclamations	PH, HSA
	Initiate surveillance and epidemiological investigations	PH, HSA
	Review Chemical Emergency Annex and Surge Plan in detail, determine next steps, including MHOAC Manual	Everyone

Note: See Appendix 8 for Acronym Dictionary

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INTRODUCTION

Chemical release or spill incidents will impose significant challenges to the County of Santa Cruz (SCC) healthcare system, local and county agencies, and general population. It is critical to have the ability to provide adequate medical care during these events. The purpose of the County of Santa Cruz Healthcare Coalition (SCCHCC) Chemical Emergencies Annex is to provide hazard-specific guidance to support a coordinated healthcare response to chemical incidents.

The primary goals of the SCCHCC Chemical Emergencies Annex are:

- Ensure optimal patient care at the most appropriate healthcare setting.
- Describe the process and organizational constructs County government and the SCCHCC will use during response.
- Identify how partners will respond and coordinate in response to chemical incidents to reduce morbidity and mortality.
- Ensure responder health and safety.
- Provide information that is specific and unique to SCCHCC chemical incident response and recovery process.
- To best use limited resources in the most efficient way to affect positive outcomes within our Healthcare systems.

This Annex does not replace other County or local emergency operations plans or procedures, but rather builds upon the existing plans and annexes. This Annex will likely be used in conjunction with the SCC Medical Surge Plan.

> ***Definition**: For the purpose of this plan, a "chemical exposure" includes or pertains to inadvertent, deliberate, or terrorist chemical release incidents. . . . . The response goes above and beyond routine chemical investigation, coordination, and response; and may require significant multi-agency response.*

Acknowledgement: Credit and appreciation go to the County of San Mateo for graciously allowing us to use some of their work from the Radiation Plan in creating this Chemical Annex.

SCOPE

The SCCHCC Chemical Emergencies Annex is an annex to the larger SCCHCC Emergency Operations Guide. This Annex applies to a County-wide response to chemical incidents, regardless of size or complexity. This includes suspected or deliberate attacks or inadvertent incidents, and terrorism incidents. For incidents involving suspected federal crimes, including those concerning terrorism, the Federal Government will respond, lead, and coordinate with local law enforcement and investigative activities to resolve threats and prevent further attacks.

This Annex will outline the specific incident response, treatment, operations, and response protocols necessary to properly plan for, manage, and care for responders and patients during a chemical emergency incident. It may also refer the reader to related considerations, relevant organizational documents, and external sources.

Incidents are managed by Standardized Emergency Management System (SEMS), which incorporates the use of Incident Command Structure (ICS), mutual aid agreements, the Operational Area concept, and multi-agency and inter-agency coordination. This Chemical Emergencies Annex is compliant with the National Incident Management System (NIMS).

INTENDED AUDIENCE

This Annex involves all participating organizations, agencies, and jurisdictions contained within the geographical boundaries of SCC but is particularly aimed at those involved in the SCCHCC. Many of the HCC's facilities and partners have their own protocols for responding to cases of chemical exposure. This document is designed to work with those protocols and does not define or supplant any emergency operating procedures or responsibilities for any member agency or organization in the SCCHCC. It is not a tactical plan or field manual, nor does it provide Standard Operating Procedures (SOP). Rather, it is a framework for organization and provides decision-making parameters to use within an all-hazards planning and response environment. This plan intentionally does not provide specific or quantitative thresholds for activation or demobilization of organizational structures or processes described herein. Such determinations are situation-dependent and left to incident management. It includes a general concept of operations for the response to chemical events.

BACKGROUND

The County of Santa Cruz (County) is home to nearly 300,000 residents dispersed over varying terrains and challenging geographies for prehospital response. At peak

Advanced Life Support (ALS) system ambulance deployment, there are nine ALS ground ambulances with potential ALS or Basic Life Support (BLS) ambulance support from neighboring fire departments including Central Fire Protection District, Boulder Creek, Zayante, and Ben Lomond. There is also a private BLS ground transport provider available, who has the potential to deploy six BLS ambulances and up to 28 EMTs to the system, possibly within 60 minutes. The two neighboring counties can send ground ALS and BLS strike teams (i.e., five ambulances with a leader) with varying response times of 45-120 minutes or more.

Two private air ambulance resources could collectively send four air resources within 30-45 minutes and have the potential to share additional air resources with varying response times. Both air resources maintain the flexibility of providing nurse support in ground ambulances if needed. In addition to the primary air support, there is some potential for air ambulances from Moffett field, California Highway Patrol, CAL-FIRE, and the United States Coast Guard; although response times would be delayed, if available.

The County is supported by numerous local city and county law enforcement and fire departments, a consolidated 9-1-1 communications center, Santa Cruz Regional 9-1-1, as well as one fire resource communication and command center (i.e., CAL-FIRE) in Felton.

The fire agencies in SCC have created a multi-jurisdictional HAZMAT team, the SCHMIT Team, which responds to emergency incidents involving hazardous materials. The team is led by a Program Manager based with Scotts Valley Fire Protection District and consists of representatives from participating fire agencies within the county. The SCHMIT team is a key resource for managing chemical emergencies.

Agriculture is concentrated in the coastal lowlands of the county's northern and southern ends, and is a fundamental part of the history, culture and economy of Santa Cruz County. The majority of the agricultural industry is in the Pajaro Valley area, located in southern Santa Cruz County. Agricultural endeavors may use highly toxic chemicals and pesticides, and Santa Cruz County ranked 30th out of 58 counties in the amount of pesticides applied to agricultural fields.[1] Exposures can and have

[1] Santa Cruz County Agricultural Office's report on pesticide use

occurred, such as the chemical drift that sickened 15 workers in Watsonville in June 2018.[2]

The greater County area has large attraction venues vulnerable to surge threats or other hazardous incidents such as beaches and parks, the Beach Boardwalk, Kaiser Permanente Arena, shopping attractions at the Capitola Mall, Capitola Village, and Pacific Avenue, and two college campuses - Cabrillo College and University of California, Santa Cruz (UCSC). Both colleges have student health centers that are staffed during normal business hours. The student health centers do not have the capacity to care for patients exposed to chemicals. However, each has basic disaster supplies and medical caches on campus. UCSC does have student and family housing, as well as on-campus law, fire and communications center resources. Additionally, UCSC has made efforts to provide the following training opportunities:

- Stop the Bleed and BLS training to law, fire agencies, and the public for a total of 300 students thus far.
- Annual active shooter training for the staff that is open to all community partners.

Cabrillo College has approximately 50 aspiring medical professional students in BLS and bleeding control to assist in large scale events.

There are two hospitals in the County that offer emergency services: Dominican Hospital and Watsonville Community Hospital. Combined they have a capacity of 329 beds (223 Dominican and 106 Watsonville, respectively); however, each would be challenged by staffing capacities. Sutter Maternity and Surgery Center is a specialty hospital that is prepared to offer additional capacity (18 medical/surgical and 12 perinatal with additional 50 alternative bed options and 23 beds for triage surge) and patient care support in surge events. All facilities have various levels of disaster supplies to use in the event of a patient surge or disaster, however it is not certain what Chemical Emergency plans, training, or specific supplies are in place.

There are numerous clinics that offer urgent care services throughout the County which could assist with low acuity care during normal operating hours. **All healthcare**

[2] KQED report regarding Pesticide incident that sickened 15 workers

facilities could be impacted by patients exposed to chemicals arriving unexpectedly at their facilities during a chemical emergency.

The County Public Health Division oversees a medical professional resource called the Medical Reserve Corps (MRC) that currently has medical professionals with varying licensures that are registered and vetted through the Disaster Healthcare Volunteer (DHV) system. The Emergency Medical Services (EMS) Agency coordinates support through the Medical Health Occupational Area Coordinator (MHOAC) and County Emergency Operations Center (EOC). The EMS Agency has the authority to support the County, cities, and hospitals to trigger their surge response plans.

Major trauma patients are typically taken to Level 1 or 2 trauma centers out of the county. Trauma Centers most frequently used by County of Santa Cruz include Santa Clara Valley Medical Center in San Jose, Natividad Medical Center in Salinas, and Stanford Hospital in Stanford (near Palo Alto). SCC does not have any trauma centers within its borders.

Regional Facility Designations:

REGIONAL CENTERS	TRAUMA DESIGNATION
Alameda County Medical Center (Highland)- Oakland	Level 1
John Muir Medical Center – Walnut Creek	Level 2
Kaiser Permanente Medical Center - Vacaville	Level 2
Natividad Medical Center - Salinas	Level 2
Regional Medical Center – San Jose	Level 2
Santa Clara Valley Medical Center – San Jose	Level 1
Sutter Eden Medical Center – Castro Valley	Level 2
Stanford Hospital - Stanford	Level 1
UC Davis Medical Center – Sacramento	Level 1
UCSF Benioff Children's Hospital - Oakland	Level 1
Zuckerberg San Francisco General Hospital	Level 1

HCC OVERVIEW

The SCCHCC is a collection of regional healthcare facilities including hospitals, EMS, skilled nursing facilities, clinics, residential care facilities, clinics, home health care, hospice, and behavioral health. Together members of the HCC respond to emergencies by providing support to the medical and healthcare needs of the community.

NATURE OF THE HAZARD

1. OVERVIEW OF CHEMICAL EMERGENCIES

Chemical emergency preparedness is one of the five categories within the CBRNE acronym. CBRNE is an acronym for Chemical, Biological, Radiation, Nuclear, and high yield Explosives. These types of weapons have the ability to create both mass casualties as well as mass disruption of society. Emergency responders are taught how to recognize and mitigate attacks from such weapons.

According to the Bay Area Urban Areas Security Initiative CONOPS Plan: *CBRNE Decontamination Concept of Operations Plan (CONOPS)*: "Chemicals include substances that pose potential or actual risks to human health and the environment. They can include but are not limited to numerous classes of substances such as industrial chemicals, industrial waste, pesticides, and manufactured substances with the intent of harm (i.e., mustard gas). The risks and impacts of these chemicals and hazardous substances are as diverse as the number that exist in the area. Health risks range from modest health impacts at exposure, to acute and immediate risks including death. Likewise, chemicals may also cause chronic health risks, such as generating or accelerating cancer, neurological disease, and other effects. Volume and chemical characteristics (i.e., flammability, toxicity, corrosiveness, etc.) influence risks of each chemical, as does routes of exposure (i.e., inhalation, ingestion, dermal contact, injection)."[3]

It is important for emergency responders and the public to be aware of these types of weapons. By becoming educated on the various types of weapons and how best to respond in the event of an attack, the chances of survival are significantly increased.

[3] BAUASI_Regional CBRNE CONOPS_Final.pdf

Potential Sources of Chemical Emergencies: There are three potential causes of chemical emergencies: inadvertent, deliberate, and terrorism incidents. Incidents may take place in tandem and can include spills, leaks, explosion, vehicle accident, local terrorists and extremists, theft, detonated device, etc.

Transportation Accidents: A large variety of chemicals are routinely transported throughout California, often using common carriers such as FedEx, tanker trucks, trains, cargo containers, ships, etc. While shipments of chemicals may require special containers and are monitored by a number of state and federal agencies such as the California Highway Patrol (CHP) and U.S. Department of Transportation (DOT), there is risk of chemical emergency exposure to nearby populations should a transportation accident occur.

Industry, agriculture, and pipelines: There are hundreds of business facilities with sufficient quantities of hazardous substances that must be reported to the EPA. These businesses may include manufacturers and light industrial firms that create semiconductors, satellite equipment, electronics, etc. There are also a significant number of natural gas, heating oil, and petroleum pipelines that run through California and the Bay Area. Agricultural areas, such as Watsonville, may use pesticides and other agricultural chemicals, which can spill or be released.

Healthcare facilities can additionally be expected to accept patients from exposure zones of chemical emergency incidents occurring within SCC or from neighboring jurisdictions. If the hazard occurs outside SCC, facilities should be in contact with the MHOAC for more information.

SCOPE OF CHEMICAL EMERGENCY HAZARDS

Chemical emergency incidents can occur anywhere. The most common incidents include accidental spills or exposures, theft/loss/misuse of chemical materials, transportation accidents, and terrorist activities. Detection of chemical exposure may depend on instrumentation, and/or the type and amount of chemical to which a person is exposed. Factors can include observable measurable exposure, or can include distance from the source, time exposure, chemical composition of the hazardous cloud, wind speed, etc.

1. ASSUMPTIONS

General Assumptions:

- **Incident cause**: Chemical incidents may be accidental in nature (e.g., industrial or transportation accident) or purposeful (e.g., deliberate, terrorism activities).
- **Exposure**: Inadvertent chemical exposure may not be immediately detected until exposure effects become manifested in the exposed population, or they may be known immediately through human senses, signs and symptoms, or reports of exposure.
- **Extensive geographic areas impacted:** The impacted area may expand far beyond the immediate area of detonation in an explosion or release. Broken windows and structural damage can extend over large areas, and the chemical plume may follow the predominant weather/wind patterns for long distances. This large area of impact can make mutual aid and resource sharing difficult.
- **Plume Exposure Pathway**: Response to an incident will depend on the extent of chemical contained within the plume, potentially requiring operations to be conducted over multiple jurisdictions.
- **National Contingency Plan:** A chemical emergency incident may require concurrent implementation of the National Contingency Plan and Oil and Chemical Incident Annex to the Response Federal Interagency Operational Plan to address oil, chemical or biological releases into the environment.

Healthcare Facility Level Assumptions:

- **Pre-incident Preparedness:** Preparedness activities and public education before an incident will reduce the number of casualties. But preparedness and community awareness of chemical emergency risks may be limited.
- **Overwhelmed Healthcare System:** Damage to hospitals, communication capabilities, EMS, and other critical infrastructure can cripple healthcare response efforts at a time when an overwhelming number of victims (including first responders) may need acute medical care. Triage/treatment casualty collection points may need to be established and resources brought-in to support compromised infrastructure.

- **Responder Preparedness:** Responder preparedness and expertise in chemical emergency response will vary widely.
- **Unique Resources:** "The impacts of a chemical release can range from relatively small in size to affecting a large geographical area. Factors include but are not limited to chemical type, location of the incident, and meteorological conditions at the time of the incident or during response efforts. A chemical incident could easily involve the engagement of multiple jurisdictions as well as state and federal response entities."[4]
- **Significant Resource Shortfalls:** A significant chemical emergency incident may quickly overwhelm existing local and state resources and capabilities. Competition for scarce resources and significant strain on the healthcare community may occur.
- **Patient movement:** Early on, most patient victim movement will be self-evacuation, and may arrive at local hospitals unannounced in private vehicles or on foot. Once the exposed population has been identified, they should be moved or directed to areas that have greater healthcare capacity, particularly those with moderate exposure**.** In order to minimize secondary contamination, patient transportation and treatment may be very limited until decontamination can be performed on contaminated patients.

Public Assumptions:

- **Public Anxiety and Lack of Awareness:** High public anxiety and fear, low understanding of risks and protective actions, and high demand for information are expected. There will likely be a surge of concerned citizens seeking medical assistance.
- **Public Preparedness:** Public and responder chemical emergency expertise and preparedness will widely vary.
- **Sheltering Orders:** Sheltering after a chemical emergency incident is extremely effective at limiting chemical exposures. Orders for those within the spill or plume area (including healthcare facilities) may be issued immediately by the Incident Commander or Health Officer.

[4] BAUASI_Regional CBRNE CONOPS_Final.pdf

- **Federal Emergency Management Agency (FEMA)**: FEMA provides monitoring and technical assessment support to provide information and map products on potential contamination levels, anticipated injuries, estimates of exposures, and overall situational awareness. They may also provide technical support and personnel resources to various aspects of the monitoring and decontamination efforts. Specialists are typed as Chemical Operations Support Specialists (COSS) for chemical incidents.
- **Government Responsibility**: All levels of government (local, state, and federal) are responsible for the safety and welfare of the public to the extent of its capabilities.
- **Law Enforcement Response and Criminal Investigation:** As required by policy, there is a presumption of terrorist threat for all chemical emergency incidents, unless clearly accidental.
- **Secondary Threats and/or Incidents:** A terrorist attack may involve multiple incidents, and each location may require simultaneous response activities.
- **Response and Recovery Continuum:** Response mission actions and short-term recovery activities that immediately follow, include lifesaving, life-sustaining, property protection, and other measures intended to neutralize the immediate threat to life, environment, and property as well as to stabilize the community.

Critical Considerations are drawn from the Federal Guidelines and Interagency Operational Plans, then tailored to a County and SCCHCC-level response.

2. CHEMICAL IMPACT CRITICAL CONSIDERATIONS

It is important to define the different forms of chemical impact so planning for treatment is appropriately considered. See below for the definitions:

- **Exposed only:** Individuals exposed to a chemical agent via any route of entry, including inhalation, ingestion, skin contact or absorption.
- **Contaminated:** Contamination on bodies or clothing (external contamination) or have inhaled/ingested/absorbed (internal) contamination are at continued risk of worsening chemical injury and after life-saving treatment, should be

decontaminated and/or treated for internal contamination. Risk may exist to both caregiver and patient.

- **Chemical Combined Injury:** Trauma or burns in addition to chemical injury. These patients may increase triage acuity categories and will have a worse prognosis.
- **Mitigating Risk:** Isolation and protective action distances are available: in the Pipeline and Hazardous Materials Safety Administration's *2020 Emergency Response Guidebook* [5] the isolation and protective distances vary based on the chemical involved. Rapid removal of casualties from a blast or chemical release site, getting out of the area around the blast or release site or shelter in place, Decontamination as soon as safe and possible, and use of personal protective equipment as appropriate to the hazard complexity. When in doubt, always treat it as more severe.

[5] 2020 DOT Emergency Response Guidebook

CONCEPT OF OPERATIONS

A chemical incident can be broken into four-time phases: Pre-Incident, Emergency, Intermediate, and Recovery.

Pre-Incident			Emergency Phase		Intermediate Phase	Recovery Phase
Primarily pre-incident. Should include robust training.			When an incident occurs or upon notification. Actions taken to respond to the incident (range from ½ hour to a few days (continuous release)		Source and release are brought under control	Sustained Operations: actions taken to reduce chemical levels to acceptable levels
1a	**1b**	**2c**	**2a**	**2b**	**3a**	**4a**
Normal Operations	Increased Likelihood or Elevated Threat	Inter-mediate Options	Activation, Situational Assessment, and Movement	Employ Resources and Stabilization	Intermediate Options	Long-term Recovery Operations

The emergency phase may include any of the following chemical emergency incidents:

Deliberate Attacks: Operations will begin with discovery or notification of the incident. There may be elevated threat or credible threat information provided by law enforcement officials; therefore, operations may begin with recognition of the threat.

Inadvertent Releases: Operations will begin with discovery or notification of the incident.

Terrorist Incidents: Operations will begin with discovery or notification of the incident.

1. ACTIVATION

The SCCHCC Chemical Annex may be activated in response to any chemical emergency incident which is a suspected or deliberate attack, an inadvertent incident, an incident occurring outside of SCC which may have impact on the County, or an international incident. It is scalable, proportionate to the severity of the incident. This plan will be activated in the same way SCC EMS Agency functions daily using ReddiNet in addition to direct contact via text message or phone as described in the MHOAC Activation Checklist. Activation of other plans and annexes, such as the Medical Surge Plan, will be considered and activated as needed.

The primary assumption is that an event has reached an Emergency System Activation Level 2 or 3 as defined in the California Health and Medical Emergency Operations Manual (EOM, see table below) if outside of traditional general acute care facility day-to-day operations. In accordance with SEMS and SCC County policy, this plan may be activated by any of the following SCC Employee positions or entities:

- MHOAC or their designee
- Federal or State Health Officer, or their designee
- Public Health Officer, or their designee
- HSA Director or Assistant Director
- Local EMS agency director or their designee
- Local EMS agency Medical Director
- OR3 Director

In addition, any SCCHCC member facility can request activation of this Annex by submitting a request through the MHOAC.

Triggers:

Triggers for activation of this Annex should be considered under one or more of the following circumstances:

- An incident occurs which requires large-scale public or first responder decontamination.
- An incident occurs that overwhelms the lead agency's capability and requires resource sharing across jurisdictions.
- An incident involving chemical agents occurs which impacts one or more Bay Area jurisdictions, requiring interagency coordination.
- One or more OA EOC is activated in response to a chemical incident, triggering activation of the REOC.
- A local state of emergency is declared for a chemical incident.
- A chemical incident occurs outside of the region, but has public health and safety implications (e.g., downwind impacts of a release, patients may drive into the County) in the region which requires a coordinated response.

The situation will dictate the following activation level declaration by the County:

ACTIVATION LEVELS OF EVENT COMPLEXITY	
Level 3	Normal Operations. Requires resources or distribution of patients within the affected OA only or as available from other OAs through existing agreements. The incident may involve the release or possible release of a small amount of gas, liquid, or solid of a known (i.e., identified) HazMat. Agencies on scene have the expertise and proper equipment to safely mitigate the incident.
Level 2	Enhanced Steady State or Partial Activation. Requires resources from OAs within Mutual Aid Region beyond existing agreements and may include the need for distribution of patients to other OAs. Beyond the capabilities of an agency with jurisdictional responsibility and that require mitigation by a HazMat team. Incident involves a sufficient quantity of gas, liquid, or solid of a known hazardous substance in a critical public area or any quantity of an unknown material that has been released or offers the potential for release.
Level 1	Full Activation. Requires resources or distribution of patients beyond the Mutual Aid Region. May include resources from other Mutual Aid Regions, State or Federal resources. An incident beyond the capabilities of the HazMat team and local resources. The incident may be quite lengthy in duration and may necessitate large-scale evacuations. It will involve multiple agencies and jurisdictions, as well as resources from the private sector and voluntary organizations.

2. SURVEILLANCE AND SITUATIONAL ASSESSMENT

Santa Cruz County Health Services Agency (SCC HSA) will gather information from the following surveillance programs to detect chemical emergency incidents and to surveil the resulting impact and specialty needs.

Surveillance Program	Monitoring Level	Available Information
Outpatient and Hospital Surveillance	Individual facilities	SCC Health Services Agency (HSA) receives data through Confidential Morbidity Report (CMR) and Automated Vital Statistics System (AVSS).
Emergency Department Surveillance	Individual facilities	SCC HSA receives Emergency Department (ED) surveillance data through the ad hoc reports to the MHOAC, ED Census, and ReddiNet.
Emergency Department Consensus (ReddiNet) coordinated by EMS	Individual facilities	ReddiNet provides online hospital ED status and Immediate Bed Availability reporting. Daily information on ED visits is reported as the census count. Facilities reporting an ED Census greater than 20% above their average census are noted. A cumulative ED Census for all facilities totaling higher numbers indicates that area hospitals are experiencing a patient volume that may stretch care capacities. When the ED Census is high, the MHOAC and Health Officer are notified. SCC HSA may request that area hospitals report an ED Census into ReddiNet at a higher frequency to monitor ED census as needed.
FirstWatch	County/ Regional	FirstWatch provides automated, real-time feedback from a variety of data sources. Alerts will signal for early signs of a chemical or other incident.

Surveillance Program	Monitoring Level	Available Information
California State Warning Center	State	Staffed 24 hours per day, seven days per week, provides alert notification to all levels of government as well as critical situational awareness during an emergency or disaster.
State Threat Assessment Center	State	Operated by CHP, California Governor's Office of Emergency Services (Cal OES), and California Department of Justice (Cal DOJ).
Interagency Modeling and Atmospheric Assessment Center (IMAAC)	National	IMAAC is an interagency coordination element which provides the single federal consensus on atmospheric predictions of hazardous material concentration through plume modeling analysis. Aids in decision making for emergency responders.

Health Situation Assessment Programs	Model Owner	Available Information
National Mass Evacuation Tracking System	FEMA model	Evacuee tracking and management system
MedMap/GeoHEALTH	US Dept. of Health and Human Services (HHS)	HHS situational awareness viewer for health facilities, views health-specifics and facility data during an event.
Biomedical Advanced Research and Development Authority (BARDA-ADS)	HHS	PRISM: Primary Response Incident Scene Management (Guidance for the operational response to Chemical Incidents). Medical Countermeasures | USA Public Health Security
Chemical Hazards Emergency Medical Management (CHEMM)	HHS	Provide information for first responders, first receivers, healthcare providers, and planners to respond to, recover from, and mitigate the effects of mass-casualty incidents involving chemicals. About This Site - CHEMM (hhs.gov)
Centers for Disease Control and Prevention (CDC)	CDC: US Government Public Health Agency	Numerous tools for all hazards. CDC has a Laboratory Response Network designed to respond to biological and chemical threats. Chemical Emergencies (cdc.gov)

3. COORDINATION OF EMERGENCY OPERATIONS

Following a chemical emergency event, the complexity and scope of the response will require intergovernmental coordination. Each level of government (Local, State, and Federal) is responsible for the safety and welfare of the public based on their capabilities. Medical response, health care, emergency services, law enforcement, criminal investigation, protective activities, emergency management functions, and

technical expertise will all be required. OR3 would take the lead and Med-Health DOC would support the Medical and Health response.

Direction and control of the SCCHCC's emergency response is the responsibility of the SCC Office of Response, Recovery, and Resilience (OR3/EOC) Incident Commander (IC). County departments identified in Section 2, Santa Cruz County Agency Roles, will provide support to the overall emergency response as directed or requested by the IC or by the Medical Health Branch Director or Department Operations Center.

The MHOAC will coordinate with the Incident Commanders or Emergency Managers of SCCHCC facilities, as well as the Region and State.

4. COMMUNICATION AND CRITICAL INFORMATION

A Joint Information Center (JIC) may be activated to manage public messages and media inquiries. Telephone, ReddiNet, and CruzAware will be the primary means of communication. Facility Public Information Officers (PIOs) should be prepared to coordinate with the County PIO and/or JIC to reinforce emergency communications. The Integrated Public Alert & Warning System (IPAWS) is FEMA's national system for local alerting that provides authenticated emergency and life-saving information to the public through mobile phones using Wireless Emergency Alerts, to radio and television via the Emergency Alert System, and on the National Oceanic and Atmospheric Administration's Weather Radio.[6] IPAWS may also be used to communication quickly with the public. More information is contained in Appendix 1.

Alternate modes of communication: Phone and cellular circuits are frequently overloaded in disasters, possibly rendering them useless. Therefore, Amateur Radio Club, 2-way radios, microwave phones, HearNet, and satellite phones should be available as backup communication methods for key personnel. Runners should be used as needed with guidance regarding their health and safety.

National/Inter-state: The primary reporting method for interagency information flow is Homeland Security Information Network (Homeland Security Information Network

[6] FEMA Integrated Public Alert & Warning System

(HSIN)) and WebEOC. FEMA's Integrated Public Alert and Warning System (IPAWS) provides public messaging capability to broadcast alert messages to all cellular phones in a given area.

CRITICAL INFORMATION REQUIREMENTS FOR THE PUBLIC:

Ensure that messages are consistent, **immediate**, accurate, and open. Key message topics might include: "Get inside. Stay inside. Stay tuned." and "If you think you are exposed…" and "Likely effects of chemical contamination include…" and "How to self-decontaminate." Rumors will arise to fill information gaps. Practice rumor control by monitoring the local media reports and addressing and correcting "misinformation" immediately.

Preplanned messaging templates and plans for chemical and other emergency incidents are available on the CDC website: Resources | Crisis & Emergency Risk Communication (CERC) (cdc.gov). Message information is available in Appendix 1, and should include the following:[7]

1	COMMUNICATION
○	Patients need to cooperate with first responders in order to get the best possible care.
○	Explain that patients who do not cooperate will put others' lives at risk.
○	Be open and honest about what is known about the incident and what actions are being taken to resolve the situation.
○	Use loudspeakers if available.
○	Practical demonstrations and/or body gestures may be useful for explaining disrobe and decontamination stages.
○	Provide pictorial instructions if available.

Focusing on communication and outreach to persons experiencing homelessness from the very start of the incident to provide relevant instruction is imperative.

[7] Primary Response Incident Scene Management (PRISM) Guidance

CRITICAL INFORMATION REQUIREMENTS FOR SCCHCC RESPONSE AND RECOVERY:

Chemical Identification	○ Identification of the chemical source as well as the area of highly hazardous or lethal chemicals. ○ Movement and timing of plume (if present).
Incident Characteristics	○ Identification of hot zone(s) and plume pathway to identify safe locations for support bases and response teams' deployment. ○ Impacted healthcare facilities (hospitals, Skilled Nursing Facilities (SNF) and elder care, clinics, etc.). ○ Current and projected weather conditions. ○ For operational communications: identify command structure.
Protective Actions	○ Status of protective action recommendations issued to the public, to response and recovery workers, and to healthcare personnel. ○ Identification of response and medical care tasks specific to the incident that workers can safely perform.
Chemical Exposure	○ Projections and real-time data for population and recovery workers exposed to chemicals and food/environment contamination. ○ Recommended exposure guidance. ○ Ongoing assessment of the chemical threat.
Resource Availability	○ Availability of chemical emergency assets within the impacted area will affect response and recovery options. ○ Private sector chemical emergency response and recovery resources. ○ Status of state and local chemical emergency response resources. ○ Status of healthcare facilities and patient movement directions.
Evacuation & Sheltering	○ A map of the plume to identify safe (i.e., lowest risk) locations for triage sites, reception centers, and evacuation shelters. ○ Locations of host communities with concentrations of evacuees. ○ Long-term evacuee/displaced persons status tracking
Health Effects	○ Dose and exposure limits for workers (authorities for approving modification of dose/exposure limits). ○ Long- and short-term health effects, including dose-response relationships and regulatory limits for routine and emergency exposure.

	○ Availability of treatment and prophylaxis for public & responder use. ○ Dosing guidelines for treatment and prophylaxis agents. ○ Guidelines for diagnosis and treatment of chemical injury or injury complicated with concomitant chemical exposure. ○ Chemical in this context covers both internal and external chemical exposure.
Reentry/ Reoccupation	○ Acceptable levels of decontamination to determine reentry and relocation of impacted individuals and householders.
Infrastructure Impacts	○ Current and forecast impacts to critical infrastructure, which may affect mobility within the area (e.g., hospitals, major highways, etc.) ○ Impact to transportation modes (e.g., which can enter contaminated areas).
State and Local Plans Related to -	○ Pre-incident waste management plans and potential sites for temporary waste storage. ○ Host community agreements to support displaced populations, etc.
Mass Fatality Management	○ The level of Personal Protective Equipment (PPE) personnel must wear for each operational phase. ○ Determine under what conditions, if any, human remains can be safely recovered and processed for disposition. ○ Identify contaminated remains processing facilities.

**Modified from FEMA Annex*

Other communication resources and for more information:

- Public Information Officers - CHEMM (hhs.gov)
- NIMS Basic Guidance for Public Information Officers (fema.gov)
- Appendix 1 contains additional communication information

ROLES AND RESPONSIBILITIES

1. STATE AND FEDERAL AGENCY ROLES

Regional, State or Federal Agency	Responsibility [8]
Regional Disaster Medical Health Coordinator/ Specialist (RDMHC/S)	The RDMHC/S provides regional medical and health system coordination as well as monitors and assists with obtaining medical and health resources during an emergency/disaster. They respond to MHOAC mutual aid requests, coordinate mutual aid between MHOACs, and facilitates medical and health resources at the direction of the state.
Region II Fire and Rescue Mutual Aid Coordinator	The Region II Fire and Rescue Mutual Aid Coordinator is an elected Fire Chief from one of the OAs within the respective region. They are responsible for: • Activating the Fire and Rescue Mutual Aid System at the regional level. • Maintaining the status of regional fire and rescues resource inventories and tracking fire and rescue resources • Evaluating resource requests from the OA Mutual Aid Coordinator and determining which resources will provide the timeliest assistance. • Informing State Fire and Rescue Mutual Aid Coordinator of all operations from within the region, including notification for the need

[8] BAUASI_Regional CBRNE CONOPS_Final.pdf

	to establish mobilization centers and/or staging area. • Leading the discussion of fire and rescue activities during the REOC status calls and Regional Coordination Group calls with the affected OAs.
Region II Law Enforcement Mutual Aid Coordinator	The Region II Law Enforcement Mutual Aid Coordinator is an OA Law Enforcement Coordinator elected by peers from within the Mutual Aid Region to coordinate the collective law enforcement mutual aid response of agencies within the region.
Region II Coroner Mutual Aid Coordinator	The Coroner Mutual Aid Coordinator is responsible to request assistance through the State Coroner Mutual Aid Coordinator within the Law Enforcement Brand at the State Operations Center should coroner mutual aid resources be needed in an OA.
Regional EOC Hazardous Materials Branch Director/Unit Leader	The HazMat function may be established as a branch within the Operations Section, as a unit within the Fire and Rescue Branch or the Public Health Branch, or through a technical specialist within the Planning Section. The REOC HazMat Branch Director/Unit Leader is responsible for providing coordination and communication activities with the Region II Fire and Rescue Mutual Aid Coordinator, the REOC Operations Section Chief, and the SOC Fire and Rescue Branch Chief.
California Office of Emergency Services (Cal OES)	Coordinates the emergency activities of all state agencies and has the authority to use any state government resource to

	fulfill mutual aid requests or to support emergency operations.
California Dept. of Public Health (CDPH)	Lead agency for response to public and environmental health emergencies. CDPH initiates and manages the Medical Health Coordination Center (MHCC), which acts as the State's M/H Operations Center. The MHCC responds to and coordinates the acquisition of medical health resources.
California Emergency Medical Services Authority (EMSA)	Lead agency responsible for coordinating California's medical response to disasters. EMSA provides medical resources to local governments in support of their disaster response.
California Department of Health Care Services (DHCS)	Lead state agency for behavioral health. DHCS supports the affected county behavioral health departments and other local response agencies if requested.
California Environmental Protection Agency (Cal EPA)	Cal EPA develops, implements, and enforces environmental laws that regulate air, water, and soil quality; pesticide use; and waste recycling and reduction. The Department of Toxic Substances control (DTSC) cleans up hazardous waste sites to put them back into productive use. The Office of Environmental Health Hazard Assessment (OEHHA) serves as the scientific foundation for Cal EPA's environmental regulations and provides valuable information to consumers, policy makers, and manufacturers on the safety of chemicals in our environment.
California Highway Patrol (CHP)	Primary mission is the management and regulation of traffic to achieve safe,

	lawful, and efficient use of the highway transportation system. Their secondary mission is to assist in emergencies exceeding local capabilities. They also provide disaster and lifesaving assistance.
California Office of Spill Prevention and Response	Within the Department of Fish and Wildlife, they provide protection of California's natural resources by preventing, preparing for, and responding to spills and restoring affected resources.
National Guard CBRNE Response Enterprise (CalGuard)	CalGuard provides programmatic oversight for WMD Civil Support Teams, CBRNE Enhanced Response Force Packages, and Homeland Response Forces. They also maintain and sustain CBRNE forces with equipment and capabilities incorporating leading edge technologies to support civil authorities, interagency, and Federal partners in domestic incidents and specified threats. • WMD Civil Support Teams support civil authorities at a domestic CBRNE incident site, which includes use or threatened use of a WMD; terrorist attack or threatened terrorist attack; or intentional or unintentional release of nuclear, biological, radiological, or toxic/poisonous chemicals. They also provide support to all types of disasters in the United States. • Homeland Response Forces and CBRNE Enhanced Response Force Packages can deploy critical command, control, and life-saving capabilities. In addition, the

	Homeland Response Forces will conduct command and control, search and extraction, mass casualty decontamination, and medical stabilization.
Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA)	Provides monitoring and technical assessment to support or provide information and map products on potential contamination levels, anticipated injuries, estimates of exposures, and overall situational awareness. They also provide technical support and personnel resources to various aspects of the monitoring and decontamination efforts. Specialists are available through coordination with the FEMA CBRNE Office and may also be coordinated within the state or local area.
Environmental Protection Agency (EPA)	Provides subject matter experts to support dose and risk assessment related to planning and operations for clean-up of CBRNE incidents. EPA also provides field and aerial assets for data collection to assess contaminated areas. On-Scene Coordinators (OSCs) are the federal officials responsible for monitoring or directing responses to all oil spills and hazardous substance releases reported to the federal government.
Department of Health and Human Services/Centers for Disease Control and Prevention (HHS/CDC)	HHS process supports triage and monitoring of populations in a mass casualty incident. They also provide support for medical assessment of CBRNE-related incidents relative to injury and contamination or exposure of individuals and support for management

	of large numbers of deceased individuals and potential contaminated remains. The CDC provides population triage, registration, tracking, and epidemiology support to enable effective patient triage and general tracking and flow through monitoring and decontamination centers. CDC's Strategic National Stockpile (SNS) is prepared to provide medicine and medical supplies to any affected area withing the United States and its territories.
United States Coast Guard (USCG)	The USCG holds specialized capabilities related to CBRNE incidents, hazardous substance releases, oil discharges, and other emergencies. They provide support for detection, risk assessment, and decontamination strategy support, specifically related to maritime operations.
Department of Justice/Federal Bureau of Investigation (DOJ/FBI)	The FBI WMD Coordinator provides guidance on evidence preservation and collection during CBRNE incidents. They should be involved in decontamination planning and operations to ensure proper scene management and evidence preservation is balanced with protection of workers and the public. The DOJ/FBI will be heavily involved in CBRNE incidents deemed terrorism events.
Substance Abuse and Mental Health Services Administration (SAMHSA)	SAMHSA's Disaster Technical Assistance Center (DTAC) can provide support to states and local entities to deliver an effective mental health and substance use-related response to disasters. DTAC staff can be contacted during a CBRNE

	event to request assistance in identifying psycho-educational materials and consulting with behavioral health experts. Crisis Counseling Assistance and Training Program short-term relief grants are available for local jurisdictions following a presidentially declared disaster. For all disasters, the SAMHSA Disaster Distress Helpline provides 24/7, 365-day-a-year crisis counseling and support to people experiencing emotional distress related to natural or human-caused disasters.[9]

[9] Disaster Distress Helpline and Counseling information

2. SANTA CRUZ COUNTY AGENCY ROLES

County Agency or Facility	Responsibility
SCCHCC	○ Coordination of regional healthcare in the response to the chemical emergency event ○ Distribution of situational awareness information to and from healthcare organizations and SCC HSA ○ Advocacy with SCC HSA for medical and non-medical resource needs for healthcare organizations ○ Dissemination of SCC HSA guidance for patient management, surge, sample transport, surveillance reporting, contact tracing, testing, treatment, and public information.
All Healthcare Facilities	○ Provide PPE for healthcare providers, monitor staff exposures. ○ Provide decontamination and medical care for patients following a chemical emergency event and/or exposure. ○ Communicate with SCC EMS regarding patient placement, movement, and care through ReddiNet, and Sit-Stat reports, or via the HearNet radio system located in the local hospital ED's, the EOC, and the EMS Agency Office. ○ Initiate internal steps to increase patient capacity and implement surge plans before requesting outside assistance.

	○ Communicate with the MHOAC all medical and non-medical resource needs. ○ Provide timely situational awareness information regarding patient numbers or surge level to MHOAC or PH Department Operations Center (DOC). ○ Provide assistance to other healthcare organizations during a response in line with signed mutual aid agreements. ○ Dispense Medical Counter Measures (MCMs) as appropriate. ○ Provide samples to laboratories. ○ Provide victim/casualty information. ○ Plan for long term ongoing surge of patients. ○ Coordinate with hospitals and EMS
Hospitals	○ HICS should be activated. ○ Develop a Hospital Medical Response Team. ○ Equip Emergency Department for Decontamination. ○ Activate Chemical Emergency Plan as needed. ○ Be first receivers of patients following a CBRNE incident, including patients arriving by private vehicle, and the "worried well." ○ Perform primary or secondary decontamination, conduct medical triage, provide medical treatment, and manage fatalities.

	○ Assist with family reunification activities
Skilled Nursing Facilities	○ Nursing Home ICS should be activated. ○ Respond to bed poll if requested to provide surge relief. ○ Prepare for step-down and surge transportation of patients. ○ Provide PPE, monitor staff exposures.
MHOAC	○ Manage medical and health aspects of an emergency as well as monitor, obtain, and coordinate OA medical and health resources during an emergency/disaster. ○ Notification of internal and external stakeholders ○ Conduct conference call (as needed) ○ Coordinate medical health resources and represent Med/Health in the EOC ○ Process mutual aid requests ○ Maintain active communication channels with the RDMHC/S
SCC EMS Agency	○ Lead policy decision making for healthcare and public health response. ○ Coordinate with other SCC Departments. ○ Determine 911 system triage and response in coordination with NetCom, Fire Agencies, and Law Enforcement. ○ Respond to PPE and other resource requests as needed. ○ Provide guidance regarding the use of altered standards of care.

	○ Provide decision making official to EOC. ○ Monitor EMS System status. ○ Determine ambulance destinations based upon hospital resources.
SCC EOC (OR3)	○ Activate to appropriate level. ○ Make immediate notification of incident to MHOAC/EMS Director and HSA ○ Activate Chemical Emergencies Annex as needed. ○ Coordinate planning and response as needed. ○ Coordinate with Environmental Health (EH) for hazardous waste and contaminated items management. ○ Manage spontaneous volunteers. ○ Activate Communications/Amateur Radio Groups. ○ Assure County responsibility for cleanup and mitigation takes place. ○ Provide support to field operations and other local government entities.
Fire-Rescue	○ Provide a decision-making official to the County EOC. ○ Responder safety: provide PPE and monitor staff exposures. ○ Provide Response, Rescue, Triage, Treatment for trauma, burns, exposures, or other needs. Establish an Incident Command Post to manage the field response and coordinate additional support. ○ Activate the Multiple Casualty Incident (MCI) Plan as needed. ○ Activate the SCHMIT team as needed.

	○ Coordination and direction of HazMat response, detection, and assessment activities. ○ Identify the material(s) released and classify the agent, perform environmental assessments and interim containment actions, and conduct safe disposal of contaminated materials. ○ Identifying chemical hazard zones (Hot Zone, Warm Zone, Cold Zone). ○ Coordinate and assist with decontamination activities at the incident site and at hospitals. ○ Identify and establish an incident perimeter, zones, and evacuation sites. ○ Remove victims from any situation (or potential situation) in which injury or loss of life has occurred. ○ Deny entry to present further public contamination and exposure. ○ Guidance: Emergency Responders (cdc.gov)
Law Enforcement	○ Provide a decision-making official to the County EOC. ○ Maintenance of law and order. ○ Provide security at the County EOC. ○ Responder safety: provide PPE as needed, monitor staff exposures. ○ Conduct investigation with procedures that apply to acts of terrorism, have criminal intent, and/or civil liabilities. ○ Provide security and perimeter control at the scene, critical facilities, and vulnerable emergency response locations (i.e., hospitals).

	○ Order and manage evacuation and reentry planning and operations. ○ Conduct bomb searches and detect and dispose of explosive ordnances. ○ Coordinate the arrest, detention, and adjudication process of accused persons. ○ Manage fatalities, including recovery, storage, transport, processing and final disposition of human remains. ○ Guidance: Emergency Responders (cdc.gov)
Santa Cruz Regional 9-1-1 Dispatch Center	○ Provide **immediate** notification of the incident to the EMS Duty Officer and/or MHOAC. ○ Activate surge and/or chemical emergency plan as needed. ○ Communicate with SCC EMS Agency regarding patient placement, movement, and care through ReddiNet, and Sit-Stat reports, or via the HearNet radio system. ○ Provide timely situational awareness information regarding incident status to MHOAC or EMS Director.
Public Information	○ Secure means of disseminating public instruction and emergency information. ○ Form JIC as needed. ○ Provide immediate, timely, frequent, and ongoing information to the public.
Community and Volunteer Organizations Active during Disasters (COAD/VOADs)	○ Disseminate public instruction and emergency information to hard-to-reach populations. ○ Provide PPE as needed. ○ Monitor volunteer exposures as needed.

Public Health Department, HSA	○ Activate the DOC, identify and communicate the Med-Health Branch Director assignment. Med-Health Branch Director responds to the EOC. ○ Coordinate and direct SCC HSA Departments to respond to the incident. ○ Provide PPE as needed, monitor staff exposures. ○ Coordinate with other counties and the California Department of Public Health. ○ Disseminate medical information and instruction to healthcare stakeholders in coordination with the County PIO. ○ Issue health orders through the authority of the HO. ○ Deploy specialized medical teams (e.g., nurses). ○ Provide medical/health and behavioral health support for care and shelter operations. ○ Dispense MCMs, both pill and vaccine based. ○ Coordinate with hospitals and EMS. ○ Monitor and mitigate short-term and long-term health effects. ○ Coordinate with medical and public health voluntary organizations. ○ Secure appropriate declarations and proclamations. ○ Initiate health surveillance and epidemiological investigations.
Behavioral Health (BH) Department	○ BH Responder safety: provide PPE as needed, monitor staff exposures.

	○ Provide decision-making official 24-hour contact information to Med-Health Branch. ○ Provide BH services as needed to: evacuation shelters, emergency responders, reunification centers, community reception centers, etc. ○ Request additional resources through the MHOAC proactively and early. ○ Assess for ongoing BH needs of the County and create a plan to address. ○ Deploy response teams trained to provide crisis intervention, death notifications, or general behavioral health support. ○ Be prepared to address long term recovery and lasting impacts from the disaster.
Human Services Department (HSD)	○ Coordinate with Public Health, HSA, and the EOC to set up evacuation shelters, community resource centers. ○ Address the needs of the population with AFN.
Disaster Recovery Organizations	○ Coordinate with the MHOAC and EOC for direction. ○ Recruit disaster volunteers as needed to assist. ○ Provide PPE as needed, monitor staff exposures.
Emergency Preparedness Program	○ Respond to PPE and other resource requests as needed. ○ Assist in coordinating requests for mutual aid. ○ Assist with coordination with federal agencies. ○ Fill roles in the DOC and EOC. ○ Assist with coordination with the HCC.

	○ Develop medical section of Incident Action Plan (IAP), or develop IAP as needed.
Ambulance Providers	○ Provide a decision-making official to the County EOC ○ Maintain ongoing communications with EMS Director. ○ Ensure responder safety. ○ Provide PPE for healthcare providers, monitor staff exposures. ○ Provide Response, Triage, and Treatment for trauma, burns, or other needs. ○ Activate the MCI Plan as needed. ○ Facilitate decontamination and provide medical care for patients following a chemical emergency event or exposure. ○ Communicate with SCC EMS regarding patient placement, movement, and care through ReddiNet, Sit-Stat reports, or the HearNet radio system. ○ Initiate internal steps to increase patient capacity and implement surge plans before requesting outside assistance. Call back staff as needed. ○ Communicate with the MHOAC all medical and non-medical resource needs unable to be met internally. ○ Provide timely and regular situational awareness information regarding incidents, patient numbers or surge level to MHOAC or PH DOC.

	○ Provide assistance to other healthcare organizations during a response in line with signed mutual aid agreements and direction from EMS. ○ Provide sit-stat reports to EMS Director as requested. ○ Provide victim/casualty information. ○ Activate Chemical Emergency Plan as needed.
Environmental Health Department	○ Conduct environmental sampling to help identify the material released and the extent of the release. ○ Perform initial HazMat response and substance identification procedures. ○ Determine environmental risk and propose and implement mitigation measures. ○ Conduct ongoing population monitoring and exposure determination. ○ Provide 24-hour decision-making official contact to the Med-Health Branch Director. ○ Provide PPE for EH staff, monitor staff exposures. ○ Respond and evaluate evacuation shelters as requested to ensure safe operation. ○ Activate chemical emergency annex as needed. ○ Conduct testing and monitoring of food and water sources. ○ Coordinate with Federal Environmental Protection Agency (EPA) and local jurisdictions on clean-up activities.

	○ Provide technical resources, such as toxicologists and epidemiologists, sampling equipment, etc.
County Coroner	○ Activate chemical emergency annex as needed. ○ Provide PPE, monitor staff exposures. ○ Manage mass fatalities. ○ Plan for potential increase in fatalities.
American Red Cross	○ Coordinate family reunification and family assistance centers. ○ Coordinate with County to open CRCs and evacuation shelters. ○ Provide PPE, monitor staff exposures. ○ Maintain close and ongoing communication with OR3 and HSD.

OPERATIONS

1. PREPARING FOR CHEMICAL EMERGENCY SURGE

Activation of the SCC Surge Plan in conjunction with this Annex should occur quickly if a large surge of patients is anticipated.

Contact the County Environmental Health (831-346-7556) and Public Health (831-471-1160) to discuss handling of hazardous waste. As mentioned above, HSD and OR3 will be the lead for setting up community reception centers which will divert individuals who think they are contaminated to be screened and evaluated to alleviate the surge to medical facilities.

If a facility is facing a chemical emergency surge event, it should immediately notify the:

MHOAC: 831-471-1160

Healthcare Provider Personal Protective Equipment (PPE)

Chemical emergency incidents can pose serious short and long-term hazards to first responders and the public. Appropriate respiratory equipment and dermal protection must be determined based on a thorough hazard assessment. Combinations of PPE

other than those described for levels A, B, C, and D may be more appropriate and may be used to provide the proper level of protection. Safety Officers at the scene of an incident will need to establish perimeters based on the environmental readings.

See an overview of PPE from BAUASI resources in Appendix 4.

Training of Healthcare Personnel

Training in and exercising of the Chemical Emergencies Annex should occur at regular intervals for all HCC participants. Training can include a brief webinar on the contents of the Annex or more in-depth training options. Decontamination exercises can include tabletop, functional, and full-scale.

Additional training opportunities are listed in the HHS Chemical Hazards Emergency Medical Management in this link: Training and Education - CHEMM (hhs.gov)

BAY AREA URBAN AREAS SECURITY INITIATIVE
Regional CBRNE Decontamination Concept of Operations

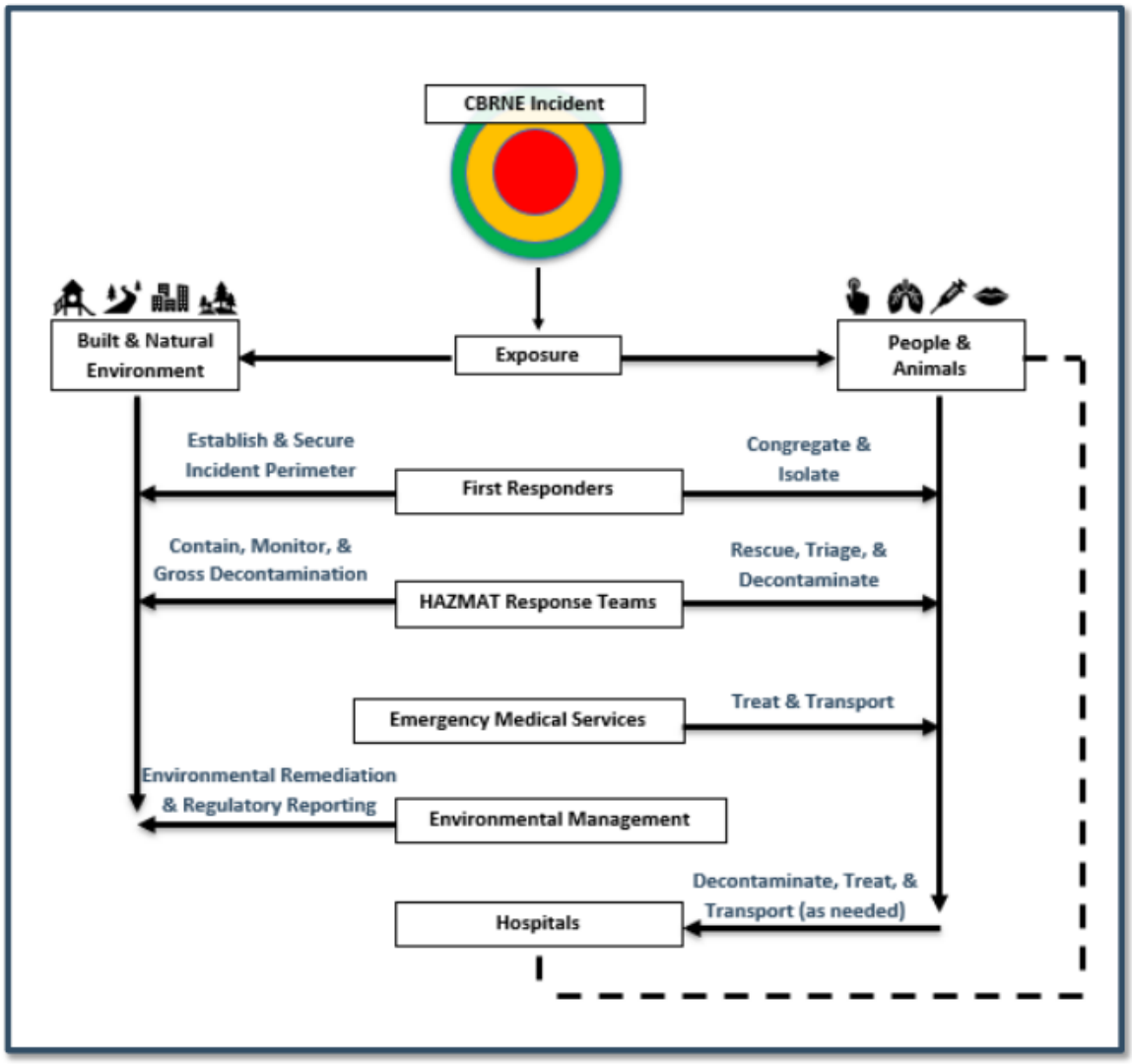

Figure 3: CBRNE Response Disciplines

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2. TRIAGE AND SCREENING

Ensuring that patients get the right treatment dependent on their ailment in the timeliest manner is essential, particularly during a chemical-based MCI or emergency, when resources like staffing, space, medical equipment, and treatments, are likely to be scarce. Therefore, understanding and knowing the steps to effectively triage those who may be suffering from varying levels of trauma, injury or hazardous exposure.

Agent specific triage can include any of the following, and additional information is available at Information for the Hospital Providers - CHEMM (hhs.gov):

- Ammonia: https://chemm.hhs.gov/ammonia_hospital_mmg.htm
- Chlorine: https://chemm.hhs.gov/chlorine_hospital_mmg.htm
- Hydrogen cyanide: https://chemm.hhs.gov/cyanide_hospital_mmg.htm
- Mustard agents: https://chemm.hhs.gov/mustard_hospital_mmg.htm
- Nerve agents: https://chemm.hhs.gov/na_hospital_mmg.htm
- Phosgene: https://chemm.hhs.gov/phosgene_hospital_mmg.htm
- Other hazardous chemicals: https://chemm.hhs.gov/agentcategories.htm

Prehospital Triage Tool

The Prehospital Triage tool which can be used for chemical emergencies by HHS is START (Simple Triage And Rapid Treatment) Algorithm for Mass Casualty Events. JumpSTART Triage is a pediatric version of START Triage.

Hospital and Healthcare Facility Triage

For prioritization of treatment once patients have reached their destination hospital, healthcare facilities should refer to "Triage of Chemical Casualties" in the HHS CHEMM tool (Triage Guidelines - CHEMM (hhs.gov)). This tool provides general principles of triage for chemical exposure as well as for specific chemical agent types. It is important to continually reassess patients and obtain serial values to better understand the progression of illness over time.

It is important to consider that the need for screening and care should occur in separate areas from treatment areas to avoid overload and contamination. Each coalition partner should ensure its own plans consider spaces at its facility that can

be made available for different needs such as triage, screening, decontamination, and treatment, as well as what additional spaces may be leveraged for a large-scale incident. SCC Public Health and Human Services Dept. will work with the EOC to determine locations for non-injured, possibly exposed, persons and communicate those to the healthcare facilities to make referrals for non-injured persons easier.

The SCHMIT (Santa Cruz County's Hazardous Incident Team) is the key expert in hazardous materials incidents in Santa Cruz County. The team can be reached by dialing 9-1-1 and have access to various experts in chemical response and injury. The team, along with the Incident Commander, can provide real-time guidance, resources, and instructions.

3. PATIENT CARE/MANAGEMENT

Chemicals include substances that pose potential or actual risks to human health and the environment and include, but are not exclusive to, numerous classes of substances such as industrial chemicals, industrial waste, pesticides, and manufactured substances with the intent of harm (e.g., mustard gas). The crisis and impacts of these chemicals and hazardous substances are as diverse as the number that exist in the area. Health risks range from modest health impacts at exposure to acute and immediate risks, including death. Likewise, chemicals may also cause chronic health risks, such as generating or accelerating cancer, neurological disease, and other effects. Volume and chemical characteristics (i.e., flammability, toxicity, corrosiveness, etc.) influence risks of each chemical, as does routes of exposure (i.e., inhalation, ingestion, dermal contact, and injection).[10]

The following section outlines the role of hospitals and healthcare personnel in preparing for and responding to chemical emergency incidents.

Chemical Hazards Emergency Medical Management (CHEMM: Toxic Syndromes/Toxidromes - CHEMM (hhs.gov)) provides guidelines and information for patient triage and treatment following a chemical emergency incident, including management and treatment of combined physical injuries and chemical exposure.

[10] BAUASI_Regional CBRNE CONOPS_Final.pdf

Checklist for Healthcare Personnel: Assess resources for a potential influx of blast/burn victims (i.e., blood, medications, burn supplies, etc.)

- Hospitals submit resource requests for anticipated supply needs and advise MHOAC of sit-stat.
- The local health department or MHOAC adjudicates requests (i.e., fills/denies) requests.
- Escalation of resources will be made from the local level upwards through the MHOAC and RDMHS, if required.

All healthcare facilities should prepare for receipt of patients who may self-report to local hospitals and clinics.

- Determine chemical screening needs; locate instruments and staff to operate them.
- Prepare for decontamination of patients that spontaneously arrive.
- Develop staff communications in the event patients self-report.

Establish communications with local response partners, including EMS, MHOAC, Fire, Law, Netcom, EH, PH, etc.

Determine any just-in-time training needs.

- Identify needed content, to which staff, and staffing resources to provide the training to staff.
- Assess and request resources as needed of Medical Countermeasures, blood, and other supplies for chemical injury patients.

BAY AREA URBAN AREAS SECURITY INITIATIVE
Regional CBRNE Decontamination Concept of Operations

Chemical Agent Type and Examples	Method of Exposure	Clinical Symptoms	Treatments
Nerve Agents • G-Agents: Sarin, Cyclosarin, Tabun, Soman • V-Agents: VE, VG, VM, VR, VX	Inhalation	• Salivation, Lacrimation, Urination, Defecation, Gastrointestinal Upset, Emesis (SLUDGE) • Mitotic Pupils • Bradycardia • Bronchospasm • Muscle Spasms or Fasciculations • Weakness • Flaccid Paralysis • Tachycardia • Seizures • Respiratory Failure	• There's no single antidote to nerve agent poisoning. Treatment for is a multimodal therapy with three primary components: 1) atropine; 2) a benzodiazepine; and 3) an oxime. • Early intubation and ventilator use is essential to caring for patients with nerve agent poisoning and may be necessary until additional therapies are given.
Blistering Agents • Mustard Gas (nitrogen and sulfur mustard)	Inhalation	• Skin, Eye, and Lung Damage (Pulmonary Edema and Pulmonary Hemorrhage) • Erythematous Rash • Skin Blistering	• Patients should be treated at a dedicated burn center for wound care and fluid management. • There is some evidence that using povidone iodine solution can decrease damage to non-blistering areas if applied immediately after exposure. • For eye injury and exposure, supportive care, including initial eye decontamination with water, darkened glasses for photophobia management and avoiding eye bandaging are all recommended. • Patients may require supplemental oxygen, intubation, and mechanical ventilation.

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BAY AREA URBAN AREAS SECURITY INITIATIVE
Regional CBRNE Decontamination Concept of Operations

Chemical Agent Type and Examples	Method of Exposure	Clinical Symptoms	Treatments
Asphyxiants • Carbon Monoxide • Chlorine • Phosgene • Hydrogen Sulfide Gases	Inhalation	• Upper Airway Distress • Skin and Eye Irritation • Fatal Pulmonary Edema • Acute Respiratory Distress Syndrome	• Pulmonary edema is often delayed up to 24 hours and carries high mortality. • Treatment options in addition to general supportive care include intravenous (IV) diuretics and mechanical ventilation, but both are limited and have only been evaluated in animal models.
Blood Agents • Cyanide	Skin Absorption, Inhalation, and Ingestion	• Severe Distress • Tachycardia • Cyanosis • Hypotension • Severe Metabolic Acidosis • Seizures • Cardiac Arrest	• Several antidotes are currently available for treatment of cyanide poisoning, all with different degrees of efficacy. • The Lily kit, also known as Nithiodote, contains three essential medications: amyl nitrite, sodium nitrite and sodium thiosulfate. Most often, sodium nitrite is administered at a dose of 300 mg IV, which causes methemoglobinemia. • It is recommended to give 12.5 g of sodium thiosulfate IV for severe cyanide toxicity.
Toxic Industrial Chemicals (TICs)* • Ethylene Oxide • Fluorine • Formaldehyde • Hydrogen Bromide	Skin Absorption, Inhalation, and Ingestion	• Coughing • Difficulty Breathing • Irrigation of the Nose, Mouth, Throat, Eyes, and Skin	• Dependent upon the chemical, method of exposure, and extent of exposure.

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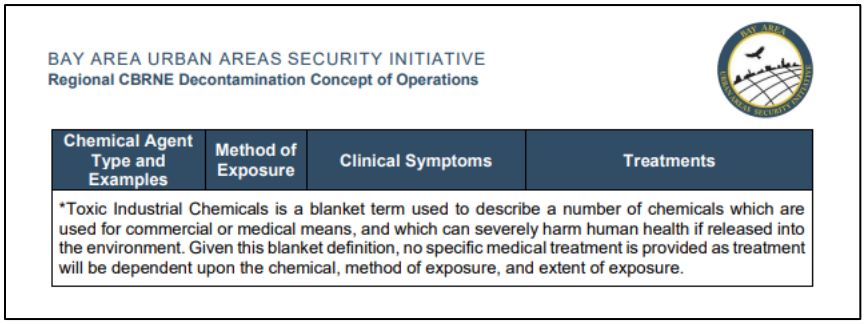


BAY AREA URBAN AREAS SECURITY INITIATIVE
Regional CBRNE Decontamination Concept of Operations

Chemical Agent Type and Examples	Method of Exposure	Clinical Symptoms	Treatments
*Toxic Industrial Chemicals is a blanket term used to describe a number of chemicals which are used for commercial or medical means, and which can severely harm human health if released into the environment. Given this blanket definition, no specific medical treatment is provided as treatment will be dependent upon the chemical, method of exposure, and extent of exposure.			

Source: BAUASI_Regional CBRNE CONOPS_Final.pdf[11]

CHEMPACK

Nerve agent antidotes are needed very soon after an exposure, before Strategic National Stockpile (SNS) delivery can take place. State and local governments have limited or no chemical/nerve agent antidote stocks. Hospitals carried very limited supplies of treatments for nerve agent exposures. Nerve agent antidotes are costly and have variable shelf lives (not an easily sustainable resource).

The CHEMPACK program was created in 2002 to address these issues and:

- Provide, monitor, and maintain a nationwide program for the forward placement of nerve agent antidotes;
- Provide state and local governments a sustainable resource and improve their capability to respond quickly to a nerve agent incident; and
- Ensure storage of antidotes under conditions that allow their shelf lives to be extended.

CHEMPACK containers are self-contained units placed in centralized locations to enable first responders to quickly administer antidotes and save lives. There are two types of containers:

- EMS containers
    - Geared to first responders
    - 85% auto injectors

[11] BAUASI_Regional CBRNE CONOPS_Final.pdf

  - 454-casualty capacity
- Hospital containers
  - Geared to clinical care environment
  - 85% multi-dose vials
  - 1,000-casualty capacity

Source: CHEMPACK - CHEMM (hhs.gov)

In SCC, the CHEMPACK can be requested through the MHOAC by calling NETCOM at (831) 471-1170 and requesting that dispatch contact MHOAC (24/7 on-call system for public health emergencies).

A CHEMPACK is a container of nerve agent and organophosphate antidotes. Below is a table that lists the contents of a single CHEMPACK container.

Item	Unit Pack	Cases	QTY
Mark 1 auto-injector	240	5	1,200
Atropine Sulfate 0.4mg/ml, 20 ml	100	1	100
Pralidoxime 1gm inj, 20ml	276	1	276
Atropen 0.5mg	144	1	144
Atropen 1.0mg	144	1	144
Diazepam 5mg/ml auto-injector	150	2	300
Diazepam 5mg/ml vial, 10ml	50	1	50
Sterile water for injection (SWFI) 20cc vial	100	2	300

The container is designed primarily for field-use by EMS services and contains items to facilitate such use (a majority of the contents are Mark 1 auto-injectors). These items may also be readily used in hospital settings.

Source: CHEMPACK Field Operations Guide[12]

[12] CHEMPACK Field Operations Guide

Recommendations for Nerve Agent Therapy – Prehospital Management:[13]

Table 3. Recommendations for Nerve Agent Therapy – Prehospital Management.

Patient Age	Atropine Antidotes[1]		Other Treatment
	Mild/Moderate Symptoms[2]	Severe Symptoms[3]	
Infant (0-2 years)	0.05mg/kg IM: 2-PAMCl: 15 mg/kg IM	0.1mg/kg IM: 2-PAMCl: 25 mg/kg IM	**Assisted ventilation** should be started after administration of antidotes for severe exposures. **Repeat atropine** (2mg IM) at 5 to 10-minute intervals until secretions have diminished and breathing is comfortable, or airway resistance has returned to near normal
Child (2-10 years)	1mg IM: 2-PAMCl: 15 mg/kg IM	2mg IM: 2-PAMCl: 25 mg/kg IM	
Adolescent (>10 years)	2mg IM: 2-PAMCl: 15 mg/kg IM	4mg IM: 2-PAMCl: 25 mg/kg IM	
Adult	2-4mg IM: 2-PAMCl: 600 mg IM	6mg IM: 2-PAMCl: 1800mg IM	
Elderly, frail	1mg IM: 2-PAMCl: 10mg/kg IM	2-4mg IM: 2-PAMCl: 25mg/kg IM	

[1] 2-PAMCl solution needs to be prepared from the ampule containing 1 gram of desiccated 2-PAMCl; inject 3ml of saline, 5% distilled or sterile water into ampule and shake well. Resulting solution is 3.3ml of 300 mg/ml.
[2] Mild/Moderate symptoms include localized sweating, muscle fasciculations, nausea, vomiting, weakness, dyspnea.
[3] Severe symptoms include unconsciousness, convulsions, apnea, flaccid paralysis.

Strategic National Stockpile (SNS):[14]

The SNS is the nation's largest supply of life-saving pharmaceuticals and medical supplies for use in a public health emergency severe enough to cause state and local supplies to run out. When state, local, tribal, and territorial responders request federal assistance to support their public health response efforts, the SNS ensures that the right medicines and supplies get to those who need them most during an emergency.

A request for SNS assets and assistance are generally made by the affected state's governor or designee. SNS assets can be delivered anywhere in the United States or its territories in less than 12 hours of a federal decision to deploy ("12-hour Push Package").

[13] Nerve Agents (GA, GB, GD, VX) | Medical Management Guidelines | Toxic Substance Portal | ATSDR (cdc.gov)
[14] Strategic National Stockpile - CHEMM (hhs.gov)

4. TECHNIQUES OF CONTAMINATION CONTROL

Control of potential contamination should be a priority on the scene, in the ambulance, and at the hospital.

The Goals of Contamination Control are to Prevent the Spread of Chemical Materials from:

- The original source of the release.
- The patient: In many circumstances the victim will be the source of the contamination; however, in rescue and extrication, some contamination may have been transferred to others.
- The rescue personnel
- The gurney and equipment used in patient care (i.e., stethoscope, blood pressure cuff, etc.)
- The ambulance
- Personal vehicles used before EMS arrival.

This Contamination can be Transferred to:

- Care providers as they touch or move the patient to correct the medical problem.
- The equipment used to assess the patient's condition and to treat the medical emergency.
- The surrounding area (i.e., treatment gurney, floor, etc.).
- In cases where gases, dust, or powders are present, the air could contain chemical particles.

Preparing the Treatment Area for Contamination Control

- Appropriate respiratory equipment and dermal protection must be determined, provided, and used by all staff with the potential for exposure.
- If possible, select an outdoor treatment site near an outside entrance. Clear the area of visitors and other non-exposed patients. Remove or cover equipment that will not be needed during emergency care of the chemical accident victims.
- Several large, plastic-lined waste containers will be needed. The treatment table should be covered with several layers of waterproof, disposable

sheeting, if appropriate. Plastic bags of all sizes will be needed and should be readily available for exposed patient clothing and personal items.
- Survey instruments should be checked and ready for use before the patient arrives.
- If appropriate, the hospital treatment team should be prepared to meet the patient at the ambulance where the patient can be transferred to the prepared treatment gurney.

Covering Floor Areas

- If appropriate, three to four feet wide rolls of brown wrapping or butcher paper can be unrolled to make a path from the ambulance entrance to the decontamination room. Ordinary cloth sheets or square absorbent pads can be used if paper is unavailable. Whatever the floor covering, it should be taped down securely. This route should then be roped off and marked to prevent unauthorized entry. The decontamination room or treatment area floors should be covered in a similar way, if time allows and appropriate. This preparation will make cleanup of the area easier.
- A control line should be established at the decontamination room entrance. A wide strip of tape on the floor at the room entrance should be marked clearly to differentiate the controlled (contaminated) from the non-controlled (uncontaminated) side.

Control Ventilation

- Depending on the source and type of contamination, consideration and monitoring of the air should occur to assure safe occupation. This can include shutdown of heating, ventilation, and air conditioning system or sealing of the hospital, as needed.

Techniques of Contamination Control

- Set up a controlled area large enough to hold the anticipated number of victims.
- Prevent tracking of contaminants by covering floor areas and monitoring exits of controlled areas.
- Restrict access to the controlled area.
- Monitor anyone or anything leaving the controlled area.
- Use strict isolation precautions, including protective clothing and double bagging.

- Use a buffer zone or secondary control line for added security.
- Control waste by using large, plastic-lined containers for clothing, linens, dressings, etc.
- Control ventilation.
- Change instruments, outer gloves, drapes, etc., when they become contaminated.
- Use waterproof materials to limit the spread of contaminated liquids, for example, waterproof aperture drapes.

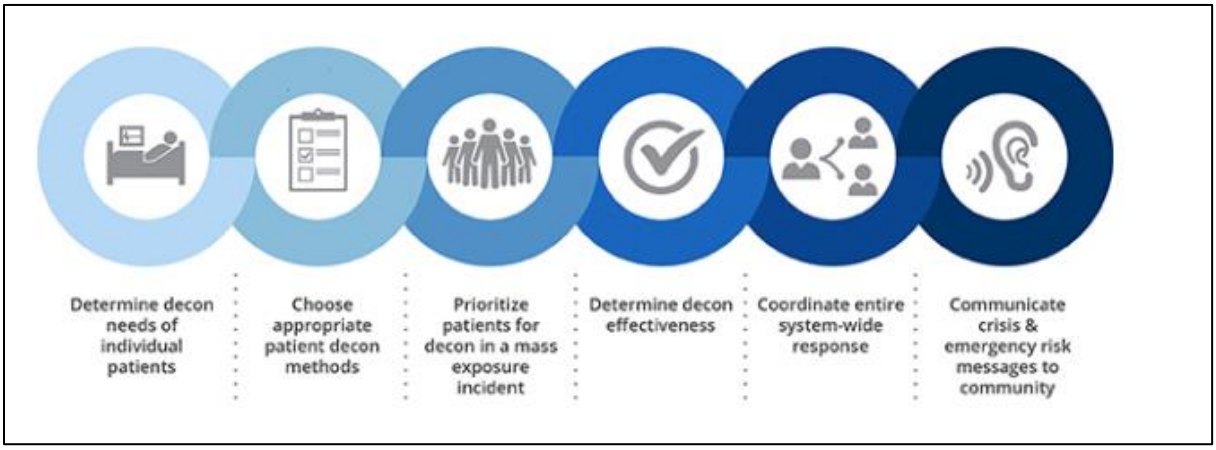
If Chemical Contamination Is Discovered After Patient Has Been Admitted

- Continue attending to the patient's medical needs.
- Secure entire area where victims and attending staff have been.
- Do not allow anyone or anything to leave the area until cleared by the Safety Officer.
- Establish control lines and prevent the spread of contamination.
- Completely assess patient's chemical emergency status.
- Personnel should remove contaminated clothing before exiting the area; they should be surveyed, shower, dress in clean clothing, and be resurveyed before leaving the area.

A detailed Hospital Decontamination Toolkit is available in Appendix 1, staring on page 133 of the *Bay Area UASI Regional CBRNE Decontamination Concept of Operations*: BAUASI_Regional CBRNE CONOPS_Final.pdf.

DECONTAMINATION

There are six key principles for managing patient decontamination, which apply a flexible and scalable approach:[15]



Patient Decontamination in a Mass Chemical Exposure Incident: PRISM Guidance

The Biomedical Advanced Research and Development Authority (BARDA) also supported the development of the Primary Response Incident Scene Management Guidance for Chemical Incidents (PRISM), which helps tackle some of the knowledge gaps identified in the National Planning Guidance. The PRISM guidance is based on scientific evidence gathered under a program of research sponsored BARDA and conducted in the United States and at the University of Hertfordshire in the United Kingdom. The program combined lab studies on the effects of water temperature, flow rate, detergents, and delayed decontamination with verification in human volunteer studies, using safe chemicals to simulate the dangerous contaminants. The guidance was developed with input from US first responders and agencies in 35 municipalities across 21 states. The aim of PRISM is to ensure that all patients exposed to potentially hazardous chemicals receive the most effective treatment possible during the initial stages of an incident. Prompt decontamination is the best way to prevent the serious health consequences of exposure to toxic chemicals.

The PRISM Guidance recommends three steps to reduce exposure and remove 99% of chemical containments: (1) move quickly away from the hazardous area (if feasible); (2) carefully remove all clothes; and (3) wipe skin with a paper towel or dry wipe. The effects of each decontamination step are best depicted by the graphic below:

[15] Public Health Emergency's Patient Decontamination Following Chemical Incidents

Key Messages
Primary Actions
Critical Aspects
Time Critical, very effective and prevents transfer of contaminant from clothing to skin of casualty
Disrobe
Failure to disrobe is dangerous
Time Critical
Time Official, effective and safest method for removing non-corrosive chemicals
Dry Decontamination
Effectiveness for hair unknown
Time Critical
Well-defined parameters
Time Critical, effective and safe method for removing all chemicals after dry contamination
Gross (LPS) Decontamination
Well-defined parameters
Failure to disrobe is very dangerous
Be wary of hypothermia
Most important stage of decontamination - removes the most contamination following showering
Active Drying
Not drying properly may increase skin absorption of contaminant
Towels may be heavily contaminanted
"Wash yourself from head to toe."
Technical Decontamination
Well-defined parameters
Ensure casualties effectively dry
Be wary of hypothermia

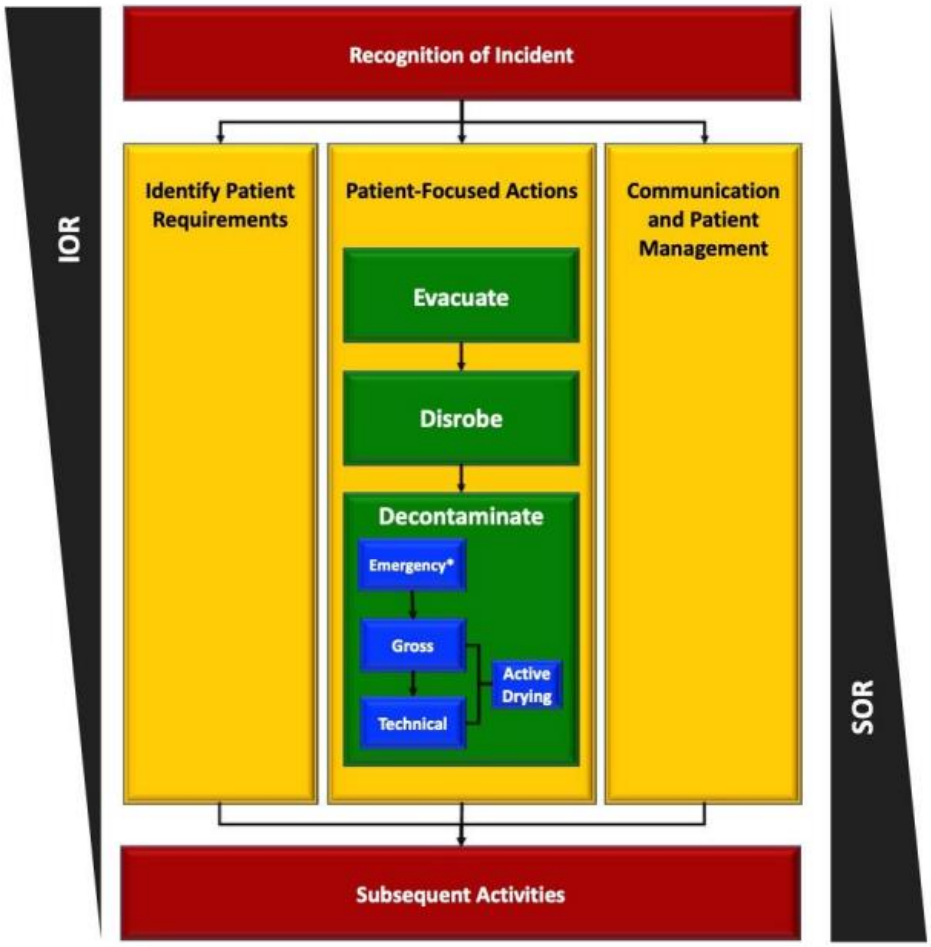


*Figure 1: Constituent elements of the Primary Operational Response. The Initial Operational Response (IOR) predominantly covers first responder activities such as supervising evacuation, disrobe and emergency decontamination. *The phrase "emergency decontamination" is synonymous with "self-care decontamination" used in the US National Planning Guidance and replaces historical terminology such as "interim" or "immediate". The Specialist Operational Response (SOR) phases in with time, starting with the implementation of gross decontamination and subsequent deployment of technical decontamination units. Note that "recognition of incident" and "subsequent activities" are outside the scope of this guidance document. The patient-focused actions are delivered via "standard" or "non-ambulatory" response pathways.*

Source: Primary Response Incident Scene Management (PRISM): Guidance for the Operational Response to Chemical Incidents.[16]

[16] Primary Response Incident Scene Management (PRISM): Strategic Guidance (medicalcountermeasures.gov)

Decontamination of Persons with Disabilities: As with decontamination of people able to walk, people in wheelchairs, on gurneys, or with mobility equipment may require decontamination. Their equipment should also be evaluated for possible contamination and decontaminated as needed. The steps are similar to those noted in the chart above taken from *Primary Response Incident Scene Management (PRISM): Guidance for the Operational Response to Chemical Incidents.*

At-a-glance excerpt of decontamination response guidance.[17]

3	**EVACUATION**
○ Take control and maintain effective communication. ○ Move patients from the hot zone as soon as possible, preferably to a sheltered (external) area away from strong winds and rain. ○ If evacuation is inappropriate encourage patients to shelter in place. ○ The distance between the hot and warm zones needs to be sufficient to ensure the safety of patients but not so far as to adversely impact operational effectiveness or implementation of patient-focused actions. ○ The evacuation point should ideally be uphill and upwind from the hot zone	
4	**DISROBE**
○ Remove clothing as soon as practically possible following exposure. ○ Do not allow patients to undertake any form of decontamination until disrobe has been adequately achieved. ○ Try to preserve patient's privacy and dignity. ○ Disrobing will immediately reduce exposure, decrease the risk of secondary contamination, and may improve the willingness of patients to remain at the scene of the incident. ○ Focus on compliant patients before dealing with individuals who refuse to cooperate.	
5	**EMERGENCY DECONTAMINATION**
○ Emergency decontamination is time critical – do not delay. ○ Ensure patients have adequately disrobed. ○ Use DRY decontamination unless contaminant is corrosive or in powder form.	

[17] Primary Response Incident Scene Management (PRISM): Operational Guidance (medicalcountermeasures.gov)

- Constantly provide instructions and communicate with patients to emphasize clinical benefits. REPEAT process until specialist resources arrive.
- Focus on compliant patients before dealing with individuals who refuse to cooperate.

6	GROSS (LPS) DECONTAMINATION
○	If required, gross (LPS: Ladder Pip System) decontamination is time critical – establish a corridor as soon as practically possible. LPS Decontamination is where water is fed into the decontamination corridor via three fogging or misting nozzles, one from each engine's side pump and one attached to an overhead ladder.
○	Ensure patients have fully disrobed: do not allow clothed individuals to undergo LPS decontamination.
○	Patients should enter the LPS corridor and rub themselves from top to bottom, concentrating on areas most likely to be contaminated (e.g., hair/head, face, neck, hands).
○	Patients should be encouraged to remain in LPS corridor for at least 15 seconds.
○	Focus on compliant patients before dealing with individuals who refuse to cooperate.
7	**ACTIVE DRYING**
○	Active drying represents a critical stage in the decontamination process and so it is essential that towels or other suitable materials are available to patients following we decontamination procedures.
○	Following any form of wet decontamination, provide towel or any available absorbent material.
○	Dry from top to bottom. Tilt head back when drying hair.
○	Used drying materials should be treated as hazardous waste.
8	**TECHNICAL DECONTAMINATION**
○	Focus on compliant patients before dealing with individuals who refuse to cooperate.
○	Ensure all patients have disrobed.
○	The optimized parameters for technical decontamination include a shower water temperature of 35-40°C (95-104°F), duration of 60-90 seconds (maximum), addition of mild detergent to the shower water and the provision of a washcloth for each patient.
○	C1 and C2 (patient who are able to understand instructions and perform activities without assistance, and patients who need assistance to perform activities) patients should be instructed to wash from head to toe, C3 patients (patients who are unresponsive, having life-threatening injuries or require extensive assistance) should be treated by trained first responders using the non-ambulatory technical decontamination protocol.

- All patients should actively dry following decontamination.
- Be aware of the potential for the accumulation of vapor within technical documentation units and the hazard arising from used washcloths.

CRISIS STANDARDS OF CARE

1. CRISIS STANDARDS OF CARE

Care of Patients: In a large MCI or chemical emergency disaster causing injury or illness to numerous patients over a large area, Crisis Standards of Care may need to be considered to facilitate effective use of limited resources during an acute patient surge or longer emergency event using processes for healthcare professionals to make fair, just, and equitable decisions about who should receive treatments when there are limited resources.[18] An example is noted below:

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 (i.e., 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	Trained staff unavailable or unable to adequately care for volume of patients even with extension techniques

[18] COVID-19-Crisis-Standards-of-Care.pdf (nhpco.org)

Resource continuum:		Normal	Good	Fair/Poor
			—Change in responsibilities, documentation, etc.	
	Supplies	Cached and usual supplies used	Conservation, adaptation, and substitution of supplies with occasional reuse of select supplies	Critical supplies lacking, possible reallocation 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 →

For more information:

Crisis Standards of Care, A Systems Framework for Catastrophic Disaster Response: https://www.ncbi.nlm.nih.gov/books/NBK201063/

[19] Response Resource Availability and Crisis Standards of Care

California SARS-CoV-2 Pandemic crisis Care Guidelines Concept of Operations HealthCare Facility Surge Operations and Crisis Care, 06/2020[20] is a framework designed to help health care facilities plan for overwhelming medical surge. The guidance assumes incident management and incident command practices are implemented and key personnel are familiar with healthcare emergency management planning and processes that underlie scarce resource decision-making. While written for the pandemic, this framework should be used to determine the most appropriate steps and actions when available resources are limited or insufficient to meet the medical needs of patients during a catastrophic public health event that results in medical surge:

Key Points about Crisis Care

- Crisis care is not a separate triage plan. These strategies are extensions of surge-capacity plans.
- Crisis care may occur during long-term events such as pandemics when resource constraints are likely to persist for long periods of time, or during short-term, no-notice events where help will arrive, but too late to solve an acute resource shortfall.
- Health care facilities will not have an option to defer caring for patients in a crisis. Demand, guided by ethics, will drive the choices that have to be made.
- Healthcare decisions, including allocation of scarce resources, cannot be based on age, race, disability (including weight-related disabilities and chronic medical conditions), gender, sexual orientation, gender identity, ethnicity (including national origin and language spoken), ability to pay, weight/size, socioeconomic status, insurance status, perceived self-worth, perceived quality of life, immigration status, incarceration status, homelessness, or past or future use of resources.
- If strategies are not planned for ahead of time, they might not be considered and/or will be difficult to implement.
- Strategies should be proportional to the resources available. As more resources arrive, you should move back toward strategies that are less demand driven (and therefore, back toward contingency and eventually conventional status)

The principles of crisis care must be integrated into Emergency Operations Plans (EOPs) at all levels of health care.

Planning and implementation should include, but is not limited to:

- Indicators and Triggers

[20] CDPH California SARS-CoV-2 Pandemic Crisis Care Guidelines

- Supply Management
- Core Strategies
- Acute Care Hospitals
- Non-Acute Care Facilities and Services
- Health Care Staff Engagement
- Training and Exercises
- Integration with Local or Regional Health System Partners
- Public Engagement and Transparency
- Ethical considerations

LABORATORY INFORMATION

Laboratory personnel play a crucial role in response to chemical emergencies by collecting, packaging, and shipping specimens to confirm potential exposures to chemicals.

Collecting Specimens: **Following a chemical emergency incident, collect blood and urine samples for each adult involved. For children, only collect urine samples unless the CDC says otherwise.** View this flowchart for directions on how to collect urine and blood samples from potentially exposed individuals: Flowchart Chem Event Specimen collection 09-17-2015 (cdc.gov)

Package and Ship Specimens: After collecting the samples, package and ship them to the appropriate laboratory destination based on California chemical exposure comprehensive response plan. If you are instructed to ship your specimen to the CDC laboratory, follow these instructions: CDC Shipping Instructions for Specimens Collected from People Who May Have Been Exposed to Chemical Agents

The CDC Information Line is an important source of information. For more questions, call 800-CDC-INFO (800-232-4636) or send an email to: CDC Contact-Information Form

CDPH

Additional information related to local, state, and federal laboratories that provide the infrastructure and capacity to respond to chemical terrorism and other public health emergencies. The Laboratory Response Network (LRN) is a network of these laboratories, which provide a mechanism for laboratories to access additional resources when their capabilities or capacity have been exceeded. The Laboratory Response Network for Chemical Threats (LRN-C) is a subset of LRN laboratories that

specialize in the detection of chemical agents.[21]

[21] Information for Hospitals and First Responders on the Laboratory Response Network-Chemical (LRN-C)

LOGISTICS

1. COMMUNICATIONS

Because of the potential for communication system infrastructure impact due to being overwhelmed by the population using their cell phones or from infrastructure damage due to blasts, rapid deployment of the Amateur Radio groups is important. This resource is coordinated through the County EOC.

2. SPACE

During a chemical emergency incident, bed capacity, and hospital personnel safety may be a major challenge for all facilities. After chemical exposure, many residents may self-evacuate and present for assessment and care at hospitals hundreds of miles from the exposure site.

There are many locations following a chemical emergency where patient care and victim assessment may take place, including casualty collection points, healthcare facilities, alternate care sites, community reception centers, evacuation shelters, and assembly centers.

- **Surge space** is within a healthcare facility or in the surrounding area (e.g., parking lot) where medical care and/or decontamination can occur.
- **Alternate care sites** may be spontaneous or planned locations that act as overflow for healthcare facilities and provide patient care.
- **Community Reception Centers (CRC)** are designed for formal screening, decontamination, registration, assessment of potential contamination, and sample collection for bioassays. They require significant resources and are not established in close proximity to a chemical release event but may be established in nearby communities where resources are sufficient.
- **Evacuation Shelters** may be spontaneous or planned locations where displaced populations may stay for 24 or more hours. They, too, require significant resources, including medical staff, and should not be established in close proximity to a chemical release event, but may be established in

nearby communities where resources are sufficient. More information about Shelters can be found in Appendix 2.

- **Assembly centers** are intended for rapid, qualitative screening of large numbers of uninjured persons that were in a chemical exposure area after a chemical release. They are assessed for symptoms chemical exposure and prioritized for medical countermeasures and evacuation. These centers should be located near the incident location, and in the cold zone. More information about Shelters can be found in Appendix 2.

When healthcare facilities become overwhelmed with patients, healthcare facilities will be engaged in MHOAC-led discussions, likely via conference call, to determine which facilities are available and willing to take patients in order to decompress hospitals and other critical care facilities. The coalition may also choose to activate smaller subgroups or committees, such as a SNF/LTCF (Skilled Nursing/Long Term Care Facility) committee, to further coordinate bed capacity expansion and sharing amongst similar facility types.

If a chemical emergency incident occurs outside of SCC, SCCHCC staff may be contacted by the MHOAC. Facilities outside exposure zones should be prepared to accept patients from facilities within exposure zones (e.g., if a chemical emergency takes place outside of SCC).

3. SURGE STAFF

The below table provides additional regulatory considerations for various staffing strategies.

STRATEGIES	CONSIDERATIONS
• Train clinical staff for hazmat and decontamination	• Malpractice coverage.
• Contact Nurse Staffing Agencies (registries/travel nurses to assist with supplemental staffing needs • Disaster Healthcare Volunteer Database and Medical Reserve Corps	• During a chemical emergency incident occurrence, nearby counties may also be impacted, depending on size and location.

STRATEGIES	CONSIDERATIONS
• Contact other healthcare organizations within the county if the incident is small. • Contact nearby counties for surge staff assistance. • Contact the MHOAC for mutual aid assistance	• The arrival of additional staff may take many hours or days to arrive.
• Use of non-conventional staff (e.g., Emergency Medical Technicians (EMTs) or paramedics, students (medical and nursing), military licensed staff, volunteer, dentists, retired healthcare professionals with active licenses)	• Regulations to expand clinical professionals' scope of practice may require a CDPH waiver and a Governor's Order. Need clarification from professional boards. • 22 CCR 70217: Requires nurse-patient ratios. Example: one nurse to two or fewer critical care patients at all times. • Liability/licensing regulations. • State laws regarding malpractice coverage for volunteers • County regulations and liability coverage may be needed
• Utilize pediatric skilled RNs to supervise adult skilled patients and vice versa	• Liability regulations and insurance limitations
• Implement and/or develop just-in-time training for clinical staff normally assigned to non-direct patient care positions	• None

4. SUPPLIES

The MHOAC can provide PPE and other medical supplies including medications when needed via the County warehouse or local caches when otherwise unobtainable. The MHOAC may provide "Go-Kits" (See Appendix 3) with equipment for use by nurses or other healthcare providers if not in use at evacuation shelters or CRC's. The MHOAC may also request these and other supplies, including Advanced Life Support supplies

and medications (from other facilities or agencies outside the OA, or from the SNS or CHEMPACK), through the medical and health mutual aid systems in place in California from the region or state.

The Civil Support Team, available by a call to the FBI through Cal OES, may be available to bring items such as decontamination equipment, and other chemical emergency response equipment and personnel.

5. CONTROL OF INVENTORY

PPE is stored in the County warehouse. Large space expansion materials (e.g., Mobile Hospital tents) are stored in Watsonville and may be available through the MHOAC. Smaller tents may be available through the County EOC. The MHOAC processes requests for these items from SCCHCC members and other healthcare facilities. The Med/Health Logistics Section of the SCC Health DOC will process all requests for medical health resources. These will be distributed to healthcare workers, community partners, and public safety personnel by their respective organization after receiving the items from the DOC.

Regular inventory control (e.g., vendor visits, normal transportation routes) may not be able to occur due to damage or the location of the Hot, Warm and Cold zones. The MHOAC will coordinate with the Region, State (i.e., CDPH), and Federal agencies to request mutual aid in the event that the SCC warehouse is inoperable or if inventory is required to come from a different location.

6. TRANSPORTATION

The MHOAC will continue to assist with patient transportation direction with local ambulance partners and mutual aid resources as needed. The Med/Health team will additionally work with Fire and Law agencies, and the DOT and CHP to ensure safe routes for patient transport.

SPECIAL POPULATIONS

Special populations include pregnant women, immunocompromised patients, equipment-dependent patients (especially those requiring ventilators), disabled persons requiring wheelchairs or other mechanisms of assistance, nursing home and jail residents, people with various physical challenges, the mentally ill, children, elderly, individuals experiencing homelessness, and persons with cultural and language barriers.

1. PEDIATRIC POPULATIONS

Pediatric patients are at increased risk during chemical incidents due to the following:

- Age and development level
- Faster respiratory rate and metabolism
- Thinner skin/greater body surface area
- May lack motor skills to escape
- May lack ability to sense a dangerous situation
- Explore by putting things in mouth
- Immature immune systems

These factors may lead to greater risk for the following:

- Infections
- Increased effects from agent
- Hypothermia
- Prolonged exposure
- Long-term psychological effects[22]

General pediatric decontamination recommendations can be found in the BAUASI Regional CBRNE Decontamination Concept of Operations: BAUASI_Regional CBRNE CONOPS_Final.pdf.

Children and Youth with Special Healthcare Needs (CYSHCN)

[22] BAUASI_Regional CBRNE CONOPS_Final.pdf

Nearly 1 out of every 5 children in the United States has a special healthcare need. CYSHCN, also known as children with special healthcare needs (CSHCN), require more care for their physical, developmental, behavioral, or emotional differences than their typically developing peers. A special healthcare need can include physical, intellectual, and developmental disabilities, as well as long-standing medical conditions, such as asthma, diabetes, blood disorder, or muscular dystrophy.

All children have unique needs in emergencies, but care for children with special healthcare needs is often more complex because of their various health conditions and extra care requirements. They may have a hard time moving from one place to another, urgent or constant medical needs, difficulty communicating or have trouble with transitioning to different situations. A disaster can present all these difficulties at once.[23]

An Emergency Information Form for Children with Special Healthcare Needs may be available from the parents of the child. A copy is available in the following link and could be used to gather information about the child should one not already be available. ACEP's Emergency Information Form for Children with Special Health Care Needs

As SCC does not have any pediatric hospitals or facilities, coordinate with the MHOAC and patient transportation to transport pediatric patients to pediatric care facilities (i.e., Lucille Packard Children's Hospital at Stanford Medical Center, UCSF Benioff Children's Hospital in Oakland, Children's Hospital Central CA in Fresno, UC Davis Children's Hospital in Sacramento, and several more in Southern California). If transportation is not possible, please consult the MHOAC and subject matter experts to receive instruction on treating children.

2. BEHAVIORAL HEALTH AND PATIENT MENTAL HEALTH CONCERNS

[23] ACEP Emergency Information Form for Children with Special Health Care Needs

Mental health effects are a known major clinical problem associated with chemical emergency incidents.
Significant mental and behavioral health impacts (e.g., depression, anxiety, post-traumatic stress disorder) will overwhelm mental and behavioral health facilities and counseling professionals. Typical symptoms of those exposed to chemical emergencies may include cognitive, emotional, behavioral, physical, and spiritual symptoms. There are a number of recommended mental and behavioral health interventions recommended to be integrated into care of patients exposed to or contaminated during a chemical emergency incident including:

- Psychological First Aid
- Psychological Recovery

The SCCHCC may perform the following additional activities to support disaster mental health:

- Enhance communication, coordination, logistical, and moral support to providers.
- Implement just-in time training for mental/behavioral health interventions specific to chemical emergency incidents.
- Promote resources (e.g., the Substance Abuse and Mental Health Services Administration [SAMHSA] Disaster Distress Helpline)
- Activate substance use disorder specialists.
- Identify and reduce duplication of efforts.
- Deploy behavioral health specialists to facilities, shelters, CRCs, or other locations to assist healthcare workers as part of outreach teams.
- Identify community resources that could assist in behavioral health services, such as social workers, chaplains, and counselors, to bring to healthcare where needed.
- Request additional assistance through the MHOAC if additional assistance is unavailable in SCC.

During recovery periods, long-term public health monitoring and behavioral health programs should be in place. Healthcare facilities will coordinate with the MHOAC, Department of Victim Services, American Red Cross (ARC), and SCC Behavioral Health.

3. INDIVIDUALS EXPERIENCING HOMELESSNESS

As of 2022, approximately 2,299 individuals in SCC were found to be experiencing homelessness during a one-day count.[24] As a shelter in place order is most likely to be announced following a chemical emergency incident, the MHOAC, SCC Public Health and Human Services Department, the SCC Homeless Persons Health Project (HPHP), other homeless organizations, and the Department of Housing and Urban Development should coordinate to reach and house individuals experiencing homelessness. The Department of Housing and Urban Development will also assist with placing individuals experiencing homelessness due to the chemical emergency incident in available housing.

Focusing on communication and outreach to persons experiencing housing from the very start of the incident to provide relevant instruction is imperative.

[24] Housing Matters' 2022 Homeless Point-in-Time Count

4. OLDER ADULTS

As of 2021, about 18% (48,935) of the SCC population is over 65 years of age, and another 18.6% of the population is over 55 years of age.[25] There are 35 assisted living and nursing homes in SCC. The MHOAC will coordinate with the Department of Aging & Adult Services as well as with the assisted living and nursing homes within the SCC HCC to assist older adults and to provide direction to facilities regarding up-to-date information, recommendations, and guidelines.

5. PEOPLE WITH DISABILITIES

Disable persons represent a diverse group of people with a wide range of needs, which could include mobility, cognition, vision, hearing, mental health, etc. As many as 26 percent of adults report some type of disability. These conditions may create a significant limitation for an individual affecting their daily lives and functioning, which can be sporadic or intermittent, and may not be visible. Many experience barriers to healthcare. Priorities for meeting the needs of disabled persons include communication, maintaining health, maintaining independence, and providing support, safety and self-determination (CMIST).

Ways disability competency can be demonstrated by responders:

- Use appropriate and accessible communication.
- Identify unintended barriers to health equity. Get input and welcome feedback.
- Partner with disability stakeholders to identify existing barriers to accessibility and generate solutions using their Subject Matter Expert.
- Require disability etiquette and competency training for all staff.
- Recruit hire, and support employees with disabilities.
- Establish and adhere to receiving and addressing complaints about accessibility
- Ask if people need assistance or accommodations
- Build respectful relationships with disability stakeholders

[25] USA Facts Population Information for Santa Cruz County

- Use the same language that is used by the person, which puts the focus on the person as a whole and not just the disability.[26]

Approximately 5.4% of the population are children with major disabilities.[27] Approximately 911 persons are considered "Severely Impaired" and receive IHSS services.[28]

Pediatric cancer patients or children who are being treated with radiation may be at high risk of harmful reactions during exposure to a chemical emergency incident. Additionally, individuals with disabilities or with access and functional needs (AFN) may have a difficult time accessing healthcare services or safely sheltering in place during a chemical emergency incident.

6. PREGNANT PERSONS AND NEONATES

There is emerging evidence that links exposure to toxic environmental agents and adverse reproductive and developmental health outcomes. Toxic exposures related to reproductive and developmental health primarily have been associated with infertility and miscarriage, obstetric outcomes such as preterm birth and low birth weight, neurodevelopmental delay such as autism and attention deficit hyperactivity disorder, and adult and childhood cancer.[29]

Referrals to appropriate specialists when hazardous exposure is identified should be considered.

7. INCARCERATED INDIVIDUALS

[26] Strategies for Equitable Access to Vaccinations and Inclusive Disaster Response
[27] US Census Bureau American Community Survey
[28] CA.gov IHSS Program Data
[29] ACOG's Reducing Prenatal Exposure to Toxic Environmental Agents

SCC operates three jail facilities: the Main Jail located at 259 Water St., Santa Cruz; Blaine Street Facility at 141 Blaine St., Santa Cruz; and Rountree Facility located at 90 Rountree Ln., Watsonville.

Juvenile Hall is located at 3650 Graham Hill Rd., Felton.

Supplies or chemical exposure testing may need to be delivered to individuals who are incarcerated, and additional chemical exposure testing or treatment may be necessary for those undergoing radiotherapy. Care of the incarcerated population should be coordinated with the SCC Sheriff's Dept.

5. INDIVIDUALS WITH LANGUAGE NEEDS

Of the approximately 268,000 residents in Santa Cruz County, 56% are Caucasian, 34% are Hispanic, 5% are Asian, 4% are multi-racial, 2% are Native American, and 2% are African American. While 67.14% of the population speak only English, 32.86% speak other languages. The largest group of these speak Spanish, which is spoken by 25.92% of the population, and many live in the South County/Watsonville area.

According to the Indigenous Farmworker Study, approximately 46% of the farmworkers in the central coast are indigenous migrants from Mexico. These workers have limited English and Spanish proficiency and speak indigenous languages that are primarily oral, including variants of Mixteco, Zapoteco, Triqui, and Purepecha. The Mixteco/Indigena Community Organizing Project (MICOP) works with the Mixtec and other indigenous immigrant communities. Their outreach is conducted through trusted messengers, Census Promotoras, who understand the communal tradition of "tequio" or community obligation, which promotes a spirit of mutual assistance.[30]

In a chemical or other emergency impacting this community, partnering with the Promotoras may improve the efficiency and effectiveness of messaging, and help assure timely and appropriate care and support.

[30] CA 2020 Census Mixteco/Indigena Community Organizing Project

8. PETS AND ANIMALS

Pets and animals may be exposed in a chemical emergency. Owners and pet families may be as concerned about the care of their animals as themselves.

Information for decontamination of pets:
https://www.cdc.gov/chemicalemergencies/decontaminate_a_pet.html

Service animals may show up at hospitals and shelter locations, and police or other working K9's may need care or decontamination during a disaster. The document, "Hospital Decontamination System and Decontamination Methods for Assistance Dogs that Accompany Incoming Disaster Victims" provides information to help manage this situation:
https://www.urmc.rochester.edu/MediaLibraries/URMCMedia/flrtc/documents/Hospital-Decon-for-Service-K9s-Gordon.pdf.

All healthcare facilities and shelters should plan for managing any pets that may arrive with owners who spontaneously arrive at the facility.

- After a large mass chemical casualty event, medical resources will be scarce. Using scarce, chemical-related resources for animals may be difficult.
- Animal preparedness information resources below provide general emergency and disaster information, not specifically related to a chemical emergency event.

Consideration should be given to requesting additional resources to manage animal exposure and care during a chemical emergency if needed.

National Veterinary Response Teams information:
https://aspr.hhs.gov/NDMS/Pages/nvrt.aspx

DEMOBILIZATION

The information below is taken from the SCC Surge Plan and applies to chemical emergency response.

When the surge response is no longer needed, demobilize healthcare resources, volunteers, and other personnel as appropriate. Return healthcare system to pre-incident operations by incrementally decreasing surge staffing, equipment needs, alternate care facilities, and transition patients back into their pre-incident medical setting. Assure volunteer or other personnel return all equipment. Document all resources, staff, as well as equipment.

Institute plan for staff counseling, stress debriefing, or other follow-on activities to address response workers' mental or behavioral health needs (acute and long-term) due to participation in the response. When requested or indicated, refer volunteers to medical and mental/behavioral health services. Document services offered and utilized.

Institute plan for staff physical needs, including sleep, eating, hygiene, play, etc. Document services offered and utilized.

Transition to normal operations and return to normal staff scheduling. Conduct and document a "Hot-Wash" debrief with personnel.

Reconstitute medical supply, equipment inventory. Complete inventories of medical and non-medical supplies, pharmaceutical, and equipment. Request replacement or servicing of equipment, supplies, and pharmaceuticals used during the response through Logistics and Planning Section Chiefs.

END STATE

The end state of activation for a chemical emergency incident occurs when:

- All lifesaving and life-sustaining recovery operations have been provided.
- Residents' needs have been met and successful recovery (as defined by affected communities) is achieved, including public safety and health protection assurances.
- Environmental impacts (including infrastructure capacity, contaminated waste managed effectively, etc.) have been minimized.
- Displaced populations have returned or relocated.
- Long-term public health monitoring and behavioral programs are in place as needed.
- All long-term contaminated areas are identified, and access control measures are in place.
- All deployed staff are returned to their normal positions and roles.

STAKEHOLDER STRATEGY GUIDES

Reference the SCC Surge Plan for surge guides which are broken down into four categories: space, staff, stuff, and system.

1. STRATEGIES: HCC/PUBLIC HEALTH

Strategies: Policies and Protocols

The list below contains a recommendation for policies and protocols which should be created by each of the sectors addressing specific chemical emergency response.

- EMS
- Decontamination protocols and methods
- Behavioral Health
- Environmental Health
- Hazmat Response Team
- Hospitals and acute medical care
- Clinics and medical care
- Law Enforcement
- Skilled Nursing, Assisted Living, and Independent Living facilities
- Hospice
- Special Populations

2. STRATEGIES: PREHOSPITAL PROVIDERS

Definition: Prehospital providers are any ambulance company or fire departments that provide prehospital medical care.

Surge Indicators:

- Inability to support treatment or transport of all patients.
- Regular communication channels are not working.

Staff: Treatment Strategies for Prehospital Providers		
Indicator/Trigger: Staffing inadequate and undetermined ETA of incoming staff, system overwhelmed; public assistance needs exceed available resources		
Strategy	**Regulatory**	**Other Considerations**
Enact Alternate Staffing Plan	Defer to MHOAC for assistance	Consider writing plan if none exists
Establish process for accepting MRC volunteers	Defer to MHOAC for assistance	
Establish plan for utilization of volunteers from neighboring county prehospital agencies	Establish Memorandum of Understanding (MOU) with neighboring agencies or waiver of sponsorship requirement in Prehospital Care Policy	Request assistance from MHOAC for strike team support
Encourage med/health staff to register with the MRC		Ongoing process
Utilize private BLS ambulance providers and staff to transport ALS patients	Defer to MHOAC for assistance and coordination	Send staff to site immediately for care assistance despite inadequate ambulance levels.
Create casualty collection points		Patients go to one assessment site instead of providers responding to each patient directly.
Hand over patient care to receiving facility immediately to get back into service. Allow EMS staff unassigned to ambulances to work at triage sites at the receiving facility to assist with offloading and patient triage and care.	EMS agency issue directives to receiving facilities to release prehospital provider/no wall times	

Utilize air resources to transport patients		
Transport more than one patient per ambulance		Group appropriate patients that are going to the same facility
Enact Simple Triage and Rapid Treatment (START) triage	MCI declaration	
Request mutual aid	Utilize SEMS and MHOAC	Road and response times could vary

Staff: Treatment Strategies for Prehospital Providers		
Indicator/Trigger: Low equipment and supplies due to surge, not enough ambulances		
Strategy	**Regulatory**	**Other Considerations**
Designate surplus EMS or admin staff to deliver supplies and incoming staff to triage sites and event	Pre-agreement with ParaCruz/Metro for utilization in surge events needed	Utilize vans from ParaCruz, Metro, or wheelchair vans to bring supplies and transport people as needed after
Ensure all out of service ambulances are stocked to par levels at all times		
Identify and utilize available medical caches at fire stations and hospitals		
Utilize public transport system to transport minor (green) patients with EMS supervising	Pre-agreement with ParaCruz/Metro	
Designate ambulances to transport moderate and red only		
Request resources through EMS agency	MHOAC utilization	
Have a fuel plan for surge events		Utilize resources to make fuel available for all response vehicles (e.g., ambulances fill at fire stations)
Have contracts with other providers for assistance with supplies		

System Operations: Treatment Strategies for Prehospital Providers		
Indicator/Trigger: Regular communications hindered, large influx of calls to dispatch center from event and family of victims		
Strategy	**Regulatory**	**Other Considerations**
All private ambulance companies are on ReddiNet		ReddiNet training
Send liaison to Public Safety Answering Point (PSAP)/IC		
Establish communication failure protocols		
Use notification tools e.g., Everbridge		
Dedicate dispatcher to incoming calls/information to outside and to PIO and train both parties in how to use family reunification center feature of ReddiNet	Defer to EMS/MHOAC for assistance	
Establish a "hotline" number to broadcast through media outlets for family to contact regarding their loved ones and designate dispatcher or PIO to staff the line	Defer to PIO, or EMS/MHOAC for assistance	
Ensure communications between three location IC posts: event, Dominican Hospital, and Watsonville Hospital; dedicate channel to IC intercommunications between locations, Netcom dispatch, and EOC/MHOAC	Defer to EMS/MHOAC for assistance	
Familiarize stakeholders with job action sheets and other		

System Operations: Treatment Strategies for Prehospital Providers		
Indicator/Trigger: Regular communications hindered, large influx of calls to dispatch center from event and family of victims		
Strategy	**Regulatory**	**Other Considerations**
resource forms utilized in MCI and surge scenarios		
Familiarize stakeholders with downtime forms in event Internet and ReddiNet are unavailable		
Develop surge plan with dispatch center and dedicate dispatchers to record and track transport resources, allocation, and destinations		

3. STRATEGIES: HOSPITAL PROVIDERS

Definition: General acute hospitals that provide 24/7 inpatient care. Can provide specialty centers such as emergency care and ST Elevation Myocardial Infarction (STEMI).

Surge Indicators:

- EMS Agency notification of system-wide surge
- Inpatient beds at capacity
- Mass influx of patients

Space: Surge Strategies for Hospitals		
Indicator/Trigger: Inadequate space for surge of patients, need to secure space, mass influx of patients by several modes of transport		
Strategy	**Regulatory**	**Other Considerations**
Utilize licensed bed space for other types of patients	Use outpatient beds for inpatient care	CDPH Temporary Permission for Program Flexibility for Increased Patient Accommodations Forms, EMTALA Waivers
Convert space for other uses, e.g., Cath Lab to Operating Room (OR)	Declaration of Public Health Emergency (local and/or State)	

Space: Surge Strategies for Hospitals		
Indicator/Trigger: Inadequate space for surge of patients, need to secure space, mass influx of patients by several modes of transport		
Strategy	**Regulatory**	**Other Considerations**
Increase capacity in patient care areas		Expedite discharges and downgrade patients, cancel elective surgeries, increase capacities of patient rooms, if possible, create additional negative pressure rooms as needed
Use non-traditional areas of hospital for patient care	Utilize SEMS and MHOAC	Cafeterias, hallways, conference and break rooms, tents/shelters
Partner with local Santa Cruz METRO buses and EMS to transport and medically supervise mild or walking wounded patients to alternative sites to offload hospitals		
Create plan to shift minor surgeries to local surgery centers		

Space: Surge Strategies for Hospitals		
Indicator/Trigger: Inadequate space for surge of patients, need to secure space, mass influx of patients by several modes of transport		
Strategy	**Regulatory**	**Other Considerations**
Partner with admin departments to create perimeter security outside of hospital and reevaluate incoming/outgoing patient flow to establish: • One-way traffic only • Entry validation points confirming staff by badges. • Support staff and provider meeting points • Secure triage area with stretchers concentration point and escorts • Ensure voice amplification devices are available at triage and stretcher concentration points to control area • Stretchers concentration point should be managed by escort supervisor who will have radio communication on a medical frequency with all treatment areas • Secure landing zone locations • Minimize threat of secondary injuries from chaotic traffic patterns		

Staff: Surge Strategies for Hospitals		
Indicator/Trigger: Staffing and provider inadequate and undetermined ETA of incoming staff		
Strategy	**Regulatory**	**Other Considerations**
Create a reporting scheme for providers based on geographic home location and their proximity to the hospitals	Utilize MHOAC for assistance	Consider writing plan if none exists
Encourage local hospitals to have standing MOU's that accept neighboring hospitals' credentialing process in surge situations for a reasonable time period. Identify local nurse agencies and locum tenens registries to call upon if additional need.	Utilize MHOAC for assistance	
Develop quick credentialing process for hospital staff at designated check-in center	Establish MOU with neighboring agencies or waiver of sponsorship requirement in Prehospital Care Policy	Request assistance from MHOAC for strike team support
Create surge ratio expectations	CDPH Declaration of Emergency	
Encourage staff to be prepared at home and develop/implement disaster training for staff and family		Just-in-Time training, family of staff center, disaster training, first aid training for staff's family

Enact plan to send prehospital staff to hospitals for support after initial/primary incident is resolved or if there is a surplus of EMS staff response. Prepare to send crews of 3-5 per ambulance depending on EMS personnel response.		Send staff to site immediately for care assistance despite inadequate ambulance levels.

Staff: Surge Strategies for Hospitals		
Indicator/Trigger: Large influx of patients depreciating supplies and equipment, limited equipment for patient volumes, staff needs to stay on site past regular shift to sustain care		
Strategy	**Regulatory**	**Other Considerations**
Ensure emergency supply for staff, patient and visitors for 96 hours		Food, water, pharmaceuticals, generator fuel, waste management products, personal supplies, and generator testing/maintenance
Contract traditional and non-traditional vendors for resupply		Agreements with non-traditional vendors (Costco, Home Depot, grocery stores, sporting stores, local animal hospitals)
Contact DOC for medical resources		
Map out critical equipment/supplies to pre-designate staff meeting points and personnel dedication for ED intake and management per severity patient to decided Maximal Number of Patients per hospital.		Rad techs should congregate where all portable X-ray machines are, etc.
Disaster carts should be stocked to care for 20 patients each and utilized in triage sites		

System Operations: Surge Strategies for Hospitals		
Indicator/Trigger: Staff staying past normal shift hours, large influx of patients arriving at hospital by different modes of transport, more patients than capacity causing bottleneck to patient flow, communications impacted due to surge		
Strategy	**Regulatory**	**Other Considerations**
Utilize California Unified Patient Tracking System (CUPTS, see below). Consider assigning triage color to patient chart and have the Transporter follow pre-established pathways for patient identified by direction arrows on hallway flooring and walls according to that assigned color. The arrows should match the color of the chart of the patient to simplify patient transport from triage to hospital treatment sites. Charts and armbands should have pre-determined registration number, and total number of charts and armbands will have to be determined according to total number of patients expected. • Initial private transport of mild or walking wounded should not be brought into ED and should be treated at triage site by prehospital or hospital staff or transported to triage hospital.		
Have registration take digital photos of incoming comatose patients (including by private vehicle transport) during registration and link photo to tag number to assist		

System Operations: Surge Strategies for Hospitals		
Indicator/Trigger: Staff staying past normal shift hours, large influx of patients arriving at hospital by different modes of transport, more patients than capacity causing bottleneck to patient flow, communications impacted due to surge		
Strategy	**Regulatory**	**Other Considerations**
tracking patients for Family Reunification Center. Pictures should be linked to health information system of hospital to help those at Family Reunification Center identify patients or via ReddiNet Family Identification Tool.		
Encourage hospitals to have a minimum of two working channels with one dedicated to medical and one to security that are tested and drilled regularly		
Triage officer at initial triage site should be surgeon physician or advanced practitioner familiar with traumatic outcome points and personnel dedicated for ED intake and management per severity patient to decide Maximal Number of Patients per hospital.		Rad techs should congregate where all portable X-ray machines are, etc.
Develop plans to provider dependent care for staff		Identify space and protocols to provide dependent care
Create an Ethical Committee comprised of a medical team of Lead MD, ED RN, and house supervisor to		

System Operations: Surge Strategies for Hospitals		
Indicator/Trigger: Staff staying past normal shift hours, large influx of patients arriving at hospital by different modes of transport, more patients than capacity causing bottleneck to patient flow, communications impacted due to surge		
Strategy	**Regulatory**	**Other Considerations**
determine hospital resource allocation to patients and treat/transport		

APPENDICES

Appendix 1: Messaging and Communications

Appendix 2: Guidance for Community Receptions Centers and Shelters-66 pages

Appendix 3: Go Kit Contents

Appendix 4: PPE

Appendix 5: Medical-Health Branch Response Organizational Chart

Appendix 6: Chemical Hazards Emergency Medical Management (CHEMM)

Appendix 7: References and Helpful Information

Appendix 8: Acronyms

Appendix 9: Chemical Plan Maintenance, Education, and Training

1. MESSAGING AND COMMUNICATIONS

Examples of critical public messages and communications expectations are included is this excellent guide: Best Practices for Communicating Risk in an Emergency

Chemical Hazards Emergency Medical Management, https://chemm.hhs.gov/pio.htm, provides information and links for PIO's in a chemical emergency.

Additional examples and an overview of emergency communication are contained in FEMA training, FEMA's Communicating in an Emergency, which includes:

Sample Immediate Evacuation Order (EVI) Template

Replace all bracketed text below:

(Headline field)
Immediate Evacuation Ordered for [geographic description of area to be evacuated].

(Description field)
Effective immediately and extending until [further notice or expiration time], the [Mayor of Disasterville] has issued an evacuation order for all persons living, working, or traveling in the vicinity of [geographic description of area to be evacuated]. This area is at immediate risk from [brief description of the hazardous conditions].

(Instruction field)
To protect yourself and your family from this dangerous situation, the following actions are strongly urged:

- Leave your home or workplace immediately for a safe destination outside the hazard area via [specify recommended route(s) of travel].
- Take only pets and essential items such as medications with you.
- [Instruction related to school children if applicable, e.g., Do not pick up children from school. They are being evacuated by school officials.]

A shelter operated by [organization, e.g., the American Red Cross] is available at [address of public shelter]. If you need evacuation assistance, call [555-555-9999]. Do not call 9-1-1 unless you have a serious personal emergency. For further information, tune to radio station [WXYZ].

2. GUIDANCE FOR CRCS AND SHELTERS

Guidance for Planning Considerations: Evacuation and Shelter-in-Place can be found: FEMA's Planning Considerations for Evacuation and Shelter-in-Place

3. GO KIT CONTENTS

(Add Go Kit Contents here)

4. PPE

There are four categories of Personal Protective Equipment (PPE) based on degree of protection needed, as described in the Bay Area UASI Regional CBRNE Decontamination Concept of Operations, pgs. 147-149 (BAUASI_Regional CBRNE CONOPS_Final.pdf):

Level A - To be selected when the highest level of caution is necessary.

Table 28: Level A PPE

Required PPE	Suggested PPE	Usage
• NIOSH Certified Self Contained Breathing Apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA • NFPA Vapor protective fully encapsulated suit • Gloves, outer, chemical-resistant • Gloves, inner, chemical-resistant • Boots, chemical-resistant, steel toe and shank • Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally encapsulating suit).	• Coveralls • Long underwear • Hard hat (under suit)	• The hazardous substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on either the measured (or potential for) high concentration of atmospheric vapors, gases, or particulates; or the site operations and work functions involve a high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates of materials that are harmful to skin or capable of being absorbed through the skin • Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible; or • Operations are being conducted in confined, poorly ventilated areas, and the absence of conditions requiring Level A have not yet been determined.

Level B - To be selected when the highest respiratory protection is needed but lesser skin protection is necessary.

Table 29: Level B PPE

Required PPE	Suggested PPE	Usage
• NIOSH Certified Self Contained Breathing Apparatus (SCBA) or Supplied Air Respirator (SAR) • Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls). • Gloves, outer, chemical-resistant. • Gloves, inner, chemical-resistant. • Boots, outer, chemical-resistant steel toe and shank	• Boot-covers, outer, chemical-resistant (disposable) • Hard hat • Face shield • Coverall	• The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection; • The atmosphere contains less than 19.5 percent oxygen; or • The presence of incompletely identified vapors or gases is indicated by a direct-reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the skin.

Level C - To be selected when the concentration and types of airborne substances is known and the criteria for air purifying respirators are met.

Table 30: Level C PPE

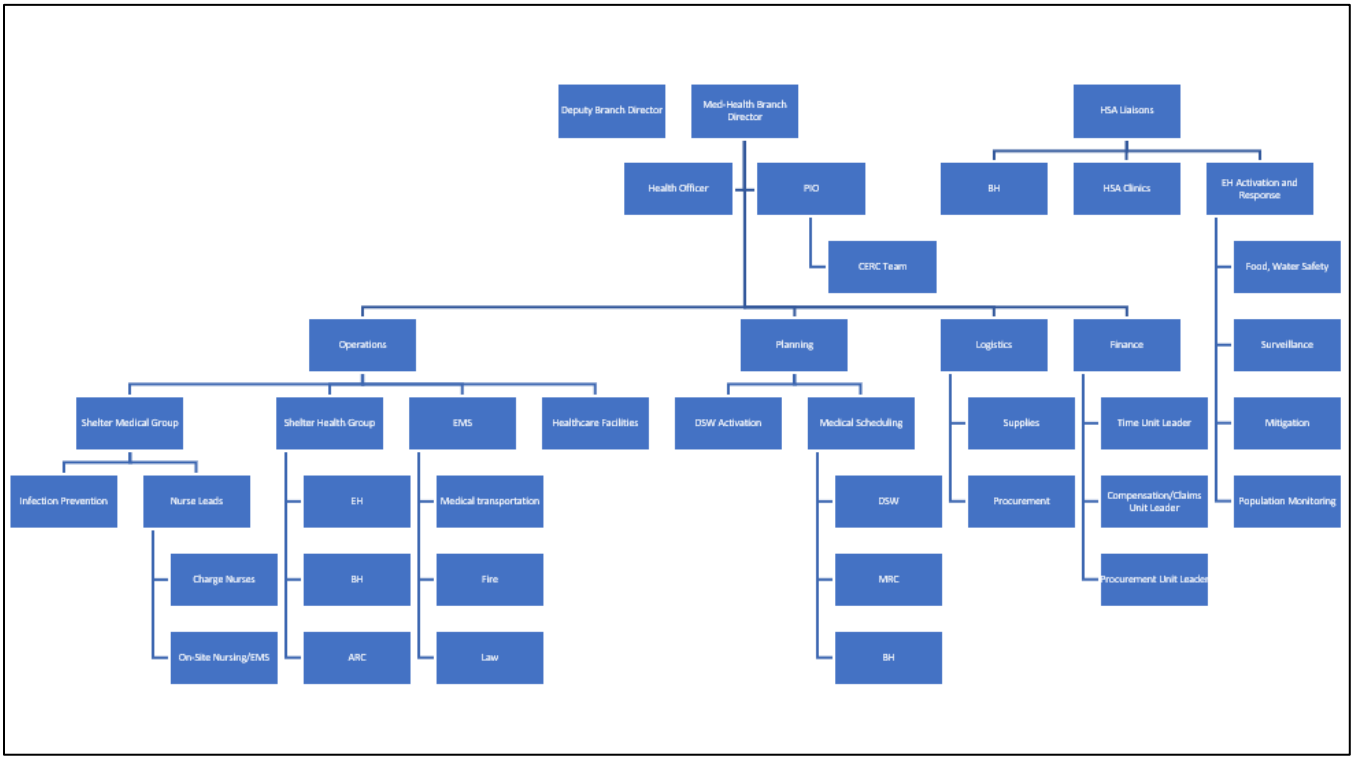
Required PPE	Suggested PPE	Usage
• NIOSH Certified Air Purifier Respirator (APR) or Powered Air Purifying Respiratory (PAPR) • Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls) • Gloves, outer, chemical-resistant • Gloves, inner, chemical-resistant	• Coveralls • Boots (outer), chemical-resistant steel toe and shank • Boot-covers, outer, chemical-resistant (disposable) • Hard hat • Escape mask • Face shield	• The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect or be absorbed through any exposed skin; • The types of air contaminants have been identified, concentrations measured, and an air-purifying respirator is available that can remove the contaminants; and • All criteria for the use of air-purifying respirators are met.

Level D - A work uniform used for nuisance contamination only

Table 31: Level D PPE

Required PPE	Suggested PPE	Usage
• Universal precautions • Coveralls • Boots/shoes, chemical-resistant steel toe and shank	•	• The atmosphere contains no known hazard; and • Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

5. MED-HEALTH BRANCH ORGANIZATIONAL CHART



6. CHEMICAL HAZARDS EMERGENCY MEDICAL MANAGEMENT

Source: Chemical Hazards Emergency Medical Management - CHEMM (hhs.gov)

7. REFERENCES AND HELPFUL INFORMATION

Chemical Hazards Emergency Medical Management:
Chemical Hazards Emergency Medical Management - CHEMM (hhs.gov)

Bay Area Urban Areas Security Initiative Regional CBRNE Decontamination Concept of Operations:
BAUASI_Regional CBRNE CONOPS_Final.pdf

Chemical Emergency Considerations for Healthcare Facilities:
Chemical Emergency Considerations for Healthcare Facilities (hhs.gov)

California SARS-CoV-2 Pandemic Crisis Care Guidelines CONCEPT OF OPERATIONS HEALTH CARE FACILITY SURGE OPERATIONS AND CRISIS CARE 06/2020
https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/COVID-19/California%20SARS-CoV-2%20Crisis%20Care%20Guidelines%20-June%208%202020.pdf

Chemical Hazards Topic Collection:
Chemical Hazards | ASPR TRACIE (hhs.gov)

Primary Response Incident Scene Management (PRISM): Guidance for the Operational Response to Chemical Incidents:
PRISM Volume 1: Strategic Guidance (medicalcountermeasures.gov)

CDPH Know and Understand Chemical Emergencies:
https://www.cdph.ca.gov/Programs/EPO/Pages/BI_Chemical-Emergencies_Know-and-Understand.aspx

Reducing Prenatal Exposure to Toxic Environmental Agents:
https://www.acog.org/Clinical/Clinical-Guidance/Committee-Opinion/Articles/2021/07/Reducing-Prenatal-Exposure-to-Toxic-Environmental-Agents

US Department of Transportation Emergency Response Guidebook (ERG):
ERG2020 (English) | PHMSA (dot.gov)

NIOSH Pocket Guide to Chemical Hazards (3rd Printing with minor technical revisions): https://www.cdc.gov/niosh/npg/

US Dept. of Transportation Pipeline and Hazardous Materials Safety Administration Emergency Response Guide: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2021-01/ERG2020-WEB.pdf

ADA Checklist for Emergency Shelters: https://archive.ada.gov/pcatoolkit/chap7shelterchk.htm, https://wid.org/wp-content/uploads/2023/06/CDCF-DOH-Workbook-6-Facility-Accessibility-Checklist_accessible.pdf

8. ACRONYMS

AMR	American Medical Response
AST	Ambulance Strike Team
BH	Behavioral Health Dept.
CRC	Community Reception Centers
DOC	Department Operations Center
ED	Emergency Department
EH	Environmental Health Dept.
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EP	Emergency Preparedness Program
Fire	Fire Agencies
HCC	Healthcare Coalition
HSA	Health Services Agency
HSD	Human Services Department
IAP	Incident Action Plan
ICP	Incident Command Post
ID	Identification
JAS	Job Action Sheet
JIC	Joint Information Center
LE	Law Enforcement Agencies
MCI	Multiple Casualty Incident
MHOAC	Medical Health Operational Area Coordinator
PH	Public Health Department
PIO	Public Information Officer
PPE	Personal Protective Equipment
RDMHS	Regional Disaster Medical Health Specialist

9. CHEMICAL ANNEX MAINTENANCE, EDUCATION, AND TRAINING

This Annex should be reviewed annually and updated as needed. Responsibility for review and updating belongs to the SCC Emergency Preparedness Program.

The following education and training are recommended:

a. Provide an overview of Chemical Emergencies Annex every 3-5 years to the HCC.

b. Practice tabletop exercise with all stakeholders regularly.

c. Provide interagency exercises that utilize all stakeholders every 3-5 years.

d. Provide chemical triage refresher training every 3-5 years to MRC members, hospital staff, school health center and volunteers, and prehospital providers.

e. Provide MHOAC and EOC education training that reviews the Plan and their immediate and long-term roles during a chemical emergency. Provide tabletop exercises in training to demonstrate flow and collaboration, and use of job action sheets.

f. Incorporate MHOAC utilization training in annual prehospital training that identifies what threshold is appropriate for enacting MHOAC and how MHOAC integrates within the IC system.