



Mass General Brigham

Hospital and Healthcare Considerations for Chemical Incident Response

Susan Cibulsky

Brian Pomodoro

December 8, 2023

Center for Disaster Medicine – Region 1 Disaster Health Response System and Regional Emerging Special Pathogens Treatment Center

Disclosure

- The content provided in this webinar is presented by the individual speakers only and does not represent or reflect the official policy or position of any portion of the United States Government.
- The content is not meant to be a substitute for medical professional advice, diagnosis, or treatment. The information herein should be adapted to each specific patient based on the treating medical professional's independent professional judgment and consideration of the patient's needs, the resources available at the location from where the medical professional services are being provided (e.g., healthcare institution, ambulatory clinic, physician's office, etc.), and any other unique circumstances. This information should not be used to replace, substitute for, or overrule a qualified medical professional's judgment.



Moderators & Speakers

Moderator:

Eileen Searle, PhD, RN

Director of Funded Projects

Massachusetts General Hospital

Speakers:

Susan Cibulsky

Senior Policy Analyst

Administration for Strategic Preparedness and Response (ASPR)

US Department of Health and Human Services

Brian Pomodoro

Disaster Response Educator

South Shore Health Systems



Learning Objectives

1. Identify critical planning needs for healthcare facilities to take to prepare for a chemical emergency
2. Identify and utilize preparedness and response tools such as HHS/ASPR's Technical Resources, Assistance Center, and Information Exchange (TRACIE) and Chemical Hazards Emergency Medical Management (CHEMM) website
3. Identify first steps for healthcare facilities to take following a chemical emergency
4. Describe the equipment, including personal protective equipment, that healthcare facilities may utilize in responding to a chemical emergency and important considerations and limitations for the equipment
5. Plan for and respond to chemical emergencies with partners





Hospital and Healthcare Considerations for Chemical Incident Response

Susan M. Cibulsky

Administration for Strategic Preparedness and Response

Region 1 Regional Disaster Health Response System Webinar

December 8, 2023

Key Points

- Expect patients to show up before you're notified of an incident
- Connect with your community emergency response partners as soon as you suspect a chemical incident
- Patient decontamination is a medical countermeasure
- Patient self-care: some patients may be able to help themselves and others
- Your Poison Control Center is a resource and partner in response
- Medical countermeasures may become scarce
- Support tools

Recognizing a Chemical Incident

- “Silent gap” in initial period
 - Patients may present to your facility without advance notice
 - The substance to which patients were exposed may not be known
 - Uncertainty, chaos, confusion
- You can be a detector
 - Clinical signs and symptoms – toxidromes
 - Non-clinical clues
- Be prepared for large #s of patients including concerned citizens
- Contact partners
 - Initiate notification of your community response partners as soon as you suspect a chemical incident
 - Does your facility have a protocol for partner communication?

Toxidromes

- Aids in detection as well as triage and treatment
- Depends on data points easily obtained with basic EMT training
- CHEMM-IST tool available at <https://chemm.hhs.gov>

U.S. Department of Health & Human Services
CHEMM
CHEMICAL HAZARDS EMERGENCY MEDICAL MANAGEMENT

CHEMM Home | About CHEMM | Site Map | Contact Us SEARCH:

You are here: Home > CHEMM Intelligent Syndromes Tool (CHEMM-IST 2.0) - Beta

CHEMM Intelligent Syndromes Tool (CHEMM-IST 2.0) - Beta

Question

Done!
Select a toxic syndrome below to display the appropriate medical management guidelines. Don't forget to assess the scene. 📄

Progress

State of Alertness? *Unconscious*
Sudden Onset of Unconsciousness? *Yes*
Seizure? *Yes*
Pupil? *Pinpoint*
Sweaty? *Yes*
Mucous Membrane? *SLUDGE*
Heart Rate? *Normal*
Low Blood Pressure? *No*
Wheezing? *Yes*
Hypoventilation? *Yes*
Wet lungs/Rales? *Yes*
Eye Irritation? *No*

Clicking on any question (hyperlinked) above in Progress will allow you to go back to the question to select a different answer. The subsequent answers will be erased.

Syndrome Prediction

Knockdown Syndrome	1.6
Pesticide Syndrome (also called Cholinergic or Nerve Agent Toxidrome)	9.0
Solvents, Anesthetics, or Sedatives Syndrome	1.5
Irritant Gas Syndrome	1.5
Opioid Syndrome	2.3
Anticholinergic Syndrome	1.1
Convulsant Syndrome	1.9

0 10

■ Uncertain ■ Probable

Assumptions

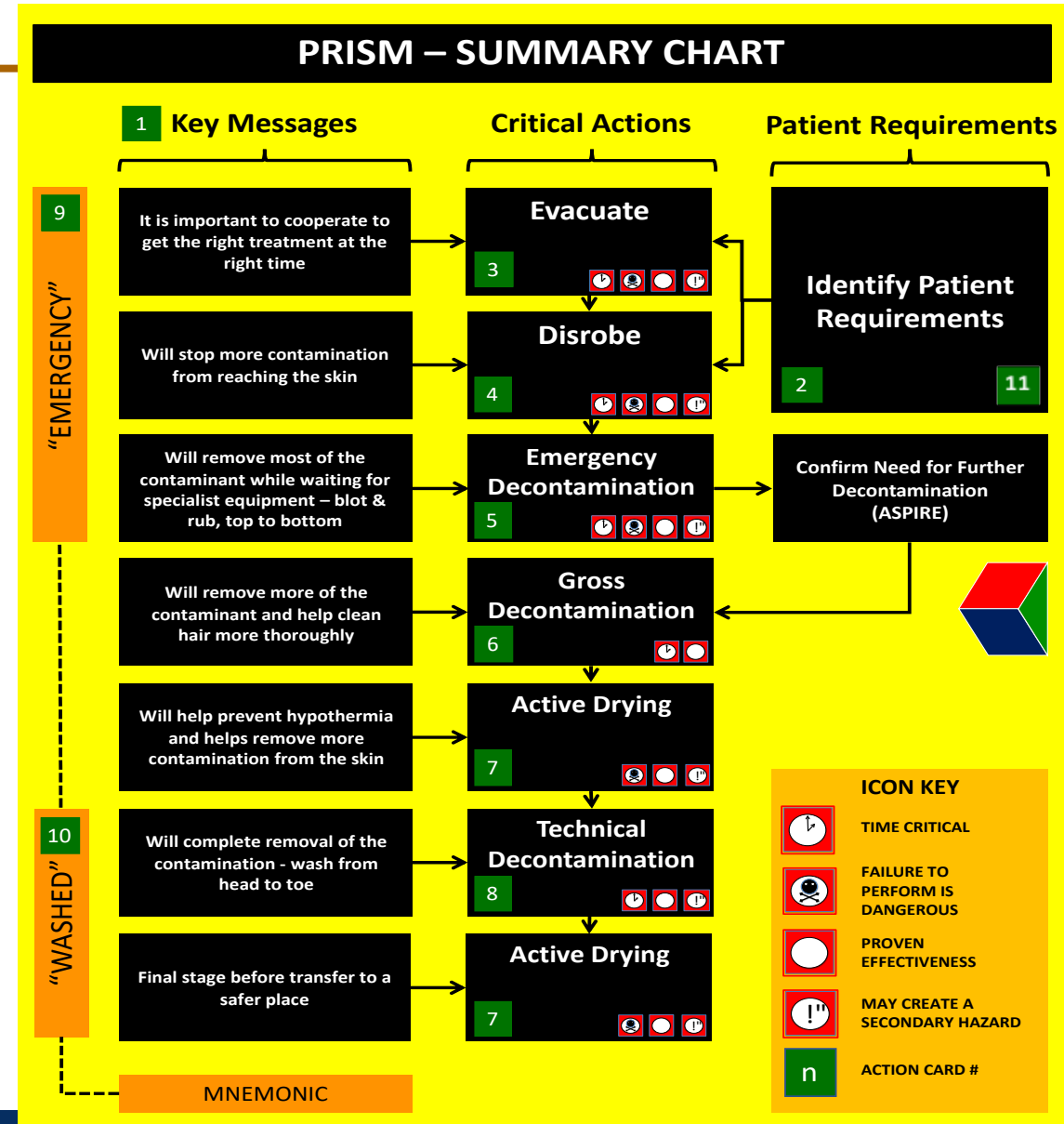
- The scene is suspicious for chemical exposure and results in mass casualties.
- The tool is constructed assuming the predominate route of exposure is inhalation
- The focus is on the severe cases.
- It does not include every possible chemical toxidrome. Exposures to other chemicals, pharmaceuticals, or toxins may not match one of the currently included syndromes.
- Results need to be interpreted carefully because exposures to other chemicals, pharmaceuticals, or toxins or other medical conditions could mimic these syndromes.
- The tool is for the basic life support (BLS) providers, advanced life support (ALS) first responders and hospital first receivers during a mass casualty chemical incident.
- Although the tool's intended use is for large-scale chemical incidents, it may be used for other chemical exposure scenarios (e.g. industrial accidents or smaller scale hazardous materials releases) and even single patient chemical exposures, but the results should be interpreted with caution.

Patient Decontamination

- Stopping the exposure – patient decontamination is a medical countermeasure
- Hospitals/health care facilities should be prepared to decontaminate patients
- Time-sensitive: effectiveness diminishes rapidly with delay
- If thorough decontamination occurs pre-hospital, is it necessary to repeat decontamination at hospital?
 - Depends on good communication and trusted relationship with response partner
- Use a risk-based approach to prioritize patients for decontamination

Primary Response Incident Scene Management (PRISM)

- PRISM provides step-by-step directions on decontamination response
- Describes supporting evidence
- Disrobe + Dry decontamination can remove 99% of contaminant
- Triple protocol (Dry + Gross + Technical) most effective
- <https://medicalcountermeasures.gov/barda/cbrn/prism/>

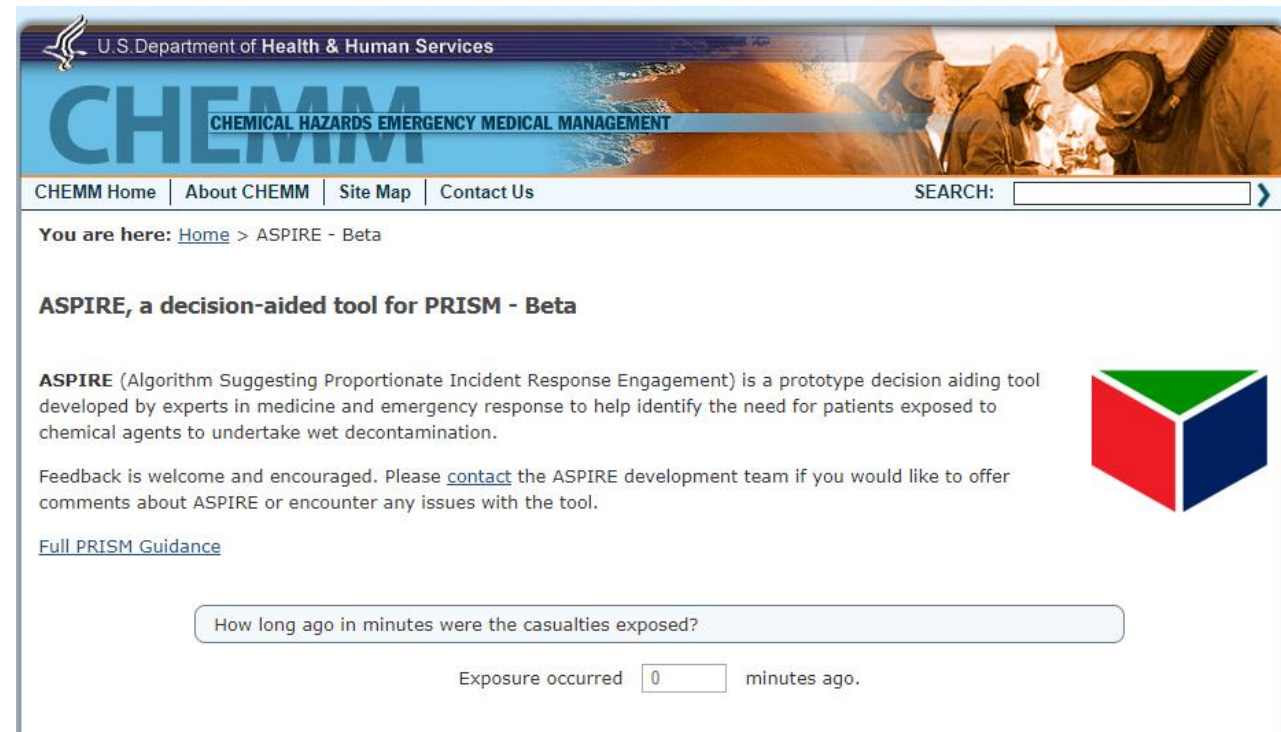


Clothing Removal + Dry Decontamination

- Can be done immediately, without equipment setup
- Self and buddy care for ambulatory patients
- Provide for warmth, privacy, and keeping families together to the extent possible
- Use protective measures when handling potentially contaminated clothing
- Dry decontamination
 - Any absorbent material (e.g., wound dressing)
 - Effective for liquid contamination; may not be effective against solid

ASPIRE

- **Algorithm Suggesting Proportionate Incident Response Engagement**
- Decision-aid tool for patient decontamination
- Model requires three user inputs:
 - Identity of chemical
 - If chemical unknown, estimate of volatility
 - Time from initial exposure
- <https://chemm.hhs.gov/aspire>



The screenshot displays the CHEMM (Chemical Hazards Emergency Medical Management) website. At the top, it features the U.S. Department of Health & Human Services logo and the CHEMM title. Below the title is a navigation menu with links for CHEMM Home, About CHEMM, Site Map, and Contact Us, along with a search bar. The main content area includes a breadcrumb trail: "You are here: Home > ASPIRE - Beta". The heading reads "ASPIRE, a decision-aided tool for PRISM - Beta". The text describes ASPIRE as a prototype decision-aiding tool developed by experts in medicine and emergency response to help identify the need for patients exposed to chemical agents to undertake wet decontamination. It also includes a feedback request: "Feedback is welcome and encouraged. Please contact the ASPIRE development team if you would like to offer comments about ASPIRE or encounter any issues with the tool." A link for "Full PRISM Guidance" is provided. At the bottom, there is a form field asking "How long ago in minutes were the casualties exposed?" with a value of "0" entered, and the text "Exposure occurred 0 minutes ago." A 3D cube logo with green, red, and blue faces is visible on the right side of the page.

Poison Control

- Expert advice for
 - General public
 - Health care providers
- Can play a role in incident response
 - Incident recognition
 - Treatment guidance
 - Communication among response partners and with public
 - Medical countermeasure availability

- Available 24/7/365 @ 1-800-222-1222

Medical Countermeasures

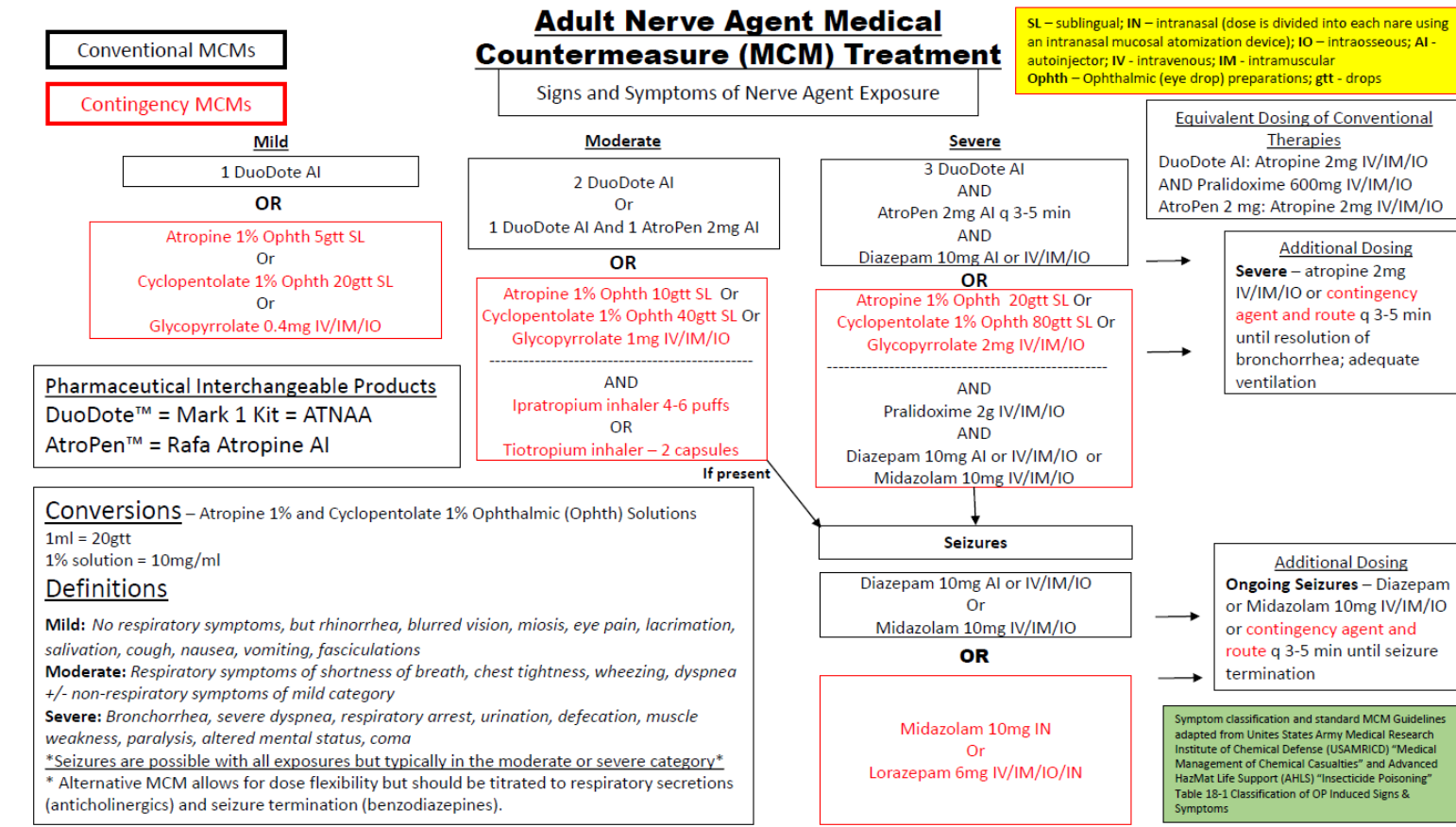
- Medical countermeasures (MCM) may become scarce
- Plan ahead
 - Does your facility maintain a cache, what's in it, and how is it accessed?
 - What steps will you take if your facility needs additional MCMs?
- CHEMPACK Program
 - Provides, monitors, and maintains a nationwide program for the forward placement of nerve agent antidotes
 - Provides state and local governments a sustainable resource
 - Improves state and local capabilities to respond quickly to a nerve agent incident
 - Every state participates
 - Does your facility have a protocol for accessing CHEMPACK?

Contingency Medical Countermeasures

- What else might be effective instead of the recommended treatment?

- Finding alternative MCMs
- Adapting protocols
- Just-in-Time training

- Adult and pediatric nerve agent treatment guidelines available at <https://chemm.hhs.gov>



Additional Considerations

- Time matters: rapid decisions and actions can save lives and reduce injuries
- Psychological first aid for patients and their families
- Plan and train with response partners

Resources

- Chemical Hazards Emergency Medical Management (CHEMM)
 - <https://chemm.hhs.gov>
- ASPR Technical Resources, Assistance Center, and Information Exchange (TRACIE)
 - <https://asprtracie.hhs.gov>
- Primary Response Incident Scene Management (PRISM) patient decontamination guidance
 - <https://medicalcountermeasures.gov/barda/cbrn/prism/>
- CDC Chemical Emergencies webpage
 - <https://www.cdc.gov/chemicalemergencies>
- FEMA Center for Domestic Preparedness
 - <https://cdp.dhs.gov>

Contact Information

Susan M. Cibulsky, PhD
Senior Policy Analyst, Strategy Division
Administration for Strategic Preparedness and Response
US Department of Health and Human Services
susan.cibulsky@hhs.gov
<https://aspr.hhs.gov>

Brian Pomodoro
Disaster Response Educator
South Shore Health Systems



Questions



Thank you!



Region1RDHRS@mgh.harvard.edu

MGHBRT@partners.org



www.rdhhs.org

www.massgeneral.org/disaster-medicine



[@Region1RDHRS](https://twitter.com/Region1RDHRS)

[@MGHDisasterMed](https://twitter.com/MGHDisasterMed)

