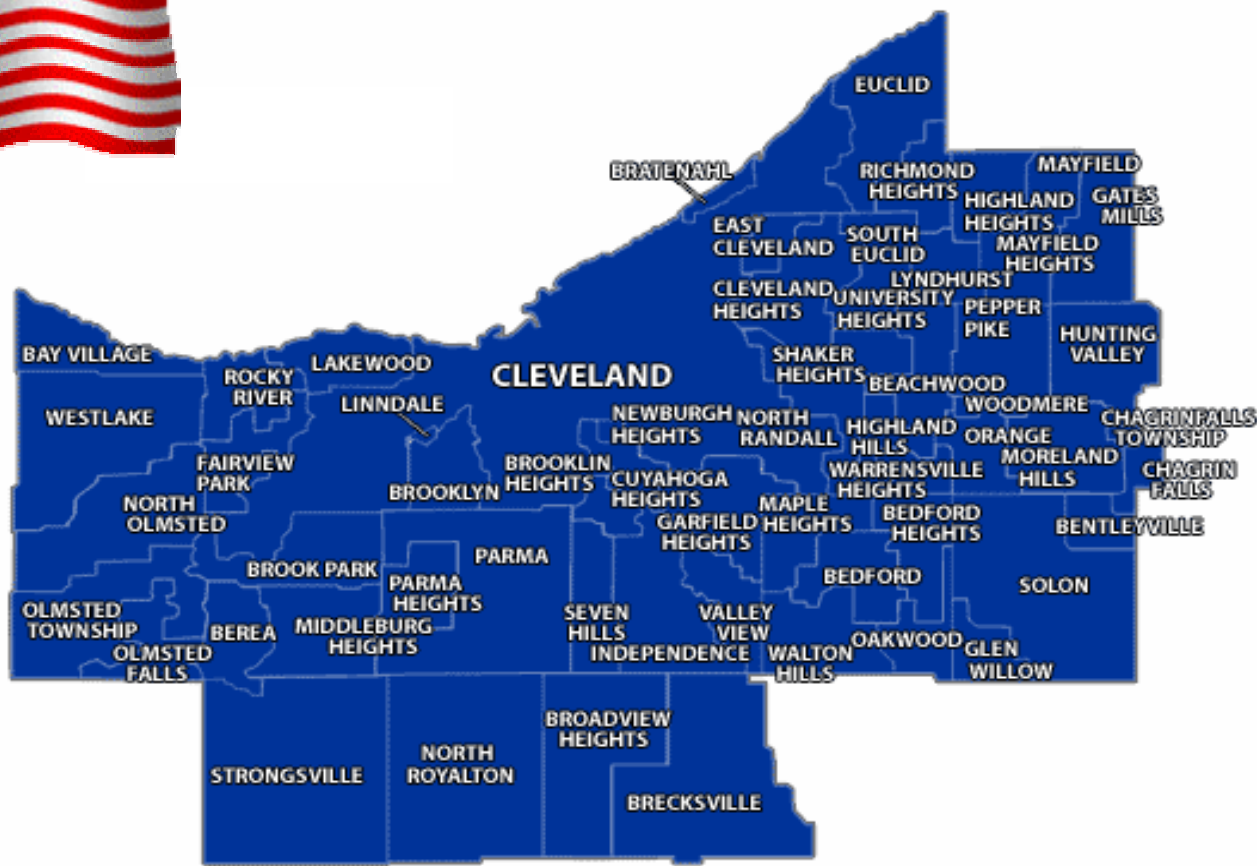


MARK 1 Nerve Agent Antidote Kit Training

Cuyahoga County, Ohio



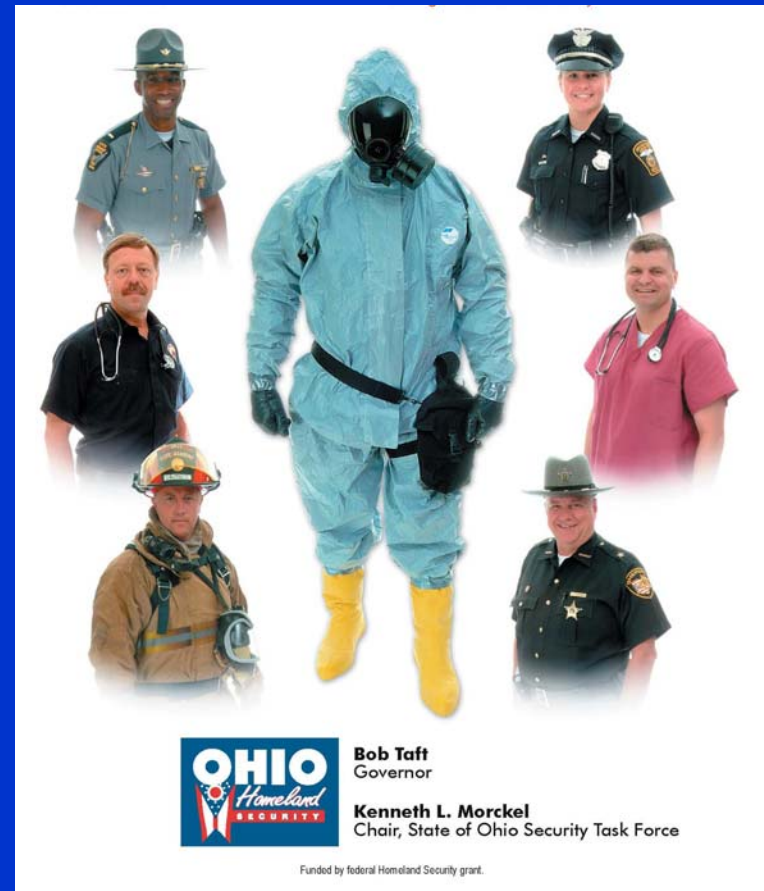
Purpose and Objectives

- With the global threat of terrorism, it is possible that nerve agents may be used in a terrorist attack in the U.S.



Nerve Agent Training

- Assumes that students have already completed Hazmat/WMD Operations Level Training
- Consists of:
 - Classroom Information
 - Demonstration of the MARK 1 Trainer
 - Quiz

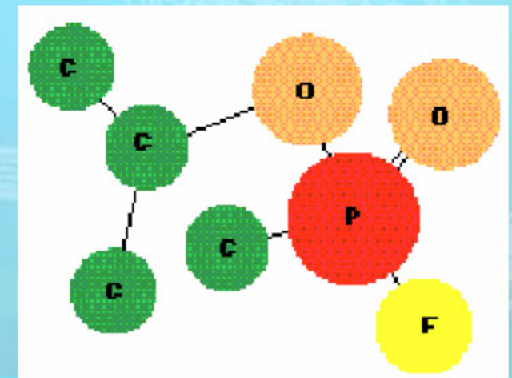


Nerve Agent Poisoning

- What is nerve agent?
 - Very potent pesticide for humans
 - First developed in Germany in WWII
 - Extremely toxic organophosphate poison
 - Attacks the nervous system and interferes with chemicals that control nerves, muscles and glands
- Routes of entry?
 - Inhalation and skin contact (absorption)
 - Ingestion

NERVE AGENTS

GA (Tabun)
GB (Sarin)
GD (Soman)
GF
VX



Molecular model of Sarin:
Courtesy of Offie E. Clark, US Army Medical Research
Institute of Chemical Defense, Aberdeen, Md.

Purpose and Objectives

- First responders will be called to these scenes to provide medical care, therefore they should be able to:
 - Recognize the signs of a terrorist attack
 - Take action to protect themselves and others
 - Establish hazard control zones
 - Perform emergency decontamination of contaminated patients
 - Identify the signs and symptoms of nerve agent poisoning
 - Provide medical care and appropriate medications for those patients with symptoms
 - Notify appropriate hospital facilities
 - Triage and transport patients to appropriate hospitals



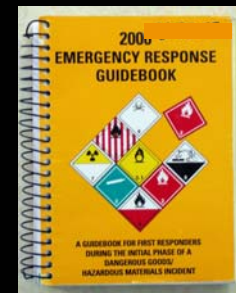
Signs of a Terrorist Attack

- Target population or location
- Mass casualties or mass illness
- Mass fatalities
- Unusual smells or tastes
- Unusual vapor or gases
- Prior threats
- Suspicious persons
- Unexplained pools of liquid
- Patterns of injury

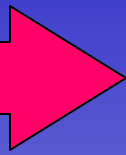


Protective Action

- Move away from the source
- Notify Dispatch and other responders
- Request assistance from police, fire, hazmat
- Establish control zones
- Be alert for secondary devices
- Seek emergency decontamination if contaminated
- Insure that those leaving the area are decontaminated, if contaminated
- Protect your skin and respiratory system with PPE



Wind Direction



Control Zones

Cold Zone


- Staging
- Command Post
- Med/Rehab

Warm Zone

Access Corridor

Decon Area

Warm Zone



HOT ZONE

Downwind Protective Action Area

Administration of Antidote

- Emergency Responders with symptoms and kits can administer NAAK to themselves or buddies and then leave the area to be decontaminated
 - NAAK can be administered through clothing
- **However...** Civilian patients should be rapidly evacuated, decontaminated, and then be provided with medical care
 - NAAK based upon symptoms



Can First Responders Do Decon!

- If it can be done safely!
- Contaminated live victims should receive immediate emergency decon.



**Live Patients Can't Wait for
Technical Decon to Arrive!**

Emergency Gross Decon

- Ambulatory Patients Should Receive Directed Self-Decon
- Use low pressure water
- Remove Clothing - 80% of contaminant is on clothing
- Avoid overspray & splashing
- Control Runoff, if possible. If not, then grassy area.



Wet
Strip
Flush
Cover

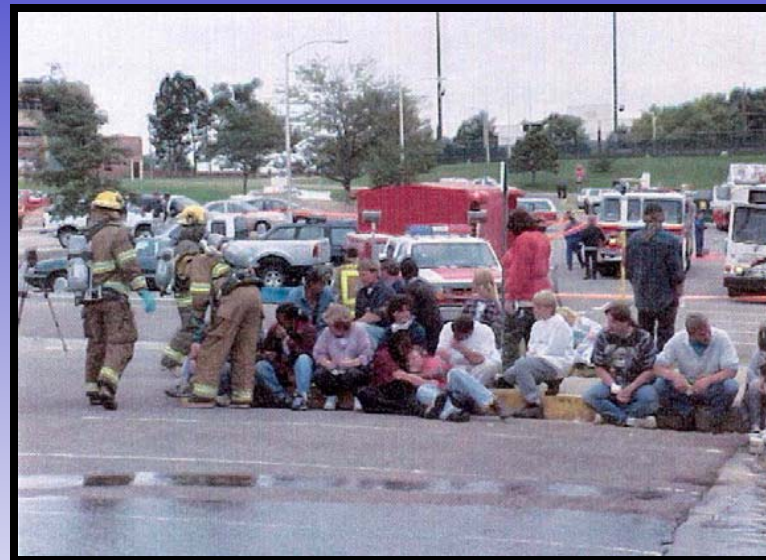
Transport

- Always provide Gross Decon before Transport
- Minimize Secondary Respiratory Threat
- DO NOT cover doors and windows
- Open Windows, Vents and Exhaust to Exchange Air



**BE SURE TO
NOTIFY THE
HOSPITAL IN
ADVANCE!**

Emergency vs. Mass Decon

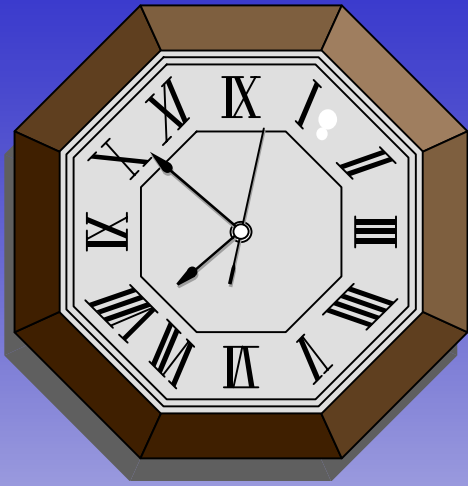


**Mass Decon is Emergency
Decon for More People!**

Main Purposes of Mass Decontamination

- Remove chemical agent from *CONTAMINATED* victims
- Protect response and medical personnel
- Limit spread of contamination





Time is Critical!

- Use the fastest approach
- That will cause the least harm
- And do the most good
- For the majority of the people!

Mass Casualty Decon

General Principles

- Expect at least a 5:1 ratio of unaffected to affected casualties
- Decontaminate victims as soon as possible
- Disrobing (head to toe) is decontamination, more removal is better

Mass Casualty Decon

General Principles

- Water flushing generally is the best mass decon method
- After a known exposure to a chemical agent, emergency responders also need to be decontaminated, as soon as possible.

Phases of Mass Casualty Decontamination

- Collection and Assessment of Victims
- Decontamination of Victims
- Post-Decontamination

Collection and Assessment

- Triage Patients
 - Symptomatic
 - Non-Symptomatic
- If actual exposure appears to be unlikely or unknown, and no one is exhibiting symptoms, defer decon pending investigation and observation



“Contamination” Triage

- Patients with symptoms get decon'd first
- Patients with liquid on clothing and no symptoms get decon'd second
- All others who are non-symptomatic but who MAY have been exposed are decon'd last



Mass Decontamination



Decon is conducted using large volumes of low pressure water

Mass Decon Solutions



- Water Alone
- Soap & Water

•The specific solution is NOT as important as SPEED.

•Water is recommended.

•Never delay to obtain soap.

Improvised Mass Decon



Emergency Decon Hose line

- Ambulatory Victims

- Communicate directions
- Disrobe
- Arms out / legs apart
- Top down wash



Use Fog Streams

Emergency Decon Corridor

- Side by side pumpers
- Passenger sides together
- Fog nozzles on side discharges
- Wide fog pattern
- Low Pressure (60-90)
- High Volume



Emergency Decon Corridor

- Disrobe as much as possible
- Walk-thru slowly
- Get as wet as possible



Ladder Pipe Decon System (LDS)

- At least one ladder pipe on wide fog pattern
- More Streams, If Possible
- High Volume
- Low Pressure (60-90)
- As many directions as possible



Post Decon Care & Assessment / Treatment

- Provide cover
 - Disposable clothing / ponchos
 - Sheets or blankets
 - Later in 2005 – 10 Clothing Kits per EMS Unit and Fire Truck, plus caches east, west and downtown
- Establish Mass Casualty Triage, Treatment, and Transport Area
- Assess Medical Needs of Patient
- Transport to Hospitals

