

TRIAGE



TRIAGE and FIELD MANAGEMENT

**U.S. ARMY MEDICAL RESEARCH INSTITUTE OF CHEMICAL DEFENSE
CHEMICAL CASUALTY CARE OFFICE**

USAMRIID

Objectives

- Describe components of Casualty Decon Site
- Discuss some principles of decontamination
- Define triage
- Discuss the role of Triage Officer
- Review categories of triage
- Identify the triage category of a chemical casualty given the agent and severity of exposure

Contaminated Casualty Management

Arrival point

Triage points (dirty / clean)

Emergency-Medical-Treatment point

Casualty decontamination areas

- **Litter & Ambulatory Decon**

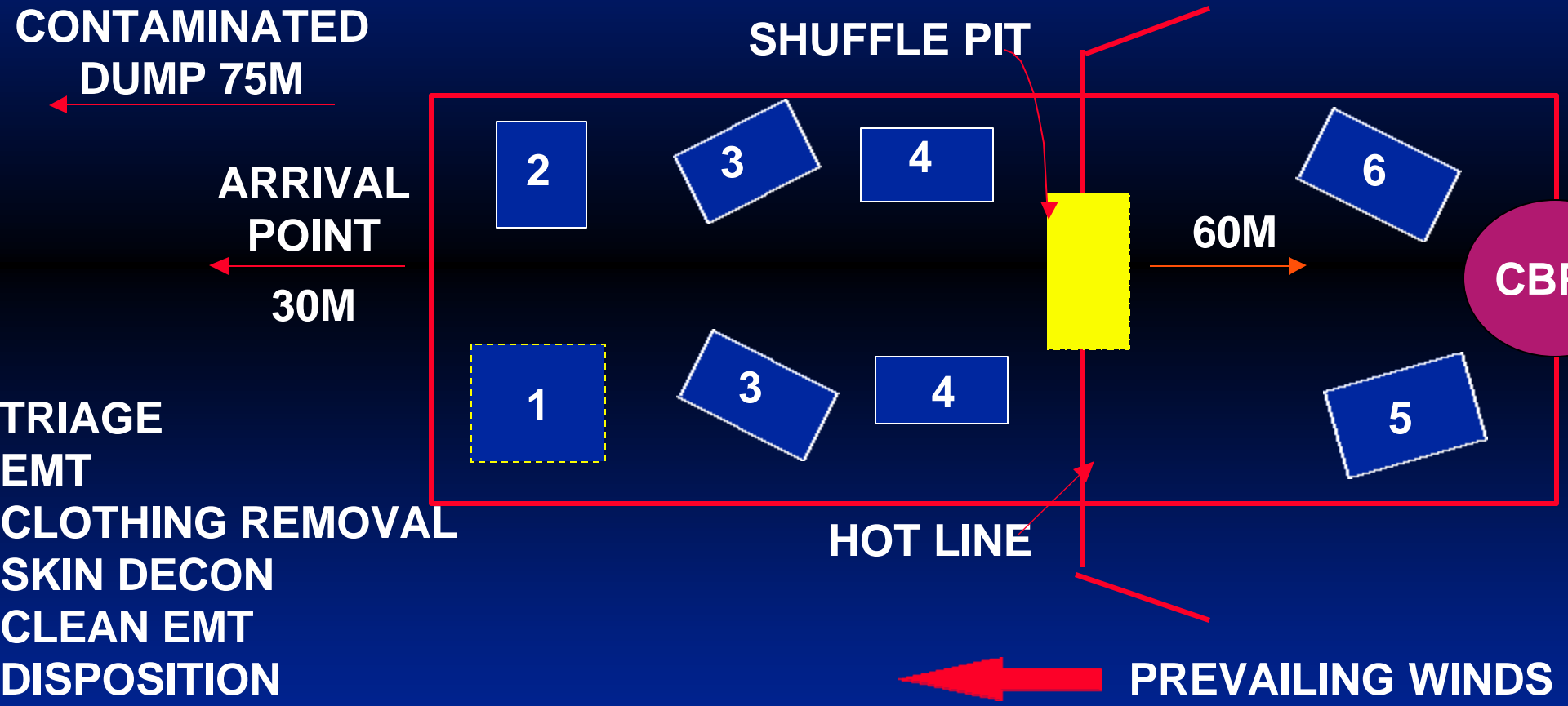
Hot Line

Clean Treatment Area

Disposition areas (dirty / clean)

TRIAGE

Casualty Decontamination Site



Contaminated Dump

Purpose

- Temporary storage of contaminated clothing and equipment

Location

- 75M downwind of decon site

Identification

- Markers from NATO NBC kit
- Report of location and type of dump to HQ

Arrival Point

- **Purpose**
 - Initial reception for potentially contaminated casualties
 - patient checked for contamination
- **Location**
 - Close to triage point and EMT point
 - Arrival, Triage and EMT point may be co-located
- **Staffing**
 - Personnel in MOPP4

Triage Point

- **Purpose**
 - Rapid initial assessment of patients to determine further disposition
 - Remove LBE, weapons from casualties
- **Location**
 - Close to Arrival point and EMT point
 - Retriage on clean side
- **Staffing**
 - Senior medic, litter team in MOPP 4

EMT Point

- **Purpose**
 - lifesaving emergency treatment (ABCs)
 - spot decontamination
- **Location**
 - upwind of Triage point
- **Staffing**
 - Medic(s) in MOPP4
- **Capabilities**
 - Limited BLS interventions

Litter Casualty Decontamination

Purpose

- Decon of **STABLE**, nonambulatory (litter) patients

Location

- Between Triage Point & Hot Line

Staffing

- Medic (if possible) for supervision
- 2-4 nonmedical augmentees
in MOPP4 with butyl rubber apron

Ambulatory Casualty Decon

- **Purpose**
 - Decontamination of ambulatory patients
- **Location**
 - Parallel to litter decon line
 - May use unit personnel decon station (PDS)
- **Activities**
 - Buddy system for decon and clothing removal
 - Minimal or no assistance from medic

Hot Line

Purpose

- Delineates area of potential liquid agent hazard
- Downwind of line = liquid hazard
- Upwind of line (30-60M) = continued vapor hazard

Location

- Between decon & clean TX areas

Activities at shuffle pit

- Evaluate completeness of decon
- Litter-exchange point
- Field Medical Card rewritten

Clean Treatment Area

Purpose

- Definitive medical treatment

Location

- 60m upwind of Hot Line

Staff

- Physician, PA, medics
- MOPP 0, collective protection

Activities

- Retriage of patients from dirty area
- Prep for disposition (evacuation, return to duty)

Disposition Area

- **Purpose**
 - Exit point from MTF for evacuation or return to duty
- **Location**
 - In the clean and dirty area
- **Activities**
 - Departure of treated casualties
 - Resupply point
 - Medical records/PAD initiated
 - Possible break area for unit personnel

Resources

- Limited at BAS
 - ventilation support equipment
 - decontamination supplies
 - decontamination personnel
- Higher echelons: more resources

Casualty Decon Issues

- **Augmentees**
 - Assignment and availability
 - Training
- **Logistics**
 - Replacement masks and clothing
 - Water and bleach
- **Environment**
 - Heat stress, protection from cold
 - Changing winds
- **Time**

Mechanical / Physical Decon

Physical removal is BEST

Wiping

- May smear agent over unexposed areas
- May drive agent into skin or wounds

Adsorption

- Resins from M291 kit
- Fuller's earth, clay, flour, etc.
- Must be followed by mechanical removal

Flushing with water or aqueous solutions

- May splash, drive agent into skin or wounds

Chemical Methods

- **Water / Soap wash**
 - physical removal + dilution + SLOW hydrolysis
- **Oxidative Chlorination**
 - hypochlorite solution (BLEACH)
 - 0.5% for skin 5% for equipment
 - sulfur atoms in VX, HD attacked
 - increasing pH = increasing effectiveness

Chemical Methods

- **Alkaline Hydrolysis**
 - OH ion attacks PO₄ atoms in nerve agents
 - rate increases in solution > pH 8
 - rate increases 4X for each 10 degree C increase
 - hypochlorite, ammonia, NaOH solutions

Wound Decontamination

- **Low risk to surgeon from liquid in wound**
 - nerve agent / mustard react rapidly with tissues
 - large amount of NA in wound not survivable
- **Standard irrigation and debridement OK**
- **Foreign material in wound**
 - porous material acts as agent depot
 - risk to casualty and medical personnel
 - remove with no-touch technique

DEFINITION of TRIAGE

- Triage (Webster): A system designed to produce the **greatest** benefit from **limited** treatment facilities for battlefield casualties by giving treatment to those who may survive with proper treatment and NOT to those who have **no chance** of survival or those who **will survive** without it.

DEFINITION

- Simple Version: If treating one will cost the lives of two, then let the one die and treat the two.
- Used whenever demand exceeds resources

When is Triage Done?

At each echelon of care

Repeated PRN with changes in status of:

- casualty
- workload
- resources

Before and after casualty decontamination

Types of Sorting

- **Treatment**
 - **D**elayed, **I**mmEDIATE, **M**inimal, **E**xpectant
- **Evacuation (priorities)**
 - **urgent** - within 2 hours
 - **priority** - within 4 hours
 - **routine** - within 24 hours
- **Decontamination**

Triage Officer Must Know

- **Nature of injury, prognosis**
- **Resources available**
 - MTF personnel, capabilities
 - evac and resupply assets
 - status of decon lane
- **Patient load**
 - present
 - anticipated

TRIAGE OFFICER

Conventional

- senior surgeon
- most experienced in trauma care

Contaminated Casualties

- senior medic
- PA
- RN
- dentist

CASUALTY TYPES

- Conventional
- Chemical, biological, nuclear
- Mixed: NBC and Conventional
- Psychological
- Physiological
- Malingering
- Any combination

MIXED CASUALTY

- Nerve Agent + Conventional
- ABCs
- Administer antidote
- If casualty responds to antidote:
 - Re-triage according to conventional injury
 - with consideration of chemical injury

Assessing Contaminated Casualties

- Casualty in MOPP
- Health care provider in MOPP
- Assessment skills of limited use

Categories (NATO)

- Urgent
- Immediate
- Delayed
- Minimal
- Expectant

IMMEDIATE

Needs IMMEDIATE intervention to save life.

- **BRIEF INTERVENTION**

Airway, **B**reathing, **C**irculation

Drugs (MARK I),

Decontamination (spot)

DELAYED

- Care IS needed
- NOT immediately
- Delay in care will not change outcome

MINIMAL

- Minor injury
- Quick fix
- Does not require physician
- No evacuation
- Return to duty shortly

EXPECTANT

- Survival unlikely even with optimal resources
- Care exceeds available resources
- Not a justified expense of limited resources

Common Times of Death

- Nerve Agents < 30 min
- Cyanide < 30 min
- Phosgene < 24 hours
- Mustard 4 to 12 days

NERVE AGENT

Immediate

- Symptoms in 2 or more organ systems
 - airway, GI, muscular
 - NOT including miosis, rhinorrhea
- Unconscious, apneic with heartbeat

NERVE AGENT

Delayed

- recovering from moderate / severe exposure

Minimal

- walking and talking
- assess effect of miosis on duty

Expectant

- no heartbeat (resource dependent)

VESICANTS

- **Immediate**
 - acute airway problem (resource dependent)
- **Delayed**
 - skin burn $> 5\%$ but $< 50\%$ BSA
 - moderate - severe eye involvement
 - pulmonary sx, onset > 4 hr post-exposure

VESICANTS

- **Minimal**
 - skin burn < 5% BSA (non-critical area)
 - minor eye irritation
- **Expectant**
 - liquid burn > 50% BSA
 - pulmonary sx, onset < 4 hr post-exposure

PULMONARY AGENTS

- **Immediate**
 - acute airway problem (resource dependent)
- **Delayed (for treatment)**
 - onset of symptoms > 4 hr post-exposure
- **Expectant**
 - onset of symptoms < 4 hr post-exposure
 - resource dependent

CYANIDE

- **Immediate**
 - Unconscious, apneic, with heartbeat
- **Expectant**
 - No circulation
- **Minimal or Delayed**
 - Survival >15 minutes post vapor exposure

INCAPACITATING AGENTS

- **Immediate (unlikely)**
 - Cardiorespiratory compromise, hyperthermia
- **Delayed**
 - Severe, worsening signs/symptoms
- **Minimal**
 - Mild effects
- **Expectant (unlikely)**
 - Cardiorespiratory compromise, ltd resources