

## Chapter 9

# FIELD MANAGEMENT AND TRIAGE OF CONTAMINATED CASUALTIES ON THE INTEGRATED BATTLEFIELD

### Preparedness

Providing timely and proper casualty management on the contaminated battlefield must begin with preparations long before deployment. Individual unit members must be trained to correctly identify chemical agent exposure based on signs or symptoms and to correctly perform self-aid, buddy aid, and decontamination. All care providers must be thoroughly trained and prepared to carry out the following elements of casualty management:

- Correct identification of chemical agents based on observed signs or symptoms experienced by the casualty.
- Complete understanding of the severity of exposure based on signs and symptoms.
- Correct identification of routes of entry of the agent and method of exposure (from liquid and/or vapor) based on signs and symptoms.
- Proper triage of chemical casualties or mixed conventionally wounded and chemically contaminated in mass casualty situations.
- Correct treatment of casualties in response to symptoms, proper use of antidotes, and other supportive care that may be required during or after initial treatment (eg, assisted ventilation or airway suction).

- Complete understanding of the various casualty types that can be encountered on the contaminated battlefield.
- Complete understanding of ambulatory and litter casualty decontamination operations at the medical treatment facility (MTF).
- Identification of personnel limitations and equipment shortfalls in support of casualty decontamination and treatment.
- Understanding of the impact of contaminated and decontaminated casualties on evacuation operations.

Once in the field, the care provider must be aware of additional elements that impact contaminated casualty management operations, including the following:

- Current enemy chemical capabilities including means of deployment (eg, artillery, rockets, or spray), and their anticipated use.
- Tactical intelligence gathered after any verified enemy use of chemical agents.
- Current protective posture of the unit and how vigorously it is maintained.
- Current status of unit and individual chemical defense readiness.
- Morale of unit members and their confidence both in the unit and in each other.
- Complete understanding of current and near-term combat operations.

All of these elements, when considered together, allow the care provider to take a proactive readiness posture for casualty management operations on the contaminated battlefield. The rest of the chapter will expand on these elements.

## **Training**

Medical personnel and nonmedical augmentees who are involved in the casualty decontamination effort must be trained and show proficiency in the following tasks:

- Drink from a canteen while wearing the protective mask.
- Recognize signs or symptoms of heat injury.
- Identify liquid chemical agents using M8 Chemical Detector Paper.
- Detect chemical agents using M9 Chemical Agent Detector Paper.
- Evaluate a casualty.
- Prepare decontamination solutions for patient decontamination operations.
- Recognize signs and symptoms of chemical exposure.
- Administer nerve agent antidote to self (self-aid).
- Administer nerve agent antidote and CANA (Convulsive Antidote, Nerve Agent) to buddy (buddy aid).
- Transport litter casualties using both two-person and four-person litter carries.
- Conduct casualty litter exchange using the log-roll method.
- Remove litter casualty's contaminated clothing.
- Perform skin decontamination on litter casualties.
- Operate the Improved Chemical Agent Monitor (ICAM).
- Perform wound or injury management during litter and ambulatory patient decontamination.
- Remove ambulatory casualty's contaminated clothing.
- Monitor patients for residual contamination after completion of decontamination process.
- Prepare the M22 Automatic Chemical Agent Detection Alarm (ACADA) or Joint Chemical Agent Detector (JCAD) for operation.
- Operate the M22 ACADA or JCAD to monitor the clean treatment area and the MTF.
- Operate the M256A1 Chemical Agent Detector Kit.
- Conduct unmasking procedures using the M256A1 Chemical Agent Detector Kit.
- Decontaminate open wounds.
- Describe and perform emergency medical treatment required to stabilize a casualty for decontamination.
- Identify triage requirements based on signs or symptoms.
- Transcribe the patient field medical card at the hot line and shuffle pit.
- Perform collective protection shelter exit and entrance procedures.

- Perform mission-oriented protective posture (MOPP) gear exchange.

**NOTE:** *This list is a suggested training guide to support thorough patient decontamination operations. The list has a variety of tasks including some that are specifically medical. All staff at a patient decontamination station should be familiar with all individual and collective tasks associated with patient decontamination operations.*

## Exposure History

Once an incident occurs, the care provider must determine the exposure history. The care provider will encounter seven general categories of casualties on the contaminated battlefield:

1. exposed and contaminated;
2. exposed and not contaminated;
3. conventionally wounded, exposed, and contaminated;
4. conventionally wounded, exposed, and not contaminated;
5. conventionally wounded, not exposed, and contaminated;
6. conventionally wounded, not exposed, and not contaminated;  
and
7. psychological (worried well).

The care provider must be aware of the various factors influencing production of these types of casualty. Understanding the circumstances that produced the casualty will help the care provider in the casualty's triage, treatment, and evacuation. Questions to ask about these factors are as follows:

1. What was the unit's protective posture at the time of exposure?
2. Was the encounter a result of movement through chemical contamination or a result of direct attack on the unit?
3. Was a movement through the chemical contamination deliberate or unintentional?
4. Was the unit in contact with enemy forces at the time of the encounter?
5. Did the unit encounter chemical agents in vapor form only, liquid form, or a combination of both?
6. Has the unit's chemical survey team verified the agent?

An important informational link between exposure and treatment at the MTF is the history surrounding the exposure, the soldier's activities since the exposure, and the progression of symptoms. The following questions will be helpful:

### *At Time of Exposure*

- Did the M9 Chemical Detector Paper react?
- Was the agent verified in liquid or vapor or a combination of both?
- How was the agent identified and verified?
- What decontamination actions occurred and when did they occur in relation to the time of detection (eg, skin decontamination, eye flushing)?
- What level of MOPP was the casualty wearing at the time of exposure?
- If MOPP was not used, did the casualty don individual protective equipment over his or her exposed battle uniform?
- What was the unit's exposure time in the contaminated environment?

### *After Onset of Symptoms*

- Were Antidote Treatment Nerve Agent Autoinjector (ATNAAs) or CANA (diazepam) used, and if so, when in relation to the onset of symptoms?
- Has the soldier been taking the nerve agent pretreatment pill? How many, and when was the last one taken?
- What symptoms has the casualty experienced?
- How long since the last onset of symptoms?
- What activities has the individual engaged in since the initial exposure?
- What was the casualty doing when the symptoms began?
- What level of MOPP was the casualty in when symptoms began?

Knowing the soldier's protective posture at the time of exposure, the time taken to react to the exposure, and the actions taken by the soldier in response to the exposure will assist the triage effort and subsequent treatment effort at the MTF. Obtaining as

complete a history as possible, coupled with unit chemical survey data, will enhance these efforts. Providing too much information on the field medical card is far better than not providing enough.

## **Casualty Evaluation**

The proper management of casualties must begin with an in-depth understanding of the various types of casualties and the specific treatment requirements of each. When the care provider is confronted with one or more casualties on the contaminated battlefield, a deliberate decision-making process must begin. Taking deliberate steps to evaluate the casualty, regardless of condition, will allow him or her to be triaged into the correct category. This, in turn, will optimize the casualty's care and chance of eventual return to duty.

At times, the medic will need to decide which course of action to follow. The deciding factor will always be to treat the condition that poses the most immediate threat to life, limb and eyesight. The most critical step of the decision-making process is triage.

Triage is defined as the classification of casualties according to type and seriousness of injury. Effective triage allows orderly, timely, and efficient use of medical resources. Triage is necessary during a mass casualty situation or when the casualty load overwhelms medical resources, and there is a need to sort and prioritize casualties for care. When the number of casualties does not overwhelm medical resources, triage is not necessary.

During a mass casualty situation, the goal is to provide the best care for the most casualties, without wasting time or resources. Ideally, care would be provided first to those who are in immediate danger of dying because of their wounds and have the best chance of survival. Triage means assigning medical priority for treatment to the casualty, not assigning priority for decontamination.

### ***Surveying the Chemical Casualty***

Chemical casualties may have conventional wounds in addition to agent exposure, and standard guidelines for the initial survey of a casualty must also be followed. These guidelines should be discussed with the unit's medical officer and modified accordingly. Guidelines for surveying a chemical casualty, performed prior to triage, are provided below.

- Look for any field medical card that was initiated.
- Look for empty antidote autoinjectors attached to overgarment.
- Question the casualty's buddy regarding the following:
  - type of agent and how it was identified,
  - initial signs and symptoms,
  - conventional wounds noted,
  - buddy aid rendered,
  - any other prior treatment for suspected chemical exposure and conventional wounds, and
  - use of nerve agent pretreatment drug (pyridostigmine).
- Observe the casualty's protective clothing and equipment for signs of liquid chemical contamination.
- Survey casualty for conventional injuries.
- Survey casualty for continued signs and symptoms of chemical agent poisoning.
- Determine whether or not the casualty can respond to a command:
  - ask the casualty to describe signs and symptoms, and
  - observe whether or not the casualty responds in an orderly fashion when following simple directions. Suspect shock or central nervous system involvement if he or she cannot respond properly.
- Observe the casualty for the following symptoms:
  - sweating through the overgarment or on exposed skin (indicating a skin exposure to liquid nerve agent),
  - labored breathing,
  - coughing, or
  - vomiting.
- Check the casualty's pulse by placing your fingers on the carotid artery. This may be done through the hood; however, if no aerosolized agent remains in the air, don the tactile chemical protective gloves, decontaminate both the gloves and the skin on the neck, and reach under the hood and feel for the pulse on bare skin.
- Check for pupil reactivity by covering the eye lens with gloved hands, then uncovering them and observing for pupil reaction.

When this survey is completed, begin triage.

## ***Triage Categories***

Triage categories are immediate, delayed, minimal, and expectant. In chemical, biological, radiological, or nuclear (CBRN) mass casualty situations, the magnitude of the casualty situation necessitates that the conventional treatment priorities be modified. This means a radical departure from the traditional practice of providing early complete essential treatment to each casualty on the basis of individual needs. In these mass casualty situations, using priorities designed to provide the greatest benefit for the largest number of patients without wasting specialist skill and medical resources, the following system of triage is used.

### ***Immediate***

This category includes those requiring emergency lifesaving or limb-saving surgery. These procedures should not be time consuming and should involve only those casualties with high chances of survival (eg, cases of respiratory obstruction, accessible hemorrhage, and emergency amputation). Examples of immediate casualties are provided below.

- Casualties who are not displaying signs and symptoms of chemical agent exposure but have a life-threatening conventional injury (eg, gross external bleeding, sucking chest wound, flail chest, airway obstruction, or tension pneumothorax).
- Severe nerve agent casualties with or without conventional wounds, including those who have labored breathing, those who recently stopped breathing but still have adequate circulation (a good blood pressure), and those who are convulsing or have convulsed.
- Casualties of cyanide poisoning who are gasping or have just stopped breathing but still have adequate circulation.
- Casualties in respiratory distress from phosgene, a phosgene-like substance, or a vesicant. The care required for these casualties exceeds that available at forward care facilities. These patients should be triaged as immediate only if they can be quickly evacuated to a Role 3 or higher MTF for intensive care.

### ***Delayed***

This category includes those who need time-consuming major surgery or resuscitation, but whose general condition permits delay in treatment without unduly endangering life (eg, large muscle wounds; fractures of major bones; intraabdominal, thoracic, head, or spinal injuries; uncomplicated major burns; and some incapacitating effects of CBRN agents). To mitigate the effects of delays in surgery or other treatment, sustaining treatment such as stabilizing intravenous fluids, splinting, administering antibiotics, catheterizations, gastric decompression, pain relief, and pharmacological and respiratory support for the effects of CBRN agents is required.

### ***Minimal***

This category includes those with relatively minor injuries who can effectively care for themselves or who can be helped by untrained personnel (eg, minor lacerations, abrasions, fractures of small bones, minor burns, and nonincapacitating effects of CBRN agents). Examples are as follows:

- Casualties with moderate to mild nerve agent poisoning who have taken the antidote, are recovering, and are not in distress.
- Casualties who have minor conventional wounds.
- Blister agent casualties with a small amount of erythema or a few small blisters in noncritical areas.

### ***Expectant***

This category includes casualties who have received serious and often multiple injuries, whose treatment would be time-consuming and complicated, and who have a low chance of survival (eg, severe multiple injuries, severe head or spinal injuries, large doses of radiation, widespread severe burns, and intractable central nervous system or respiratory effects of CBRN agents). If fully treated, these casualties make heavy demands on medical personnel and supplies. Until the mass casualty situation is under control, these patients should receive supportive care according to available staffing and resources. Continued efforts

to ensure their comfort by use of appropriate doses of narcotic analgesics and to retriage as more resources become available are vital to managing these patients. These casualties should not be abandoned, and every effort should be devoted to their comfort.

### ***Moving Casualties Through the Patient Decontamination Site***

Casualties are moved through the decontamination site based on priorities for treatment.

- **Immediate** casualties are transferred to the warm side emergency medical treatment area for stabilization. After stabilization, these casualties are taken to the litter patient decontamination area.
- **Delayed** casualties may require treatment in the clean treatment area before evacuation. If they need treatment, they are sent to the ambulatory or litter decontamination line. If they do not need treatment in this area, they are sent directly to the evacuation holding area.
- **Minimal** casualties may receive treatment in the clean treatment area or the contaminated emergency treatment area. If they can be treated in the contaminated emergency treatment area and they have no break in their chemical protective overgarment, they will return to duty from this area. If they require treatment in the clean treatment area, they will be sent to one of the decontamination areas before entry into the clean treatment area.
- **Expectant** casualties will be transferred to designated contaminated holding areas.