

APPENDIX J

MASS CASUALTY SITUATIONS**J-1. General**

Mass casualty situations occur when the number of casualties exceeds the available medical capability to rapidly treat and evacuate them. In disaster relief operations and in the aftermath of terrorist incidents, mass casualty situations frequently occur. For example, a disaster that destroys a significant amount of property may result in a mass casualty situation even though the number of injured is relatively low. By destroying a significant number of the medical assets within the community, those injured cannot obtain care locally and, therefore, overwhelm the remaining medical assets.

J-2. Mass Casualty Management

Mass casualty situations are normally chaotic—

- Victims are in various stages of pain and distress.
- Casualties may have single or multiple injuries, or may have conventional injuries which are complicated by NBC exposure (such as in a toxic spill or nuclear power plant accident).
- Casualties will range in age from infants to geriatric patients. Parents and loved ones may not want to be separated from the victim, even to permit the provision of medical care.
- Severity of medical conditions will vary from relatively minor injuries to severe, life-threatening trauma. Medical care provided may be complicated due to pre-existing medical conditions (disease, injury, or disability).
- New casualties will be arriving before the patients already on hand are treated.
- There may be personnel who are just dazed and wandering throughout the area disrupting operations.
- There may be uninjured persons looking for a family member, friend, or coworker; their search may be disruptive to the ongoing medical operation.

a. Planning. To ensure efficient management of mass casualty situations, the CHS planner must develop an effective plan and then rehearse it on a periodic schedule.

(1) In mass casualty situations, medical resources are scarce. The plan, therefore, must be comprehensive and efficiently use what medical resources are available.

(2) Planning considerations include—

- Establishing a control element to coordinate ongoing activities and release information updates.

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- Securing the area and limiting access to nonessential personnel.
- Establishing communications between areas within the facility or treatment areas.
- Establishing the triage, treatment, and holding areas.
- Establishing a traffic pattern that provides for the smooth flow of patients and vehicles.
- Marking routes to the different areas.
- Orienting all personnel (medical and nonmedical) operating the mass casualty station to the types of markings used, layout, and routes to be followed.
- Organizing medical personnel for staffing of the different areas.
- Organizing nonmedical personnel (such as from relief organizations) and volunteers for litter bearer duties, as messengers, for restocking supplies, and for other nonmedical functions.
- Ensuring an adequate blood supply and/or other Class VIII items are available or on order.
- Providing timely evacuation.

b. Rehearsal and Training.

(1) The response to a mass casualty situation must be rehearsed. By conducting rehearsals, unit personnel become familiar with where they should report and with what their duties should entail.

(2) Nonmedical personnel assigned to the unit should be trained in the proper techniques for loading, carrying, and unloading litters. This training will enhance their ability to perform the task by reducing fatigue and risk of injury from transporting patients incorrectly. (Refer to FM 8-10-6 for additional information.)

(3) In disaster relief operations, in response to terrorist incidents or in other mass casualty situations, the military unit may not be operating alone, but rather in conjunction with other relief agencies, humanitarian assistance organizations, and religious groups. Even though there would not be time to rehearse a mass casualty plan with the other agencies/organizations involved, the medical unit can rehearse a response to a typical mass casualty situation. This rehearsal will allow them to function more effectively and more easily incorporate and adapt to changes in the actual scenario.

J-3. Triage Categories

Triage is the medical sorting of patients according to the type and seriousness of injury, the likelihood of survival, and the establishment of priorities for treatment and evacuation. Triage ensures that medical

resources are used to provide care for the greatest benefit to the largest number of injured. Ideally, sufficient medical assets will be deployed to the operational site so that all victims can receive the required care in a timely manner. However, in the time immediately following the incident, this may not be possible. The triage process, therefore, is required.

a. Triage (or sorting) is the process of prioritizing or rank ordering trauma victims on the basis of their individual needs for surgical intervention. The likely outcome of the individual victim must be factored into the decision process prior to the commitment of limited medical resources. Victims are generally sorted into four categories (or priorities). These priority groupings are discussed in decreasing order of surgical urgency.

b The four categories of the triage of conventional injuries are—

(1) *IMMEDIATE*. This category is for the patient whose condition demands immediate, resuscitative treatment. An example of this treatment is the control of hemorrhage from an extremity. Generally, the procedures used are short in duration and economical in terms of medical resources.

(2) *DELAYED*. Victims in the *DELAYED* category can tolerate delay prior to operative intervention without unduly compromising the likelihood of a successful outcome. When medical resources are overwhelmed, victims in this category are held until the *IMMEDIATE* cases are cared for. An example is stable abdominal injuries with probable visceral involvement, but no significant hemorrhage. These cases may go unoperated for 8 to 10 hours, after which there is a direct relationship between time lapsed and the advent of complications. Other examples include—

- Soft tissue injuries requiring debridement.
- Maxillofacial injuries without airway compromise.
- Vascular injuries with adequate collateral circulation.
- Genitourinary tract disruption.
- Fractures requiring operative manipulation, debridement, and external fixation.
- Eye and central nervous system injuries.

(3) *MINIMAL (or AMBULATORY)*. This category is comprised of victims with injuries that are so superficial that they require no more than cleansing, minimal debridement under local anesthesia, administration of tetanus toxoid, and first-aid type dressings. They must be rapidly directed away from the triage area to uncongested areas where first aid is available. Examples include burns of less than 15 percent of the total body surface area (TBSA), with the exception of those involving the face, hands, and genitalia. Other examples include—

- Upper extremity fractures.

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- Sprains.
- Abrasions.
- Behavioral disorders or other obvious psychiatric disturbances.

(4) *EXPECTANT*. Victims in the *EXPECTANT* category have injuries that are so extensive that even if they were the sole casualty and had the benefit of optimal medical resources application, their survival would be very unlikely. During a mass casualty situation, this sort of patient would require an unjustifiable expenditure of limited resources that are more wisely applied to several other more salvageable victims. The *EXPECTANT* patients should be separated from the view of other victims; however, they should not be abandoned. Above all, one attempts to make them comfortable by whatever means necessary and provides attendance by a minimal but competent staff. Examples of this category include—

- Unresponsive patients with penetrating head injuries.
- High spinal cord injuries.
- Second- and third-degree burns in excess of 60 percent TBSA.
- Profound shock with multiple injuries.
- Agonal respiration.

J-4. Control Element

The key to the management of a mass casualty situation is control. To enhance the effectiveness of mass casualty operations, an on-site control element must be established to coordinate the various aspects of the support.

a. The treatment facility director (or if an MTF is working independently of other relief organizations, the MTF commander) designates the individuals who will staff the control element. This element is responsible for—

- Implementing the plan.
- Establishing security.
- Limiting access to the area.
- Monitoring ongoing activities.
- Providing informational updates as required.

b. Communications with the triage, treatment, and holding areas are essential to accomplish the coordination and control of ongoing activities. If telephone/radio communications are not available, a messenger system is employed using some of the volunteers or ambulatory patients for this function.

J-5. Establishing Triage, Treatment, and Holding Areas

Depending on the location of the mass casualty, the triage, treatment, and holding areas may be established in an existing hospital or clinic, an available shelter or field unit, or outdoors.

a. Using an Existing Hospital or Clinic.

(1) When an existing hospital or clinic is used, the triage area should afford easy access for incoming litter bearer teams, ground and air ambulances and other emergency vehicles, and nonmedical transportation assets (such as privately owned cars or company trucks). Sufficient space must be allocated for ambulance and ground vehicle turnaround to ensure a smooth traffic flow. Further, space is required for helicopter landing zones (LZs). Helicopter LZs must be available when planning or using an existing facility. Wire hazards and other obstructions must be considered when establishing safe LZs. These requirements are normally met with the established layout of hospital emergency rooms; however, some clinics may not normally receive patients transported by emergency vehicles (such as when established in an office building) and depending upon the number of victims being received, additional space may be required to accommodate the patient flow. Litter stands should be established (such as sawhorses supporting litters [when commercial equipment is not available]) for placing patients to be triaged. At a minimum, two should be established with the triage officer between the stations. Resuscitation and vascular volume replacement is initiated in the triage area, if required. The flow of the injured into the triage area must be controlled. An increase in the noise level and confusion can result if too many victims are brought into the triage area at one time. These factors can adversely impact on the ability of the medical personnel to thoroughly evaluate and prioritize each victim.

(2) Specific areas within the facility are designated for each of the triage categories, personnel pools, and control element. Additionally, internal traffic routes to the x-ray, laboratory, preoperative, recovery, and holding areas must be identified.

- Ideally, holding areas for each of the four triage categories should be established. Each area should be clearly identified and the route to that area marked. Marking can be accomplished with the use of different colored panels or a numbering system. Each area can be designated as a specific color or number and the route to that area marked accordingly. The marking system used should function during times of good and limited visibility (such as at night or during power shortages). Materials used for marking purposes should be prepared when the mass casualty plan is developed and stored until required for use. The materials should not be made to rely on the knowledge of a specific language, such as English, as they may be required to be used in an area where English is not the predominant language (that is why colors and numbers are more effective).

- Two personnel pool areas should be designated; one for medical personnel and one for nonmedical personnel. The facility director should designate those individuals who will supervise the

management of these pools. As personnel complete tasks, shifts, or other duties, they report back to the appropriate personnel pool area. Using this system, ensures the efficient use of available resources and permits the reallocation of resources as requirements change. MINIMAL category patients can be used as an additional manpower pool while awaiting transportation or housing arrangements. They can act as runners, litter bearers, or guides, with minimal training or briefing, to free up medical personnel so they can attend to medical tasks.

- The control element should have access to all areas as required.
- The internal communications system should be modified as required to provide communications capability to the major areas within the facility; or, if a system does not exist, a messenger system is established.

(3) A sample layout of a mass casualty station is provided in Figure J-1. Space should be planned for and an area established for the decontamination of patients, if required. This sample is a field medical company which includes surgical augmentation. Each mass casualty situation will be unique as to the number and types of casualties, the medical facilities available, and the medical resources available to treat them. This mass casualty station should be modified to fit the realities of a specific mass casualty situation.

b. Using an Available Structure or Field Medical Unit. A mass casualty situation may occur in an area away from an established hospital or clinic, or in an area where the facility has been destroyed. It may not be practical or possible to evacuate or transport the victims to a hospital or clinic outside of the disaster site. If a structure, not previously used for a hospital or clinic, is available and safe for occupancy, it may be used. The requirements for the establishment of the area are the same as when an existing hospital or clinic is used; however, the actual layout will differ depending on the structure used. Caution must be used to develop a traffic pattern which will avoid congestion and the crisscrossing of internal paths and will expedite patient flow. Another option is to establish a field medical unit (such as a FSMC) in the vicinity of the disaster area and use it as the treatment facility.

c. Establishing the Mass Casualty Station Outdoors. In some instances, a mass casualty station may be required to be established outdoors; this is especially true in the aftermath of severe earthquakes where the stability of remaining structures has been compromised, or when significant aftershocks are occurring. When this occurs, efficient use of available shade and, if safe, overhead cover is essential. Unless inclement weather occurs, the triage area and the MINIMAL treatment area remain outdoors. The triage area must be accessible to incoming vehicles and provide sufficient space for the turnaround of the vehicles. Also, it should not be established too far away from the treatment areas, as the distance will place an additional burden on the litter bearers. Once triaged, patients should be brought inside an improvised shelter as soon as possible. The use of improvised shelters or the use of cover (such as caves) may be required until more appropriate shelters can be obtained or established.

J-6. Medical Evacuation

When mass casualty situations occur, the number of victims will normally overwhelm the available emergency vehicles and ambulances. Therefore, the mass casualty plan should include considerations for

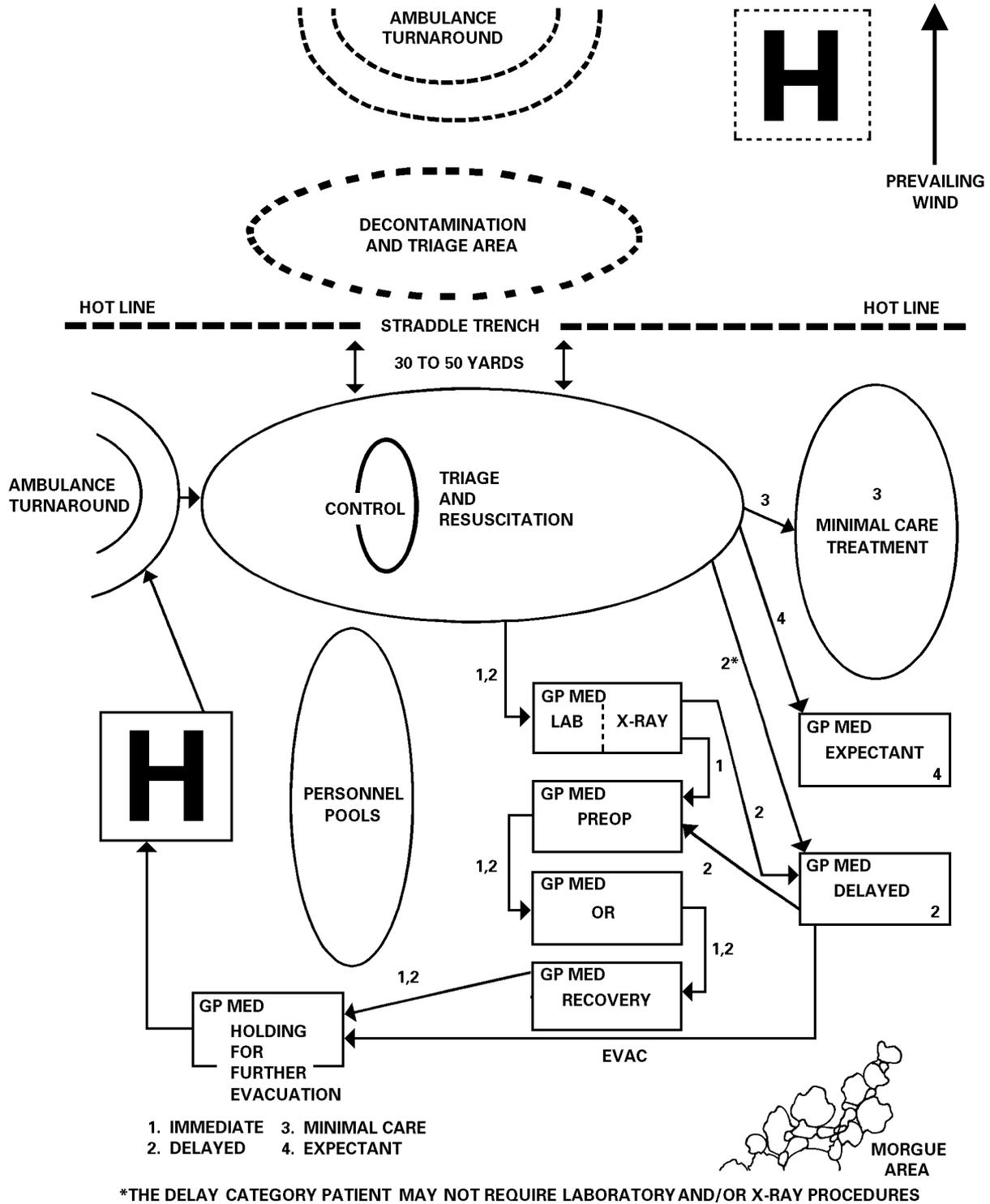


Figure J-1. Mass casualty station with triage and MINIMAL care areas established outdoors.

the use of nonmedical vehicles and aircraft (such as from religious groups, volunteer organizations, and community businesses). When at all possible, the victims who have sustained the more severe wounds should be evacuated in ground and air ambulances or emergency vehicles. These patients will benefit most from the provision of en route medical care. The more lightly injured and stable victims and those suffering from stress can be transported by nonmedical/nonemergency transportation assets without serious risk of worsening their medical prognosis.

J-7. Disposition of Remains

In a mass casualty situation, there will be victims who have died before reaching the triage area (dead on arrival) or who die of injuries before they can be stabilized and further evacuated. A temporary morgue area should be established away from and out of sight of the triage and treatment areas. If the mass casualty station is established outside, this area could be established behind a natural barrier such as a stand of trees or it can be set off by using tentage or tarpaulins. This area is not an actual morgue as it does not have the required equipment. The holding area requires minimal staffing for security. Remains are identified and transferred to mortuary facilities as soon as possible.