

DISASTER PREPAREDNESS & RESPONSE

Disaster:

“a sudden ecologic phenomenon of sufficient magnitude to require external assistance.”

“an event that overwhelms the resources of the region or location in which it occurs.”

When an event will interrupt an ED, there must be policies & procedures in place.

- Activation of disaster response
- Direct the mobilisation of personnel & equipment
- Permission of rapid triage
- Assessment, stabilisation & definitive care of victims.

Table 6-1 Types of Disasters

Disaster Type	Definition	Examples
Natural disaster	Disaster caused by a naturally occurring event	Earthquakes, tsunamis, tornadoes, hurricanes/typhoons, volcanic eruption, pandemic influenza, etc.
Manmade disaster	Nonnatural events that are not purposefully produced	Vehicle crashes (e.g., car, plane, bus, etc.), mass casualty events, explosions, fires, industrial accident/chemical release, etc.
Terrorist-related disaster	Events that are purposefully produced in an effort to cause terror	Events of September 11, 2001, as well as intentional chemical, biological, radiologic, or toxin releases
Internal disaster	An event that occurs within the hospital	Hazardous materials spill in hospital laboratory, fire or explosion within hospital, power failure, etc.
External disaster	An event that occurs external to the hospital	Transportation accident, industrial accident, etc
Acute disaster	Disaster that occurs in a narrow and well-defined time frame	Explosion, industrial release, earthquake, etc.
Nonacute disaster	Disaster with no well-defined start point or continuous production of casualties over a broad time frame	Pandemic infectious disease, incremental release of a biological or toxin (e.g., anthrax sent through mail)

Characteristics of Disasters.

Following an acute disaster, the event is followed by a large number of minimally injured patients presenting to nearest hospitals. This is followed by prehospital transport of the most affected patients to the same hospital.

ED volumes tend to remain elevated for days to weeks following such events.

Following non-acute events (eg. influenza pandemics) there is a slower surge.

Table 6-1.1 Factors That May Hinder ED Response to Disasters

Poor communication between ED and disaster scene
Poor communication within the hospital (e.g., ED to emergency operations center, emergency operations center to patient care areas)
Inability to control convergence of volunteer health care personnel who are unfamiliar with the ED function and their roles in disaster response
Inability to engage and control convergence of media to the ED
Inability to engage, control, and direct visitors who are searching for loved ones
Inability to control large numbers of patients (i.e., crowd control)
Despite massive initial response of clinicians, difficulty maintaining high staffing needs for extended periods

Hospital Emergency Operations Plan.

This provides for an organised response of the hospital from the time of notification of a disaster until the situation normalises.

Table 6-5 Components of the Hospital Emergency Operations Plan	
Component	Function
Activate emergency operations plan	Notify and mobilize personnel and equipment
Set up emergency operations center	Nerve center for hospital response and communication with outside agencies
Assess hospital capacity	Determine safety of hospital itself; determine capabilities of hospital in all units
Create surge capacity	Determine ways to handle the maximum number of patients
Establish communication systems	Develop multiple and redundant systems, including cellular phones, satellite phones, two-way radios, runners
Provide supplies and equipment	Deliver available supplies to proper areas and plan for resupplying or obtaining other needed materials
Establish support areas	Volunteer, press, and family information centers
Establish decontamination, triage, and treatment areas	Decontamination, triage, resuscitation, acute care, and minor care areas; surgical triage and holding; psychiatric area; morgue
Terminate disaster response and provide for remediation	Return personnel and supplies to normal activity; provide emotional support for caregivers; improve emergency operations plan for future incidents

Field Disaster Response.

Field & medical care.

- “Simple triage & rapid treatment” - START technique.
- Level of care depends upon no. of patients vs no. of staff and availability of resources.
- Some therapy can be initiated in the field if extrication is prolonged.
- “Secondary assessment of victim endpoint triage” - SAVE. *see below.*

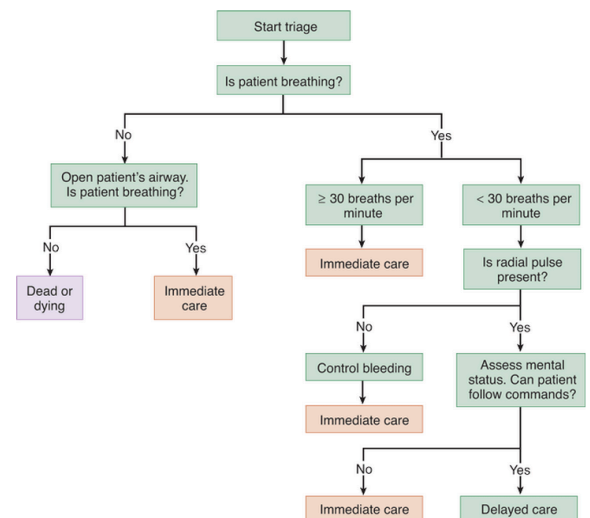


Table 6-6 Secondary Assessment of Victim Endpoint Triage

Category	Definition
1	Patients who will die regardless of how much care they receive
2	Patients who will survive whether or not they receive care
3	Patients who will benefit significantly from austere field interventions

Communications.

- Alerts local hospitals to the possible mass casualty situation.
- Hospitals provide their bed availability, no. of casualties received so far etc.

Distribution of casualties.

- Ensures fair distribution of care.
- Less-injured, more stable patients are sent further distances.

Onsite disaster medical teams from hospitals.

- Helpful if transport routes are blocked or if there are prolonged extrications at scene.

ED Disaster Response.

Initial response.

- Incident is verified by a pre-designated official --> initiates emergency operations.
- Initial needs assessment.
- Onsite personnel becomes 'incident commander' until predesignated person arrives.
- Decisions made about *admission, discharge, transfer of patients & priority of patient care.*
- All non-emergency patients should be discharged with responsible individuals.
- Decision made regarding *how many* patients can be taken.
- Designation of staff to appropriate areas of the hospital.
- Creation of a *receiving area* --> where patients from the disaster site are met.
- Equipment restocking station created for ambulance staff to quickly restock & return.

Security.

- Hospital security diverts non-essential vehicles away from hospital entrance.
- They protect the treatment areas from family and media.

Triage.

- Needs to take place at hospital entrance.
- Coloured band system (or disaster tag) --> documents that triage is done.
 - 4 colours (see below).
- *The most good for the most number of patients.*
- Patient care here should be limited to *manually opening airways & controlling external haemorrhage.*
- Decisions should be sensitive to factors affecting prognosis including age, general health & prior physical conditioning.

Table 6-7 Triage Categories	
Red	
First priority	
Most urgent	
Life-threatening shock or hypoxia is present or imminent, but the patient can likely be stabilized and, if given immediate care, will probably survive	
Yellow	
Second priority	
Urgent	
The injuries have systemic implications or effects, but patients are not yet in life-threatening shock or hypoxia; although systemic decline may ensue, given appropriate care, can likely withstand a 45- to 60-min wait without immediate risk	
Green	
Third priority	
Non-urgent	
Injuries are localized without immediate systemic implications; with a minimum of care, these patients generally are unlikely to deteriorate for several hours, if at all	
Black	
Dead	
No distinction can be made between clinical and biologic death in a mass casualty incident, and any unresponsive patient who has no spontaneous ventilation or circulation is classified as dead. Some place catastrophically injured patients who have a slim chance for survival regardless of care in this triage category	

Triage team.

- Emergency physician, ED nurse & medical records/admitting clerk.
- Several teams may be required.
- Clear identification of *who is in command*.
- Clerk documents name & details on the disaster tag.
 - Initial diagnostic impression is also documented on the tag.

ED disaster patient care.

- Disaster care often varies from typical ED practice.
 - Wounds may require delayed closure after copious irrigation
- Consideration of crush syndrome (dysrhythmias, hyperK) & pulmonary blast injury.
- Patients may require special testing or prolonged observation (in the setting of exposures etc).
- Utilise *POISONS* information for guidance.
- Use radiographic & lab studies sparingly.
 - Only use tests if they will change therapeutic intervention.
 - Member of staff allocated to prioritising imaging.
 - Liberal use of USS.
- Early blood-bank notification to arrange back-up supplies.