




DISASTER MANAGEMENT

DEFINITION

- Disaster is “any occurrence that causes damage, economic disruption, loss of human life and deterioration of health and health service on a scale sufficient to warrant an extraordinary response from outside the affected community or area”.

(WHO)



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- Disaster is an event, natural or manmade, sudden or progressive, which impacts with such severity that the affected community has to respond by taking exceptional measures.

-W. Nick Carter

CLASSIFICATION

Natural disasters

- Meteorological disasters
- Typological disasters
- Telluric and tectonic disasters
- Biological disasters

Man-made disasters

- Civil disturbances
- Non-conventional warfares
- Warfare
- Refugees
- Accidents
- Technology failures

Disaster management

Natural disasters

- **Metrological disaster:** Storms (Cyclones, typhoons, hurricanes, tornados, hailstorms, snowstorms), heat waves and droughts.
- **Typological Disaster:** landslides, avalanches, mudflows and floods.



□ **Telluric and Teutonic (Disasters originate underground):**

Earthquake, volcanic eruptions and tsunamis (seismic sea waves)

□ **Biological Disaster:**


communicable disease, epidemics and insect swarms



Man Made Disasters

- **Warfare:** conventional warfare (bombardment, blockade and siege) and non-conventional warfare (nuclear, chemical and biological).
- **Civil disasters:** riots and demonstration.



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- **Accidents:** transportation (planes, trucks, automobiles, trains and ships); structural collapse (building, dams, bridges, mines and other structures); explosions and fires.
 - **Technological failures:** A mishap at a nuclear power station, leak at a chemical plant causing pollution of atmosphere or the breakdown of a public sanitation.

PHASES OF DISASTER

- Pre-disaster phase
- Disaster phase
- Post-disaster phase

PRINCIPLES OF DISASTER MANAGEMENT



- Prevent the disaster
- Minimize the casualties
- Prevent further casualties
- Rescue the victims
- First aid
- Evacuate
- Medical care
- Reconstruction

EFFECT OF DISASTER



- Physical destruction
- Displaced populations
- Disruption of utilities
- Emotional damage
- Emotional aftershocks
- Social consequences
- Food scarcity
- Health risks
- Impact on environment

THE DISASTER MANAGEMENT CYCLE




Mitigation

- Mitigation is the action of reducing the severity, seriousness, or painfulness due to any type of disaster.
- It involves implementing measures for preventing the future threat of disaster and/or minimizing the damaging effects of unavoidable threats.
- It requires hazard risk analysis and the application of strategies to reduce hazards, for example, flood-proofing homes or having flood/fire insurance, following safety standards of building material and appliances, maintain social/physical distance, use of mask and sanitizer and so on.


Disaster Preparedness

- Preparedness includes plans or preparations made in advance of an emergency that help individuals and community get ready to either respond or to recover.
- It aims to achieve a satisfactory level of readiness to respond to any emergency through programs that strengthen the technical and managerial capacity of governments, organizations and communities.

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- These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long term and short term strategies, public education, and building early warning systems.
 - The preparations may include stocking of reserve food and water; the gathering and screening of willing community volunteers or citizens; education and evacuation plan' holding disaster drills and installing smoke detectors, mutual aid agreements; emergency medical service plans etc.

Disaster response


- Disaster response work includes any actions taken immediately following an emergency, including efforts to save lives and to prevent further property damage.
- Ideally disaster response involves putting already established disaster preparedness plans into motion.
- This refers to the first stage response to any calamity- setting up control rooms, putting the contingency plan in action, issue warnings, evacuating people to safe areas, rendering medical aid to the needy, etc.

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- Health care and psychological intervention response start from this stage.
 - The focus in the response phase is on meeting the basic needs of victims until a sustainable community has been achieved.
 - This phase may continue even when recovery phase can already be started.

Disaster Recovery



- Once emergency needs have been met and the initial crisis is over, the people affected and the communities that support them are still vulnerable.
- Recovery involves restoring, rebuilding infrastructure, health care and rehabilitation or reshaping the impacted area.

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- Recovery activities should blend with developmental activities such as building human resources for health and developing policies and practices to avoid similar situations in future. It starts after damages have been assessed and adequate response effort is achieved and on-going.
 - It involves actions to return the affected community to its pre-disaster state.

Roles of Nurse in Disaster Management

- 1. Role of a Nurse before arrival of Casualty**
 - Identify the source of information: telephone call or personal information
 - Communicate the information to the member of disaster management team.
 - Ring the alarming bell or announce emergency call to sensitize the hospital team.

2. Role of a Nurse to prepare the Resources

- Human resources: Nurses and other personnel can be mobilized from different wards, call nurses on leave and students who stay in hostel.
- Equipments and supplies: extra wheelchair, stretchers, portable beds, dressing suture materials and so on.
- Drugs : emergency drugs, IV fluids, cannulas, paster of Paris
- Others: Triage tags, police case stamps
- Be ready to receive the casualty.

3. Role of a Nurse during the Disaster or Arrival of the Casualty

- **Triage**

- Mobilization of key staff
- Management of extra human resources
- Management of space
- Management of extra equipment and drugs
- Coordination
- Crowd controlling
- Evacuation

4. Roles of a Nurse after Disaster

- **Recording and Reporting:**
 - Document all cases with their full details
 - Document all cases as medico-legal cases
 - Collect all medico-legal evidence if possible. For example, x-ray, vomiting projectiles, blood samples, necrotic tissue and others.
 - Keep a record of all expired cases.
 - Never handover the dead body to relatives without post mortem.

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- Debriefing: report all cases to the concerned authority(number of victims, expenditure, resources, outcome)
- Rearrangement: cleanliness of all used equipment according to the hospital policy; replacement of used items; rearrangement of disaster inventories.

5. Roles of a Nurse Administrator in Disaster Management

- Maintain an open line of communication
- Ensuring quality care
- Educate and train staff with current policy, protocol, rules and technology.
- Making arrangements for the provision of adequate resources for quality patient care.
- Provide security for staffs, patients and families.

DISASTER OR MASS CASUALTY MANAGEMENT PLAN

- **Community Disaster Management Plan:**
 - Community Disaster Preparedness Plan
 - Early Warning Systems
 - Vulnerability and Capacity Assessment(VCA)
 - Rescue Chains
 - Earthquake Resistance Buildings
 - Provision of Disaster Buildings
 - Training of voluntary health workers
 - Strengthening life saving skills of health workers
 - Short wave radios/ Walkie Talkie
 - An electrical generator
 - Emergency drugs and medical supplies

Community Disaster Management Process


1. Emergency Response
2. Recovery
3. Post Disaster Management

1. Emergency Response

- Evacuation
- Activation of Counter Disaster System
- Need Assessment
- Emergency Food supply
- Providing Medical Assistance
- Information Management
- Reporting of the Incidents
- Disposable of dead bodies

2. Recovery

- Recovery is the intermediate and long term management of the disaster. It includes the work like restoration, rehabilitation and reconstruction.
- a. **Restoration**: Essential utility services like water supply, telecommunication and electricity are restored in coordination with concerned authorities as soon as possible and repairable houses are restored.

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- b. **Rehabilitation:** Provide temporary shelter and sanitation to the displaced population. People mentally affected and physically disabled as the consequences of the disaster need rehabilitation therapy. Orphan children need special care and rehabilitation.
- c. **Reconstruction:** It includes long term measure like replacement of buildings, transportation and communication infrastructures destroyed by the disaster.

3. Post Disaster Management

- Disaster related activities are linked with the nation's development efforts. Disease surveillance is necessary to assess the risk of the outbreak of endemic and epidemic disease.
- Mitigation of disaster effects is done by enforcing building codes for improved earthquakes resistant building and other infrastructure safety regulation for the control of hazards and improved agriculture techniques/programmes that reduce hazards.

❑ Disaster Preparedness Plan in the Hospital


- ❑ Formulate hospital policy and action plan for emergency preparedness for disaster management.
- ❑ Formulate the disaster management team and identify its Commander, usually it is the medical person in charge of the emergency room.
- ❑ Strengthen the capabilities of health worker in the disaster management team by training them in life-saving skills.
- ❑ Train volunteers about reception and transport of casualties giving first aid treatment and managing information and crowd.

- Establish triage protocol.
- Identify triage person: nurses and doctors who can help in triage.
- Establish an alarming system
- Keep the stock of medical supplies for the use of emergency and reserve stock of emergency management.
- Identify the means of transportation ambulance and other vehicles.
- Have a backup plan for the continual flow of electricity, water and fuel supplies.

□ Disaster Management in the Hospital

1. Response to disaster before arrival of victims:


- Collect information from the authorized person in the disaster site through phone or from person bringing the information of the disaster about the type of disaster, number of casualties and seriousness of injuries.
- Appoint disaster commander and vice commander for disaster management.
- Activate disaster management protocol.
- Specify the receiving area or casualty collection point and triage area, based on the expected number of injured.

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- Alert different departments to remain standby: operation theatres, all indoor units, laboratory, radiology, kitchen, maintenance etc.
 - Assign definite tasks to people in disaster team.
 - Suspend all other regular hospital activities except for critical ones.
 - Prepare standardized tags in advance.

2. Response to Disaster after arrival of Victims

- Triage nurses or volunteers receive the victims in reception area.
- Triage nurses keeps the crowd away with the help of volunteers of the team.
- The nurse in charge mobilizes the nurses and volunteers to attend their duties.
- Triage nurses screen cases before evacuating the reception area or moving the victims to the triage area.
- Triage nurses maintain the traffic flow of reception area by transferring the patients to the triage area.

- Triage nurses coordinates with different units; x-ray, lab, etc. for the information required.
- The triage physician decides appropriate place for the treatment of each patient which could be OT, ICU, CCU, other ward or the emergency room or triage area.
- The nurse in charge coordinates with the different departments for the admission of patient when needed.
- The nurse in charge coordinates with the kitchen for extra food supply and store for extra supplies needed.
- Depending on the protocol, nurses may carry out some emergency life-saving measures like doing CPR, starting the IV infusions if needed in the triage area.

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- Psychological support, reassurance, counseling to the clients and relatives.
 - Made provision of trolley, wheel chairs
 - Transfer dead body to the morgue room or handover them over to families.

3. Post Disaster Management in the Hospital

- The routine tasks that were suspended in the emergency management of disaster are resumed.
- After the disaster management, the critique and report are obtained to assess the effectiveness of the disaster preparedness and response activities are carried out.
- A committee is designated to review these data carefully and suggested for the areas of improvement in future performance.


TRIAGE



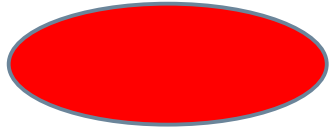
- Triage is the process of determining the priority of patients' treatments based on the severity of their condition.
- Triage refers to the evaluation and categorization of the sick or wounded when there are insufficient resources for medical care of everyone at once.
- Triage is usually used in a scene or accident or mass-casualty incident to sort patients into those who need critical attention and immediate transport to the hospital and those with less serious injuries.

Purposes of Triage

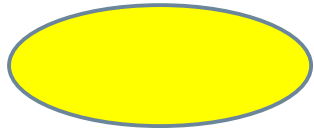
- To separate out the minor injuries to reduce the burden on the management of critical cases.
- To provide the equitable and rational distribution of resources.
- To provide immediate intervention during life threatening situation.
- To reduce severity of the condition by ensuring immediate intervention.
- To reduce delay in treatment.

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- To improve the traffic flow of emergency departments.
 - To promote effective utilization of the staff and equipments.

Color code



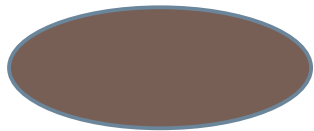
- **Red** indicate high priority treatment or transfer



- **Yellow** signals medium priority



- **Green** indicate ambulatory patients



- **Black** indicates dead or moribund patients

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

Categories of Triage

Category	Color code/tag	Description
1	Red color (within 2-5mins)	Used for victim who need immediate treatment or are in life threatening condition. E.g. Cardiac arrest, respiratory distress, severe shock, severe head injury etc.
2	Yellow tag (5-60mins)	Used for those victims who are serious but not in life threatening condition. E.g. serious chest pain, difficulty in breathing, severe fractures, severe burn etc.
3	Green tag (4-6hrs)	Used for the victim who are not serious or having minor injuries. E.g. minor burn, minor wound, low grade fever etc.
4	Black	Used for victim who doesn't need for medical care such as gasping, prolapsed of brain and intestines and those who are already dead.

MASS CASUALTY

Mass casualty situation (MCS)

It is defined as the situation in which the number of casualties exceeds the treatment capabilities of the operating medical system.





Handling of mass casualty situation

The rapid, unobstructed flow of casualties within the hospital is crucial in MCS.

Triage is the necessity in handling MCS.

Casualties flow chart

