

## Disaster Management Plan

India has been traditionally vulnerable to natural disasters on account of its unique geo climatic conditions. Floods, droughts, cyclones, earthquakes and landslides are regular phenomenon.

A disaster is defined as a serious disruption of the functioning of the society, causing wide spread human, material or environmental losses which exceed the ability of the affected society to cope using its own resources. Risk is a measure of the expected losses due to hazard of a particular magnitude striking in a given area.



Risk can be reduced in two ways:

- A. Preparedness: It encompasses all those measures taken before a disaster event which are aimed at minimizing loss of life, disruption of critical services and damage when the disaster occurs. Thus, preparedness is a protective process which enables governments, communities and individuals to respond rapidly to disaster situation and cope with them effectively.
- B. Mitigation: It encompasses all measures taken to reduce both the effect of hazards itself and the vulnerable conditions in order to reduce the losses in future disaster.

Hospitals play a critical role in health care infrastructure. Hospitals have a primary responsibility of saving lives, they also provide 24\*7 emergency care services and hence public perceive it as vital resource for diagnosis, treatment and follow up for both physical and psychological care.

Whenever a hospital or a health facility is confronted by a situation where it has to provide care to a large number of patients in limited time, which is beyond its normal capacity, constitute a disaster for the said hospital. In other words when the resources of the hospitals are overwhelmed beyond its normal capacity and additional contingency measure are required to control the event, the hospital can be said to be in a disaster situation.

### **Based on number of Casualties:**

Here the categorization is based on the number of casualties coming to a hospital at a time and the ability of the hospital to cope with those casualties. Categorization will differ from hospital to hospital and depend on several factors, such as the number of doctors and nurses available and the availability of supplies and support services.

### **Based on type of casualties:**

**Category A:** Patients in critical condition: include cases of poly trauma with head injuries, thoracic injuries, abdominal injuries, fractures of major bones with profuse bleeding etc. These patients require immediate resuscitation and supportive measures.

**Category B:** Patients in serious but not life threatening condition: include poly trauma cases of a less serious nature like fractures and crush injuries of limbs without major blood loss etc.

**Category C:** Walking wounded: include minor injuries requiring wound toileting and dressing and limb fractures requiring closed reduction and immobilization.

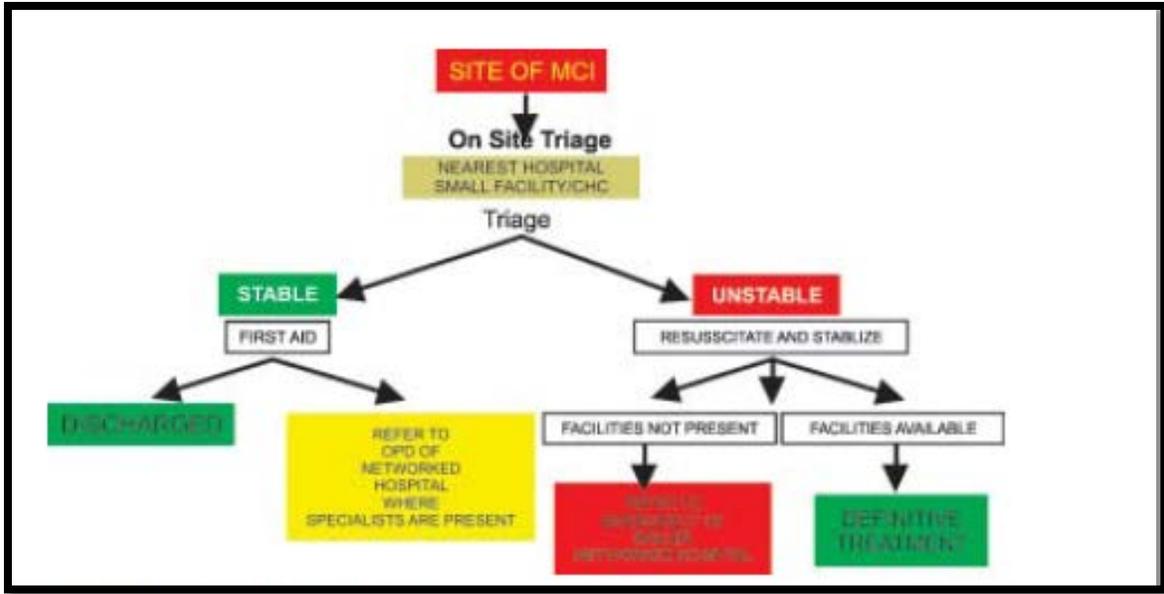
Hospital disaster management provides the opportunity to plan, prepare and when needed enables a rational response in case of disasters/mass casualty incidents. Disasters and mass casualties can cause great confusion and inefficiency in the hospitals. It is essential that all hospital emergency plans have the primary feature of defining the command structure in their hospital and to extrapolate it to disaster scenario with clear cut job definitions once the disaster button is pushed.

#### **A. Pre disaster phase**

The primary aim of the district medical authorities during the pre disaster phase would be to critically assess the available medical resources within the district and share them with other neighboring districts. In other words the networking of the various medical resources and hospitals should be the aim of the district medical authorities in the pre disaster phase.

#### **B. Disaster phase**

The district medical authorities should play a leading role in medical treatment of victims once the disaster strike. The chief district medical office should take the role of incident commander and should set up a medical command structure which would work in tandem with the district administrative authorities.



The main aim of hospital disaster management plan is to provide prompt and effective medical care to the maximum possible in order to minimize morbidity and mortality resulting from any MCI.

The main objective of a hospital emergency plan is to optimally prepare the staff and institutional resources of the hospital for effective performance in different disaster situations.

### Plan activation of different areas of hospital

The areas which should find a mention in a hospital emergency plan are:

- Command center
- Communications office/paging/hotline area/telephone exchange
- Security office
- Reception and triage area
- Decontamination area
- Minor treatment area
- Acute care area
- Definitive care areas
- Intensive treatment area and activation of High Dependency Units
- Mortuary
- Holding area for relatives

All these areas should be mapped on the outlay map of the hospital. The normal capacities of the existing areas should be mentioned on these maps.

## Emergency Response Plan (ERP)

The overall objective of an Emergency Response Plan (ERP) is to make use of the combined resources at the site and outside services to achieve the following:

- To localize the emergency and if possible eliminate it;
- To minimize the effects of the accident on people and property;
- Effect the rescue and medical treatment of casualties;
- Safeguard other people;
- Evacuate people to safe areas;
- Informing and collaborating with statutory authorities;
- Initially contain and ultimately bring the incident under control;
- Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of the emergency;
- Investigating and taking steps to prevent reoccurrence.

The ERP is therefore related to identification of sources from which hazards can arise and the maximum credible loss scenario that can take place in the concerned area. The plan takes into account the maximum credible loss scenario-actions that can successfully mitigate the effects of losses/ emergency need to be well planned so that they would require less effort and resources to control and terminate emergencies, should the same occur.

**Standards and codes used in building construction to minimize the risk of natural calamities like wind load, seismic load (earthquake), thunder storm/ lightning etc, as per NBC 2005 are given below:**

### **Design Standards**

- IS: 456-2000 - Code of Practice for Plain and Reinforced Concrete
- IS: 875 (Part 1 to 5)-1987 - Code of Practice for Design Loads (Other Than Earthquake) for Buildings and Structures.
  - Part-1 Dead Loads- Unit Weights of Building Materials and Stored Materials
  - Part-2 Imposed Load
  - Part-3 Wind Loads
  - Part-4 Snow Loads (Not relevant in this case)

- Part-5 Special Loads and Combinations
- IS: 1893 (Part1)-2002 - Criteria for Earthquake Resistant Design of Structures
- IS: 4326- Earthquake resistant design and construction of building
- IS: 13920-1993-Code of Practice for Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces
- IS: 3370 (Part I, II & IV)- 1965: Code of practice for concrete structure for the storage of liquids
- IS: 2950 (Part I) Code of practice for design and construction of raft foundations
- IS: 1904- Code of practice for design and construction of foundations in soils
- IS: 800-2007–General construction in steel-code of practice.

Main hazards identified for the project include hazards pertaining to fires in buildings and fire in diesel storage areas, earthquake and LPG leakage and an ERP pertaining to these is described in the following section.

Response in case of Earthquake

### **Response Procedures for Occupants**

#### **If indoors:**

- Take cover under a piece of heavy furniture or against an inside wall and hold on.
- Stay inside: The most dangerous thing to do during the shaking of an earthquake is to try to leave the building because objects can fall on you.

#### **If outdoors:**

Move into the open, away from buildings, streetlights, and utility wires. Once in the open, stay there until the shaking stops.

#### **If in a moving vehicle:**

Stop quickly and stay in the vehicle. Move to a clear area away from buildings, trees, overpasses, or utility wires. Once the shaking has stopped, proceed with caution. Avoid bridges or ramps that might have been damaged by the quake.

#### **After the quake**

- After the quake be prepared for aftershocks.
- Although smaller than the main shock, aftershocks cause additional damage and may bring weakened structures down. Aftershocks can occur in the first hours, days, weeks, or even months after the quake.

### **Help injured or trapped persons.**

- Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. Call for help.
- Remember to help those who may require special assistance--infants, the elderly, and people with disabilities.
- Stay out of damaged buildings.
- Use the telephone only for emergency calls.

### **Response Procedure for emergency team**

- Formulate an emergency response team for earthquake response. Using the public address system, inform residents of response procedures discussed above.
- Inform the necessary authorities for aid.
- Ensure no person is stuck beneath any debris, in case of a structural failure.
- Ensure that all occupants standing outside near the buildings are taken to open areas.
- Ensure that the first-aid ambulance and fire tender vehicles are summoned if necessary.
- Inform the nearby hospitals if there are any injuries.
- Check the utilities and storage tanks for any damage.

### **Response in case of LPG Leakage**

- The affected area should be evacuated and cordoned off immediately
- Initiate an Emergency Response Team for LPG leakage.
- Shut down the main valves in the gas bank.
- Ensure that only concerned personnel are present in the affected area and all other personnel and visitors are moved to the nearest assembly points.
- Rescue trapped personnel, also check if any personnel are unconscious in the area and immediately move them outside and provide first aid. Ambulance should be summoned to take injured personnel to the nearest hospital.

- Personnel in the nearby buildings to close all doors and windows to prevent entry of the leaked gas.
- Source of leakage to be traced and isolated from all the other areas and if required use pedestal fans to bring down the gas concentration.
- In case of a fire follow the instructions in case of fire.

### **Response in case of Fire**

- Required response during in the event of a fire should be described in signs located in the lobby.
- On sighting a fire, it should be immediately informed to the environment manager giving the exact location and type of fire in detail.
- Initiate the Emergency Response Team for fires.
- If the fire is small, engage in extinguishing the fire using the nearest fire extinguisher.
- Guide the Emergency Response Team staff to the emergency assembly point.
- The Emergency Response Team should immediately inform the nearest dispensary and security force. If required a fire tender should be summoned.
- The response team should immediately move to the point of fire and take all necessary steps to stop the fire. If the fire is not controllable and spreads then the manager in charge should inform the district authorities and call for external help.
- The Emergency Response Team will provide immediate relief to the injured residents at the scene of incident. Any injured persons should be evacuated on priority to the dispensary or one of the nearest hospitals based on their condition.

### **General Instructions for Occupants in case of Fire**

- Get out of buildings as quickly and as safely as possible.
- Use the stairs to escape. When evacuating, stay low to the ground.
- If possible, cover mouth with a cloth to avoid inhaling smoke and gases.
- Close doors in each room after escaping to delay the spread of the fire.
- If in a room with a closed door.
- If smoke is pouring in around bottom of the door or if it feels hot, keep the door closed
- Open a window to escape or for fresh air while awaiting rescue.
- If there is no smoke at bottom or top and the door is not hot, then open the door slowly
- If there is too much smoke or fire in the hall, slam the door shut.

- Stay out of damaged buildings.
- Check that all wiring and utilities are safe.

Fire fighting system is proposed to prevent and control fire outbreaks for the project. The fire fighting system will consist of portable fire extinguishers, hose reel, wet riser, yard hydrant, automatic sprinkler system, and manual fire alarm system. The project will also be provided with automatic fire detection and alarm system.