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A study on the role of Hospital in Disaster Management and its Palliative Approach

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ABSTRACT

Hospitals play important roles in saving the lives and reducing the suffering of injured people during and after disasters. Disaster damage to health systems is a human and health tragedy, results in huge economic losses, deals devastating blows to development goals, and shakes social confidence. Hospital disaster preparedness presents complex clinical operation. It is difficult philosophical challenge. They should be ready to save lives and to continue providing essential emergencies. India has been traditionally vulnerable to the natural disasters on the account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides would have been recurrent phenomena. It is difficult to determine how much time, money, and effort should be spent in preparing for an event that may not occur. Health facilities whether hospitals or rural health clinics, should be a source of strength during emergencies and disasters. In India most of the disasters are caused by floods. About 60% of the landmass is prone to earthquakes of various intensities, over 40 million hectares is prone to floods, about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought. In this paper a review has been made to disaster reasons and their mitigation and the effect of disaster on the lives of human being and necessary steps taken to palliate the disaster. In this paper a review has been made to disaster reasons and their mitigation and the effect of disaster on the lives of human being and necessary steps taken to palliate the disaster.

Key words: Hospital disaster preparedness, Palliative, disaster management

INTRODUCTION

Almost on daily basis there are reports of disasters around the world. 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." A disaster occurs

when a hazard (natural or manmade) strikes a vulnerable society. Vulnerability is defined as "the extent to which a community, structure, service, or geographical area is likely to be damaged or disrupted by the impact of a particular hazard, on account of their nature, construction, or proximity to a hazard prone area". In India, experiences natural disasters from the Super Cyclone, Odisha 1999, Gujarat earthquake of 2001, the Indian Ocean Tsunami of 2004 and the Kashmir Earthquake of 2005 and Kashmir floods disaster 2014 and Uttarakhand flash floods and man-made disasters. India faced one of the worst man-made disasters on 03 December 1984 when the Bhopal gas tragedy occurred has shown that disasters affect not only the population but also health facilities. Particularly when the Children's Hospital in Jammu collapsed; in the city of Bhuj, where thousands of people died and the civil hospital was reduced to a heap of debris when it was needed the most. The fire in AMRI Hospital in Kolkata, where

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more than 90 people died, reminded us that it is not simply the structural resilience but also operational resilience of hospitals that needs to be addressed, if we wish to reduce the impact of disasters on hospitals.^[1]

Objective of the Hospital Disaster Management Plan

The main objective of the Hospital Disaster Management Plan is to optimally prepare the staff, institutional resources and structures of the hospital for effective performance in different disaster situations. The Hospital Disaster Management Plan is a written document and copies of the same shall be made available to all staff in the hospital. It shall have comprehensive actionable plans for disaster Preparedness, Response and Recovery corresponding to the Pre Disaster Phase, Disaster Phase and Post Disaster Phase respectively.

The expected disasters for Hospitals are summarized as below

SN	Type of Disaster	Disaster Name
1.	Internal Disasters	I. Fire accidents
		II. Explosions due to gas cylinders
		III. Exposure to hazardous material
		IV. Epidemic
2.	External Disasters	I. Earthquake
		II. Flooding
		III. Major road traffic accident
3.	Manmade Disasters	I. Terrorist activity (Bombs, Biological & Chemical Agents)
		II. Crowd / camped

		Incidents
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Expected Levels of Fire Safety In Hospitals

Hospitals shall have provision for two levels of safety within their premises:

- 1. Comparative Safety:** which is protection against heat and smoke within the hospital premises, where removal of the occupants outside the premises is not feasible and/or possible.

Comparative Safety may be achieved through:

- Compartmentation
- Fire Resistant wall integrated in the Flooring
- Fire Resistant Door of approved rating
- Independent Ventilation system
- Automatic Sprinkler System
- Automatic Detection System
- Manual Call Point
- First Aid
- Fire Fighting Appliances
- Fire Alarm System
- Alternate Power Supply
- Public Address System

- 2. Ultimate Safety:** which is the complete removal of the occupants from the affected area to an assembly point outside the hospital building? Ultimate Safety may be achieved through:

- Compartmentation
- Fire Resistant Door of approved rating
- Protected Lobby, Corridor, Staircase and Shaft
- Public Address System
- Signage
- Fire Drills and orders

Structural Elements of Fire Safety

- a. Open Spaces

1. Hospitals have sufficient open space in and around the hospital building to facilitate the free movement of patients and emergency/fire vehicles.
2. These open spaces shall be kept free of obstructions and shall be motor able.
3. Adequate passage way & clearance for fire fighting vehicles to enter the hospital premises shall be provided.^[2]

Means of Escape/Egress

A means of escape/egress is a continuous and unobstructed way to exit from any point in a building or structure to a public way. Three separate and distinct parts of an escape/egress are:

- a) The Exit access,
 - b) The Exit, and
 - c) The Exit discharge
- Internal Staircases
 - Protected Staircases
 - External Staircases
 - Horizontal Exits
 - Exit Doors
 - Corridors and
 - Passageways
 - Compartmentation
 - Ramps
 - Service Shafts/Ducts

Non-Structural Elements of Fire Safety

1. Underground Static Water Tank for Fire Fighter
2. Fire Pump Room
3. Yard Hydrant
4. Wet Rising Mains
5. Hose Box
6. Automatic Sprinkler System
7. Emergency and Escape Lighting

Incident Command Centre

Purpose

During a disaster, the Incident Command Center (ICC) will prompt mobilization and coordination of personnel, equipment and supplies. A disaster is defined as a situation where the normal operations of the facility are, or have potential, to rapidly become overtaxed to the extent that additional measures and resources must be committed in order to provide the necessary medical care.^[3]

Hospital Policy

Based on the principles of the Hospital Emergency Incident Command System (HEICS), in the event a disaster occurs Hospital will implement the Incident Command Centre.

Hospital must be prepared to

- Receive and classify patients
- Provide emergency casualty care
- Provide continuing care for the hospital's pre-disaster critically ill patients
- Evaluate non-critical pre-disaster patients for possible transfer home or another designated location
- Maintain adequate records on casualty patients
- Provide information and facilities for federal agencies, members of the press, city, state, the clergy, patient families, employees, and the general public.

Structure and Function

The Hospital Emergency Incident Command System (HEICS) is the national standard for medical facilities to manage emergencies of all sizes and types during catastrophic events.

The Hospital plan will contain the following structure and personal incident command centre of the hospital.

It is the crucial point for onsite and off –site communication during disaster/emergency.

A. Command Centre

- To lead and direct the overall facility mobilization and response to an emergency.
- A vest labelled with job title will identify each Section-Chief in the Command Center.
- Command Centre will be located near security gate.

B. Incident Commander

- Bears the responsibility for ensuring that the entire response is carried out in an effective, efficient and, coordinated manner.
- Gives overall direction for hospital operations and if needed, authorize evacuation.
- If assigned personnel are not available, the Incident Commander will appoint the following:
 - Command Centre Recorder
 - Logistics Section Chief
 - Nursing Section Chief
 - Medical Director
 - Security Section Chief
 - Hospital support and Operations Section Chief
 - Finance Administrator

Each Section Chief's function may vary according to the type of emergency. However, their overall responsibilities will include the following:

1. Command Centre Recorder

- Record incident-related problems
- Record any other documentation necessary as directed by the Incident Commander.

2. Logistics Section Chief

- Organize and direct operations to maintain the physical environment
- Maintain adequate levels of food, shelter and supplies supporting the medical objective.

3. Nursing Section Chief

- Organize and coordinate nursing activities.
- Direct patient care services.

4. Medical Director

- Contact and coordinate physicians
- Credential volunteer medical staff as necessary.^[4]

Disaster Preparedness and Response

These focus on provisions required to be put in place to ensure functional safety of hospital in disaster situations. The prime objective of disaster preparedness and response for hospital is to ensure that they can remain functional and continue providing the necessary health care services during and immediately after an emergency.

Communication Team

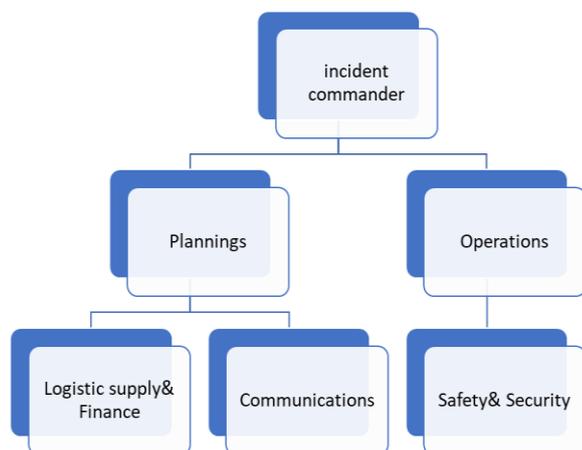
The team shall ensure clear, accurate and timely communication and information is passed on to management (both internal and external) to ensure informed decision-making, effective collaboration and cooperation, and public awareness through the use of common terminologies, integrated communication and an efficient system of alert.

- They shall communicate with the District Incident Response System & other key stake holders like Police, Fire Services, as well as other healthcare facilities managing patients in the same catchment area by establishing a regular channel of communication with them to manage the disaster more efficiently.
- In case of a biological / epidemic emergency, the team shall inform to the highest health authorities at the earliest.
- They shall also be responsible for providing information to the relatives of admitted or shifted patients, on being approached, regarding the whereabouts and conditions of the patient.
- The list of casualties along with their status shall be displayed at a prominent place outside the casualty / emergency ward, in both English and the local language, which shall be periodically updated.

- They shall be responsible for the press releases after consultation with the Incident Commander.
- They shall at all moments keep the Incident Commander updated of all happenings at site.^[5,6]

Hospital Incident Response System (HIRS)

To enable effective preparedness for and response during disasters, an efficiently functioning



Documentation

1. All Medico-Legal Cases shall be recorded properly. However, the treatment of patients will get priority over paperwork.
2. To meet the surge of cases, additional medical records assistant/ technician shall be posted from the Medical records section.
3. Computerised documentation (or manual) will be beneficial for the staff, police, next of kin and the press. Details of the casualties received and being admitted, their clinical condition, along with colour coordinated classification status by Triage shall be documented, for a credible database, for efficient retrieval of information to cater to any post-incident treatment/medico-legal/financial issues arising at a later date.^[7,8]

Triage

Triage is the process of sorting injured people into groups based on the severity of their conditions, so that the most serious cases can be treated first.

Every hospital shall ration patient treatment efficiently when resources are insufficient, by

undertaking triage based on the philosophy that **'the sickest is seen first'**. Patients shall be evaluated quickly for their vital signs, chief complaint and other key indicators to be categorized as:

- a) Category I (obvious life-threatening emergency): The physician shall examine the patient with zero delay. Case examples include cardiac arrest, continuous seizures, acute severe chest pain, haematemesis, sudden loss of consciousness, major trauma with hypotension, etc.
- b) Category II (Potential for life-threatening emergency): The possibility of an occult or pending emergency condition. Although some of these patients initially may appear to have not-so-serious chief complaints, about 25% of these patients have high-risk Project. The patient shall be fully evaluated and treated by a physician within 10 minutes of arrival, since there could be potential instability to the vital signs. Case examples include dyspnoea, high fever, acute abdominal pain, acute confusion, severe pain, serious extremity injuries, large lacerations, etc.
- c) Category III (non-life-threatening emergency): These patients' presentation need emergency care but provide no reason to consider the possibility of threat to life or limb. These patients shall be seen by an Emergency Management physician on a first come first served basis in the Consultation Room. Case examples include chronic, minor, or self-limiting disorders, medication refill, skin disorders, mild adult upper respiratory tract symptoms, mild sore throat, blood pressure check, etc.^[9]

Post-Disaster Recovery

Post-disaster recovery planning shall be part of the Hospital Disaster Management Planning process and it shall be performed at the onset of response activities.

To ensure speedy and effective post-disaster recovery every hospital/healthcare facility shall:

1. Designate an official/member of the staff to oversee the hospital recovery operations

2. Determine the essential criteria and processes to deactivate the disaster response and recovery activities from the hospital's normal operations
3. Undertake a Post Disaster Damage Assessment if there is structural damage to the hospital
4. Estimate the time and resources that shall be required to undertake complete repair/replacement/retrofitting before a facility that is severely damaged (and requires complete evacuation) can be re-opened
5. Undertake a post-response hospital inventory assessment and consider repair or replacement of equipment as required (equipment vendor's could be involved in assessing the functional status of the sophisticated equipment)
6. Prepare and submit a post-response report to the chief of the hospital and other pertinent stakeholders
7. Debrief staff meticulously immediately after the disaster response phase to enable them to cope and recovery from any post traumatic stress disorder.
8. Appropriately recognize the services provided by staff, volunteers, external personnel and donors during disaster response and recovery
9. Monitor post disaster health situation in the local community
10. Ensure that the transportation of casualties is undertaken as per the provisions laid down in the HDMP or as per the appropriately modified provisions
11. Provide definitive treatment

Patient Handling Patients in a hospital can be categorized as:

- 1) Ambulatory (outpatients), and
- 2) Admitted patients (inpatients). The mobility of inpatients depends on the severity of their illness, such that:

- a) Seriously ill patients depending completely on life support systems, cannot move by themselves and need support of the health care workers/hospital staff to move
- b) Not seriously ill patients but those restricted by IV lines, nebulizers etc. need support from their attendants to move
- c) Not seriously ill patients require no support and can move by themselves. To avoid panic, chaos, hap-hazard evacuation (should it be required), avoidable injuries and loss of lives, hospitals shall sensitize patients and their attendants on the relevant aspects of the HDMP and their role at the time of a disaster event, during their stay in the hospital.^[10,11]

Patients, their attendants and visitors shall be made aware of:

- 1) Hazards and Risks: in and around the hospital through prominently displayed posters, wall hangings and hoardings. The posters, wall hangings and hoardings shall be permanent and displayed at all times in the hospital premises and shall be updated as necessary, and
- 2) Emergency Exit Routes and Evacuation Plans: to be followed during disasters through the prominent display of exit and evacuation route maps at strategic locations throughout the hospital premises.

Hospitals shall also ensure that their alarms, emergency communication and Hospital Safety and Security Procedures, adequately take into consideration the needs of patients, their attendants and visitors; and ensure that no panic and chaos is initiated.^[12,13]

CONCLUSION

Disasters cannot be separated from the development issue and thus its management was incorporated within the Tenth Five year Plan by the Planning Commission. Finally, in the year 2005, the Disaster Management Act established a three pronged institutional structure at national, state, and district

level with Prime Minister at its apex for a multidimensional approach for managing disasters in India.

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