



**Emergency and Disaster Preparedness for Health Facilities**

  
**1 MILLION**  
**SAFE** Schools &  
Hospitals  
Make a Pledge, Save a Life.

# Guidance Notes



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One Million Safe Schools and Hospitals Campaign

## Guidance Notes

Emergency and Disaster Preparedness  
for Health Facilities

**T**he goal of hospitals and health facilities is to prevent or minimize the loss of lives during emergencies and disasters. This guide intends to support the hospitals to formulate multihazard emergency plans in accordance with their manpower and infrastructural resources that will meet the demands of medical care more effectively during disasters/emergencies. This document would guide in developing integrated Hospital Emergency/Disaster Plans that are consistent with the city or community disaster management plans. Emphasis is laid on strengthening the functioning, coordination and response for an enhanced pre-hospital and hospital care.

This guide is an abridged version of the “Guidelines for Hospital Emergency Preparedness Planning” by the United Nations Development Programme, India. Other contents of this guide were also derived from from “Pocket Emergency Tool , 2nd Ed” published by the Health Emergency Management Staff (Department of Health, Philippines) and the WHO-Office of the Western Pacific Region (WPRO). This guide was prepared to support the One Million Safe Schools and Hospitals Campaign.

The first chapter provides an overview of Disaster Management, concepts of hospital emergency planning, and issues of coordination and networking both for pre-hospital and hospital care. The second chapter covers the principles and the steps involved in hospital planning. The third chapter presents a description of a Hospital Emergency/Disaster Plan Manual. The fourth chapter describes the various levels of hospital plans. The fifth chapter provides guidelines on hospital evacuation plans based on international best practices.

## 1.1 Introduction

Almost on daily basis there are reports of disasters around the world. Floods, droughts, cyclones, earthquakes and landslides are regular phenomena. The last few decades have witnessed an increased frequency in disasters exacerbated by climate change causing tremendous human casualties, in terms of loss of life and disability in addition to huge economic losses. Although these may not be totally preventable but their impact can be minimized by effective planning. Equally important are the “peripheral emergencies” like road, rail and air accidents, fire, drowning and stampedes in mass gathering, industrial

accidents, and explosions and terrorist attacks that have an inherent potential to convert into a mass casualty incident (MCI). The loss of life and disability are compounded by the lack of adequate medical preparedness both qualitatively and quantitatively across the country.

## 1.2 Basic Concepts and Definitions on Disaster and Risk

- 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

## Basic concepts and definitions

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to cope using its own resources.”

- A disaster occurs when a hazard (natural or man made) 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”.
- Risk is a measure of the expected losses (deaths, injuries, property, economic losses etc.) due to a hazard of a particular magnitude striking in a given area. There are four factors that contribute to risk. These are:
  - Hazards (natural such as earthquake, floods, landslides, cyclones etc. or manmade such as exposure to hazardous material, explosion etc.)
  - Location of hazard relative to the community at risk.
  - Exposure (the effect of hazard on infrastructure and lifeline systems serving the population such as water supply, communication, transportation network etc.)
  - Vulnerability of the exposed society, structure and systems to the hazard



## Basic concepts and definitions

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### How can we reduce the risk?

Risk reduction can be done in two ways:

#### A. Preparedness

Preparedness 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. Preparedness includes development of emergency response plans, effective warning systems, maintenance of inventories, training of manpower etc.

#### B. Mitigation

Mitigation encompasses all

measures taken to reduce both the effect of hazards itself and the vulnerable conditions in order to reduce the losses in a future disaster. Examples of mitigation measures include, making earthquake resistant buildings, water management in drought prone areas, management of rivers to prevent floods etc.

### 1.3 Hospitals in Disasters/ Mass Casualty Incident (MCI)

Hospitals play a critical role in health care infrastructure. Hospitals have a primary responsibility of saving lives, they also provide 24x7 emergency care service and hence public perceive it as a vital resource for diagnosis, treatment and follow-up for both physical and psychological care.

### Roles of Hospitals in Health Emergency Management

- Observe all requirements and standards (hospital emergency plan, HEICS, Code Alert System, etc.) needed to respond to emergencies and disasters.
- Ensure enhancement of their facilities to respond to the needs of the communities especially during emergencies.
- Network with other hospitals in the area to optimize resources and coordinate transferring of victims to the appropriate facility.
- Report all health emergencies to the Operation Center, and document all incidents responded.

*From: Pocket Emergency Tool 2nd Ed. by Health Emergency Management Staff-DOH, Phils, WHO-WPR*

Hospitals are central to provide emergency care and hence when a disaster strike the society falls back upon the hospitals to provide immediate succor in the form of emergency medical care.

### What constitutes a disaster/ MCI for a hospital?

Whenever a hospital or a health care facility is confronted by a situation where it has to provide care to a large number of patients in limited time, which is



## Why have emergency plans

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beyond its normal capacity, constitute a disaster for the said hospital. In others words when the resources of the hospitals (infrastructure, trained manpower and organization) 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. This implies that a same event may have a disaster potential for a smaller hospital and not so for a bigger hospital. Therefore disaster for a hospital is “a temporary lack of resources which is caused due to sudden influx of unexpected patient load”. In order to find out what constitutes a disaster or unmanageable incident for the hospital, the hospital needs to calculate its normal capacity, beyond which it has to act according to the

### Hospital Emergency/Disaster Plan.

A disaster for a hospital can be categorized: (a) based on the number of casualties and the ability of the hospital to cope with those casualties, (b) based on the type of casualties :category A: Patients in critical condition, category B: Patients in serious but not life threatening condition and category C: Walking wounded (patients with minor injuries.

A Hospital  
Emergency/Disaster  
Plan is unique to  
each hospital as it  
depends upon its  
bed strength, staff  
and other resources.

### 1.4 Why have Emergency plans for hospitals?

Hospital disaster management provides the opportunity to plan, prepare and when needed enables a rational response in case of disasters/ mass casualty incidents (MCI). Disasters and mass casualties can cause great confusion and inefficiency in the hospitals. They can overwhelm the hospitals resources, staffs, space and or supplies. Lack of any tangible plan to fall back upon in times of disaster leads to a situation where there are many sources of command, many leaders, and no concerted effort to solve the problem. Everyone does his/her own work without effectively contributing to solving the larger problem of the hospital. Therefore, it

is essential that all Hospital Emergency/Disaster 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. Chaos cannot be prevented during the first minutes of a major accident or disaster. But the main aim of an Emergency Plan should be to keep this time as short as possible.

All hospitals should also have a realization that in a sudden mass casualty incident their hospital is actually running on full capacity. Due to greater number of patients coming in there is a tendency and pressure to practice disaster medicine and thereby reducing the quality of medical care in the interest

## Why have emergency plans

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of greater number of surviving persons. But under all circumstances, even in a disaster planning should be done in a way that the quality of care to the serious / critical patients is not compromised. The plan should aim at

- The survival and recuperation of as many patients as possible
- A proportional distribution of patients to other health care facilities
- Hospitals which provide full time emergency services on a 24hour-per-day, 7 days a week basis meet the standard requirements of receiving mass casualty incident patients at all times
- Hospital has sufficient number of personnel, including doctors and paramedical staff to meet

the patient needs for emergency care.

- The Services are appropriate to patient needs.
- The emergency services provided are integrated with other departments of the hospital.
- Therefore it is imperative for these facilities to make a Hospital Emergency/Disaster Plan.

### Should smaller hospitals also have emergency plans?

Health facilities can be categorized according to size and type of health service. Primary health care is provided by community health facilities, while tertiary health care is provided by the bigger medical college/university/ government hospitals. In between there are many



## What is hospital networking

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other smaller hospitals like the district hospitals and municipal hospitals having a moderate bed strength.

Since the disasters do not strike at the vicinity of only bigger hospitals, it is imperative that all hospitals whether small or big providing emergency care have an emergency plan. The emergency plan for smaller hospitals such as community health center may actually only focus around providing either mobile emergency care on the site of incident or providing intermediate stabilization and forward referral of serious patients to the nearest networked hospital. In most mass casualty incidents it has been observed that majority of the victims are not seriously injured and come in the walking wounded category.

Such small centers can provide immense help in case of disasters/MCI by providing definitive care to such victims who are not seriously injured. The emergency plan of such small hospitals would largely depend upon the concept of hospital networking.

### 1.5 What is hospital networking?

Hospital/ Health care networking is an essential step in medical preparedness planning for mass casualty incidents. Hospital networking does not necessarily mean linking up of various health care facilities with communication networks.

Network essentially means a dynamic link between various health care facilities of a given geographical

## What is hospital networking

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Health administrators of various health facilities should sit together to create a network of various health care providers in their areas and workout how to network their facilities.

area for augmentation or optimization of available resources. It means that the district authorities must have the information about the available health resources in their area. The health care facilities have to be networked for (a) Information, (b) Materials, (c) Manpower and (d) Training.

Networking has several advantages:

- Assessment of Resources. Assessment and analysis of existing resources in terms of materials and manpower of various health care facilities. This analysis can be easily done by using the WHO questionnaire for inventory analysis.
- Sharing of Resources. The sharing of inventory data between different hospitals, health care facilities, diagnosis laboratories, blood banks (public as well as private) etc. enriches the district medical authorities about various medical resources they have at hand in case of a mass disaster. The networking should not only be of facilities but of transport vehicles like ambulances, blood banks,



## What is hospital networking

- CT scan and trained manpower like quick reaction medical teams (QRMT's) specialists like neurosurgeons etc.
- Optimal utilization of resources. In a disaster situation no single health care facility standing alone can provide optimal care to all the victims

affected. Networking helps and identifies not only the strength and weaknesses of our own hospital but also other available resources in the area so that optimal care of patients can be taken. Fig. 1 shows how patients can be managed in a network.

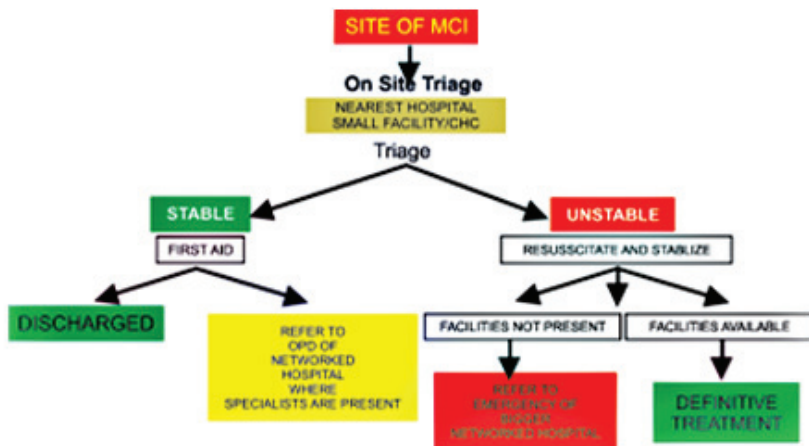


Fig. 1 Suggested flow of patients in a network





Patients at a Philippine Hospital after a typhoon disaster.  
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# 2

## A Hospital Emergency / Disaster Plan

### 2.1 Aims and objectives

The aim of a hospital emergency/disaster 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/disaster plan is to optimally prepare the staff and institutional resources of the hospital for effective performance in different disaster situations. The hospital disaster plans should address not only the mass casualties which may result from MCI that has occurred away from the hospital, but should also address the situation where the hospital itself has been affected by a disaster -

fire, explosion, flooding or earthquake.

- In case of MCI away from the hospital and not affecting the hospital the further goals are:
  - a. To control a large number of patients and manage the resulting problems in an organized manner,
    - By enhancing the capacities of admission and treatment.
    - By treating the patients based on the rules of individual management, despite there being a greater number of patients.
    - By ensuring proper ongoing treatment for all patients who were already present in the hospital.

## Plan principles

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- By smooth handling of all additional tasks caused by such an incident.
- b. To provide medications, medical consultation, infusions, dressing material and any other necessary medical equipment.
- In case of incidents affecting the hospital itself the further goals of the plan would be: To protect life, environment and property inside the hospital from any further damage,
  - By putting into effect the preparedness measures.
  - By appropriate actions of the staff who have to know their tasks in such a situation.
  - By soliciting help from outside in an optimal way.
- By re-establishing as quickly as possible an orderly situation in the hospital, enabling a return to normal work conditions.

## 2.2 Principles of a Hospital Disaster Plan

- **Predictable:** The hospital disaster plan should have a predictable chain of management.
- **Simple:** The plan should be simple and operationally functional.
- **Flexible:** (Plan should have organizational charts). The plan should be executable for various forms and dimensions of different disasters.
- **Concise:** (Clear definition of authority). The plan should specify various roles, responsibilities,

## How to proceed

- work relationships of administrative and technical groups.
- **Comprehensive:** (Compatible with various hospitals). It should be comprehensive enough to look at the network of various other health care facilities along with formulation of an inter-hospital transfer policy in the event of a disaster.
  - **Adaptable:** Although the disaster plan is intended to provide standard procedures which may be followed with little thought, it is not complete if there is no space for adaptability.
  - **Anticipatory:** All hospital plans should be made considering the worst case scenarios.
  - **Part of a Regional Health Plan in Disasters:** A hospital cannot be a

lone entity making its plans in isolation. The hospital plans have to be integrated with the regional plan for proper implementation.

## 2.3 How to proceed for making Emergency Plan for your hospital?

To make the proceedings easier it is recommended that the hospital administrators embark upon disaster planning using a phase plan. The hospital emergency planning can be divided into three phases:

1. **Pre-disaster phase**
  - a. **Planning:** Most of the assessment and planning is done in the pre disaster phase, the hospital plans are formulated and then discussed in a suitable forum for approval.
  - b. **The disaster manual:** The

## How to proceed

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hospital disaster plan should be written down in a document form and copies of the same should be available in all the areas of the hospital.

- c. **Staff education and training:** It is very important for the staff to know about and get trained in using the hospital disaster/ emergency manual. Regular staff training by suitable drills should be undertaken in this phase.

### 2. Disaster Phase

- a. **Phase of activation:** Alter and notification of emergency.
- b. **Activation of the chain of command** in the hospital.
- c. **Operational phase:** This is the phase in which the actual tackling of mass casualties is performed according to the disaster/ emergency plan.

- d. **Phase of deactivation:** An important phase of the hospital emergency plan when the administration/ command of the hospital is satisfied that the influx of mass casualty victims is not continuing to overwhelm the hospital facilities.

- 3. **Post-Disaster Phase** - This an important phase of disaster planning were the activities of the disaster/ emergency phase is discussed and the inadequacies are noted for future improvements.

### 2.3.1 Pre-Disaster Planning

Most of the planning of hospital emergency plans is done in pre disaster phase. It is recommended that all hospitals providing emergency care to patients start planning for the worst

## Disaster Management Committee

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at the earliest. It is always good to have a ready working plan before next emergency strikes.

### **2.3.1.1 Hospital Disaster Management Committee**

Formation of a disaster/emergency committee is the first step for making a disaster plan for the hospital.

Most of the hospitals already have such hospital management committee; therefore, an emergency/disaster management committee can be carved out from such already existing committees. The members of the disaster management committee should be from following basic facilities of the hospital.

### **Who should be in the committee?**

The hospital administration:

- The director/principal/dean/head of institution/medical superintendent.
- Member/members from hospital management board.
- The chiefs/heads of various clinical departments supporting the emergency services; e.g., casualty and emergency services, orthopedics, general surgery, medicine, neurosurgery (if present), cardiothoracic surgery (if present), anaesthesia.
- The chiefs/heads of various ancillary departments e.g., radio-diagnosis, transfusion medicine/blood bank, laboratory services/pathology, forensic medicine.

### T.R.A.I.T. of a Health Emergency Manager/Coordinator

**TAKE** the lead within the community in:

- health coordination and networking
- rapid health assessment
- disease control and prevention
- epidemiologic and nutrition surveillance
- epidemic preparedness
- essential medicines management
- physical and psychosocial rehabilitation
- health risk communication
- forensic concerns and management of mass casualties

**RECORD** and re-evaluate lessons learned to improve preparedness in the future

Assess and monitor health and nutrition needs so that they are immediately dealt with

**IMPROVE** health sector reform and capacity building by networking

**TEND** and protect the practice of humanitarian access, neutrality and protection of health systems in emergency situations

*From: Pocket Emergency Tool 2nd Ed. by Health Emergency Management Staff-DOH, Phils, WHO-WPR*



## Central command structure

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- The chief nursing superintendent/matron.
- The finance department.
- The stores and supplies department.
- The hospital engineering department.
- The public relation and liaison office.
- The chief of security of the hospital.
- The sanitation department.
- Hospital kitchen/dietary services.
- The social welfare department (if present).
- Hospital unions.

which should be based on the individual hospital hierarchical chain. The advantages of ICS are many. It has predictable chain of management; flexible organization charts allowing flexible response to specific emergencies; prioritized response checklists; accountability of position function; improved documentation; a common language to promote communications and facilitate outside assistance; cost effective emergency planning within the hospital.

### **2.3.1.2 Central Command structure (Incident command system or ICS) for your hospital**

In order to ensure effective control and avoid duplication of action there should be a unified command system

Any command system may be used by the hospital but the most important rule is to make organizational chart. Each position on the chart should be function-based and not position or individual based. An individual can be assigned more than one

## Job cards

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position on the chart, so a person might have to perform multiple tasks until additional support comes. Sample organizational chart for different hospitals are given in the original document. Delineate the jobs according to your command system the disaster/emergency management plan describes many jobs which may need to be performed in an emergency, but how people are assigned to jobs or the jobs to people depends on different circumstances existing in different hospitals. Therefore, the jobs delineated according to the command systems depend on the administrator or leaders of that particular hospital. The titles used in a disaster/emergency plan are carried by functions and not individual people/ designation.

### 2.3.1.3 Job Cards

Action sheets or job cards are basis of a successful disaster/emergency management plan. These sheets should be made for each and every position in the organizational chart of the command system. The job cards should be detailed; Stored safely (in disaster manual); Color coded and laminated. Some sample jobs cards are shown in the original document.

### 2.3.1.4 Plan activation of different areas of hospital

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

- Command centre.
- Communications office/ paging/hotline area/ telephone exchange.
- Security office

## Disaster beds

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- Reception and triage area.
- Decontamination area (if needed).
- Minor treatment areas.
- Acute care area (emergency department).
- Definitive care areas (OTs, wards).
- Intensive treatment area and activation of High Dependency Units (HDUs)
- Mortuary.
- Holding area for relatives/ non-injured.
- Area for holding media briefings (separate media/ PRO/spokesperson room).
- Area for holding patients in case a part of the hospital is evacuated.

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. Enhanced admission of patients requires

an enlargement of suitable spots, if necessary even by changing their function.

### **2.3.1.5 Disaster beds/ how to increase bed capacity in emergencies?**

The newly arriving patients would require admission for definitive treatment therefore plans should be there to increase the bed capacity when needed.

This can be achieved by the following actions:

- Discharge elective cases.
- Discharge stable recovering patients.
- Stop admitting non emergency patients.
- Convert waiting/non-patient care areas into makeshift wards.

### 2.3.1.6 Planning of public information and liaison

We live in the age of mass and multimedia. Every news and information source will seek access to the latest and most up to date information. In most cases there is absence of clear and credible information. This leads to media speculations and increases the stress and pressure of the incident, especially on hospital and its staffs. The disaster committee should designate one person from the hospital for regular media/ press briefing.

One of the areas in the hospital should be designated as media room where media persons can be accommodated for controlled access to information.

Media always gets its information - the better way is controlled one.

### 2.3.1.7 Planning for security of hospitals in emergency situation

During emergency situation the hospital is the focus of not only the patients being brought in but a lot of other persons including relatives, by-standers, media etc.

They more often than not block the entrance and other areas hampering the smooth functioning of the hospital. It is therefore recommended that all hospitals should have some security arrangements even in non disaster phases. The hospital security should be operational at a very early stage of disaster. Some of the duties recommended are:

- Work in close coordination with local police

## Logistics planning

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- Maintain order within and outside the hospital
- Direct traffic so as not block the free access of patient carrying vehicles to and outside the hospital
- Protect key installation of the hospital (Emergency Department, Hospital Working areas, Power Station/ Generators, Water Tanks/Water Supply etc.)
- Restrict and strictly control access to the hospital
- Direct the entry for authorized persons to appropriate areas (ambulances to emergency, relatives to waiting area, media to media room etc.)
- Protect hospital personnel and patients,
- All hospital personnel should carry Identity cards

### 2.3.1.8 Logistics planning

#### 1. Planning for communications (within and outside the hospital)

Communications is one of the main problems in major emergencies and disasters. Information transfer has to be reduced to most important facts only. Multiple means of communications should be planned to communicate with hospital staffs and administrator. The currently available communication networks which should be looked into for availability in the hospital are:

- internal telephone exchange (for the hospital)
- landline phones
- private mobile/cellular phones
- mobile/cellular phones in closed user group (CUG) for hospital staffs only

## Logistics planning

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- provided by the hospital
- Loudspeakers/ public address system
- Wireless sets for security and ambulance personnel
- The communications room

An area should be identified as communication room within the hospital and all internal and external communications must be made from here. This communication room should be in continuous contact with the command centre/control room.

All important numbers of hospital personnel, police, district functions of administration other nearby hospitals etc. should be clearly mentioned in the disaster manual and a copy of this manual should also be present in the communication room/ telephone exchange.

On getting the go ahead from the control room the disaster message should be flashed/ communicated to all the numbers.

### 2. Transportation (To and from the site/ other hospitals)

Transportation is necessary in emergency situation mainly to bring the patients from the site of mass casualty incident to the hospital. Transport is also required to transfer patients to other hospitals if the facilities at the hospital in question are overwhelmed or is unable to perform its functions due to internal damage.

The transport room/driver room should also have a telephone or any other means of communication like wireless to remain in touch with the control room.

### 3. Stores planning

#### **What is a disaster store?**

It is recommended that adequate stores of linen, medical items, surgical items should be kept separately in the Emergency/Casualty and should be marked the “Disaster Store”. The activation of this store is done only after the Disaster has been notified by the appropriate authorities. As immediate measures the buffer stocks earmarked for the Casualty/Emergency Services should be utilized till the fresh stocks are replenished from main Hospital stores/ disaster stores. Close liaison is kept between the Stores In - Charge and the Hospital administration (Central command). Any requirements to the Operational Areas/ Treatment areas are conveyed to the Command Center.

Sample Stock Inventory for Disaster Stores is given as Annexure J in the original document.

### 4. Personnel Planning

#### - Medical and Non-Medical

#### Medical Staffs

In addition to the members of clinical staff, Para and preclinical disciplines (if present in the facility) should render their services in managing the casualties. Duty roster for standby staffs should be available in the control room/Command center

**Nursing Staffs:** The Nursing Superintendent should be able to prepare a list of nursing staffs who may be made available at a short notice. The nursing personnel officer should be also able to mobilize



## Logistics planning

additional nursing staffs from non-critical areas.

**Other Staffs:** Duty roster (including those on standby duty) of all ancillary medical services (e.g. Radiology, Laboratory, Blood Bank) and also other hospital services (e.g. house keeping, sanitation, stores, pharmacy, kitchen etc.) should be available with the duty officer/ hospital administrator.

**Volunteers:** The role which volunteers will assume in the course of a disaster should be predetermined, rehearsed, coordinated and supervised by the regular senior staff of the health facility.

**Reserved Staff:** In cases of large scale disasters the recommendations are made for community participation

and reserve staff concept. Preparedness will be enhanced by development of a community-wide concept of “reserved staff” identifying physicians, nurses and hospital workers who are (a) retired, (b) have changed careers to work outside of healthcare services, or (c) now work in areas other than direct patient care (e.g., risk management, utilization review).

While developing the list of candidates for a community-wide “reserved staff” will require limited resources, the reserve staff concept will only be viable if adequate funds are available to regularly train and update the reserves so that they can immediately step into roles in the hospital which allow regular hospital staffs to focus on incident casualties. Hospital

Preparedness will be enhanced by development of a community-wide concept of “reserved staff.”

preparedness can be increased if state medical councils, working through the State Medical Services, develop procedures allowing physicians licensed in one system of medicine to practice in another under defined emergency conditions.

## 5. Financial Planning

An important aspect of any management plan is the financial management. It is recommended that the disaster plans are made in close association with the financial advisors of the hospital/institution.

This will make them more cost effective and avoid unnecessary and repeated expenditure.

## 2.3.1.9 Operations Planning

The incident commander after notification of the hospital disaster activates and alerts the in-charges of different important areas of the hospital. The in-charges of various facilities in turn notify and alert the staff (medical / nursing / others staff ) working in these areas to immediately reach the area and carry out their functions. The in-charges also call up the reserved staff which is not on duty to be ready in case they are needed.

### **Essential Medical/Non-Medical Staff Activation (In different Areas)**

#### **1. Reception and Triage Area**

This area is the first area of contact between hospital personnel and the incoming patients. This area should be manned by

- Registration officer on the registration desk
- Triage Doctors/ Nurses
- Adequate number of doctors in the emergency room/ casualty
- Adequate no. of stretchers/trolley bearers
- Hospital attendants
- Initial registration and Triage should be done in this area.
- Triage criteria for disasters and the patients will be color coded according to the kind of treatment they deserve e.g.

#### **2. Decontamination Area**

#### **3. Acute Care Area**

#### **(Emergency Department**

Responsible person - casualty medical officer/ doctor in-charge emergency services

#### **4. Definitive Care areas (Operation Theaters, Wards)**

Responsible person - zcy services.

#### **5. Intensive Treatment Area Activation (HDU/ICU'S)**

Responsible person - Head of Anaesthesiology/ Critical Care/ Medicine.

#### **6. Minor Treatment Areas**

The Staffs mainly nursing staffs and hospital attendants who are familiar with first aid, splinting and dressings can be sent to the Minor treatment areas and thus saving the Medical staffs for more intensive and resuscitation areas

#### **7. Holding Area for Relatives/ Non-Injured**

A hospital staff member will stay with the family

## Operations planning

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members. (Social Services will be assigned here after reporting to the Command Center and other personnel assigned as needed) A list of the visitor's names in association with the patient they are inquiring about should be kept. Volunteers may be needed to escort visitors within the facility.

### **Essential Nursing Staff Activation**

To be done by the Matron / Chief Nursing Superintendent of the hospital in association with Deputy Nursing Superintendents and other nursing administrators.

### **Essential Ancillary Services (Lab, Radiology, Pharmacy)**

#### **1. Laboratory Services**

Department Head or designee will call in their own personnel as needed after reporting to Command

Center. Call personnel from nearby hospitals and clinics as necessary. Have arrangements made to obtain additional blood, equipment and supplies from area agencies.

#### **2. Radiology Services**

Department Head or designee will: Call any or all personnel needed. Arrange for extra supplies to be brought in if needed. Coordinate flow of work and delegation of work areas. Other members of the Radiology staff will: Perform all x-ray exams/ CT scans/ Ultrasounds etc. as needed and assigned.

#### **3. Blood Bank**

#### **4. Mortuary Services (Care for the dead)**

Mortuary should be situated away from the main entrance of the hospital. It should be adequately staffed with Senior Forensic Specialist/ any designee appointed for that purpose. Patients

pronounced DEAD ON ARRIVAL (DOA) should be tagged with a Disaster Tag and body should be sent to mortuary. The Emergency Department should also notify about all deaths to the Command Control room. Bodies should be stored in the alternate morgue area if the capacity of mortuary to store bodies is overwhelmed. Mortuary Personnel will remain with bodies until removed by Mortuary In-Charger. After bodies have been identified, the information will be filed on the Disaster Tag and Medical Records notified as to the identification of the patient. The bodies may be removed via a separate gate of the hospital with the knowledge of the Mortuary-in-Charge. A complete

record of all bodies must be maintained along with the name of the agency removing them, e.g., police, fire department, hearse, etc. Be sure appropriate paperwork is filled out.

### **Other Ancillary Services**

#### **1. Hospital Dietary Services (Kitchen)**

Department head or designee will call in their own personnel as needed after reporting to Command Center. Prepare to serve nourishments to ambulatory patients, in-house patients and personnel as need arise. Utilize additional areas for extra eating space. Be responsible for setting up menus in disaster situation and maintain adequate supplies.

#### **2. Sanitation Services**

Adequate sanitation services within and around the

hospital should be ensured by the hospital administration.

### 3. Hospital Laundry and Sterile Supply

The hospital administration should ensure adequate supply of clean hospital linen, sterile dressing and sterile supply of instruments to the essential areas of the hospital.

### 4. Essential Services

**Water:** Adequate provision should be made to meet the additional requirement of water. Planning should also be done for alternative sources of water such as storage tanks or tube well which can provide water in case of possible breakdown in the normal system of supply.

**Light and Power:** Provision should be made for standby generators to provide light and power to essential areas of the hospital like Emergency Department,

Operation Theatres, ICUs etc.

### 2.3.1.10 Phase of Staff Education and Training

Once the Disaster Plan is ready the next phase would be the education and training of the staff of the hospital about the plan and specific roles of each staff member in case of a disaster.

### Concept of Common Language in Disaster Situation

The initial chaos of any disaster scenario in a hospital can be minimized by proper training of the hospital staff about their roles and responsibilities in case of a MCI/Disaster so that, everyone knows his/her job and work continues in an orderly fashion without confusion.

### Introduction of Disaster Management Training to Hospital Leadership

A presentation made to all administrators, department heads and managers regarding the implementation of the Hospital Disaster Plan into the facility's emergency response plan will help solidify support in all areas of the hospital. This program should be a combination of education and public relations. Managers should be made to feel that they are all an integral part of the new system. Interested managers can be recruited to become part of a train the-trainer class.

### Introductory Lessons for all Hospital Staff

An orientation and education program is required for personnel who participate in implementing the emergency preparedness plan. Education

should address the following

1. Specific roles and responsibilities during emergencies,
2. The information and skills required to perform duties during emergencies
3. The backup communication system used during disasters and emergencies, and
4. How supplies and equipment are obtained during disasters or emergencies.

### Disaster Drills

As a part of the emergency management plan, every hospital is required to have a structure in place to respond to emergencies. This structure is routinely tested during drills. The evaluation modules for hospital disaster drills are designed to be a part of that testing. Viewed in this way, hospital disaster

drill evaluations can provide a learning opportunity for all who participate in a planned drill. The disaster drill evaluation modules present topics for evaluation in a systematic manner. They should be used to identify strengths and weaknesses in hospital disaster drills, and the results gained from evaluation should be applied to further training and drill planning. Although the evaluation modules can be used to identify improvement in repeated drills, they are not intended to be used to make final or complete judgments about whether a hospital passes or fails in its planning and training endeavors. The value of this approach is to identify specific weaknesses that can be targeted for improvement and to promote continuing efforts to strengthen hospital

disaster preparedness.

### Table Top drills

Table Top Exercise is a paper drill intended to demonstrate the working and communication relationships of functions found within the disaster organizational plan. The exercise is intended primarily for the administrators, managers and personnel who could conceivably be placed into an officer's position upon activation of the disaster plan.

### Partial evacuation/Non-evacuation Drills

Hospital evacuation may become a necessity if the hospital itself becomes a victim of any disaster. Such situations need to be foreseen and proper planning has to go into how to evacuate and



## Staff education and training

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which areas of the hospitals need to be evacuated first in case of an internal disaster. Appendix: I of the original document gives an idea about the evacuation plans of a hospital.

### Revision of Hospitals Disaster/ Emergency Plan

Continuous revisions should be made in the Hospital Disaster Management Plan taking leads from the regular disaster drills in the hospital. This would refine the plan and cover up the deficiencies faced in the Drill Phase.

### Continuing Staff Education

# 3

## The Hospital Emergency / Disaster Plan Manual

### What is a Hospital Emergency Plan/ Disaster Manual?

The Hospital Emergency Disaster Plan is a written document also known as “Disaster/ Emergency manual”. The reporting, recording, coordinating and evaluating activities associated with disaster management should be specified in this disaster manual. The disaster manual should incorporate the following:

- Medical Command Authority (Unified Incident command)
- Control center location
- Names and contact numbers of all members of the staff and their position according to the Incident

Command Structure

- Disaster Alert Codes
- Quick reaction teams formation, responsibilities and movement details
- Responsibilities of individuals and departments
- Job Action Cards
- Chronological Action Plan
- Details of resource mobilization for logistics and manpower
- Details of Operational Areas (Patient Care Areas) this should include the existing patient care areas (Reception and Triage areas, Emergency and resuscitation areas, Definitive care areas, Intensive care areas, etc.) The plan should also label certain areas which are free in the hospital area which can be optionally

## The manual

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- used as patient care areas during the initial surge of patients.
- Standing Orders and Protocols for patient management
- Hospital Triage Criteria
- Documentation details
- Communications (Intra and Inter Hospital)
- Networking including capacities and capabilities
- of health facilities
- Pre-hospital transports
- Security arrangements
- Police networks
- Evacuation details
- Medico-legal responsibilities
- Disposal of the Dead (Role of Mortuary services and Forensic Departments in identification, storage and disposal of the deceased)

# 4

## Levels of Hospital Emergency / Disaster Plans

Since the disasters do not strike at the vicinity of only bigger hospitals, it is imperative that all hospitals whether small or big providing health care have an emergency plan. A Hospital Emergency/ Disaster Plan is unique to each hospital as it depends upon its bed strength, staff and other resources. Health facilities and hospitals may be categorized as follows:

### Community Health Centers

Although strictly speaking a Community Health Center (CHC) is a very small facility not geared up for even taking serious emergencies in normal time, but in cases of Mass Casualty Incidents/ Catastrophic disasters the resources of a CHC can be

utilized in order to decrease the unwanted burden at the District level or university level teaching hospitals. CHC's can hence be utilized for treating the Priority - 3 (the not so seriously injured walking wounded patients) and can also be utilized for mass storage of the deceased. Therefore CHC can act as a primary level hospital where basic first aid can be given and patients can be triage.

### District/Municipal Level Hospital

A district hospital is the main general hospital in the district and is generally located at the district headquarter. Sometimes also referred to as civil hospital it is the tertiary level of health care set up provided by the state

## Levels of plans

governments. The average bed strength of a district hospital ranges from 150-250. The district hospital provides a wide variety of specialty care but do not provide super specialty care at most places. Lack of both physical resources and trained manpower leads to the added burden which a district level hospital faces. The district medical authorities through the Chief Medical Officer (CMO) constitute the administrative background of all rescue and relief measures in the district as far as medical preparedness for disasters and mass casualty incidents are concerned. The district hospital is generally the hub of hospital care in mass casualty incidents and is headed by the Chief Medical Superintendent (CMS) The average staff strength of a district hospital range from

100-200 which includes about 30-50 Doctors, 75-100 Nurses, 25-50 Ancillary staffs.

### University/Teaching Hospital

Medical colleges and universities usually manage a University/ Medical College Hospital. The Teaching hospitals provide a wide variety of specialty care and most of the centrally located teaching hospitals in the state also provide Super Specialty care. As far as the physical resources and trained manpower is concerned the teaching hospitals are better off because of the resident staff strength. Most of the Teaching hospitals in the state are not inherently integrated with the state/ district health system, but even then, in the aftermath of a major mass casualty incident in the state these

## Levels of plans

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teaching hospitals provide the backbone of the specialty care to the victims. More often than not the victims are directly brought to the medical college hospitals. The average staff strength of a teaching hospital range from 1500 -2000 which includes about 250 -300 Doctors (Faculty & Residents), 500 - 750 Nurses, 100 - 150 Administrative staff and officers, 300 - 500 Group C&D staff.

emergency committee, the flow of patients during emergencies and appropriate actions during the various phases of a disaster.

**Model Hospital Emergency/ Disaster Plans for each hospital category** can be found in the original document “Guidelines for Hospital Emergency Preparedness Planning” by the United Nations Development Programme, India. The models present the organizational structure and responsibilities of the



A doctor attends to the needs of a patient in a community hospital. © WHO-Manila

# 5

## Guidelines on Hospital Evacuation Plans\*

### 5.1 Purpose

**Evacuation** - the removal of patients, staff and/or visitors in response to a situation which renders any medical facility unsafe for occupancy or prevents the delivery of necessary patient care.

### 5.2. Policy Statement

**A. Partial Evacuation** - patients are transferred within the hospital. There are two levels of a partial response:

1. **Horizontal** - first response; patient movement occurs horizontally to one side of a set of fire barrier doors.

2. **Vertical** - movement of patients to a safe area on another floor or outside the building.

This type of evacuation is more difficult due to stairways which will require carrying of nonambulatory patients; elevators cannot be used.

**B. Full Evacuation** - patients are transferred from Hospital to an outside area, other hospitals, or other alternatives areas.

1. **Paramedic escorted patients** will be diverted from the Emergency Department due to

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\*Annexure J, Guidelines for Hospital Emergency Preparedness Planning by GOI-UNDP. DRM Program



- internal disruption.
2. The building should be evacuated from the top down as evacuation at lower levels can be easily accelerated if the danger increases rapidly.

### 5.3 Responsibility

#### A. Authorization for Evacuation

1. Evacuation of the facility or portion thereof can only be authorized by:
  - a. Public Safety Officer (Fire or Police)
  - b. Chief Executive Officer or Administrator on call
  - c. Nursing Supervisor
2. The decision to evacuate from unsafe or damaged areas shall be based on the following information:
  - a. The Engineering Department's evaluation of the utilities and/or

- structure of the department.
- b. The medical staff and/or Nursing Department's determination whether adequate patient care can continue.
- c. Evacuation should only be attempted when you are certain the area chosen for the evacuees is safer than the area you are leaving.

#### B. Communication of Evacuation

This evacuation plan is based on the premise that an event has occurred, causing the Hospital to be in an internal disaster mode

## 5.4. Procedures

### A. General Instructions

1. Evacuate most hazardous areas first (those closest to danger or farthest from exit).
2. Use nearest or safest appropriate exit.  
Sequence of evacuation should be:
  - a. Patients in immediate danger
  - b. Ambulatory patients
  - c. Semi-ambulatory patients
  - d. Non-ambulatory patients
3. Close all doors. If time permits, shut off oxygen, water, light and gas, if able.
4. Elevators may be used, except during a fire or after an earth quake

### B. Hospital Emergency Incident Command Structure

1. Emergency Incident Command (in the Command Center/EOC)
  - a. All available information shall be evaluated and evacuation schedule established in coordination with the Section Chiefs. This information shall include:
    - Structural, non-structural, and utility evaluation from Engineering/ Damage Assessment & Control Officer.
    - Patient status reports from Planning Section Chief.
    - Evaluate manpower levels and authorize activation of staff

## Hospital Evacuation Plan - Procedures

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- call-in plans, as needed.
  - b. Disaster evacuation schedule to:
    - Planning Section Chief
    - Liaison Officer
    - Safety and Security Officer
    - Logistics Chief
    - Operations Chief
- 2. **Liaison Officer**
  - a. Maintain contact with Public Safety Officials, Health Dept. and Ambulance Agency.
  - b. Complete “Hospital Evacuation Worksheet”
- 3. **Logistics Chief**
  - a. Assign Transportation Officer to assemble evacuation teams from Labor Pool.
  - b. Notify Planning Section Chief of plans.
- 4. **Transportation Officer**
  - a. Assemble evacuation teams from Labor Pool.
  - b. Ensure coordination of off-campus patient transportation.
  - c. Confirm implementation of Transportation Action Plan.
  - d. If able, assign six people to each floor for evacuation manpower.
  - e. Brief team members on evacuation techniques, (attached).
  - f. Arrange transportation devices (wheelchairs, gurneys, etc. to be delivered to assist in evacuation).
  - g. Report to floor being evacuated and supervise evacuation.
  - h. Report to Nurse Manager/Charge Nurse for order of patients being evacuated and

## Hospital Evacuation Plan - Procedures

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method of evacuation.

### 5. Nursing Service Officer

- a. Designate holding areas for critical, semi-critical, and ambulatory evacuated patients.
- b. Organize efforts to meet medical care needs and physicians staffing of Evacuation Holding areas.
- c. Distribute evacuation schedule to Nurse Managers.
- d. Verify Nurse Managers/ Charge Nurses have initiated evacuation procedure.
- e. Request Medical Staff Officer to notify physicians of need for transfer orders.
- f. Assign Holding Area Coordinators, and adequate number of nurses to holding

areas.

- g. Contact pre-established lists of hospitals, extended care facilities, school, etc. to determine places to relocate patients. Forward responses to Planning Section Chief.

### 6. Medical Staff Officer

- a. Notify physicians of need for patient transfer orders.
- b. Assist Nursing Service Officer as needed.

### 7. Nurse Managers or Charge Nurses

- a. Determine patient status. Patients will be evacuated according to status.
- b. Communicate status with large sticker on patient's chart according to the

## Hospital Evacuation Plan - Procedures

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- following criteria:
- non-critical/  
Ambulatory
  - non-critical/Non-ambulatory
  - critical/requires ventilation or special equipment
- c. Report patient status to Nursing Service Officer.
- d. Assign specific nurses to maintain patient care.
- e. Assign two nurses to prepare patients for evacuation.
- Place personal belongings in a bag labeled “BELONGINGS” with name Patient No. with medications prosthetics, and special Patient need items the inside bag.
  - Place KARDEX and addressograph in Patient’s chart secured with tape, which is to remain with the patient.
- f. Designate a safe exit after determining location of patients to be evacuated.
- g. Assign a person to record Evacuation Activity, including:
- Time of evacuation
  - Method of evacuation
  - Name of patient
  - Evacuation status A B C
  - Evacuated from Rm. to (area)
- h. Forward documentation of evacuation and patient disposition to Patient Tracking Coordinator or Patient Info Manager.

## Hospital Evacuation Plan - Procedures

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### 8. Patient Information Manager

Compile patient info on Inquiry Sheets.

### 9. Cardiopulmonary Services Manager

- a. Assign staff members to perform ventilation on required patients.
- b. Assess number of positive pressure breathing devices/bag-valve-masks available

### 10. Safety and Security Officer

- a. If able, assign a security person to each area being evacuated for traffic control/safety.
- b. Turn off oxygen, lights, etc. as situation demands.
- c. Check the complete evacuation has taken place and that no patients/staff remain.

- d. Place “Evacuated at “ (date/time) sign up at main area exit/entrance of evacuated area after evacuation is complete.

### 11. Facilities Operation Officer

- a. Obtain equipment/supplies needed for structural safety during evacuation.
- b. Obtain portable toilets and privacy screens for use in areas where evacuated patients are relocated, if necessary.

### 12. Labor Pool Officer

All available Engineering, Housekeeping, Security staff, etc. not previously assigned to incident will assist in the movement of patients.

### More Information and Examples

The original document “Guidelines for Hospital Emergency Preparedness Planning” by the United Nations Development Programme, India contains useful information in the appendices such as:

- A. Scales for pre-hospital facilities according to population
- B. Equipment for a First Aid Party (Equipment for Casualty Services)
- C. Medical Stores & Equipment for First Aid Posts
- D. Medical Stores and Equipment for a Mobile Surgical Unit
- E. Hospital Emergency Incident Command System (HEICS) Organizational Chart fully operational
- F. Hospital Emergency Incident Command System
- G. Hospital Emergency Incident Command System
- H. Sample Job Cards
- I. Sample In Hospital Triage Protocol in Disasters
- J. Hospital Evacuation Plans and Guidelines according to international best practices
- K. Sample stock inventory for disaster stores
- L. Guidelines for availability of knowledge, skills and resources for trauma management at different levels of care

# Useful References

Guidelines for Hospital Emergency Preparedness Planning by GOI-UNDP. DRM Program (2002-2008), 83 pp.

<http://safehospitals.info/images/stories/3Resources/Guidline%20Final.pdf>

This guideline intends to support hospitals in formulating their own “all hazard” emergency plans in accordance with their manpower and infrastructural resources. It serves as a guide in developing integrated hospital plans consistent with their city or community disaster management plans. Sample models of emergency/disaster plans for three levels of hospitals - community, district and university levels - are presented and are useful for administrators in emergency preparedness planning.

Pocket Emergency Tool. 2nd Ed. by Health Emergency Management Staff, Department of Health, Manila, Philippines. and WHO-WPRO, 116 pp.

[http://www.wpro.who.int/internet/resources.ashx/EHA/docs/Pocket\\_Emergency\\_Tool\\_2005.pdf](http://www.wpro.who.int/internet/resources.ashx/EHA/docs/Pocket_Emergency_Tool_2005.pdf)

The main purpose of this pocket tool is to help guide and prepare the health sector professionals in the field in the event that an emergency occurs. A compendium of recent DOH, WHO and other international agencies’ guidelines, checklists and standards, this booklet provides essential pointers on how to carry out rapid health assessment, networking and coordination, planning, and other necessary tools especially in times of tragedies and adversities.

Training on Safe Hospitals in Disasters. by WHO-WPRO, Manila, Philippines, 58pp. [http://www.wpro.who.int/sites/eha/trn/training\\_HSFD.htm](http://www.wpro.who.int/sites/eha/trn/training_HSFD.htm)

This training course aims to develop capacity for safe hospitals and hospital preparedness. Participants of the trainings are introduced to



various principles processes, and basic tools needed to identify and prioritize structural, non-structural, and functional gaps and prepare plans to address these gaps. This training modules help create advocacies for safe hospitals. These modules show appreciation on the importance of policy and administrative support in ensuring safe hospitals.

**Field Manual for Capacity Assessment of Health Facilities in Responding to Emergencies . (2006).** by WHO-WPRO, Manila, Philippines:. 190pp.  
[http://www.wpro.who.int/NR/rdonlyres/AAF327BF-0795-4FF6-AB5E-44A5A31F0F7D/0/who\\_fieldmanual\\_r1.pdf](http://www.wpro.who.int/NR/rdonlyres/AAF327BF-0795-4FF6-AB5E-44A5A31F0F7D/0/who_fieldmanual_r1.pdf)

Preparedness is improved by anticipating and solving potential problems. This is the focus of this document. Questionnaires for assessing the capacity of health facilities in responding to emergencies are presented. The assessment includes structural vulnerability, non-structural vulnerability, functional vulnerability, human resources, and preparedness in specific emergencies such as industrial, infectious disease outbreak, biological, chemical and radiological emergency preparedness.

**Surge Hospitals (2006).** by. Joint Commission on Accreditation of Healthcare Organizations, 29pp.  
[http://www.jointcommission.org/PublicPolicy/surge\\_hospitals.htm](http://www.jointcommission.org/PublicPolicy/surge_hospitals.htm)

This document provides information to health care organizations in understanding what surge hospitals are. Based on lessons from hurricanes Katrina and Rita, it was revealed that having plans to “surge in place,” meaning expanding a functional facility to treat a large number of patients after a mass casualty incident, is not always sufficient in disasters because the health care organization itself may be too damaged to operate. Where outside of its own walls does a health care organization go to expand its surge capacity? Who should be involved in planning, establishing, and operating surge hospitals? This paper provides the answers to these questions and offers real-life examples of how surge hospitals were established on the Gulf Coast.

<http://www.safe-schools-hospitals.net>





  
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