**"Preparedness level of Disaster Management in National Heart Institute, Delhi"**

**A dissertation submitted in partial fulfillment of the requirements**
**For the award of**

**Post-Graduate Diploma in Health and Hospital Management**

**By**

**Sucheta Rawat**

**Roll No.PG/10/110**

Under the guidance of

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**Delhi**

**International Institute of Health Management Research**

**New Delhi -11007**

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**A Dissertation Summary Report for**

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**International Institute of Health Management Research New Delhi -11007**

**MAY, 2012**

**NATIONAL HEART INSTITUTE**

*Transplanting Health & Happiness*

No.13/HR/2012-NHI                                        Date:01.05.2012

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. Sucheta Rawat has successfully completed her 3 months internship in National Heart Institute from January 5, 2012 to April 05, 2012.  During her internship she has worked on the project of "Prepardnes Level of Disaster Management in National Heart Institute" under the guidance of me and my team at NHI.

We wish her good luck for her future assignments.

(Wg Cdr B. Jena)
Administrator

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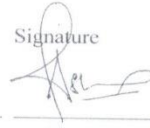
## <u>Certificate of Approval</u>

The dissertation titled **"Preparedness level of Disaster Management in Hospital"** is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for award of **Post- Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

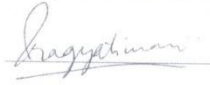Dissertation Examination Committee for evaluation of dissertation

| Name | Signature |
|------|-----------|
| Anupama Shrime | |
| PRAGYA T. GUPTA | |

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## Certificate from Dissertation Advisory Committee

This is to certify that **Ms.Sucheta Rawat**, a participant of the *Post- Graduate Diploma in Health and Hospital Management*, has worked under our guidance and supervision. She is submitting this dissertation titled "**Preparedness Level of Disaster Management In hospital** "in partial fulfillment of the requirements for award of **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Wg.Cdr.B.Jena

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## ABSTRACT
## Key words: International protocol, mass casualties and disaster management

**Objective:** to know the level of preparedness among Employees of National Heart Institute, Delhi. Also to find out areas of improvement for disaster management in hospital.

**Sample**: Sample size-120 One Questionnaire was developed based on the WHO preparedness checklist .And this questionnaire was circulated among every employees of hospital.

Study based on Primary and Secondary data.

**Data Collection**: Data were collected from Hospital managers, nursing staff, employees of the emergency department, Admin Department using a Questionnaire developed for purpose of study. The questionnaire was in line with international protocols for preparedness of disasters. And sample size for this study was 120.

**RESULTS:**

The study revealed that the studied hospital presently is little far from international protocols of Preparedness for disasters. It was found that the awareness for preparedness is lacking in support staff. Whereas security staff was completely aware about policy and protocols of disaster management.

The study has been able to highlight various factors where disaster preparedness is lacking & researchers have made a no. of suggestions to prepare hospital for meeting with any challenge faced by them. The findings will not only provide a baseline from which to work, but they will help raise safety awareness throughout the organization and identify areas most in need of improvement.

## <u>ACKNOWLEDGEMENT</u>

It gives me pleasure to remember the moments when my teachers and batch mates were extending their support and guidance to me. I feel highly fortunate too. I express my deep sense of gratitude and appreciation to all of them at this moment.

At the outset I feel great pleasure to express my regards to Ms. Anupama Sharma, Assistant professor in IIHMR, New Delhi for his incessant boosting, inspiring encouragement, patience and ever readiness to help. It is my privilege to work under his dynamic Supervision.

I am sincerely thank full to Wg.Cdr.B.Jena (Administrator)National Heart Institute, Delhi my external guide who provided me a caring and supporting and throughout my training period.

I am thankful to the IIHMR, New Delhi for having provided me with the invaluable learning experience...

I acknowledge the moral support and encouragement provided by my family and friend  at the every stage of my study.

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**RESULTS AND FINDINGS**

# Chapter -1
# Internship Report

## Internship Report Part 1:

Practical exposure is an integral part of our Postgraduate Diploma in Hospital and Health Management (PGDHM). As a part of the curriculum, each student of final year is required to undergo internship and dissertation with a reputed organization for a period of three months.

In Internship He/she will assist the administrator / manager in day-to-day operations.

Through this process he/she is expected to gain practical knowledge and skill to handle managerial issues related to major departments of the organization.

With the similar objective in mind I joined the National Heart Institute as a Management trainee on dated 5th January 2012.

## 1.1: History of the Hospital:

The All India Heart Foundation (AIHF) can proudly claim to be one of the first societies of its kind to be founded in Asia. It was formed by a group of physicians (led by Dr. S. Padmavati) and industrialists (Late Mr.Ashok Jain of Bennett, Coleman & Co. Ltd) at the inspiration of the doyen of modern cardiology, the late Dr. Paul Dudley White and registered as a charitable society in 1962. Its membership is open not only to specialists in cardiology but also to all doctors and laymen.

The National Heart Institute (NHI) is an integral part of the Foundation's Research and clinical care delivery Programmes and was established in 1981.

**ADMINISTRATIVE STRUCTURE**

The affairs of the Foundation are managed by a Board of Directors who collectively forms the Governing Body. The members are eminent doctors, legal experts, philanthropists, scientists, bureaucrats, auditors, financial analysts and administrators of high standing. In keeping with its all-India character, it has branches in other parts of the country.

**OBJECTIVES/FUNCTIONS OF THE FOUNDATION**

The main objectives of the Foundation are scientific research in the area of cardiology in all of its various aspects, stimulation and development of heart care through public health education, training of doctors and paramedical personnel, improving diagnostic and therapeutic modalities, development of national educational programmes to control all types of heart diseases and treatment of heart patients. Rheumatic Fever (RF) and Rheumatic Heart Disease (RHD), the most important cause of heart disease in children and young adults, have been the subject of study since 1966. A model registry for RF/RHD has been created and maintained for follow-up since 1977.

**PUBLIC HEALTH EDUCATION**

The AIHF has carried on public health activities since its inception. It publishes its own Newsletter, HEART NEWS since 1962 without break. This bi-monthly bulletin is sent free to all its members. Blood pressure is but one cardiovascular risk factor; the others, obesity, smoking, high blood lipids, physical inactivity, diabetes, stress etc. are equally important. The Foundation has been regularly featuring articles on these aspects in its bulletins. The organization has also brought out several brochures relating to heart diseases for the use of laymen. A book on "Heart Disease and the Layman" by Dr. S. Padmavati was published in English by the National Book Trust of India in its popular science series and translated into Tamil, Hindi, Urdu, Gurmukhi and Marathi. Lectures, radio talks and television programmes on many aspects of heart disease are given by the directors and other senior members of the Foundation throughout the year in English and regional languages in Delhi and elsewhere.

**COLLABORATION WITH INTERNATIONAL INSTITUTIONS**

The AIHF is the only Heart Foundation in India affiliated to the World Heart Federation, which is an international body for coordinating Heart Societies and Foundations throughout the world. It has thus links with other national heart foundations throughout the world for exchange of information and knowledge so that it could be disseminated for the benefit of professionals and laity, alike, in the country. It is recognized as a Collaborative Centre of

WHO in Preventive Cardiology since 1980, the only one in the SEARO region. It is a member of the World Hypertension League and Heart Beat International.

**ADVISORY ROLE**

The Foundation has become highly credible and respected body promoting and facilitating research in cardiovascular diseases. The Ministry of Health and Family Welfare, Government of India, consults the Foundation in formulating health policies and approach strategies for the Five Year Plans and related matters. The ICMR associates it in its research projects, appraisal of projects for research and evaluation of results of approved projects.

**RECOGNITION BY GOVERNMENT**

The Ministry of Science & Technology (Department of Scientific & Industrial Research), Government of India has recognized the Foundation as a scientific research organization. The National Board of Examinations, New Delhi has recognised the National Heart Institute for training of candidates for the specialities of cardiology and cardiac surgery for the award of DNBE degree. The Government of India (Ministry of Health and Family Welfare), Ministry of Defence, the Government of NCT of Delhi and other state goverments like Haryana, Madhya Pradesh, Uttarakhand, Himachal Pradesh, Mizoram etc and over a 100 Public Sector Undertakings have recognised the NHI as a referral hospital for specialized treatment, viz. angiography, angioplasty coronary artery bypass surgery and other open heart surgeries. Many international and Public Sector Organisations such as UNDP, WHO, SAIL, ONGC, NTPC, BHEL, BEL and IDPL are empanelled with it for treatment,.

**NHI VISION**

"To create long term relationships by caring as no one has done ever before"

**NHI MISSION**

"To provide superior, compassionate and innovative cardiac care to prevent and treat disease maintaining highest standards in safety and quality.

**NHI Codes for Disaster:**

Code Red-Fire

Code Pink-Child Abduction

Code Black –Bomb Threat

Code Blue-CP Arrest

Code Yellow –External Disaster

Code Violet –Violent Patient/Attendant

**Part 2:**

**1.2 Objective of internship-**

It is imperative in the field of management to do internship at the end of classroom teaching. It allows hands on experience that is sometimes missing in theoretical knowledge.

Fundamental objective to internship are,

- ✓ To get involved in day to day operations.
- ✓ To comprehend the interdepartmental co-ordination.

To find an area in the organization where improvement is required and where management knowledge & skills can be imparted.

**Marketing Department: (Nuclear medicine department)**

The Government of India (Ministry of Health and Family Welfare), Ministry of Defense, the Government of NCT of Delhi and other state governments like Haryana, Madhya Pradesh, Uttarakhand, Himachal Pradesh, Mizoram etc and over a 100 Public Sector Undertakings have recognized the NHI as a referral hospital for specialized treatment, viz. angiography, angioplasty coronary artery bypass surgery and other open heart surgeries. Many international and Public Sector Organizations such as UNDP, WHO, SAIL, ONGC, NTPC, BHEL, BEL and IDPL are empanelled with it for treatment,

NHI Follows Four Types of Marketing Activities For its Client.

- Referral Sales
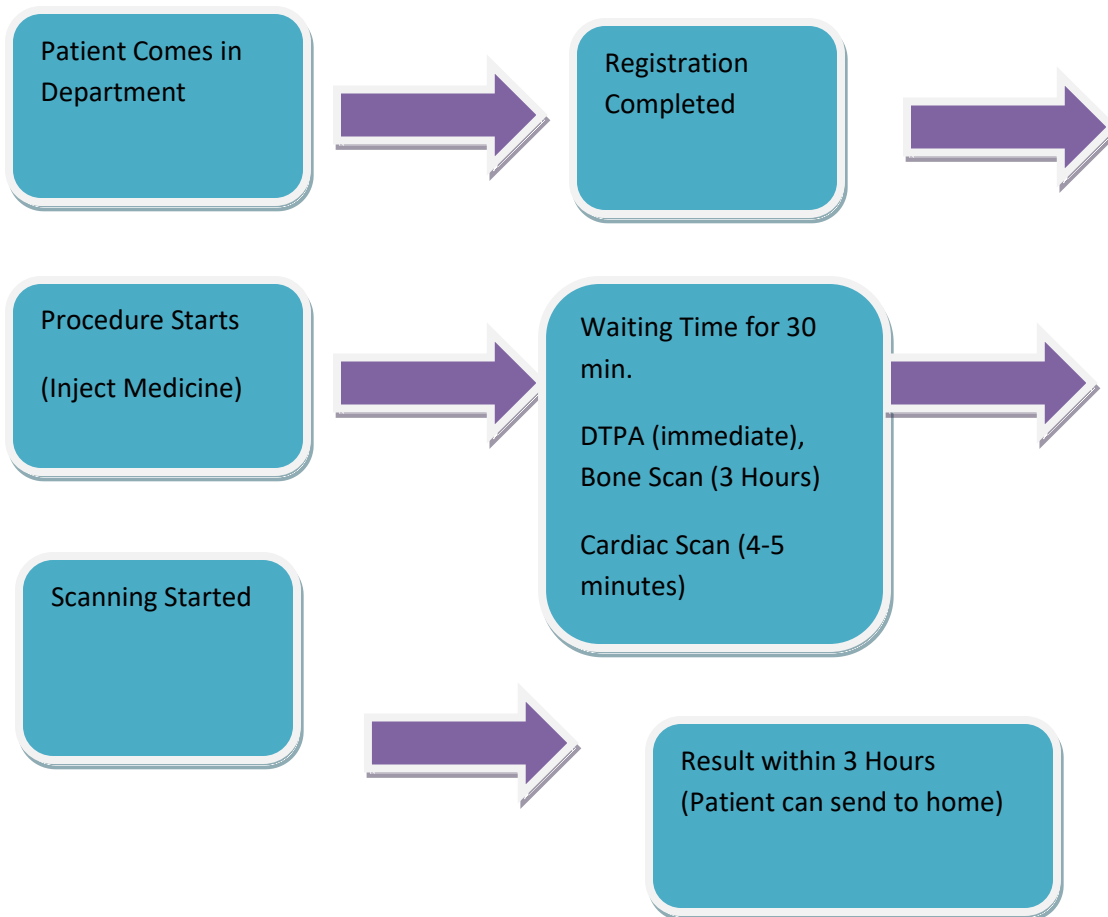- Corporate / PSU sales
- Insurance & TPA
- International Business

**1.3: Nuclear Medicine Department:**

**Overview:** Nuclear Medicine is a branch of medical science where radionuclides are used for diagnosis and treatment of human diseases. Discovery of artificial radioactivity and development of nuclear reactors and particle accelerators have played a significant role in radiotracer technology. Organ/tissue specific compounds, known as radiopharmaceuticals, are administered to the patient for diagnostic and therapeutic procedures. Nuclear medicine imaging and non-imaging procedures provide important information about functional status of the body organs. Radiotracer technology made it possible to define disease in terms of physiology and biochemistry rather than anatomy or histopathology. Ultrasonography, computed tomography (CT) and magnetic resonance imaging (MRI) continue to define disease on the basis of abnormal structure. Single photon emission tomography (SPECT) permits 3D reconstruction of data, increasing the sensitivity and anatomical localization of lesions in the skeleton, brain and heart. The sensitivity of localization of tumors is also increased. We are lucky to have such a system soon in our facility at our institute. In nuclear medicine the emphasis is on function and chemistry rather than structure. Radioactive tracers of glucose, fatty acids, and amino acids make it possible to examine the growth and development of the organs of the body, the regeneration and repair when injured, and the response to drugs. Advances in molecular biology have made a dramatic impact on the practice of medicine. This has led to the birth of "Molecular Nuclear Medicine". Studies with receptor based radiopharmaceuticals provide insight into the biochemical processes of proteins as they carry out instructions from genetic coding. These studies are possible with the help of positron emission tomography (PET). A PET system (PET/CT) with 11 MeV Cyclotron has already been commissioned in the department.

**Types of scan performed in NHI:**

1) Gallium Scan

2) Stress Thallium

3) Muga (Stress/Rest)

4) DTPA

5) DMSA(Kidney)

6) Captropril Scan(Kidney)

7) HIDA

8) GI-Bleed

9) GE Reflux

10) VQ Scan

11) Bone Scan

## 1.4: Process Flow of Nuclear Medicine Department:

Patient Comes in Department → Registration Completed →

Procedure Starts (Inject Medicine) → Waiting Time for 30 min.

DTPA (immediate), Bone Scan (3 Hours)

Cardiac Scan (4-5 minutes) →

Scanning Started →

Result within 3 Hours (Patient can send to home)

## 1.5: Tasks Performed:

As Part of Internship in NHI, I got an opportunity to learn different strategies to achieve the target.

Every Day we have to meet Doctors and send Daily report in the same evening.

During Internship I have done following tasks:

1) Meet Doctor (10-15 Daily)

2) Send Report Daily

3) Prepare patient Doctor List

4) Give Output to Monthly Revenue Calculation

5) Define Strategies to Next Month

6) Define Potential Customer

7) Make list of doctors for next month

## 1.6: Reflective learning

The learning that I extracted from the experience not only enriched me in terms of providing knowledge as to how an established Department runs but also gave me insights into my ownself,imparting priceless lessons of patience, dedication and importance of good behavioral communication.

# Chapter-2
# Dissertation Report

## "Preparedness level of Disaster Management in Hospital"

**Key words:** Emergency preparedness, hospital preparedness, mass casualty, pandemic, DMP-Disaster management plan, NDMA-National Disaster management Authority, NHI-National Heart Institute.

## 2: Introduction

Following the World Trade Center attack of September 2001 and the anthrax terrorism incident of October 2001, there has been a heightened interest in using surveys to assess our readiness for various disasters. Emergency preparedness for disaster management is a crucial segment wherein administrators, planners, managers and stakeholders play an important role.

Emergency management is a dynamic process. Emergency preparedness for disaster management is the process of preparing, mitigating, responding, and recovering from any emergency situation. Individuals and organizations responsible for emergency management use different tools to save lives reduce human suffering and preserve economic assets before, during and after any catastrophic event. But nowadays, correct and timely information is a critical part of any successful emergency management program.

Disaster management occupies an important place in this country's policy framework as it is the poor and the under-privileged who are worst affected on account of calamities/disasters.

Disasters retard socio-economic development, further impoverish the impoverished and lead to diversion of scarce resources from development to rehabilitation and reconstruction. The institutional and policy mechanisms for carrying out response, relief and rehabilitation have been well-established since Independence. These mechanisms have proved to be robust and effective in so far as response, relief and rehabilitation are concerned. Hospital preparedness is crucial to any disaster response system. Each hospital need to have an emergency preparedness plan to deal with mass casualty incidents and the hospital administration/ doctor trained for this emergency. The curriculum for medical doctors does not at present include Hospital Preparedness for emergencies. Therefore capacity building through in-service training of the current heath

managers and medical personnel in Hospital Preparedness for emergencies or mass causality incident management is essential.

21st century after seeing the uncertainties of societal well -being has witnessed an increased low intensity conflicts. These conflicts are taking shape of manmade disasters the most recent disasters of this nature are Sep.11 attack on WTC and Dec 9 attack on Indian Parliament. Disasters in any form whether man made or natural cause casualties & dislocation of different kinds of services which requires to be restored at the earliest not only to restore normal life pattern but also to bring down panic reaction at its lowest.

The various services, which need preparedness for any kind of eventuality coming without any warning, are health, sanitation, water supply, electricity supply, security (law & order), transport etc. Health being the most crucial service, from the point of view of caring & rehabilitation of injured &disposal formalities for dead, requires the highest state of alertness round the clock all 365 days of the year without any relaxation of any kind for any reason.

As hospitals & emergency staff are the first persons to manage the consequences of any disaster, assessment of their preparedness is the most important for any government as well as public. Obviously the first persons to deal with victims of any disaster are the emergency staff & the hospitals of that area. So it is quite logical for a hospital to be prepared to deal with disasters. The problems in effectively dealing with disasters are manifold because accurate information and training is not readily available to emergency and disaster responders to meet the challenge effectively.

Concern about disasters is becoming increasingly relevant as increases in population density, population shifts, and increasing technology make it likely that we will encounter disasters more frequently and that they will be more severe (Drabek, 1986:60, 70)

There are several reasons for this:[

1. Increasing Population Density: as areas become more densely populated, there are more potential victims when a disaster strikes

2. Increased Settlement in High-Risk areas. There is greater settlement in high-risk areas such as flood plains, earthquake faults, coastal hurricane areas, unstable hillsides, areas subject to wild land fires, and areas adjacent to hazardous waste landfills, airports, and nuclear power.

EXAMPLES:

1. Each year floods cause loss to human & financial assets to the tune of millions in states of Bihar, eastern U.P.& Assam in our country.

2. Increased possibility of terrorist attacks in form of explosives, chemical, biological or radiological weapons is posing threat to almost all of democratic countries of the world.

3. More vulnerability of society to ethnic violence due to decreasing adjustability & political interference which leads to horrifying incidences like Godhra mass killing & its aftermath in INDIA. Which has incurred us cost to the tune of billions of rupees & of course lives the cost of which cannot be estimated at all.

4. There is a proliferation of high-rise office buildings and hotels that subject their inhabitant s to fire threats not experienced before.

**2.1: Hospital Preparedness and Emergency Health Management in Medical Education:**
Hospital preparedness is crucial to any disaster response system. Each hospital needs to have an emergency preparedness plan to deal with mass casualty incidents and the hospital administration/ doctor trained for this emergency. The curriculum for medical doctors does not at present include Hospital Preparedness for emergencies. Therefore capacity building through in-service training of the current heath managers and medical personnel in Hospital Preparedness for emergencies or mass causality incident management is essential.

In order that, the future health managers acquire these skills it is proposed to include health emergency management in the undergraduate and post graduate medical curricula. In consultation with Medical Council of India (MCI), two committees have been constituted for preparation of curriculum for introduction of emergency health management in MBBS curriculum, and preparation of in-service training of Hospital Managers and Professionals. Rajiv Gandhi University of Health Sciences Karnataka has been identified as the lead national resource institution for the purpose.

## 2.2: Distinguishing between an emergency and a disaster situation.

An emergency and a disaster are two different situations:

**An emergency** is a situation in which the community is capable of coping. It is a situation generated by the real or imminent occurrence of an event that requires immediate attention and that requires immediate attention of emergency resources.

**A disaster** is a situation in which the community is incapable of coping. It is a natural or human-caused event which causes intense negative impacts on people, goods, services and/or the environment, exceeding the affected community's capability to respond; therefore the community seeks the assistance of government and international agencies.

Disaster management is an enormous task. They are not confined to any particular location; neither do they disappear as quickly as they appear. Therefore, it is imperative that there is proper management to optimize efficiency of planning and response. Due to limited resources, Collaborative efforts at the governmental, private and community levels are necessary. This level of collaboration requires a coordinated and organized effort to militate against, prepare for, respond to, and recover from emergencies and their effects in the shortest possible time.

## 2.3: Some Terminologies used in disaster management:

**Disaster management cycle:**

A cycle with phases that reduce or prevent disasters

**Mitigation:** Reducing or minimizing an impact of a hazard or disaster.

**Risk management:** Consists of identifying threats (hazards likely to occur), determining their probability of occurrence, estimating what the impact of the threat might be to the communities at risk, determining measures that can reduce the risk, and taking action to reduce the threat.

**Vulnerability:** A condition wherein human settlements, buildings, agriculture, or human health are exposed to a disaster by virtue of their construction or proximity to hazardous terrain.

**2.4: Disaster Preparedness:**

Disaster management is an enormous task. They are not confined to any particular location; neither do they disappear as quickly as they appear. Therefore, it is imperative that there is proper management to optimize efficiency of planning and response. Due to limited resources, collaborative efforts at the governmental, private and community levels are necessary. This level of collaboration requires a coordinated and organized effort to mitigate against, prepare for, respond to, and recover from emergencies and their effects in the shortest possible time.

Preparedness should include following task to reduce effect of Disaster.

Each Hospital preparedness plan should include following exercise:

Preparedness plans

- Emergency exercises/training
- Warning systems
- Emergency communications systems
- Evacuations plans and training
- Resource inventories
- Emergency personnel/contact lists
- Mutual aid agreements
- Public information/education

One of the most effective mechanisms for a Hospital to prepare for a disaster is by conducting education and Employee awareness programmes at the Hospital level. Public awareness in disaster management is a process of educating and empowering the population through sharing knowledge and information about the various types of disasters and their potential risks as widely as possible so that people act appropriately when a disaster happens.

**Personnel Training**

Training personnel is the preparation of resource people to provide basic information on appropriate targeted goals. It provides premier world-class training, products and services through innovative methods and technologies that contribute to the protection of life and property in the Environment. It is a training that develops resources based on the needs of people.

**Purpose**

The reason for disseminating quality information in the informal mode is very important to the communities. The obvious reason is to integrate the local skills and knowledge with modern technologies with the immediate resources that are available especially with regards to disaster risk management. The resource people in the government, NGOs and communities within the local government structure are driving the personnel training programmes.

**Some types of Personnel Training**

- Legislation, convention, policy framework and planning
- Health
- Rehabilitation
- Disasters, hazards and quarantine
- Organizational structure
- Establishment of disaster committee
- Resource personnel
- Leadership and discipline

**2.5: Infrastructure and procedures in accessing emergency situations.**

A mass casualty incident (MCI) is any event producing a large number of victims such that the normal capacity of local health services is disrupted. Common causes of an MCI include floods, fires, explosions, industrial accidents, or conflict situations.

The response may be delayed after a MCI due to poor communication. Valuable resources at the disaster site are used up in attempts to save the most gravely injured victims who cannot survive, while those who are more likely to survive receive little attention. Inadequate transportation may decrease the survival of victims in critical condition. The following patients will frequently reach the health facility first:

- those nearest to the arriving ambulances;

- those who are first to be rescued; and

- Those who are the most gravely injured.

If there is only one first referral health facility, it may quickly become overwhelmed. Limited resources are used to care for victims arriving first, even though most of them may have minor injuries. As a result, they tie up the personnel, examining rooms, supplies, etc. increasing the risk of death for critically ill victims whose survival depends on receiving prompt medical attention.

## 2.6: Understanding Triage

Triage is defined simply as sorting and prioritizing patients for medical attention according to the degree of injury or illness and expectations for survival. Triage is carried out to reduce the burden on health facilities and it is normally done by the most experienced health worker assisted by competent staff on the triage team.

**Disaster Associated Health Issues – Part I: Emergency Health Services and Communicable Diseases.**

Triage is a continuous process that begins when patients arrive at the medical post and continues as their condition evolves until they are evacuated to the hospital.

By providing care to victims with minor or localised injuries, health facilities are freed to attend to more critical tasks. Triage is necessary where health facilities cannot meet the needs of all victims immediately,

Particularly following an MCI. The goal of managing a mass casualty incident is to minimise the loss of Life or disability of disaster victims by first meeting the needs of those most likely to benefit from services. This goal can be achieved by setting the following priorities for triage:

Priority for transportation to the hospital is based upon referrals of priority needs of patients.

Priorities for care in the field are often identified by visible colour-coded tags that categorise patient needs. However it is important to note that different jurisdictions use varying systems and the use of colour-coded tags may cause some confusion. (See Nocera and Garner, 1999).Management of MCI begins with being prepared to mobilise resources and follow standard procedures in the field and at the hospital. Hospitals with a limited number of emergency workers may find it difficult to hold regular training sessions on MCI management. Countries with limited resources should focus on the following:

☐ improving routine emergency services for sudden-impact, small-scale incidents (e.g., car accidents or accidents in the home). To avoid confusion, the same procedures that is necessary to save lives during

An MCI should be performed as routine emergency services;

- Co-coordinating activities that involve more than an emergency medical unit (police, fire fighters, ambulances, hospitals, etc.); and
- ensuring a quick transition from routine emergency services to mass Casualty management establishing standard procedures for managing

  All incidents (small or large scale) — search and rescue, first aid, triage, transfer to hospital And hospital care.

## 2.7: Disaster Preparedness Improves Overall Quality of Care

While the likelihood of a disaster occurring is small, the impact of a disaster can be extremely significant. First and foremost, there is a direct health care impact on the population, be it from mass trauma, an infectious agent, a chemical release, weather patterns, or other causes. Disasters can also have an impact on the ability of the hospital to function. As the workload increases, the staff themselves may become ill and fear within the health care community may grow. Last, the reputation of an organization that responds poorly to disasters is tarnished for an extremely long period of time. Tragedies such as the 2004 Indian Ocean tsunami or Hurricane Katrina in 2005, shown on 24/7 news channels, provide an eyewitness account of disaster management or lack thereof in our global village world (Jenkins et al., 2009). Any mention of the Federal [U.S.] Emergency Management Agency (FEMA) today immediately brings to mind the response to Hurricane Katrina while all good works that FEMA had performed in the past are forgotten. Thus, beyond the immediate impact on the population, the hospital staff, and the hospital's ability to function, the impact of a disaster on the public relations image of the hospital can be in and of itself disastrous and sustained for a very long term.

Standardizing approaches to surge management during disasters is the first step in quality improvement. Because disaster response is an organization-wide process, this improvement has an impact on the entire hospital. Processes that are discovered to be useful in expediting care in a disaster situation can easily find their way into the day-to-day function of the organization. If disaster is defined as an event that outstrips the organization's ability to deliver health care, preparedness is a method of "vaccination," raising the threshold not only in disaster periods but

also in normal day-to-day function. Hospitals that function well prior to an event may have less need to invoke their disaster plan to begin with.

## 2.8: ESSENTIAL EMERGENCY EQUIPMENT GENERIC LIST

This checklist of essential emergency equipment for resuscitation describes minimum requirements for essential emergency surgical care at the first referral health facility (small or rural hospital/ health centre).

1) Capital Outlays

2) Quantity

3) Date

4) Checked

  These four things should mention while preparing the Emergency Generic List:

1 Resuscitator bag valve and mask (adult)

2 Resuscitator bag valve and mask (paediatric)

3 Oxygen source (cylinder or concentrator)

4 Mask and Tubings to connect to oxygen supply

5 Light sources to ensure visibility (lamp and flash light)

6 Stethoscopes

7 Suction pump (manual or electric)

8 Blood pressure measuring equipment

9 Thermometer

10 Scalpel # 3 handle with #10, 11, 15 blade;

11 Scalpel # 4 handle with # 22 blade

12 Scissors straight 12 cm

13 Scissors blunt 14 cm

14 Oropharyngeal airway (adult size)

15 Oropharyngeal airway (paediatric size)

16 Forcep Kocher no teeth 12-14 cm

17 Forcep, artery

18 Kidney dish stainless steel appx. 26x14 cm

19 Tourniquet

20 Needle holder

21 Towel cloth

22 Waste disposal container with plastic bag

23 Sterilizer

24 Nail brush, scrubbing surgeon's

25 Vaginal speculum

26 Bucket, plastic

27 Drum for compresses with lateral clips

28 Examination table

29 Wash basin

Renewable Items

30 Suction catheter sizes 16 FG

31 Tongue depressor wooden disposable

32 Nasogastric tubes 10 to 16 FG

33 Batteries for flash light (size C)

34 Intravenous fluid infusion set

35 Intravenous cannula # 18, 22, 24

36 Scalp vein infusion set # 21, 25

37 Syringes 2ml

38 Syringes 10 ml

39 Disposable needles # 25, 21, 19

40 Sharps disposal container

41 Capped bottle, alcohol based solutions

42 Sterile gauze dressing

43 Bandages sterile

44 Adhesive Tape

45 Needles, cutting and round bodied

46 Suture synthetic absorbable

47 Splints for arm, leg

48 Urinary catheter Foleys disposable #12, 14, 18 with bag

49 Absorbent cotton wool

50 Sheeting, plastic PVC clear 90 x 180 cm

51 Gloves (sterile) sizes 6 to 8

52 Gloves (examination) sizes small, medium, large

53 Face masks

54 Eye protections

55 Apron, utility plastic reusable

56 Soap

57 Inventory lists of equipment and supplies

58 Best practice guidelines for emergency care

**Supplementary equipment for use by skilled health professionals**

1 Laryngoscope handle

2 Laryngoscope Macintosh blades (adult)

3 Laryngoscope Macintosh blades (paediatric)

4 IV infusor bag

5 Magills Forceps (adult)

6 Magills Forceps (paediatric)

7 Stylet for Intubation

8 Spare bulbs and batteries for laryngoscope

9 Endotrachael tubes cuffed (# 5.5 to 9)

10 Endotrachael tubes uncuffed (# 3.0 to 5.0)

11 Chest tubes insertion equipment

12 Cricothyroidotomy

**This list was compiled from the following WHO resources:**

1) WHO training manual: Surgical Care at the District

Hospital

2) WHO Emergency Relief Items, Compendium of Basic

Specifications

3) WHO/UNFPA Essential drugs and other commodities for reproductive health services.

4) WHO Essential Trauma Care Guidelines.

**2.9: What is a Hospital Emergency Plan/ Disaster Manual?**

The Hospital Emergency is a Plan written a 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 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)

## 2.10: Review of Literature:

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides are regular phenomena. India also witnessed a hitherto new natural calamity in the form of Indian Ocean Tsunami in 2004. Last few decades have witnessed an increased frequency in disasters 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, 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.

Emergency preparedness for disaster management is a crucial segment wherein administrators, planners, managers and stakeholders play an important role. [1] The World Health Organization Regional Office for Europe has developed the *Hospital* emergency response checklist to assist hospital administrators and emergency managers in responding effectively to the most likely disaster scenarios. This tool comprises current hospital-based emergency management principles and best practices and integrates priority action required for rapid, effective response to a critical event based on an all-hazards approach.[2]

According to NDMA 2005 report, Health Professionals should be trained in crisis prevention response and recovery and Trauma Management. [3] Hospital should have disaster management plan to provide policy for response to both internal and external disaster situations that may affect hospital staff, patients, visitors and the community also to identify responsibilities of individuals and departments in the event of a disaster situation.[4] Disaster is an emergency situation. Timely help of every individual is needed to make disaster management plan a success to reduce the Mortality and Morbidity.[5] Preparedness means Activities that will organize and mobilize essential resources (i. e., plan-writing, employee education, preparation with outside agencies, acquiring and maintaining critical supplies).[6] Hospitals would be among the first

institutions to be affected after a disaster, natural or man-made. Because of the heavy demand placed on their services at the time of a disaster, hospitals need to be prepared to handle such an unusual workload. This necessitates a well documented and tested disaster management plan (DMP) to be in place in every hospital.[7] the hospital's patient care role begins with and follows the disaster. The hospital's community service role begins long before the disaster as the hospital develops, tests and implements its disaster plan.[8]

In India, hospitals rarely have a documented DMP and even rarely conduct disaster drills or publish the reports of such drills. The JCAHO actually requires hospitals to test their emergency plan twice a year, including at least one community-wide drill.[9] The objective is to prepare the hospital through the development of emergency response systems, staff training and purchase of equipment and materials so that it can continue caring for its present patients, protect its own staff and respond to the needs presented by the disaster. Finally, hospital preparedness can be enhanced more rapidly if standardized state and national guidelines for model hospital DMP, staff training, disaster drills and accreditation of hospitals based on DMP are developed and widely disseminated.[10]

Preparing for disasters is a daunting task, not so much because of the depth of the issue but because of its breadth. It has been said that the way to eat an elephant is one bite at a time. The first two "bites" of this particular elephant are for hospitals to perform risk assessments and readiness assessments. Once these are done, it will be a far more manageable task to remedy the identified gaps. Until such time as these assessments are done, we are all at risk of being found unprepared when the disaster – whatever it may be – strikes. More so, it is incumbent on hospitals to take the initiative on this issue since it falls between the cracks of the health care and public safety systems, lacks clear ownership, and is often forgotten or deferred in the presence of more pressing issues such as hospital overcrowding and budget crunches.[11]

Hospital preparedness is crucial to any disaster response system. Each hospital needs to have an emergency preparedness plan to deal with mass casualty incidents and the hospital administration/ doctor trained for this emergency. The curriculum for medical doctors does not at present include Hospital Preparedness for emergencies. Therefore capacity building through in-

service training of the current heath managers and medical personnel in Hospital Preparedness for emergencies or mass causality incident management is essential. At the same time

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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 Disaster Plan. According to WHO**.**

The Mass Casualty Emergencies can be categorized in one of the following ways.

**1) Based on Number of Casualty.**

Every Hospital must define its capacity. (According to Guidelines for hospital emergency and preparedness planning GOI)

Hospital Treatment Capacity (HTC), is defined as the number of casualties that can be treated in the hospital in an hour and is usually calculated as 3% of total number of beds.

Hospital Surgical Capacity (HSC) is the number of seriously injured patients that can be operated Upon within a 12-hour period i.e. HSC= Number of operation rooms x 7x 0.25 operations/12 hrs.

**2) Based On Type of casualty.**

Category A: Patients in critical condition

Category B: Patients in serious but not life threatening condition

Category C: Walking wounded

Based on the categorization, it is advisable to further classify by the contingency plan into three classes:

**Class A:**

The plan can be put into practice without any disruption to the normal and routine work of the institution.

**Class B:**

The plan can be put into practice with minor disruption to the day to day functioning of the hospital and with some readjustments. The plan may be upgraded to C if the numbers of casualties increase.

**Class C:**

There would be definite disruption of routine work: Major readjustments would be required in hospital functioning, inpatient treatment, duty arrangements, laboratory and operation theatre scheduling, and increased demand on stores, pharmacy etc

## 2.11: Objective of the study:

**2.11. A:** To know the level of preparedness of Disaster Management in National Heart Institute, This is located in the heart of Delhi.

**2.11. B:** To identify the Factor affecting the Institute at the time of Disaster. (Like Money, Resource and Manpower).

## 2.12: Significance of Study

My observation of last 3 months as a Management trainee of National Heart Institute, Delhi is that there is a problem of practice and training in support and clinical staff. Errors can be differentiated as an incident, mistake, and event. An "incident" is an action which can result in an unexpected consequence. A "mistake" refers to using wrong judgment. An "event" is the resulting outcome of an error. For the purposes of this study,

Incident, mistakes and events are collectively referred to as errors.
And in case of disaster management we can not underestimate such mistakes.

# Chapter -3

# Research Methodology

**METHODOLOGY**

### 3.1: The Research Design

**The study design**- This study used a descriptive & quantitative research methodology. Type of study is Cross Sectional Study (Quantitative). The present study was carried out in the National Heart Institute in the period of 3 month.

The entire study was conducted in following steps-

Primary Data-

- Questionnaire
- Informal discussion(with security staff)

Secondary Data-

- Web sites
- Literature review

**Data Collection Tool-**Questionnaires

**Sample Size**: 120, One Questionnaire was developed based on the WHO preparedness checklist .And this questionnaire was circulated among every employees of hospital. The purpose of the study was explained to the respondents. Some of them were showing keen interest, some neutral.

- Data were collected from Hospital managers, nursing staff, employees of the emergency department, of the selected hospital using a Questionnaire developed for purpose of study. The questionnaire was in line with international protocols for preparedness of disasters.
- Informal discussion was carried out with security staff on Past history of Disaster in NHI.
- They were discussing some relevant point like, recent short circuit incident in NHI and Current status of Disaster management in NHI.
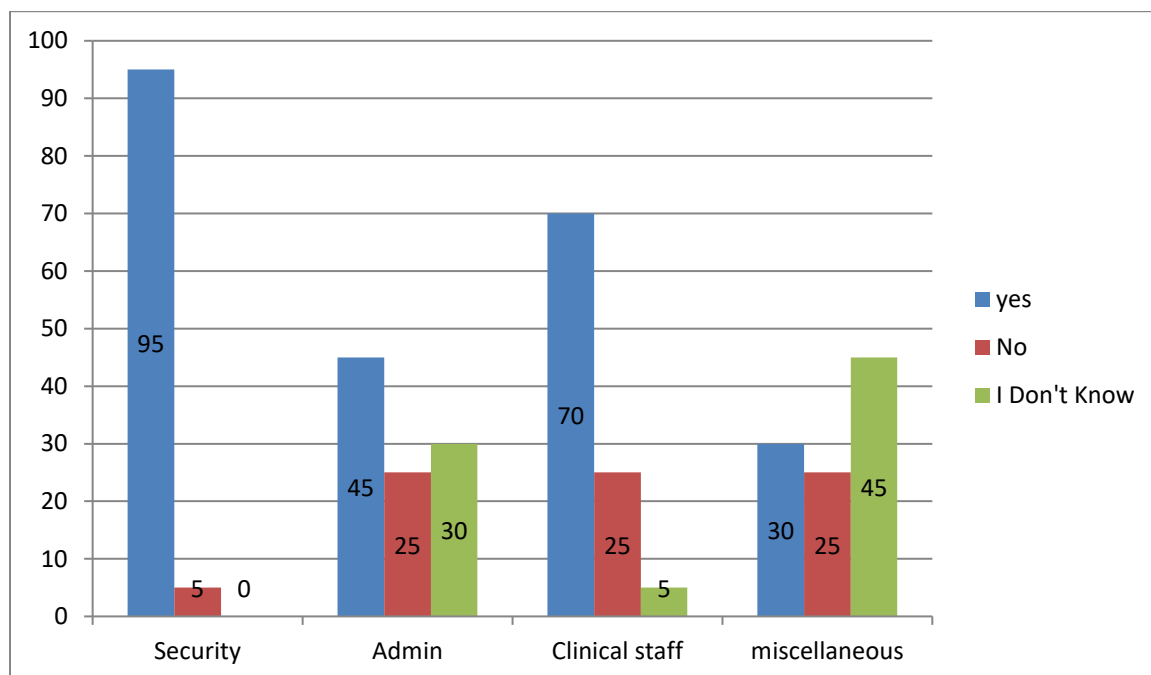
# Chapter-4
# Result and Findings

### Data Interpretation and Data Analysis:

We have followed both qualitative and quantitative approaches. This survey was based on questionnaires, feedback form and an in-depth interview on different individual.

Q- **Do you know about color coding system to identify disaster in your hospital?**

**Fig.4.1 (a)-**



The above graph shows that 95% 0f Security staff well knows about color coding system in hospital .And 30 % of Admin department does not have any idea about color coding system in hospital.

**Fig 4.1(b)-**

**Q- Do you know how to operate Fire alarm system?**
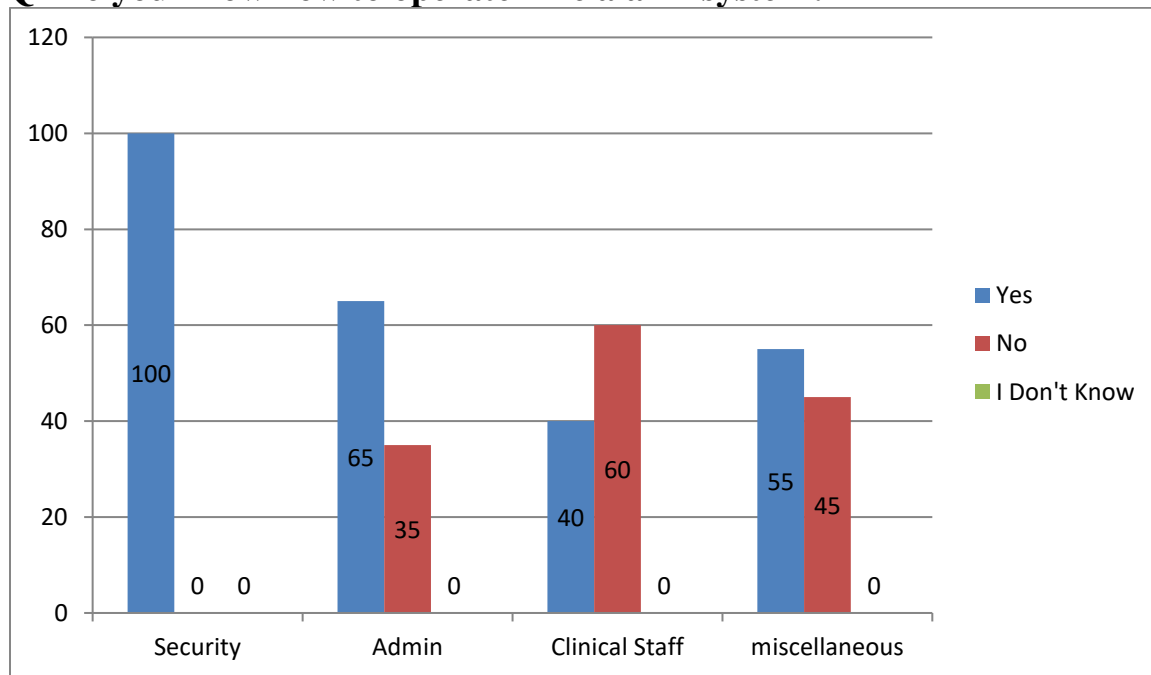


The above graph shows every security staff knows how to operate fire alarm system. On the other hand 55% Admin staff doesn't know about it.65% Clinical staff knows how to operate fire alarm system.

**Fig 4.1 (c)-**

**Q-Do you undergo mock drills regularly.**



`
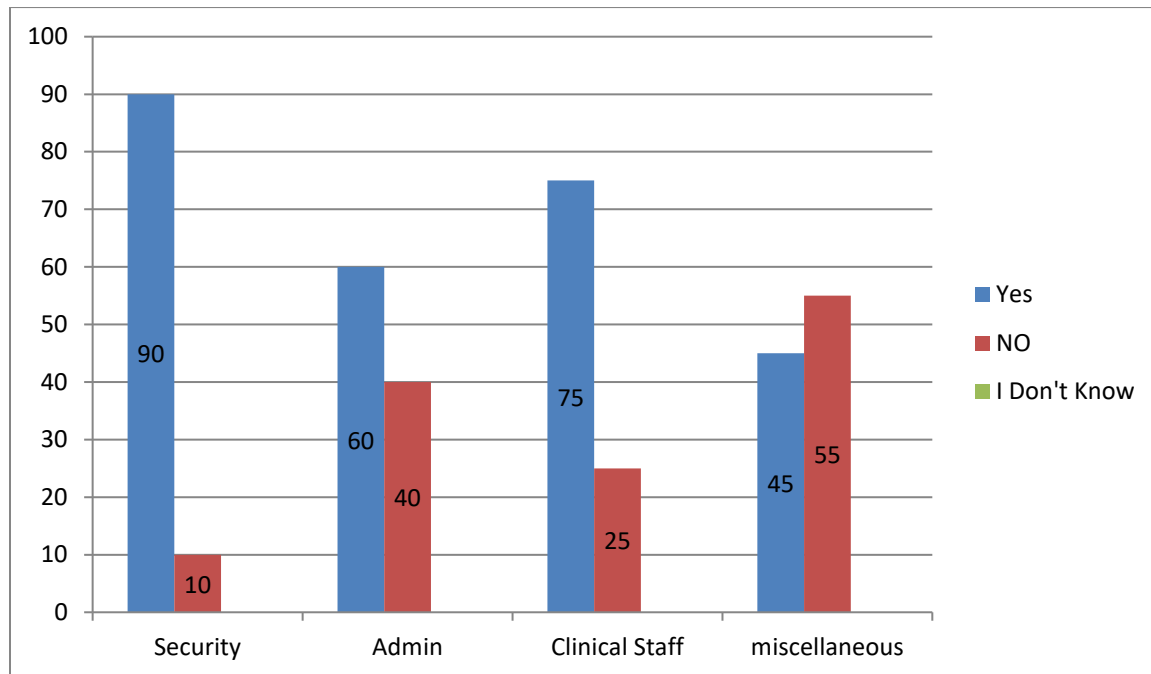
(Miscellaneous include GDA and other supportive staff)

The above graph shows that 90% of security staff said that they performed mock drill regularly.
On the other hand hospital doesn't hold any training for admin department whereas 70 %
Clinical staff perform mock drill on regular basis.

**Fig 4.1(d)-**
**Q- Do you know about triage system in Hospital**
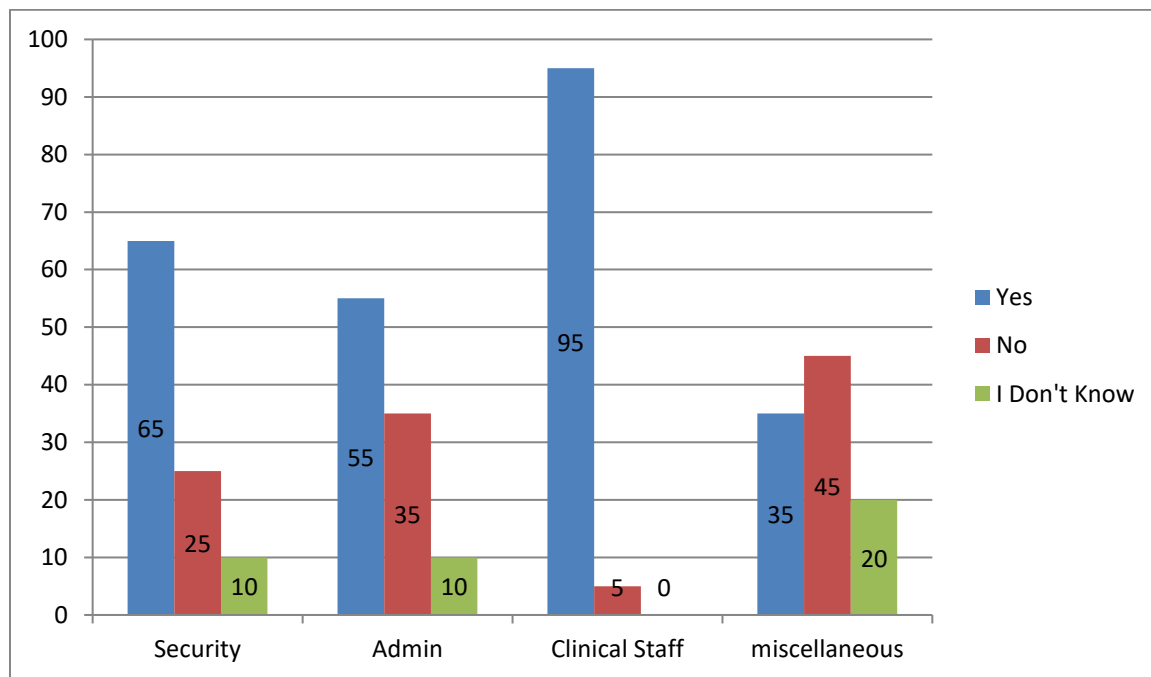


The above graph shows that 65% of security staff said that, they do have an idea about triage system in hospital. Whereas 35% of admin and 45 % of other staff doesn't know about it.

**Fig 4.1(e)-**
**Part B-Disaster Management Committee**
**Q1-Is there any Provision of rapid response team in your Hospital.**
**Q2-Do you have disaster management committee in your Hospital.**
**Q3-Do you know about disaster action policy.**
**Q4-Do your Hospital has disaster action plan in written.**
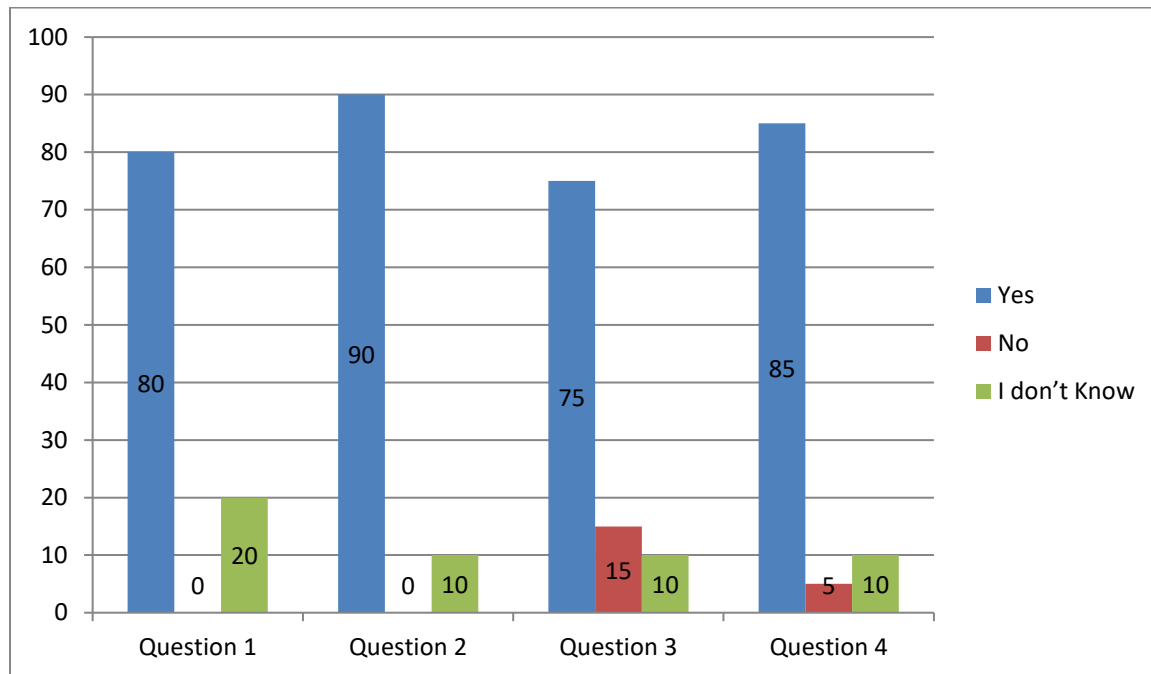


The above graph shows that 80% office staff said that, they have provision of rapid response team in hospital. Graph show that 75% staff knows about disaster action policy.

**Fig 4.1(f)-**
**Part C (1)-Security Staff**
**Q2- Do your hospital has fully fledged security system to protect hospital.**
**Q3- Do you know your rules and responsibility during disaster?**
**Q5- Do you know the purpose of Mock drills?**
**Q6- Is there any provision of rescue and evacuation team in your staff?**
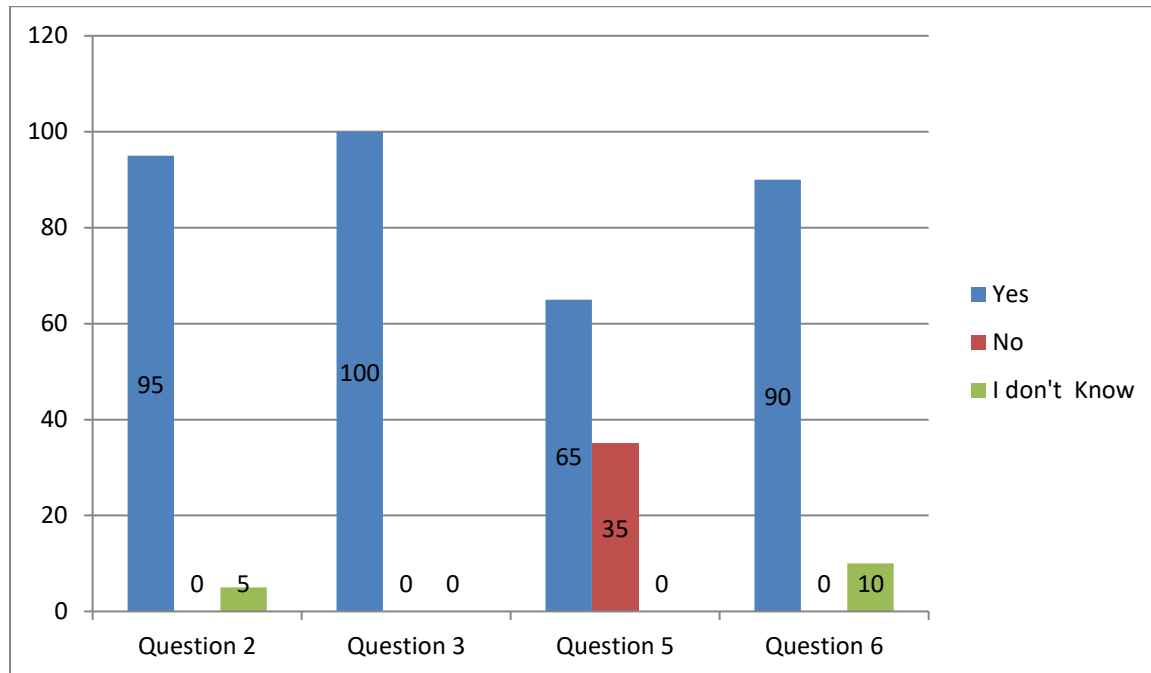


The above graph shows that 95% of Security office staff said that, they have fully fledged security system to protect hospital. Every security staff knows their rules and responsibility during Disaster.

Graph show that 65% staff knows the purpose of mock drill and 90% knows that hospital has provision of rescue and evacuation team.

**Fig 4.1(g)-**
**2) Security staff-**
**Q7-Do you know the Classification of fires?**
**Q8-Do you know how to operate ABC Cylinders?**
**Q9-Do you have Contact Number of nearest police station?**
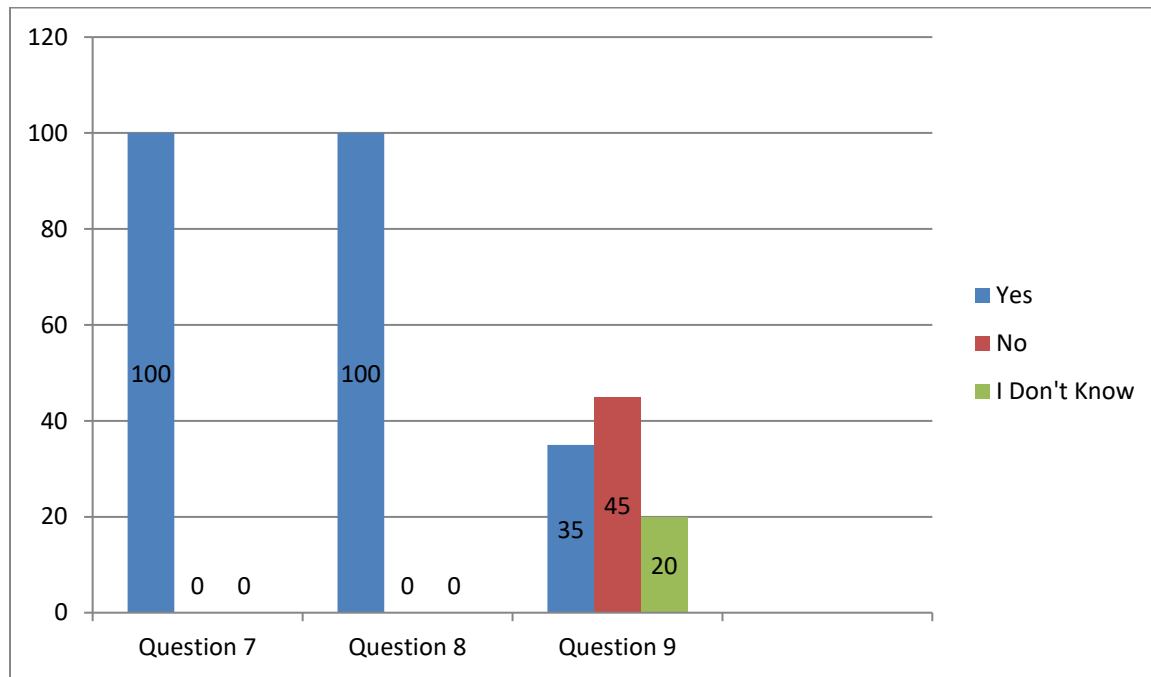


The above graph shows that Every Security office staff said that, they know the classification of fires and also how to operate ABC Cylinders. Graph show that 45% staff doesn't know the contact number of nearest police station.

But they know the extension Number used at the time of disaster.

**Table 4.1: Comparison between NHI Disaster Management Plan and AIIMS Disaster Management Plan (Prepared by WHO)**

| AIIMS | NHI |
|---|---|
| Type of Disaster expected-<br>□ Vehicular accidents and aircraft emergencies<br>□ Bullet and Blast injuries<br>□ Collapse of a building<br>□ Fire<br>□ Food poisoning – Gastro Enteritis<br>□ Any other like drowning etc. | Not Mentioned |
| HQ for Disaster plan coordination(Contact no) | Mentioned |
| Information and Communication | Mentioned |
| Details of Command Nucleus | Mentioned |
| Rules for Activating the plan | Mentioned |
| Reception Centre Location | Mentioned |
| First Aid and Sorting : Triage | Mentioned |
| Responsibilities of First Aid Centre | Mentioned |
| Action Plan | Mentioned |
| Additional Bed Space | Mentioned |
| Linen Stores | Mentioned |
| Drugs and Equipment | Mentioned |
| Emergency Blood Bank | Mentioned |
| Staff Categorization during disaster | Mentioned |
| Rules for Volunteers | Not Mentioned |
| Documentation Centers | Mentioned |
| Hospital Security | Mentioned |
| Food Services | Not Mentioned |
| Information Services-Roles of information officer | Mentioned |
| Engineering and Maintenance Service | Not Mentioned |
| Discharge Process | Mentioned |
| Police networks | Not Mentioned |
| Medico-legal responsibilities | Not Mentioned |
| Disposal of the Dead (Role of Mortuary services and Forensic Departments in identification, storage and disposal of the deceased) | Not Mentioned |

# Chapter -5
# Conclusion and Recommendation

## 5.1: Conclusion:

Effective health relief management depends on anticipating disasters before they arise and identifying likely problems / needs.

The study has been able to highlight various factors where disaster preparedness is lacking & researchers have made a no. of suggestions to prepare hospitals for meeting with any challenge faced by them. It was found that awareness level about disaster management among employee was Average. And hospital does have facilities like triage system and triage Nurse but employees were not aware of it. And NHI does not have collaboration with NGO for disaster management. That's why it was found that preparedness level of disaster management was very low in the hospitals. The hospital management staff said we act according to the situation, so why we need to prepare ourselves before anything happen.

Study reveals the fact that security staff was completely aware about their rules and regulation during disaster also they do have a fare idea about policy and procedure of hospital disaster management module. On the other hand Admin staff and other support staff were not capable to answer question according to the need of the study.

Disaster management involves a host of multi discipline agencies of which medical relief is one of the most important one. There can be no standardized disaster plan for the hospitals. Each hospital has to evolve its own plan based on the aforementioned considerations, and it has to be revised from time to time as each experience will bring new perspectives.

On comparison between NHI Disaster management plan with AIIMS Disaster management plan shows that they were some topics which were missing in the NHI DMP. For Example, type of disaster expected, rules for volunteers, Engineering and Maintenance services, medico legal responsibilities and disposal of the dead. These topics are very crucial for any disaster management plan of a hospital. Henceforth, recommendation was made accordingly and discussed with CEO of National Heart Institute.

## 5.2: Recommendation:

These recommendations can provide assistance and clarification on the responsibilities and expectations associated with this role.

There are no educational, training standards or formal competencies for hospital emergency preparedness staff. However, the following activities can help to get you in your role:

- Educate yourself on the licensing, regulation and accreditation requirements of emergency preparedness such as The Joint Commission and the National Incident Management System.
- Train everyone; include all the staff in training .We should not focus on only security staff.
- Review your organization's current Emergency Management Program and its Emergency Operations Plan as well as related policies and procedures.
- Know when to activate your emergency operations plan and hospital command center
- Learn your organization's alert and notification system and procedures?
- Review and take advantage of resources available on this website to develop or review your EOP and related emergency preparedness plans.
- Ensure your organization has a business continuity/continuity of operations plan.
- Review your organization's Hazard Vulnerability Analysis (HVA); ensure it considers your community's HVA.
- Review past safety/emergency management committee meeting minutes
- Develop relationships and with other hospital disaster coordinators; in particular those in your area.
- Identify and develop relationships with your community response partners such as EMS, Public Health, other healthcare facilities, fire and Law Enforcement.
- Identify how you be will be notified by your local response partners.
- Identify contact information for community response partners and hospital contacts for use in an emergency/crisis situation and ensure they have up to date contact information for your facility.
- Become familiar with the local incident management process and the state response system known as SEMS.
-  Develop a relationship and contact information with the local MHOAC (Medical Health Operational Area Coordinator) or government point of medical emergency contact for your area.
- Get training on the Hospital Incident Command System (HICS) or other ICS
- Attend corporate/system or hospital emergency preparedness meetings
- Attend local community emergency preparedness and/or disaster planning meetings
- Primary considerations when responding to a disaster are the relationships developed and knowing your resources (equipment, supplies and staff) both internally and externally. Maintain contact information for key individuals
- Educate hospital staff on the plan and practice, practice, practice. The more familiar everyone is with roles and responsibilities the higher your degree of success.

- Establish a schedule of drills and exercises to practice the plan, including participation with community partners in community or statewide exercises; use the results of these activities to improve your EOP and response
- Prepare yourself! Develop your own personal/family plan; encourage all employees to have personal/family plans. Vital to any organization's preparedness is well-prepared staff /workforce

## 5.3: 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
- 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

## 5.4: Limitations of the study:  In hospital, Disater safety concerns each and every

healthcare worker but due to time constraint we could not cover overall staff working for patient care.

# Chapter -6
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# Annexure

**Common Questions:**

| No. | | Response |
|---|---|---|
| 1 | Do you know about color coding system to identify disaster in your hospital? | 1) Yes       2) No <br> 3) I don't know |
| 2 | do you know that hospital need to renewal certificate like ALS, BLS ambulance? | 1) Yes       2) No <br> 3) I don't know |
| 3 | Do you or your employee undergo mock drills regularly. | 1) Yes       2) No <br> 3) I don't know |
| 4 | If any disaster happens in your depts. Then who will be the reporting person. | _____ <br><br> _____ |
| 5 | Do you know how to operate a fire alarm system? | 1) Yes       2) No <br> 3) I don't know |
| 6 | Who is the public information spokesperson in your department? | _____ <br><br> _____ |
| 7 | Is there any Public announcement system in your hospital. | 1) Yes       2) No <br> 3) I don't know |
| 8 | No of Ambulance available in the hospital. | 1)2       2)3 <br> 3)4       4)5 <br> 5) I don't know |
| 9 | Do you or your employee provide care during transport or at the site of incident. | 1) Yes       2) No <br> 3) I don't know |
| 10 | How many people can seat in the emergency corridor. | 1) <5   2) >5   3) Don't Know |
| 11 | Do you know, what is triage? | 1) Yes       2) No <br> 3) I don't know |
| 12 | Is there any triage nurse available in the emergency department. | 1) Yes       2) No <br> 3) I don't know |

**Disaster management committee**

| 1 | Is there any provision of rapid response team in your hospital. | 1) Yes       2) No <br> 3) I don't know |
|---|---|---|
| 2 | Who is the head of the committee? | _____ <br><br> _____ |

| 3 | Do you have disaster management committee in your Hospital | 1) Yes        2) No <br> 3) I don't know |
|---|---|---|
| 4 | Do you know about disaster action policy. | 1) Yes        2) No <br> 3) I don't know |
| 5 | Do your Hospital has disaster action plan in written. | 1) Yes        2) No <br> 3) I don't know |

**Emergency deptt.**

| No | | Response |
|---|---|---|
| 1 | do you know the classification system of casuality? | 1) Yes      2) No <br> 3) I don't know |
| 2 | Do you or your employee keep life saving drug in different place. | 1) Yes      2) No <br> 3) I don't know |
| 3 | Do you or your employee check life saving drug daily. | 1) Yes      2) No <br> 3) I don't know |
| 4 | Is there any inventory system in emergency department. | 1) Yes      2) No <br> 3) I don't know |
| 5 | If yes than how frequently staffs intend stock? | _____ <br><br> _____ |
| 6 | How periodically emergency department employees are trained? | 1)3 month    2)6 month    3)1 year    4) I don't know |
| 7 | How many beds are available in the emergency department. (Specify number) | 1) Less than 05      2) less than 10      3) more than 10 but less than 20    4) more than 20 but less than 30    5) I don't know |
| 8 | No of beds capacity can be expended in case of any mass causality. | 1) Less than 05      2) less than 10      3) more than 10 but less than 20    4) more than 20 but less than 30    5) I don't know |
| 9 | Do you or your employee check crash cart daily. | 1) Yes      2) No <br> 3) I don't know |

| 10 | do you check vital medicine daily? | 1) Yes          2) No<br>3) I don't know |
| 11 | Do you know the reporting system in your department during disaster? | 1) Yes          2) No<br>3) I don't know |

### Security staff

| 1 | Do you or your employee undergo mock drills regularly. | 1) Yes          2) No<br>3) I don't know |
| 2 | Do your hospital has fully fledged security system to protect hospital. | 1) Yes          2) No<br>3) I don't know |
| 3 | Do you know your rules and responsibility during disaster? | 1) Yes          2) No<br>3) I don't know |
| 4 | how often you perform mock drill in year? | 1) Yes          2) No<br>3) I don't know |
| 5 | Do you know the purpose of Mock drills? | 1) Yes          2) No<br>3) I don't know |
| 6 | Is there any provision of Rescue and Evacuation team in your staff? | 1) Yes          2) No<br>3) I don't know |
| 7 | Do you know the Classification of Fires? | 1) Yes          2) No<br>3) I don't know |
| 8 | Do you know how to operate ABC Cylinders? | 1) Yes          2) No<br>3) I don't know |
| 9 | Do you have Contact Number of nearest police station? | 1) Yes          2) No<br>3) I don't know |

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