

## **A STUDY TO EVALUATE THE EMERGENCY PREPAREDNESS IN MULTISPECIALITY HOSPITAL WITH SPECIFIC REFERENCE TO FIRE HAZARDS AND ITS PREPAREDNESS**

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### **ABSTRACT**

The public expects safety at hospitals. Hospitals are prepared for both challenges and disasters resulting in a surge in patient volume. Internal hazards such as fire, hazardous material releases, utility failure, flooding, and structural damage may necessitate the relocation of patients within the hospital or evacuation of the hospital. The short and long term consequences of inadequate hospital emergency preparedness include loss of life, additional injury, financial implications and challenges in providing continued health services. Significant impact is experienced when the incident results in complex renovation or construction. Both the Fire Department and the hospital

are tasked with a priority objective of Accounting for all persons. The accountability process includes the patient population, employees, students, interns and visitors within the hospital.

**KEYWORDS:** Fire, Emergency preparedness.

### **Emergency preparedness**

According to Merriam Webster.<sup>[1]</sup>, "Emergency preparedness is a programme of long term development activities whose goals are to strengthen the overall capacity and capability of a country to manage efficiently all types of emergency. It should bring about an orderly transition from relief through recovery and back to sustained development."

## WHAT IS DISASTER?

According to The Oxford Dictionary,<sup>[2]</sup> “Disaster is a sudden Calamitous event bringing great damage, loss or destruction”.

According to World Health Organization,<sup>[3]</sup> “A disaster is a situation, which implies unforeseen serious and immediate threat to public health”.

According to Shankar B.M,<sup>[4]</sup> Emergency management has just recently been established as both an academic field and as an applied practice in the public and private sectors. It has thus far drawn primarily upon the fields of emergency medicine, fire suppression and law enforcement for many of its foundations. Although these distinct specialties are both tried and tested, they also are steeped in tradition — consequently relying less upon academic or analytic processes. Without a foundation that ties academia and structured analytic methodologies with tradition, the extreme complexity of emergency management, often requiring coordination between tens to hundreds of individual agencies and organizations, will not be effectively managed. Therefore, a systematic approach must be established for emergency management as a whole and specifically in regards to defining the steps necessary to reach preparedness.

The diagram appearing below, which is often used in terrorism planning, depicts a planning process that establishes preparedness. The process begins with an assessment of the jurisdiction or business’ threats, be they natural or manmade and works in a systematic approach towards a cyclical process that ultimately establishes organizational preparedness. This systematic and cyclical approach is defined by the continual evolution of the phases on the exterior ring—assessment, planning, preparation and evaluation.



**The Preparedness Planning Cycle**

**FIRE SAFETY**

According to expert,<sup>5</sup> Fire safety refers to precautions that are taken to prevent or reduce the likelihood of a fire that may result in death, injury, or property damage, alert those in a structure to the presence of an uncontrolled fire in the event one occurs, better enable those threatened by a fire to survive, or to reduce the damage caused by a fire. Fire safety measures include those that are planned during the construction of a building or implemented in structures that are already standing and those that are taught to occupants of the building

**Meaning of FIRE**

**F** - Find  
**I** - Intimate  
**R** - Rescue  
**E** - Extinguish

**Fire Classes**

In firefighting, fires are identified according to one or more fire classes. Each class designates the fuel involved in the fire, and thus the most appropriate extinguishing agent. The classifications allow selection of extinguishing agents along lines of effectiveness at putting the type of fire out, as well as avoiding unwanted side-effects. For example, non-conductive extinguishing agents are rated for electrical fires, so to avoid electrocuting the firefighter.

**Fire Emergency Preparedness Planning**

According to Experts,<sup>[6]</sup> Emergency preparedness plans shall be prepared and maintained by the facility. Such plans shall be reviewed or updated annually or as necessitated by changes in staff assignments, occupancy, or the physical arrangement of the building. Fire safety and evacuation plans shall be available in the workplace for reference and reviewed by staff during staff in-service training.

Critical to employee safety is fire emergency preparation planning. The effectiveness of response during emergencies depends on the amount of planning, training and drilling previously performed.

Identifying key elements of a fire emergency preparation plan starts with the development of a written plan. The emergency preparedness plan should address all potential emergencies

that can be anticipated in the workplace (e.g., floods, earthquakes, and windstorms) and recovery plans. This guide is limited to fire emergency preparedness planning.<sup>[7]</sup>

Emergency routes and exit doors should be clearly posted on a wall diagram to show employees the primary and secondary emergency routes for evacuating the building. The diagram should show the employee's current position and emergency routes. Each department should display this diagram in a highly visible area.

### Healthcare - Colour Code Warning System

A recognized standard within healthcare facilities in Australia is the colour coded emergency response system. This system forms part of healthcare facilities Emergency Procedures Manual (EPM). Each colour helps define the actions and activities required of staff when responding and managing an incident.

These procedures are divided into a colour coded system:

RED	Code Red? Fire / Smoke
ORANGE	Code Orange – Evacuate
BLUE	Code Blue? Medical / First Aid emergencies
YELLOW	Code Yellow? Failure or threat of failure to essential services
BROWN	Code Brown? External Emergencies
PURPLE	Code Purple - Bomb Threat
BLACK	Code Black? Personal Threat to others or self

In addition the established system has been expanded to include additional codes for specific emergencies as listed below;

GREEN	Code Green? Correctional Health Services Emergency
GREY	Code Grey? Unarmed Threat

### MATERIALS AND METHODS

The researcher adopted in the study was descriptive method. It includes collection of information, opinion and attitude directly from the subject of the study using questionnaire.

### SOURCE OF DATA

Primary data: Primary data was collected by questionnaire.

## METHOD OF DATA COLLECTION

Data was collected using questionnaire administered to the Department Safety Advisor of CENTURY MULTISPECIALITY HOSPITAL, Mulakuzha Chengannur

The researcher adopted in the study was descriptive method. It includes collection of information, opinion and attitude directly from the subject of the study using questionnaire.

## POPULATION

The population consist of all the Department of CENTURY MULTISPECIALITY HOSPITAL, Mulakuzha Chengannur

## SAMPLE AND SAMPLING

Researcher selected 30 samples from the population using convenient sampling method. Convenient Sampling means selecting sample units in a just 'hit and miss' fashion.

## RESULTS

### TOOLS AND TECHNIQUES

SL. NO:	ITEMS	QUESTIONS	NO:OF QUESTIONS
1.	Demographic Details	1,2,3,4	4
2.	Safety	5,11,18	3
3.	Training	7,8,10,12	4
4.	Infrastructure	9	1
5.	Records	13	1
6.	Emergency Communication	14,21	2
7.	Emergency preparedness	6,15,16,17,19	5
8.	Fire plan	20	1
9.	Emergency on call staffing.	22	1

Questionnaire Form:

1. Age Group

a) Below 30 ☐ b) 30 - 40 ☐ c) 40-50 ☐ Above 50 ☐

2. Gender

a) Male ☐ b) Female ☐

3. Experience in the hospital?

a) Below 5 years ☐ b) 5-10 years ☐ c) 10-15 years ☐ d) above 15 years ☐

4. Designation

a) Doctor ☐ b) Nurse ☐ c) Technician ☐ Others specify ☐

5. Is there an effective Fire and Safety department in your hospital ?

a) Yes ☐ b) No ☐

6. Does your hospital have an Emergency Preparedness Plan?

a) Yes ☐ b) No ☐ c) Not aware ☐

7. Does the Hospital practice Mock drills?

a) Yes ☐ b) No ☐ c) Not aware ☐

8. Are you trained to handle fire emergencies?

a) Yes ☐ b) No ☐

9. Are you clear with the infrastructure of your hospital?

a) Clear ☐ b) Some what clear ☐ c) Not clear ☐

10. How often does your Hospital conduct in service training for emergency preparedness or Fire Safety training programme ?

a) Quarterly ☐ b) Bi annually ☐ c) Annually ☐

11. Whether your hospital has taken any of the precautionary measures for different types of fire?

a) LPG fire precaution ☐ b) Electrical fire precautions ☐ c) All type of fire ☐

12. Do you know how to operate the fire fighting equipment?

a) Yes ☐ b) No ☐

13. Does your hospital keep records of previous fire incidents?

a) Yes ☐ b) No ☐ c) Not aware ☐

14. Does your organization have an effective communication system?

a) Yes ☐ b) No ☐

15. Does your hospital have assembly point during emergency?

a) Yes ☐ b) No ☐

16. Does your Hospital maintain an Emergency Alert Code?

a) Yes ☐ b) No ☐ c) Not aware ☐

17. Does your hospital maintain fire alarms in each department?

a) yes ☐ b) No ☐ c) only in the new building. ☐

18. Are you satisfied with the safety measures in your hospital like fire alarms, elevators, emergency exits, evacuation routes, and providing adequate fire extinguishers.?

a) Satisfied ☐ b) Not quite satisfied ☐ c) Poor ☐

19. Is your hospital ready and prepared for any Emergency Situation?

a) Ready for everything ☐ b) Better Prepared than before ☐ c) Need to do a few more things ☐ d) Lots of preparing to do ☐

20. Does your department have any fire plan to ensure full operational readiness at all times of emergencies?

a) Yes ☐ b) No ☐

21. How are the warnings transmitted to officials and to the populations (channels of dissemination) ?

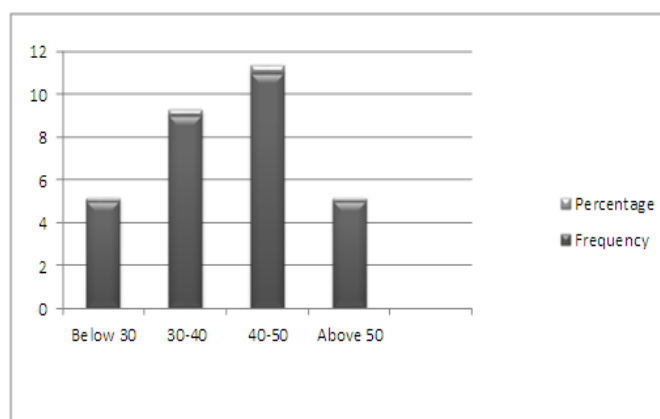
a) Normal phone ☐ b) Alarm ☐ c) Alert code e) ☐ Both a & b ☐

22. Are you residing within the radius of one mile.?

a) Yes ☐ b) No ☐

**Table 1** Frequency table showing the age of the respondents.

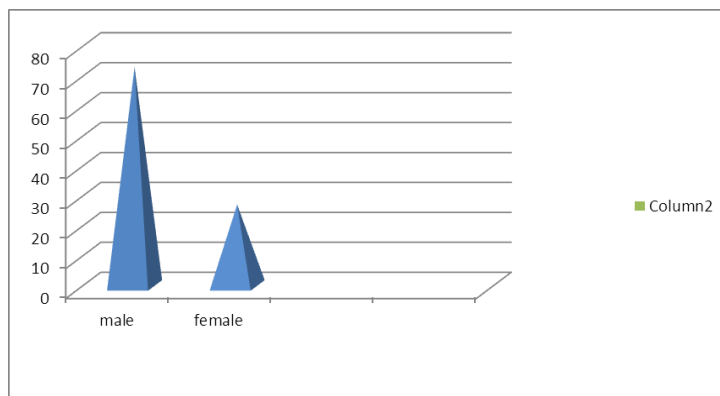
AGE	FREQUENCY	PERCENTAGE
Below 30	5	17%
30-40	9	30%
40-50	11	37%
Above 50	5	16%
Total	30	100%

**Illustration No.1 Diagram showing the age of the respondents.**

The table reveals that 37% of the respondents are between 40-50 years, 30% are between 30-40 years, 17% are below 30 years and rest 16% are above 50 years of age.

**Table 2 Frequency table showing the gender of the respondents**

GENDER	FREQUENCY	PERCENTAGE
Male	22	73%
Female	8	27%
Total	30	100%

**Illustration No.2 Diagram showing the gender of the respondents**

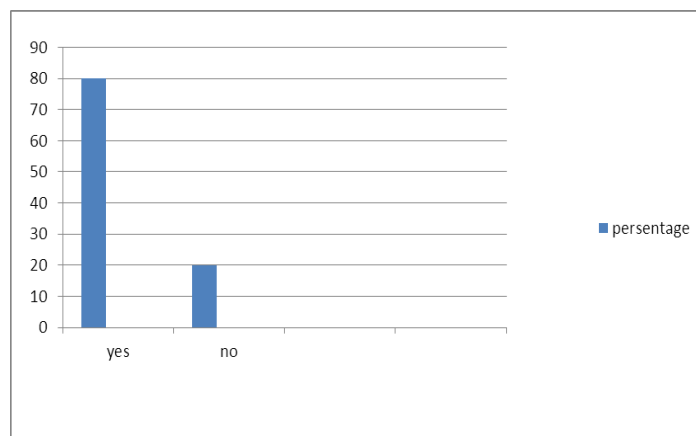
The study indicates that 73% of the respondents are Male and 27% are Female.

**Table 3 Frequency table showing the responses for whether there is an effective fire and safety department in the hospital.**

RESPONSE	FREQUENCY	PERCENTAGE
Yes	24	80%
No	6	20%
Total	30	100%



**Illustration No.3 Diagram showing the responses regarding the effectiveness of fire and safety department.**

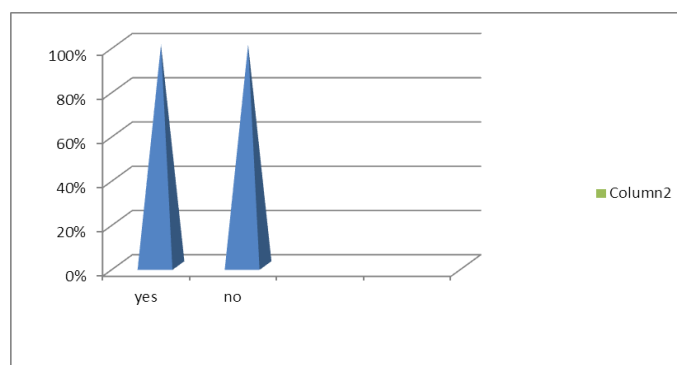


80% of the respondents opine that there is an effective fire and safety department in the hospital and 20% are not agreeing with this.

**Table 4 Frequency table showing the responses for whether the hospital have an emergency preparedness plan.**

RESPONSE	FREQUENCY	PERCENTAGE
Yes	25	83%
No	2	7%
Not Aware	3	10%
Total	30	100%

**Illustration No.4 Diagram showing the responses regarding whether the hospital have an emergency preparedness plan.**



83% of the respondents are agreeing that the hospital has an emergency preparedness plan, 10% are not aware about it and 7% opinions that there is no emergency preparedness plan.

#### **The study reveals that**

1. 67% of staff belongs to the age group of 30-50 and 70% are having an experience of more than 10 years.

2. Majority(80%) of the respondents opines that there is an effective Fire & Safety Department in the hospital.
3. 73% opines that the hospital provides precautionary measures for all types of fires. 20% and 7% opines that the precautionary measures are only for electrical and LPG fires respectively.
4. 70% of respondents are satisfied with the safety measures and 30% are not quite satisfied.
5. 53% of the DSA are of the opinion that they are getting in service training annually and 47% opines that they are getting biannual training. The rest are not aware of the training program.
6. Majority (80%) opines that the hospital practices mock drill twice in a year.
7. 100% of the DSA are trained to handle fire emergencies
8. 93% know how to handle firefighting equipment.
9. 57 % of the respondents are clear with the infrastructure of the hospital and 43% are somewhat clear.
10. 47% opines that hospital keeps records of previous incidence and 53% are not aware whether the hospital keeps records.
11. 73% of the respondents opines that the organization have an effective communication system,
12. 40%, 13% and 10% of the respondents opines that during emergencies the communication is through normal telephone, alarm and alert code respectively and 37% opines that they uses both the normal telephone and alarm.

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