



HAZARD IDENTIFICATION AND RISK ASSESSMENT (HIRA)

LOCATION: MAX SUPER SPECIALITY
HOSPITAL, MOHALI



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About the Organization:

Our vision:

At Max healthcare, our vision is to be the most well-regarded healthcare provider in India committed to the highest standards of clinical excellence and patient care, supported by latest technology and cutting-edge research. Every day we come to honour a higher purpose - to serve. To excel.



Max super speciality hospital is one of the premier names in the healthcare domain in the world. Accredited by NABH, it is a 214 bedded hospital facility. The hospital is recognized for its integrated medical care in various disciplines provided by highly qualified doctors and nursing staff and other healthcare professionals. The hospital is also equipped with NABL accredited max labs and blood banks. The hospital offers nearly 26 clinical specialities with a team of 80+ doctors and nearly 350+ nursing staff.

Departments of the hospital:

Non- Clinical

Human resource and training	Operations and Quality
Medical records	Marketing and Communication
IT	Biomedical Engineering
Central sterile services	Finance & Accounts
Security (Ambulance, Parking, Transportation)	Blood Bank
Laundry and Linen	Administration
Food and Beverage	Marketing
Laboratories	Store
Engineering	Pharmacy

Clinical

Cardiology	Critical Care and Pulmonology
Gastroenterology	Dermatology & Cosmetics
Neurology & Neurosurgery	ENT
Orthopaedics	Ophthalmology
Emergency & Critical Care	Spine
Oncology	Physiotherapy & Rehabilitation
Transplant Unit	Preventive Health Medicine
Nephrology & Urology	Dietetics
Paediatrics & Neonatology	Dental
Anaesthesiology	Endocrinology
Psychiatry	Gynaecology & Obstetrics
General Surgery	Internal Medicine

Project Introduction

TITLE: Hazard identification and Risk Assessment in the hospital premises.

A Hazard Identification and Risk Assessment (HIRA) is a systematic risk assessment tool that managers use to assess the risks of various hazards.

There are three reasons why a HIRA is useful to the emergency management profession:

- It helps emergency management professionals prepare for the worst and/or most likely risks.
- Allows for the creation of exercises, training programs, and plans based on the most likely scenarios.
- Saves time and resources by isolating hazards that cannot occur in the designated area.

Objective of the Study:

The study's objective is to identify the hospital's health and safety concerns, then address the medium and high-risk hazards first, inform employees about their working hazards, and recommend the necessary controls to the concerned authorities.

Type of the Study:

Convenience sampling technique is used.

The research was conducted in real time over a period of 6 weeks. The primary source of data collection was observation and the mode was unstructured interview with the department personnel.

Procedure :

Risk assessment is a term used to describe the overall process or method where you:

- **Hazard identification** – the process of finding, listing, and characterizing hazards.
- **Risk assessment** – the overall process of hazard identification, risk analysis, and risk evaluation.
- **Risk analysis** – a process for comprehending the nature of hazards and determining the level of risk.

Notes:

(1) Risk analysis provides a basis for risk evaluation and decisions about risk control.

(2) Information can include current and historical data, theoretical analysis, informed opinions, and the concerns of stakeholders.

(3) Risk analysis includes risk estimation.

- **Risk evaluation** – the process of comparing an estimated risk against given risk criteria to determine the significance of the risk.
- **Risk control** – actions implementing risk evaluation decisions.
Note: Risk control can involve monitoring, re-evaluation, and compliance with decisions.



Hazard Identification And Risk Analysis (Hira): Introduction

WHAT IS HAZARD?

Definition: when talking about workplace health and safety is:

“A hazard is any source of potential damage, harm or adverse health effects on something or someone under certain conditions at work.”

- A common way to classify hazards is by category:

Common Hazards:

Biological - bacteria, viruses, fungus, needle stick injury etc

Ergonomic - repetitive movements, improper set up of workstation

Chemical - depends on the physical, chemical, and toxic properties of the chemical

Physical - slipping/tripping hazards, inappropriate machine guarding, equipment malfunctions or breakdowns, pressure extremes (high pressure or vacuum), noise,

Psychosocial - stress, violence, etc.,

Radiation – Exposure to X-Rays, Alpha, Gamma rays, etc

Electrical – Fire, Electric shock, short circuit etc

Hazard and Risk: Hira (Contd.)

- A **hazard** is something that has the potential to cause harm while risk is the likelihood of harm taking place, based on exposure to that hazard.
 - **Risk** is the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard. It may also apply to situations with property or equipment loss, or harmful effects on the environment.
- For instance, These risks are expressed as a probability or likelihood of developing a disease or getting injured, whereas hazard refers to the agent responsible (i.e., smoking).

Factors that influence the degree or likelihood of risk are:

- the nature of the exposure: how much a person is exposed to a hazardous thing or condition (e.g., several times a day or once a year),
- how the person is exposed (e.g., breathing in a vapour, skin contact), and
- the severity of the effect. For example, one substance may cause skin cancer, while another may cause skin irritation. Cancer is a much more serious effect than irritation.

Methodology:

5x5 RISK MATRIX

PROBABILITY

Highly Probable	5 Moderate	10 Major	15 Major	20 Severe	25 Severe
Probable	4 Moderate	8 Moderate	12 Major	16 Major	20 Severe
Possible	3 Minor	6 Moderate	9 Moderate	12 Major	15 Major
Unlikely	2 Minor	4 Moderate	6 Moderate	8 Moderate	10 Major
Rare	1 Minor	2 Minor	3 Minor	4 Moderate	5 Moderate
	Very Low	Low	Medium	High	Very High

IMPACT

The Hazard Identification and Risk Analysis process provides information on many of the most common and significant hazards that effect the healthcare providing workers. The Risk Assessment Matrix (RAM) highlights a number of tasks and operations associated with the use of hazardous materials or substance.

The study identified all the potential health and safety hazards in different departments of the hospital. Out of them, those whose risk rating score is above 10 (i.e. Major and Severe), are determined as high risk hazards which require more attention and quick intervention to prevent damage.

SCORING	INTERPRETATION	COLOR CODING
1-3	Minor Risk	
4-9	Moderate Risk	
10-16	Major Risk	
20-25	Severe Risk	

Findings

DEPARTMENTS	MINOR	MODERATE	MAJOR	SEVERE
Laboratory	1	7	-	-
Blood Bank	1	6	-	-
Biomedical	-	4	-	-
Fire safety & security	-	6	3	-
IT	-	3	-	-
Gas Manifold	-	8	-	-
Nuclear medicine & Radiology	-	1	2	-
Food & Beverage	-	5	3	1
Human Resources	-	2	-	-
Emergency	-	10	1	-
CSSD	-	4	2	-
Engineering	-	5	5	1
Store	-	8	2	-
OPD	-	6	1	-
ICU	1	5	1	-
OT	-	8	1	-

Table showing Number of risks identified in the departments

Findings & Observations

A total of 114 various possible risks have been identified from the different kinds of hazards in the sample size of 16 departments.

Out of these, the high risks (with scoring 10 and above) are:

TYPE OF RISKS	MAJOR (10-16)	SEVERE (20-25)
TOTAL NUMBER	21	2

Major and Severe risks require immediate interventions to contain the damage timely with efficient management.

Mitigation/recommendations:

Hazard		Recommendations
Electrical		○ Remove - any equipment that does not meet occupational health requirements ○ Reduce – dangerous material levels by using exhaust fans and sufficient ventilation. ○ Replace – high-risk equipment or chemicals for low-risk alternatives. <u>Administrative control:</u> ○ Employee training ○ Work instructions for every activity.
Ergonomic		○ Reduce long reaches and difficult postures by adjusting the height of work surfaces. ○ Make work supplies and equipment easily accessible. ○ Assign the appropriate tool handle to the worker. ○ Give workers a variety of tasks to do (e.g., employ job rotation). ○ Encourage frequent brief relaxation periods.
Psychosocial		○ Enhancing workers' coping abilities by giving them more control over their jobs ○ Improving communication within the organisation ○ allowing workers to be involved in decision-making ○ establishing social support services for employees in the workplace

Mitigation/recommendations:

Hazard		Recommendations
Physical		○ Putting on the proper footwear and using appropriate personal safety equipment, such as hearing protection if necessary ○ Cleaning and keeping floors properly; leaks and spills must be reported. ○ Keeping flammables in certified, tightly sealed containers ○ Unless trained and allowed, do not enter restricted radiation regions.
Biological		○ Placing the Biohazard emblem and other pertinent warning signs at the entrance to places where biological agents are used. ○ Creating plans for dealing with biological-agent-related mishaps ○ Specifying acceptable decontamination and disinfection and establishing mechanisms for the safe collection, storage, and decontamination of contaminated waste..
Chemical		○ Make sure hazardous agents are correctly labelled; apply or handle dangerous agents with tools. ○ Avoid eating near hazardous agents. ○ When possible, avoid recapping needles and instead utilise safe and effective alternatives and dispose of hazardous materials in appropriate containers.

Monitor and review

Regardless of the approach chosen to eliminate and/or control the hazard, an assessment of its influence on the use of the equipment, substance, system, or environment is required to ensure that the control does not contribute to the current hazard or introduce a new hazard. It's also critical that everyone involved is told about the changes and, if necessary, given the necessary information, instruction, training, and supervision to ensure that each worker is protected against injury and health risks. It is also advised that the area supervisor conduct an assessment of the system or control after a period of time to determine its continued usefulness.

Conclusion:

Defining and analysing dangers is the first step in protecting workers from occupational diseases and ensuring a safe workplace. All healthcare institutions should conduct HIRAC studies on a regular basis. This aids in the achievement of two goals: first, identifying significant and high-risk hazards that must be handled on a priority basis, and second, implementing control measures. At the earliest, it reduces the risk to a level considered ALARP.

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