Occupational Health





Why is occupational health and safety important?

- Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is in an office or in the factory, etc.
- Workers represent half the world’s population (3.5 billion) and are the major contributors to economic and social development.
- Therefore, work environments should be safe and healthy. Yet this is not the case for many workers.
- Every day workers all over the world are faced with a multitude of health hazards, such as: dusts; gases; noise; vibration; & extreme temperatures.

So, what is the problem with occupational health?

- The health of workers is an essential prerequisite for household income, productivity and economic development. Therefore, restoring and maintaining working capacity is an important function of the health services.
- Unfortunately some employers assume little responsibility for the protection of workers' health and safety.
- In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers.
- As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all parts of the world.

Why is occupational health and safety important?

- In many countries more than half of workers are employed in the informal sector, with no social protection for seeking health care and lack of regulatory enforcement of occupational health and safety standards.
- Occupational health services cover mostly big companies in the formal sector. But, more than 85% of workers in small workplaces, informal sector, agriculture and migrants worldwide, do not have any occupational health coverage.
- Research has demonstrated that workplace health initiatives can help reduce sick leave absenteeism by 27% and health-care costs for companies by 26%.

https://www.who.int/en/news-room/fact-sheets/detail/protecting-workers'-health

Why is occupational health and safety important?

- The ILO and WHO also estimate that globally, more than 2 million people die every year from work related diseases and injuries.
- 4-6% GDP is lost due to illnesses and injuries due to unhealthy and hazardous working conditions
- About 70% of workers do not have any insurance to compensate them in case of occupational diseases and injuries.

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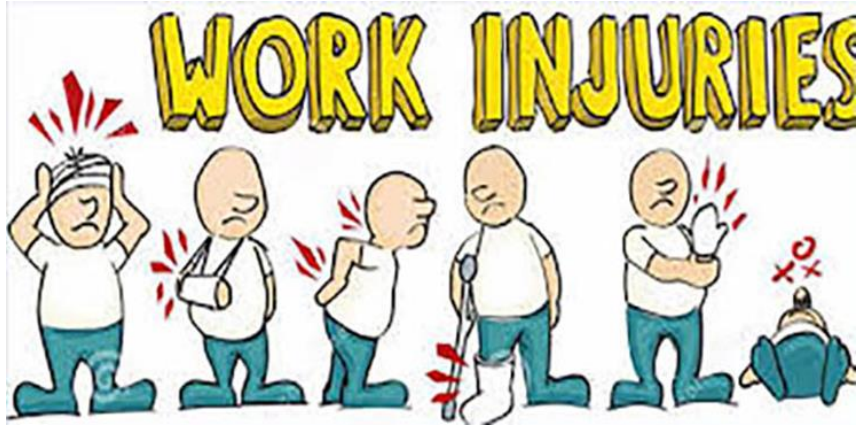
Why is occupational health and safety important?

Certain occupational risks, such as injuries, noise, carcinogenic agents, airborne particles and ergonomic risks account for a substantial part of the burden of **chronic diseases**:

37% of all cases of **back pain**
16% of **hearing loss**
13% of **chronic obstructive pulmonary disease**
11% of **asthma**
9% of **lung cancer**
8% of **injuries**
8% of **depression**
2% of **leukaemia**



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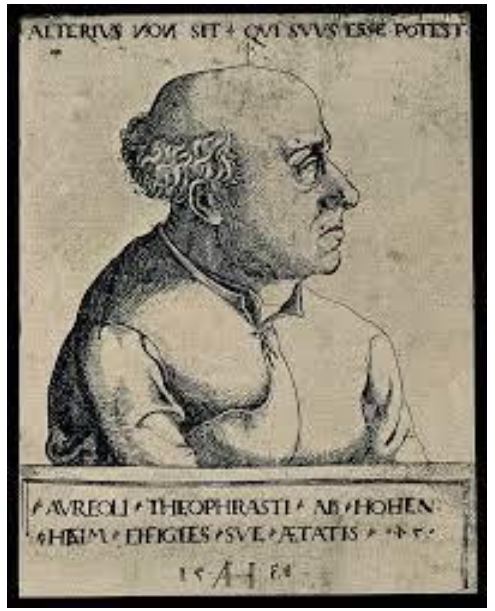
Definition of Occupational Health:

Since 1950, the International Labour Organization (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health.

Occupational Health is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and the adaptation of work to people, and people to their jobs.
(ILO / WHO 1950)

The science and practice of occupational health **involves several disciplines**, such as occupational medicine, nursing, ergonomics, psychology, hygiene, safety among other desciplines.

Occupational Health, History



- The first written discussions specifically directed toward matters of occupational safety and health were those of **Paracelsus** (A Swiss physician in 1493-1541), ha was the “Father of toxicology”.
- In 1700, **Bernadino Ramazzini**, an Italian physician, published the first book on occupational medicine, *De morbis artificium diatribe (**Diseases of Workers**)*, and he is generally regarded as the "father of occupational medicine." Ramazzini wrote about the health hazards for dozens of occupations.



Occupational Health, History

- In the United States, in the early twentieth century, Dr. Alice Hamilton became the first woman physician appointed to a faculty position at Harvard University, where she worked at the School of Public Health promoting safe and healthful work practices in the United States.
- She has been recognized as the leader of the occupational medicine movement in the United States, which came relatively late compared with that in Europe.

Identifying Safety and Health Hazards

The terminology used in Occupational Safety and Health (OSH) varies, but generally speaking:

- **A hazard is something that can cause harm if not controlled.**
- **The outcome is the harm that results from an uncontrolled hazard.**
- **A risk is a combination of the *probability* that a particular outcome will occur and the *severity* of the harm involved.**

The calculation of risk is based on the likelihood or probability of the harm being realized and the severity of the consequences.

	Severity of Consequences				
Likelihood of Occurrence	1. Minor Injuries [No lost time]	2. Significant Injury [up to 7 Days]	3. Serious Injury [7 Day Injury]	4. Major Injury	5. Fatality
1. Very unlikely [hasn't occurred before]	1	2	3	4	5
2 - Slight [rarely occurs]	2	4	6	8	10
3 - Feasible [possible, but not common]	3	6	9	12	15
4 - Likely [has before, will again]	4	8	12	16	20
5 - Very Likely [occurs frequently]	5	10	15	20	25
Risk Rating: Likelihood * Severity	Minimal 1-2	Low 3-9	Medium 10-15	High 16-20	Extreme 25

Identifying Safety and Health Hazards, example

For example, repetitively carrying out manual handling of heavy objects is a **hazard**.

The **outcome** could be a musculoskeletal disorder (MSD) or an acute back or joint injury.

The **risk** can be expressed numerically (e.g. 0.5 or 50% or 50/50 chance of the outcome occurring during a year) OR in relative terms can be expressed as (e.g. "high/medium/low“ risk of developing outcome during a certain time period).

Common workplace hazard groups

1- Mechanical hazards.

By type of agent:

- Falling down from a height (construction workers)
- Confined Space
- Impact force
- Slips and trips
- Falling on a pointed object
- Compressed air/high pressure
- Entanglement
- Equipment-related injury



By type of damage:

Crushing, Cutting, Friction and abrasion, Shearing , Stabbing and puncture

2. physical hazards .

- Noise
- Vibration
- Barotrauma (hypobaric/hyperbaric pressure)
- Ionizing radiation
- Electricity
- Asphyxiation
- Cold stress (hypothermia)
- Heat stress (hyperthermia)

3- Biological Hazards:

Bacteria

Virus

Fungi

e.g. Blood-borne pathogens

e.g. Tuberculosis

4- Chemical hazards

include:

Acids

Bases

Heavy metals

Solvents

Particulates: **Fumes (noxious gases/vapors), silica particles (pneumoconiosis)**

Highly-reactive chemicals

Fire, explosion hazards.

Pneumoconiosis

- Pneumoconiosis has been the most serious and preventable occupational disease for a long time…where inhalation of dust has caused interstitial fibrosis because of Inadequate use of personal protective equipment (PPE).
- The most common workplace mineral dusts that are known to cause pneumoconiosis are asbestos, silica (rock and sand dust), and coal dust.
- In China, the number of workers exposed to silica containing dusts was estimated to be as high as 12 million .
- Pneumoconiosis represents 70–80% of the total number of cases of reported occupational diseases in mining industry, sand blasting, textile industry, and ship repair.

5- Psychosocial issues include

- Work-related stress, whose causal factors include excessive working time and overwork .
- Violence from outside the organization .
- Bullying, which may include emotional and verbal abuse (inside the organization)
- Sexual harassment
- Burnout
- Exposure to unhealthy elements during meetings with business associates, e.g. tobacco, uncontrolled alcohol

Psychosocial hazards

In 1986, the National Institute for Occupational Safety and Health (NIOSH) listed **psychological disorders** among the **ten leading work-related diseases** and injuries among U.S. workers.

Psychosocial hazards, however, have received little attention over the past decades. This is mainly because of the focus on controlling physical, chemical and biological hazards in workplaces.

6. Musculoskeletal Disorders

Musculoskeletal diseases are a major industrial problem in terms of both disability and cost.

- These diseases cause a large number of permanent disability ratings and a burden to medical services.
- Low back pain occurs in 50% of workers in heavy industries.
- Repetitive loadings appear to fatigue and weakens the tissues.
- Avoided by the employment of good ergonomic design
- The need to reduce musculoskeletal injuries in the workplace has become acute.



Occupational Health in Health Workers

A health care facility is a workplace as well as a place for receiving and giving care. Health care facilities around the world employ over 59 million workers, who are exposed to a complex variety of health and safety hazards everyday, including:

- biological hazards, such as TB, Hepatitis, HIV/AIDS, SARS, covid 19
- chemical hazards, such as, glutaraldehyde, ethylene oxide
- physical hazards, such as noise, radiation, slips trips and falls
- ergonomic hazards, such as heavy lifting
- psychosocial hazards, such as shiftwork, violence and stress
- fire and explosion hazards, such as using oxygen, alcohol sanitizing gels
- electrical hazards, such as frayed electrical cords.

Occupational Health Hazards among Doctors and Nurses

Infectious Diseases: Tuberculosis: Common among health care workers, Hepatitis B, Hepatitis C, HIV, Influenza,

Risks related to stress and overwork: Depression, suicide, hopelessness, Burnout, Restricted social life, prone to alcohol/ drug abuse/ drug exposure.

Stress of balancing Family life: Kind of work and night duties effect family life very adversely, Specially female doctors. Completing family will affect their careers, most of time. High rates of divorces, Stress related diseases.

Life style diseases: mainly sedentary work and long hours of working, makes them prone to life style diseases like ischemic heart disease , hypertension etc.

Exposure to radiations: specially in radiology and oncology. female doctors are more affected.

Lack of exposure to sunlight: affects bones , deficiency of vitamin D and predisposes to depression.

Occupational Health Hazards among Doctors and Nurses

Risk of catching resistant infections and sometimes there is risk that they carry these deadly bacteria to their homes. So their family members and children are at risk.

Risk of working in disaster areas, floods, earthquakes.

C**hange in natural bio flora of doctors and nurses**. It is replaced by hospital bio flora. If they get infection, it is difficult to treat.

Risks because of legal problems and violent patients:

Legal trouble adds to further stress.

Verbal abuse and threatening is very common.

Fear of physical assault can really harm doctors and family members.

Excessive and unilateral regulation puts doctors at the receiving end of the discontent (doctors always blamed).

THE END