

Occupational Health



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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 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.

Why is occupational health and safety important?

- Every day workers all over the world are faced with a multitude of health hazards, such as: dusts; gases; noise; vibration; & extreme temperatures.
- Occupational hazards cause or contribute to the premature death of millions of people worldwide and result in the ill health or disablement of hundreds of millions more each year.
- The International Labor Organization (ILO) and the World Health Organization estimate that 5–7% of global fatalities attributable to work-related illnesses and occupational injuries.

Why is occupational health and safety important?

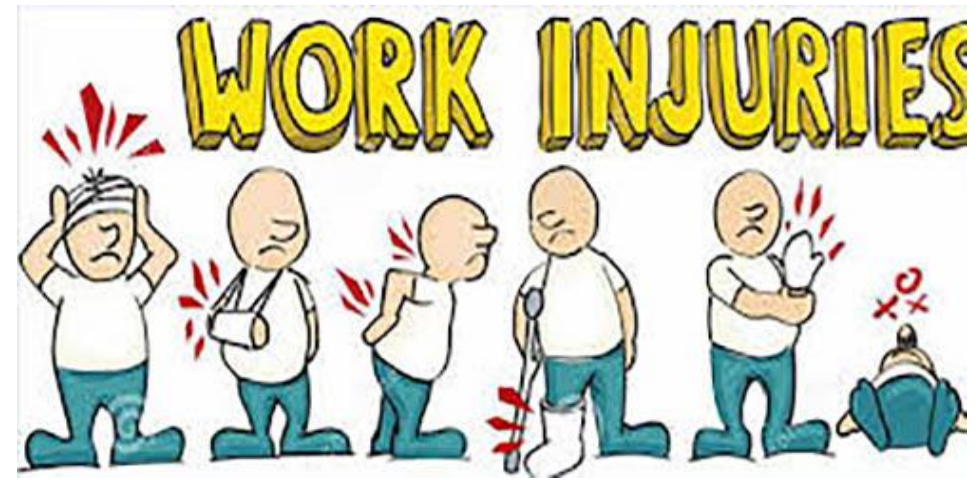
The ILO and WHO also estimate that globally there are 2.3 million occupationally related deaths each year attributable to work.

Overall, **cancer** forms the largest component (32%) followed by **work-related circulatory diseases** (23%), **communicable diseases** (17%) and **occupational accidents** (18%) with the latter two being far more prevalent in developing and rapidly industrializing countries.

Over 313 million nonfatal occupational accidents (with at least 4 days absence)

So, what is the problem with occupational health?

- 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.



Definition

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)

Occupational Health, History

- The first written discussions specifically directed toward matters of occupational safety and health were those of **Paracelsus**, in the fifteenth century.
- In the early eighteenth century, **Bernadino Ramazzini** wrote the first book on occupational medicine, *De morbis artificum 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.

Identifying Safety and Health Hazards

- 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. a 0.5 or 50/50 chance of the outcome occurring during a year), in relative terms (e.g. "high/medium/low").

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.
- 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 .
- The risk is higher with exposure to mineral dusts, and Inadequate use of personal protective equipment (PPE)

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
- 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 scant 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.



Risk assessment

Modern occupational safety and health legislation usually demands that a risk assessment be carried out prior to making an intervention.

It should be kept in mind that risk management requires risk to be managed to a level which is as low as is reasonably practical.

This assessment should:

- **Identify the hazards**
- **Identify all affected by the hazard and how**
- **Evaluate the risk**
- **Identify and prioritize appropriate control measures**

Risk Assessment

- The calculation of risk is based on the likelihood or probability of the harm being realized and the severity of the consequences.
- This can be expressed mathematically as a quantitative assessment (by assigning low, medium and high likelihood and severity)
- The assessment should be recorded and reviewed periodically and whenever there is a significant change to work practices

Risk Assessment

- The assessment should include practical recommendations to control the risk.
- Once recommended controls are implemented, the risk should be re-calculated to determine if it has been lowered to an acceptable level.
- Generally speaking, newly introduced controls should lower risk by one level, i.e., from high to medium or from medium to low.

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
- 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 effect 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: effects bones , deficiency of vit 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.

Change 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).