



Occupational HEALTH

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Prevention and management of occupational health problems

Contents:

- 1) Medical prevention measures
- 2) Engineering prevention measure
- 3) Legislations related to occupational health
- 4) Occupational Health Services (Identify occupational health system, Occupational health team and its role in occupational disease prevention)

Prevention of Occupational Disease and Control of Occupational Hazards

- This occur by integration of these three important measures

MEDICAL
MEASURES

LEGISLATION

Specific
measures

ENGINEERING
MEASURES

A. Medical measures:

1. Pre-placement examination
2. Periodical examination
3. Notification
4. Environmental monitoring
5. Immunization
6. Health education and counseling
7. Maintenance and analysis of records

1- Pre-placement examination

It is the examination of the worker before employing in the occupation, to assess his physical and psychological fitness so that right person is placed in right job

A fresh recruit may either be totally rejected or given a job suited to his physical and mental abilities. So that the worker can perform his duties efficiently without detriment to his health.

2. **Periodical examination**

It is important for early diagnosis and prompt treatment. Periodical examinations usually include laboratory investigations, radiological examinations and clinical examination. The frequency of examination depends upon the type exposure.

3. **Notification:**

National laws and regulations require the notification of cases of occupational diseases. The main purpose of notification in industry is to initiate measures for protection of the workers by investigating the working conditions and to prevent such recurrences and for compensation.

2. **Environmental monitoring:**

Monitoring surrounded environmental hazards such as thermal conditions, lighting, ventilation, temperature, dust concentration, noise level, and radiation dose etc. this monitoring help in reducing occupational hazards and assures the safe permissible levels.

2. **Immunization**

The workers should protect themselves against communicable diseases such as cholera, tetanus, typhoid, hepatitis B, and also against rabies among workers in the veterinary hospitals.

2. **Health education and counseling**

This is an important health preventive measure, at both levels; the worker and the management. This usually done by both the Safety and Medical Officers.

Worker is educated about:

1. Risks involved and the measures to be taken for self-protection.
2. Personal hygiene and personal health habits as Smoking and alcoholism prevention and nutritional habits.
3. Safety education and training.
4. First-aid.
5. 3-Engineering measures
6. Design of building
7. Good house-keeping
8. General ventilation
9. Water supply
10. Machine safety and process control
11. Protective devices
12. Statistical monitoring
13. Research.

1. Design of building

Building should be structurally safe to withstand the stress and strain of the machineries. There should be protection from solar radiation and conducted heat and noise. It should be away from the residential areas.

2. Good house-keeping

This refers to general cleanliness of the factory premises, It is a fundamental requirement.

3. General ventilation:

There must be proper ventilation of the working place. If natural ventilation is not adequate, artificial ventilation must be present.

4. Water supply:

There must be provision for providing protected water supply to the workers in the industry (5 liters for each worker). Latrines and urinals: There must be one latrine for 25 workers. Disposal of swage: Large industries should have their own sewage treatment plant.

5. For Machine Safety and Process Control,

The Following precautionary measures should be taken:

- Machinery should be fitted with a **‘built-in’ safety device**, sufficient space and a **suitable guard for dangerous area and earthed** electrical connection.
- **Mechanization** i.e. Using machines to do the work instead of worker doing it, e.g. dermatitis can be prevented if hand mixing is replaced by mechanical device, long-forceps is used to handle radioactive substances, acids are conveyed through pipes, etc.
- **Substitution** of harmful substances by less harmful substances to be done wherever possible

6. **Protective devices**

- **For Head Protection:** use Suitable Helmet
- **For Eye Protection:** use protective goggles, heat treated lenses, eye- shields, visors, etc. Such equipments are needed for workers engaged in welding works, furnace work, etc.
- **For Ear Protection:** use ear-plugs, ear-muffs
- **For Leg protection:** use Safety shoes, gum boots
- **for Respiratory Protection:** use Gas masks and respirators
- **Protective clothes** against chemicals, lead apron against radiation, etc.

Specific measures for prevention of occupational related diseases

For Noise exposure

Hearing conservation program is applied to prevent noise inducing hearing loss, it consists of integrated factors:

1. Noise monitoring especially when noise in work environment exceed 85 db
2. Engineer control
3. Administrative control to reduce exposure when noise exceed 85db by shift work
4. health education
5. Proper selection of suitable hearing protection devices.
6. Periodic audiometric evaluation every 1 year

For Radiation exposure:

1. Using special PPEs **as** lead apron, lead gloves and dark spectacles in radiology departments.
2. Wearing 'Pocket dosimeter' for personal monitoring of the radiation dose received.
3. Maintenance of X-ray machine, use of efficient fitters and shields so that unwarranted radiations are excluded.
4. Periodic examination every 6 month i.e. Complete blood picture to avoid leukemia.

For Carcinogens exposure

1. To know the 'Danger signals' of cancers (Cancer education)
2. Health education for smoking cessation and good personal hygiene
Periodical examinations should be continued even after cessation of exposure to carcinogen

For occupational dermatoses

1. By avoidance of allergens
2. By providing protective clothing, long leather gloves, aprons, boots
3. Application of barrier creams to the hands
4. If necessary, the affected worker may have to be transferred to a job not exposing him to risk

For heat related diseases:

1. Scheduled and regulated exposure to heated environment can help for acclimatization
2. Limiting exposure duration
3. Workers trained for warning signs and symptoms
4. Employer should provide cool drinking water or electrolyte-carbohydrates solution or 1% saline water and shaded rest area.
5. Avoid using drugs that inhibit sweating or reduce cutaneous blood flow or cause dehydration (e.g.. atropine, antipsychotic, diuretics, laxatives, anti- cholinergic...).

For cold related diseases:

1. Keep skin dry and wear moisture resistant Personal Protective Equipment
2. Pocket hand warmers can be used

For Atmospheric pressure disorders (Caisson disease)

1. Pre-placement examination. Appoint young fit adults in such jobs & preferred not above 35.
2. Shortening the time of work under high pressure.
3. Slow decompression. i.e. slow ascent according to fixed schedule after work.
4. Chest & joint x-ray every 2 years
5. Education about symptoms of change of pressure & how to deal with

For pneumoconiosis

a) Dust control measurements by

- Prevention or reducing the formation of dust: by wet method.
- Prevention the escape of dust by special enclosures
- Removing the dust by exhaust ventilation, suction fans, etc.

b) Periodical medical examinations including X-ray of chest, so that the cases .of respiratory diseases can be detected early and removed from the offending occupation and are given some other job.

3. Legislation:

- In order to safeguard the health, safety and welfare of the industrial workers, laws have been framed in every country.
- Most important one is workers' compensation law, which places the occupational physicians in a critically important role.
- The ILO list of occupational diseases are listed in groups, every group contains some diseases of similar characters. the Egyptian schedule of occupational diseases contain 48 classes (which include about 102 diseases)

4. Occupational Health Services

The ILO Occupational Health Services Convention defines "occupational health services" as services entrusted with essentially preventive functions and responsible for advising the employer, the workers and their representatives for maintaining a safe and healthy working environment which will facilitate optimal physical and mental health with good work adaptation according to capabilities of workers.

Occupational Health Services can be afforded by Occupational health team (health and safety team) which consist of:

1. Occupational physician
2. Occupational health nurse
3. Industrial hygienist
4. Occupational health and safety professional

Occupational physician's role

The occupational physician's main responsibility is to determine that an injury or illness is caused by work, diagnosis it, prescribe care, and assess the extent of the impairment and the ability of the worker to resume work

Objectives of occupational health practice:

- 1) Protecting workers' health against hazards at work
- 2) Adapting work and the work environment to the capabilities of workers
- 3) Enhancing the physical, mental and social well-being of workers by health promotion and education
- 4) Minimizing the consequences of occupational hazards, accidents and injuries, and occupational and work-related diseases (Rehabilitation)
- 5) Providing general medical health care services for workers and their families, both curative and preventive, at the workplace or from nearby facilities.