

سَلَامٌ عَلَى الرَّحْمَنِ الرَّحِيمِ

OCCUPATIONAL HEALTH



السَّلَامُ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ

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Occupation Health Program & Occupational Health Services:



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Differences between occupational medicine and clinical medicine

| Items | Occupational Medicine | Clinical Medicine |
|---------------|-----------------------------------|--|
| Target group | Workers at all jobs (Healthy) | Patients irrespective to their jobs |
| Health status | Healthy and diseased | Diseased only |
| Place | Plants | Hospitals and Clinics |
| Diagnosis | System of medical examinations | Examination and investigations |
| Management | Occupational health program | Medical/surgical treatment |

Occupational Health Program:

It is defined as a program for **promotion** and **protection** of **the health of the working people** in their working environment **and** **prevention of occupational hazards** in the work place.

Staffing of occupation health program:

- 1- Industrial physician.
- 2- Occupation nurse.
- 3- Occupational hygienist.
- 4- Safety engineer.
- 5- Industrial safety personnel.
- 6- Toxicologist.

Occupational Health Program:

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- ❖ program for **promotion** and **protection** of **the health** of the working people in their **working environment**
- ❖ **and**
- ❖ **prevention** of occupational hazards in the work place.

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Occupational Health Team:

physician

Nurse

Hygienist

Ergonomist

Safety
engineer

Epidemiologist



□ Industrial Physician:

Is the **key person** in occupational health team.

Is the leader of the team who **designs** and **implements** the occupational health program

❖ His duties can be summarized in the following points:

- 1- Perform the **pre-placement** examination.
- 2- Perform the **periodic examination**.
- 3- Emergency treatment and/or first aid of accidents
- 4- Diagnosis and treatment of **occupation disease**.
- 5- Rehabilitation of diseased workers.
- 6- **Assessment** of the degree of **disabilities** following OD and injuries and **calculate** the **required compensation**.
- 7- Referral of chronic-non ODs to a specialist.
- 8- **Health education**.
- 9- First aid treatment of emergent non ODs conditions

medical
examination



❑ Occupational nurse:

1. She/he **assists** the physician in **providing** medical services
2. **assists** in **supervising** the work environment, **educates** workers, and
3. **keeps** medical records.



Objectives of Occupation Health Program:

- 1- **Protection** of employees against health hazard **in their work place.**
- 2- **Facilitating** the placement of workers **according** to their physical, mental and **emotional** capacities.
- 3- **Assuring** an **adequate** medical care and rehabilitation of occupationally diseased and injured workers.
- 4- **Protection** of the general environment of the community

Activities of Occupation Health Program & Occupational Health Services



- 1-Maintenance of healthful work environment
- 2-**Diagnosis** and treatment of occupation diseases
- 3- **Promotion** of workers' health.
- 4- **Prevention** of occupational health hazards.
- 5- **Control** of occupational health hazards.
- 6- Rehabilitation &**compensation** of the disabled workers.
- 7-**Provide special** care for vulnerable groups of workers namely women and children.
- 8- **Keep good health recording** system (*the seeing eye of occupational health team*).

- 1- Maintenance of healthful work environment
- 2- Diagnosis and treatment of Occupational Disease (OD)
- 3- Promotion of workers' health.
- 4- Prevention of occupational health hazards
- 5- Control of occupational health hazards
- 6- Rehabilitation and compensation.
- 7- Provide special care for vulnerable groups
- 8- Keep good health recording system

1- Maintenance of Healthful Work Environment:

This requires personnel **skilled in industrial hygiene** to

- ✓ perform **periodic inspection** of the different departments of the factory and
- ✓ **Evaluate** the work environment
- ✓ In order to **detect and appraise** (assess) health hazards.



- Such **appraisals** together **with** knowledge of industrial process and materials used, **provide** the basis for
- ✓ appropriate **recommendation** to improve **the control measures**



2-Diagnosis and treatment of occupation diseases:

The following criteria should be fulfilled to confirm such diagnosis:

1. A detailed **occupational history** of **exposure to hazardous agent or process** should be taken from the workers.
2. **Symptoms and signs** of the disease **must coincide with** documented manifestations of the occupational disease.
3. **Measures and samples taken from the environment indicate** that the **causative agent is present** in a **sufficient concentration** to produce the disease.
4. The **manifestations are improved** when the worker **gets out** from the work place and are **aggravated by getting back** to the work place.
5. The same manifestations are prevailed **among other workers in the same work circumstances.**
6. The disease should be registered on the **list of ODs.**



3. Promotion of workers' health:

A. Improvement of the health & working capacity of workers

B. Improvement of the work environment:

A. Improvement health & working capacity of workers by;

1-Adequate nutrition (for every type of occupation) either by:

***Nutrition Education** and support as well as

****Prevention and control of parasitic diseases.**

2-Socioeconomic development through:

- Improving **workers' income.**

- Guidance for **proper expending** of this income.

3-Social welfare through:

- Management of family problems.

- Making good social relations at work.

- - Encouragement of sport activities.

4-Health education and keeping **good medical records**



(B) Improvement of work environment:

This can be achieved **through good sanitation** of work place by:

- 1) Good design of the machines.
- 2) Suitable housekeeping.
- 3) Proper lighting and ventilation.
- 4) Good control for physical hazards as heat, radiation & noise
- 5) Supplying work place with washing facilities and suitable transportation means.



4- Prevention of Occupational Health Hazards:

Prevention of occupational disease or accident occurrence **through integrated efforts** of many disciplines **as:**

- a) Medical prevention:
- b) Engineering prevention:
- c) Hygienic prevention

Activities of Occupation Health Program

- 1-Maintenance of healthful work environment
- 2-Diagnosis and treatment of OD
- 3- Promotion of workers' health.
- 4- **Prevention of occupational health hazards.**
- 5- Control of occupational health hazards.
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a) Medical prevention:

- i. Pre-employment medical examination
- ii. Pre-placement examination:
- iii. Periodic medical examination
- iv. Health education
- v. Immunization of workers and chemoprophylaxis

i. Pre-employment medical examination

for all persons to choose the suitable worker to the job which suits his physical capacities and mental abilities,

ii Pre-placement examination:

- this type of medical examination must be done by the
- occupational physician of the plant to which the worker is
- joined to put the suitable worker in the suitable process that suits his health condition.
- Each employee is subjected to a pre-placement examination before joining a new job





Each employee is subjected to a **pre-placement** examination before joining a new job:

- 1- personal , family and medical history .
- 2- Proper **past** and **present** occupational history.
- 3- Complete **physical** examination.
- 4- Laboratory investigation related to the nature of the work *e.g workers joining dusty work e.g cotton industry should do an X-ray chest.*

□ Objectives of the pre-placement examination:

- 1- Proper placement of workers according to their **medical** and **physical** abilities to perform their job without hazards.
- 2- Put a **base- line** of the health status of the workers.
- 3- **Establishing records** for the condition of the workers at the start of the job be used in case of **compensation**

iii Periodic medical examination

❖ for **Early Detection** of any health hazards arises from **exposure** to an offending agent at workplace where intervention (**early treatment**) can **slow, halt (stop) or reverse** the progression

❖ **Done** at certain intervals

It is either **every six months** or every **two years**

□ These intervals vary according to:

➤ **type** of the hazards, **duration, Severity** or **level** of exposure

➤ **Individual findings** in each examination

➤ Focusing on the **body systems** which can be affected by **exposure** in the job.

❖ **Depending** on the result of periodic examination, **the workers** may be **temporally** or **permanently** removed from further exposure or may be advised to **continue work**.



The items of periodic medical examination (screening)
include the following:

1- **Survey** (*questionnaire*): inquires about **history of exposure** to any **hazardous substance** or process at work place as well as any **abnormal symptoms** or complains.

2- **Clinical examination.**

3- **Laboratory investigations** *as*: chest X-ray, pulmonary function tests, audiometric evaluation.

4- **Biologic monitoring**; by examination of **blood, urine** and **exhaled air**. for early detection of any **disturbed physiologic function** or **toxic substance level**

C- Early treatment of the diagnosed occupational diseases.

D- First aid treatment of any occupational injuries.



Objectives of periodic examination:

1. Determine if the worker's health remains **compatible** with job.
2. **Detect early any deviation** from normal in the worker's health and thus **early detection** of occupational disease.
3. **Evaluate the control** measures in the factor

Medical prevention:

Pre-employment medical exam

Pre-placement examination:

Periodic medical exam

Health education

Immunization of workers

chemoprophylaxis

iv Health education and counseling

Occupational health personnel should educate employees about

***personal hygiene** and

****Health maintenance.**

Prevention of occupational health hazards

a) **Medical prevention:**

b) **Engineering prevention:**

Hygienic prevention

The **industrial physician** and
nurse should **co-operate**
with the
safety engineer and
industrial hygienist

to educate the employees
about prevention of
accidents and OD

Health education of workers can be



Health education of workers can be done:



- 1- During periodic examination.
- 2- On reviewing laboratory test results.
- 3- During treatment.
- 4- At a time of specific enquiry by employees.
- 5- On a request of work group.
- 6- On introduction of a new process or a new hazardous material.

about early
S&S of OD and
the importance of
early management

Successful health education

- ✓ will improve safe working habits and
- ✓ will **reduce** both ✓ the **lost time** rate and ✓ the **incidence** of minor accidents

V . Immunization of workers and chemoprophylaxis

to combat any infectious disease that may be contracted during the course of their occupation

Medical prevention:
Pre-employment medical exam
Pre-placement examination:
Periodic medical examin
Health education
Immunization of workers
chemoprophylaxis

Cont. ..Prevention of occupational health hazards

Prevention of occupational health hazards
a) Medical prevention:
b) **Engineering prevention:**
Hygienic prevention

b) **Engineering prevention:** through:-

1. **Mechanization** of heavy work process to lighten the physical strain.
2. **Substitution** of hazardous substance or operation by non hazardous one
3. **Enclosure:**
machine guarding
4. **Isolation:**
_isolation of hazardous process inside the work place (*radiation*).
5. **Segregation**
of hazardous process away from work places
6. **Good ventilation:**
 - i. by fans to increase air movement or
 - ii. by exhaust system for suction of hazardous gases or
 - iii. dust to be collected in a **special disposal system**



Engineering prevention Cont. ..

Prevention of occupational health hazards
a) Medical prevention:
b) Engineering prevention:
Hygienic prevention

7. Good lighting and control of other physical hazards at workplace as heat, noise and radiation.

8. Assurance of Ergonomics at work place:

- a. to adapt the work situation to physical capabilities of the worker
- b. to prevent **loss** of effort and time and
- c. to **prevent** development of **accidents** and
- d. to **prevent** development **musculo-skeletal disorders**

Hygienic prevention:



c) Hygienic prevention: through:-

❖ Providing good sanitary facilities as washing, changing clothes before and after work, skin and mouth hygiene.

❖ Supplying protective equipment(PPE) as respirators, protective clothes, and ear muffs or plugs.

❖ Work environment monitoring for detection and evaluation of environmental

❖ Work environment monitoring, for detection and evaluation of environmental pollutants, threshold limit value (TLV)

of a chemical substance.

❖ Ensuring that work legislations are applied as:

- work and rest hours,
- setting rules for employment of women and children and
- investigation for detection of the cause of workers'





- ❖ Ensuring that work legislations are **applied as:**
 - work and rest hours,
 - setting rules for **employment of women** and children and
 - investigation for detection of the cause of **workers' absenteeism**

- 1-Maintenance of healthful work environment
- 2-Diagnosis and treatment of OD
- 3- Promotion of workers' health.
- 4- Prevention of occupational health hazards.
- 5- **Control of occupational health hazards.**
- 6- Rehabilitation and compensation.
- 7-Provide special care for vulnerable groups
- 8- Keep good health recording system

5- Control of occupational health hazards:

- ❖ It includes **early detection** of OD and
- ❖ **Early treatment** through the following measures:
 - A- Pre-placement medical examination
 - B- Periodic medical examination:



6- Rehabilitation and compensation of the disabled workers.

- 1- Maintenance of healthful work environment
- 2- Diagnosis and treatment of OD
- 3- Promotion of workers' health.
- 4- Prevention of occupational health hazards.
- 5- Control of occupational health hazards.
- 6- **Rehabilitation and compensation.**
- 7- Provide special care for vulnerable groups
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Rehabilitation of disabled workers **aims to:**



- **Minimize** or prevent the disability.
- **Retraining** the disabled worker for a new job suitable for his new physical and mental capacities.
- **Compensation** of the disabled workers **after evaluation of the disability** resulted from occupational disease or accident **and giving him some privileges.**

Rehabilitation types include:



A- Psychosocial services :تأهيل نفسي وإجتماعي

Family counseling.

Social, psychiatric and recreation services.

All these tasks are carried by **psychologist and psychiatrist**

C- Vocational services: تأهيل مهني

- Vocational assessment and attitude exploration
- Vocational training.
- Placement in a suitable job.

B- Medical services :تأهيل طبي

- **Diagnosis**
- **Treatment**
- **Follow up**

All these tasks are carried by
industrial doctor.

7-Provide Special Care For Vulnerable Groups of Workers:

Namely women and children. This can be achieved through the **following measures**:

Occupational Health Services

Promotion of workers' health.

Prevention of occupational health hazards.

Control of occupational health hazards.

Rehabilitation and compensation of the disabled workers.

-Provide special care for vulnerable groups of workers
namely women and children.

Keep good health recording system

- 1) Selection of **suitable jobs** that match with their capacities.
- 2) **Pre-placement in another** job when **woman get pregnant**.
- 3) **Proper M.C.H** care for pregnant females.
- 4) Make sure of the **application of certain laws** for employment of **working women and children** namely:
 - no night shift,
 - limitation of working hours,
 - paid leave for infant care and
 - **Prohibition from working in** certain hazardous jobs.



6- Keep Good Health Recording System:

Medical records:

- ❖ It is very important that **good medical record system** is maintained in any occupational health program.
- ❖ Every employee should have an **accurate & complete medical report** from the time **of his first employment examination**.
- ❖ The records must **be detailed enough** to provide adequate information for **job placement health maintenance workmen's compensation and rehabilitation**.

Health record is the seeing eye of the industrial physician and industrial health team.

It should include,



It should include,

Medical records:

- personal data,
- data of pre-employment,
- periodical examination,
- history of exposures and
- diseases (occupational and non-occupational),
- history of accidents,
- sick absenteeism, retirement, clinical exam
- any previous immunization taken



□ Value of keeping and analyzing health records:

- Basic data for statistical analysis.
- Help to know morbidity and mortality rates.
- Help to see trends in health and disease.
- Help to identify plant areas of high accidents, sick absenteeism and occupational disease.
- Help in planning and **evaluation** of industrial health program.

THANK

YOU



OCCUPATIONAL HAZARDS

An industrial worker may be exposed to five types of hazards, depending upon his occupation:

- (a) Physical hazards
- (b) Chemical hazards
- (c) Biological hazards
- (d) Mechanical hazards
- (e) Psychosocial hazards.

a) Physical hazards

- (1) Heat and Cold
- (2) Light
- (3) Noise:
- (4) Vibration:
- (5) Ultraviolet Radiation :
- (6) Ionizing Radiation :

