

# OCCUPATIONAL HEALTH

السلام عليكم ورغمة الله وبركاته

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# PROF. DR. WAQAR AL-KUBAISY

#### Differences between occupational medicine and clinical medicine

ltems	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:**

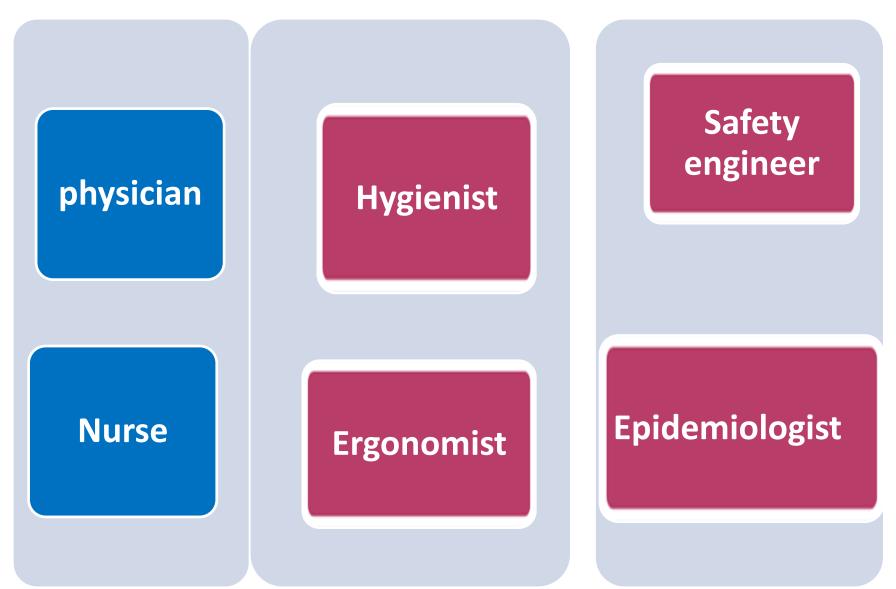
It is defined as a

- 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 Team:**



WAQAR AL-KUBAISY

#### 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. medical
- 2- Perform the periodic examination. \_\_\_\_\_\_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



#### 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

- l-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*).



Activities of Occupation Health Program & Occupational Health Services Cont. ..

#### 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





#### I-Maintenance of healthful work enviro 2-Diagnosis and treatment of OD 3- Promotion of workers' health. 4- Prevention of occupational health hazar 5- Control of occupational health hazar 6- Rehabilitation and compensation. 7-Provide special care for vulnerable gr

8- Keep good health recording system

## 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.



Activities of Occupation Health Program &Occupational Health Services

#### 3. Promotion of workers' health:

- A. Improvement of the health & working capacity of workers
- B. Improvement <u>of the work environment</u>:
- 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
- -5-keeping good medical records

2-Diagnosis and treatment of OD

4- Prevention of occupational health hazards.5- Control of occupational health hazards.

3- Promotion of workers' health.

6- Rehabilitation and compensation.7-Provide special care for vulnerable groups8- Keep good health recording system

and Safety

A.Improvement of the health and working capacity

B.Improvement of work environment

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

(B) Improvement of work environment:

- Good design of the machines. 1)
- Suitable housekeeping. 2)
- Proper lighting and ventilation. 3)
- Good control for physical hazards as heat, radiation & noise 4)
- Supplying work place with washing facilities and suitable 5) 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.
- 6- Rehabilitation and compensation.
- 7-Provide special care for vulnerable groups
- 8- Keep good health recording system

- a) <u>Medical prevention:</u>
- i. Pre-employment medical examination
- ii. Pre-placement examination:
- iii. Periodic medical examination
- iv. Health education





- v. Immunization of workers and chemoprophylaxis
  - <u>i. Pre-employment medical examination</u>
    for all persons to choose the suitable worker to the job which suits his physical capacities and mental abilities,
    <u>ii Pre-placement examination</u>:
  - 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

Pre-placement examination Cont. ..

- 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.

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



- 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** <u>intervals vary according</u> to:



It includes

- 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.

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

- <u>The items of periodic medical examination (screening)</u> 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.



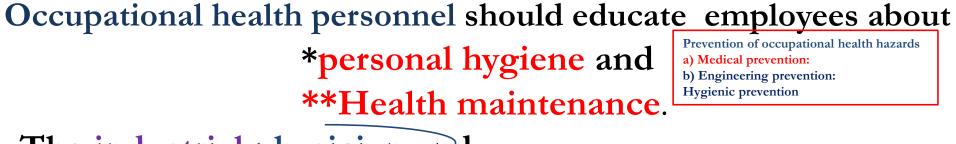
- 3- Laboratory investigations as: chest X-ray, pulmonary function tests, audiometric evaluation.
  4- Biologic monitoring; by examination of blood, urine and exhaled air. for early detection of any disturbed physiologic function or toxic substance level
- C- Early treatment of the diagnosed occupational diseases. D- First aid treatment of any occupational injuries.

#### Objectives of periodic examination:

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

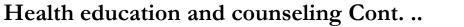
iv Health education and counseling

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



The industrial physician and nurse should co-operate with the

safety engineer and industrial hygienist to educate the employees <del>about</del> prevention of accidents and OD



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. the import
- 5- On a request of work group.
- 6- On introduction of a new process or a new hazardous material.

#### 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

S&S of OD and the importance of

about early

early management

Cont. .. Prevention of occupational health hazards

- Prevention of occupational health hazardsa) Medical prevention:b) Engineering prevention:Hygienic prevention
- b) Engineering prevention: through:-
- 1. <u>Mechanization</u> of heavy work process to lighten the physical strain.
- 2. <u>Substitution</u> 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. <u>Segregation</u>

of hazardous process away from work places

- 6. <u>Good ventilation</u>:
- 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



#### Prevention of occupational health hazards

Engineering prevention Cont. ..

Prevention of occupational health hazardsa) 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 musclo-skeletal disorders

#### Hygienic prevention:

Prevention of occupational health hazards

- c) <u>Hygienic prevention</u>: 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 pollutants, threshold limit value (TLV) of a <u>chemical substance</u>.
- 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

Prevention of occupational health hazards

a) Medical prevention:b) Engineering prevention:

Hygienic prevention Cont... Prevention of occupational health hazard Science of healthful work end of a comparison of Application of

workers.

- 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 المالي نفسي وإجتماعي:

Family counseling. Social, psychiatric and recreation services. All these tasks are carried by psychologist and psychiatrist

تأهيل مهني :<u>C- Vocational services</u>

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

تأهيل طبي: <u>B- Medical services</u>

- 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- <u>Keep Good Health Recording System</u>: Medical records:

#### 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

- 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,

- personal data,
- data of pre-employment,
- periodical examination,
- history of exposures and
- diseases (occupational and non-occupational),

Medical records:

- 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.
- $\cdot$  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.

## nal data,







### **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 :

