IN THE NAME OF GOD
Introduction to Occupational Medicine

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History of Occupational Medicine

- The Industrial Revolution led to the first recognition of diseases at the workplace.

- The term “Occupational Health & Safety” has progressed from industrial / factory medicine of the industrial revolution days
According to ILO reports

- About 45% of the world’s population and 58% of the population over 10 years of age belong to the global workforce.

- Importance:
  - Health
  - Productivity
  - Socioeconomic issues
  - Sustainable development
Rapid change of the modern working life:

- Increasing demands of learning new skills
- Need to adapt to new types of work
- Pressure of higher productivity and quality of work
- Time pressure
- Growing psychological workload
- Stress
What is occupational medicine?

- Occupational Medicine is a new branch of clinical medicine most active in the field of Occupational Health.

- Its principal role is the provision of health advice to organisations and individuals to ensure that the highest standards of Health and Safety at Work can be achieved and maintained.
Occupational Health

- Work → Health
  (occupational disease/work related ill health)

- Health → Work
  (medical fitness for work)
Work ↔ Health
The Interaction Between
The Occupational Hygienist
&
The Occupational Physician

Evaluate
Workplace Exposures

Implement
Workplace Controls

Identify Individuals at
Risk Based on
Exposure

Conduct Medical
Examinations for
Early Health
Effects

Analyze
Relationship
Between Medical
Results and
Occupational
Exposure

Report Medical
Findings to
Employees

Accommodate
Medical
Restrictions

Determine
Employee Medical
Restrictions

Profession Responsible for Activity Depicted

Occupational
Hygienist

Shared
Responsibility

Occupational
Physician

Professional responsibility.
Differences Between Occupational Medicine & Other Medical Specialties
Actors in Occupational Medicine

- Consultants, Universities
- Insurance Company
- Government
- Union
- Worker
- Hazards
- Health Care System

Management
The Rationale for Occupational Medicine Services

- Size of Working Population
- Economic Consequences
- Special Hazards associated with Work
Occupational Medicine Service Program

- OMSs for Applicants
- OMSs for Well Employees
- OMSs for ill or injured Employees
Occupational Medicine Services

- Preventive Services
- Curative Services
- Rehabilitative Services
- Consultative Services
- Research Services
- Educational & Training Services
- Other Services
The modern definition of Occupational Health (ILO and WHO) is:

“The promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations – total health of all at work”
The prevention among workers of departures from health caused by their working conditions

The protection of workers in their employment from risks resulting from factors adverse to health

Placing and maintenance of a worker in an occupational environment adapted to his physiological and psychological characteristics.

To summarize, the adaption of work to people and of each person to their job.
The definition of occupational health has broadened considerably and there has been a transition from the strict concept of “prevention of occupational injuries and diseases” to “overall protection and promotion of workers’ general health”.

Occupational health for all
According to the principles of the United Nations, WHO and ILO, every citizen of the world has a **RIGHT** to **healthy** and **safe** work and to a work environment that enables him or her to live a socially and **economically productive** life.
ILO Reports

- Only 5 - 10% of workers in developing countries and 20 - 50% of workers in industrialized countries have access to occupational health services.

- Approximately 8 out of 10 of the world's workers live in newly industrialized countries.
Magnitude of problem

- According to the estimates by ILO for accidents and diseases, there are globally about 2.2 million work-related deaths annually.

- The largest share of work related fatalities is made up by fatal diseases: 1.7 - 2 million deaths annually.

- Almost half of these fatalities occur in Asian countries.

- The annual number of non-fatal work-related diseases has been estimated to be 160 million.
### Global Burden of Occupational Injury and Disease/Year

<table>
<thead>
<tr>
<th></th>
<th>Injuries</th>
<th>Diseases</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>100,000</td>
<td>700,000</td>
<td>800,000</td>
</tr>
<tr>
<td>Non-Fatal</td>
<td>99,000,000</td>
<td>10,300,000</td>
<td>109,300,000</td>
</tr>
<tr>
<td></td>
<td>100,000,000</td>
<td>11,000,000</td>
<td>111,000,000</td>
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The Iceberg of Occupational Disease

Reported

Not Reported

Recognized as being Related to work

Medical Attention Received, But Relationship of illness to work not Recognized

Symptoms, But No Medical Attention Sought

Affected, But No Symptoms
The Occupational and Environmental Medicine (OEM) Team

The OEM physician is part of a team that includes:

**Industry**
- Safety Professional
- Industrial Hygienist
- Worker Representative
- Management
- Ergonomist
- Environmental Engineer

**Medicine**
- Private Physician
- Physical Therapist
- Epidemiologist
- Clinic
- Hospital
The Team Approach

Working with management and other occupational and environmental health professionals, the OEM physician achieves:

- Enhanced health and safety in the workplace
- A match between the worker and the task
- Rapid and Appropriate medical management of illness/injury
- Appropriate return to work
- Effective communication for all
- Cost effectiveness/efficiency
The occupational and environmental medicine physician assists employers in:

- Identifying hazards
- Detecting exposures
- Protecting the workforce
- Educating people regarding workplace hazards
What occupational medicine specialists do?

- prevention, evaluation and management of populations exposed to hazardous environmental agents.
- Pre-placement, post-offer physical examinations
- Fitness for duty assessment (based on Job analysis and medical assessments of worker)
- Surveillance examinations and record keeping
Occupational Medicine is a branch of Preventive medicine
What is Preventive Medicine?

Preventive medicine physicians work with large population groups as well as with individual patients to promote health and understand the risks of disease, injury, disability and death.
Types of Prevention

**Primary** – *Target:* those with potential for exposure; no disease yet.  
*Goal:* change exposure conditions

**Secondary** – *Target:* those with early stage of disease, no symptoms yet  
*Goal:* reverse disease, delay symptom onset

**Tertiary** – *Target:* those with clinical disease  
*Goal:* cure or control of disease.
Opportunities for Prevention

Primary Prevention
Healthy Worker

Secondary Prevention
Asymptomatic Disease

Tertiary Prevention
Symptomatic Disease
Occupational illnesses
Today, it is recognised that a host of diseases besiege the worker. They are classified into:

- a) General diseases
- b) Work-related diseases
- c) Occupational diseases
General Diseases

- Medical conditions prevalent in the community
  
  eg. diabetes mellitus, certain types of anaemia, malaria
Work-related Diseases

- Multi-factorial in origin
- Workplace factors may be associated in their occurrence but need not be a risk factor in each case

Eg. certain psychosomatic illnesses, non-specific chronic respiratory diseases and hypertension
Occupational Diseases

- Caused by exposure to specific hazards at the workplace
- Work induced diseases

Eg. Pneumoconiosis (asbestosis from asbestos exposure,…), mesothelioma
### Differences between Occupational and Work-Related Diseases

<table>
<thead>
<tr>
<th>Work-related Diseases</th>
<th>Occupational Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurs largely in the community</td>
<td>Occurs mainly among working population</td>
</tr>
<tr>
<td>“Multi-factorial” in origin</td>
<td>Cause specific</td>
</tr>
<tr>
<td>Exposure to workplace may be a factor</td>
<td>Exposure to workplace is essential</td>
</tr>
<tr>
<td>May be notifiable and compensable</td>
<td>Notifiable and compensable</td>
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Occupational Diseases

- Work-related diseases
- Occupational diseases
Occupational Diseases

- Specific occupational hazards encountered by healthcare workers are well-documented and generally fall into 5 categories:
Classification of work hazards

- Chemical
  - liquids, fumes, mists, vapours, gases, dusts

- Physical
  - radiation, noise, vibrations, temperature, humidity

- Ergonomic
  - body position, repetitive actions, work pressure

- Biological / Infectious
  - bacteria, viruses, fungi

- Psychosocial
  - shift work, stress
Routs of exposure

- Inhalation
- Absorption
- Ingestion
- Transfer across placenta
- Intravenous
- Intramuscular
- Subcutaneous
To minimize the damage caused by occupational diseases, the best approach is early detection of pathological changes at a stage when they are reversible.

There are many clinical, laboratory or other tests that have been developed to detect these early changes, each exposure having its specific test.
Preventive measure

- Elimination
- Substitution
- Engineering control
- Administrating control
- Personal protective equipment
- Monitoring
- Training
ILO List of Occupational Diseases

- **Diseases caused by agents**
  - Chemical, physical, biological, Psychologic, …

- **Diseases by target organ system**
  - Respiratory, skin, musculoskeletal , …

- **Occupational cancer**
  - Cancer caused by the workplace agents
The World Health Organization (WHO):

- 37 percent of low back pain
- 16 percent of hearing loss
- 13 percent of chronic obstructive pulmonary disease
- 11 percent of asthma
- 10 percent lung cancer
- 8 percent of injuries are related to work.
Thanks for your attention