Occupational diseases

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History of occupational diseases

- Hippocrates of KOS
- Bernardino Ramazzini
workplace health and safety (WHS) = occupational safety and health (OSH) = occupational health and safety (OHS)

is an area concerned with the safety, health and welfare of people engaged in work or employment
General exposure sources at work

• **Physical exposures** (noise, radiation, heat, cold, inadequate lighting, lack of oxygen, etc.)

• **Chemical exposures** (solvents, cleaning agents, degreasing agents, etc.)

• **Biological exposures** (viruses, bacteria, flour, animal blood, leather, etc.)

• **Psychological exposures** (changing working hours, threat of violence, work in isolation etc.)
Risk factors at work

• Posture
• Repetitive movements
• Vibration (local vibration-holding a vibrating tool)
• Work organization (rest periods, breaks)
• Psychological and social factors
• Individual factors
Risk factors at work

Threshold limit value (TLV)

• Chemical substances
• Physical agents

The TLV for chemical substances is defined as a concentration in air (for inhalation or skin exposure)

• for gases (in ppm)
• for particulates eg. dust, mist, smoke (in mg/m³)

TLVs for physical agents include

• noise exposure,
• vibration,
• ionizing and non-ionizing radiation exposure
• heat and cold stress.
Three types of Threshold limit value for chemical substances

- **Threshold limit value - Time weighted average (TLV-TWA):**
  average exposure on the basis of a 8h/day, 40h/week work schedule

- **Threshold limit value - Short-term exposure limit (TLV-STE):**
  spot exposure for a duration of 15 minutes, that cannot be repeated more than 4 times per day with at least 60 minutes between exposure periods

- **Threshold limit value - Ceiling limit (TLV-C):**
  absolute exposure limit that should not be exceeded at any time
an occupational disease is any disease contracted primarily as a result of an exposure to risk factors arising from work activity. Work-related diseases have multiple causes, where factors in the work environment may play a role, together with other risk factors, in the development of such diseases.
Definition of occupational disease in Poland

• Regulated by labour law

• An occupational disease is considered as occupational disease when it’s listed on the list of occupational diseases.
Four criteria

• On the list
• It is a result of environment at work
• Unquestionable exposure factors (or high probability)
• Notification under a specified time
European definition of occupational disease

• The case of occupational disease is defined as a case recognized by the national institutions responsible for recognition of occupational diseases.

• Occupational diseases and other health problems have to be related to work
• ILO List of Occupational Diseases (revised 2010)

Source
International labour organisation

- 1. Diseases caused by external factors
  - 1.1. Diseases caused by chemical substances
  - 1.2. Diseases caused by physical agents
  - 1.3. Diseases caused biological agents

- 2. Diseases Systems main bodies
  - 2.1. Occupational diseases respiratory systems
  - 2.2. Occupational Skin Diseases
  - 2.3. Occupational musculo – skeletal diseases
  - 2.4 Psychosocial Diseases

- 3. Occupational Cancer

- 4. Other Diseases
  - 4.1. Nystagmus Miners
  - 4.2 Other Diseases
PROBLEMS AND CHALLENGES
Pneumoconioses

• Exposure to silica, coal, asbestos and various mineral dust in mining, quarring, construction and other manufacturing processes.
• Long latency periods
• Often undiagnosed and unreported

Associated illnesses:
Chronic obstructive pulmonary disease (COPD)
Silicotuberculosis
Silica- and asbestos-related cancers
Asbestos-related diseases

Until the 1970s asbestos was widely used in many industries across different countries to insulate pipes, boilers and ships, make brakes, strengthen cement and many fireproof materials.

http://www.bhp.aid.pl/
People who worked with asbestos during that time are now at risk of developing an asbestos-related lung cancer and mesothelioma. It generally takes from 10 to 40 years for ARDs to develop after exposure.
Problems and challenges
changes in workplace

globalization

emerging risks
new challenges

new technologies:
- nanotechnologies
- biotechnologies
- poor ergonomic conditions
- exposure to electromagnetic radiation
- psychosocial risks
Musculoskeletal disorders

- Musculoskeletal disorders are among the most important occupational health problems in both developed and developing countries.
- In most cases, it is not possible to point to one casual factor for musculoskeletal diseases (in most cases—several factors).
- **The muscles are the most common site of pain.**

Work-related muscle pain is reported most frequently in the neck and shoulder area, the forearm and the low back.
REGIONAL SYNDROMES
- Myofascial pain syndrome
- Tension neck
- Rotator cuff syndrome
- Compartment syndrome

LOCAL MUSCLE DISORDERS
- Muscular rheumatism
- Fibrosis
- Myostis
- Muscle pain
- Myalgia
- Fibromyalgia
- Tenderpoint
- Triggerpoint

GENERAL SYNDROMES
- Fibrosis syndrome
- Fibromyalgia syndrome
- Primary fibromyalgia
- Polymyalgia
- Polymyositis
Carpal tunnel syndrome

59% of all recognized diseases (European Occupational Diseases Statistic, 2005)
10% of all years lost to disability (WHO report, 2009)
Mental disorders

• Work-related stress and its health consequences have emerged as a matter of great concern
• Enterprises are increasingly confronted with
  – psychological harassment,
  – mobbing,
  – bullying,
  – sexual harassment
  – other forms of violence
• Problems with stress (unhealthy behaviours-abuse of alcohol or drugs)
Prevention
Prevention - organization

- International labour organization
- Occupational Safety & Health Administration (OSHA)
- European Agency for Safety & Health at Work
  - (EU OSHA)
  - NAPO
Prevention

• Qualification tests for work

• Periodic tests for work
Prevention at work

• General protection
• Personal protective equipment (PPE)

PPE is equipment that will protect the user against health or safety risks at work.

Protected:
• the lungs (eg from breathing in contaminated air)
• the head and feet (eg from falling materials)
• the eyes (eg from flying particles or splashes of corrosive liquids)
• the skin (eg from contact with corrosive materials)
• the body (eg from extremes of heat or cold)
Allergic occupational diseases in health services workers

- Allergic rhinitis
- Allergic angioedema of the larynx
- Bronchial asthma
- Allergic contact dermatitis
- Contact urticaria
Allergic diseases of the skin (dermatitis) and respiratory diseases

The most common allergens in professional medical staff:

• metals (nickel, cobalt, chromium, mercury)
  – nurses, doctors specialty treatment, orderlies (release of chromium and nickel from cleaning fluids and disinfectants, contact with metal tools, surgical thread)

• gum
  – the most common additions or such vulcanization accelerators (thiram) - basic contact allergen latex gloves
The most common allergens in professional medical staff:

• natural rubber latex,
• acrylates
• dentists aids, dental technicians and orthodontists.
• medicines
• the most common cause allergy: neomycin and other antibiotics aminoglycosides, PNC and its synthetic products, benzocaine, sedative drugs, cytostatics.
• disinfectants
• flavoring
The most common allergens in professional medical staff:

- MBT (mercaptobenzothiazole)
  - natural rubber latex,
- Acrylates
  - dentists aids, dental technicians and orthodontists.
- Drugs
  - the most common cause allergy: neomycin and other antibiotics aminoglycosides, PNC and its synthetic products, benzocaine, sedative drugs, cytostatics.
- Disinfectants
Epidemiology of occupational diseases in Poland
Number of reported occupational diseases and incidence rate on 100 000 hired in Poland 1981-2013

• Source: Based on data from IOM in Łódź
Incidence rate on 100,000 (hired) of women and men

Source: Based on data from IOM in Łódź
Europe - findings

Frequency of fatigue or painful and long sitting positions

SOURCE:
Reported moving or lifting heavy objects

Reported noise

SOURCE: