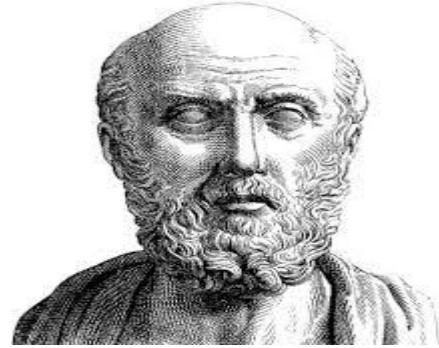


Occupational diseases

PhD Kamil Barański

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, ect.)
- **Chemical exposures** (solvents, cleaning agents, degreasing agents, etc.)
- **Biological exposures** (viruses, bacteria, flour, animal blood, leather, ect.)
- **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-STEL):
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

Definition

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



International
Labour
Organization

ILO List of Occupational Diseases

(revised 2010)



- **ILO List of
Occupational
Diseases
(revised 2010)**

Source

http://www.ilo.org/wcmsp5/groups/public/@ed_protect/@protrav/@safework/documents/publication/wcms_125137.pdf

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, quarrying, construction and other manufacturing processes.
- Long latency periods
- Often undiagnosed and unreported

Associated illnesses:

Chronic obstructive pulmonary disease (COPD)

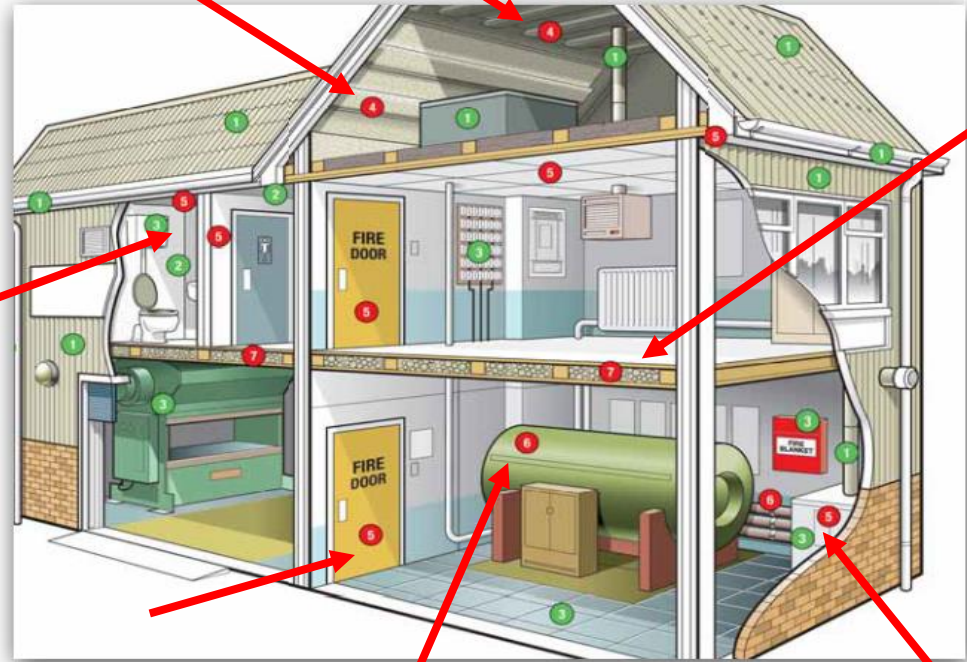
Silicotuberculosis

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.

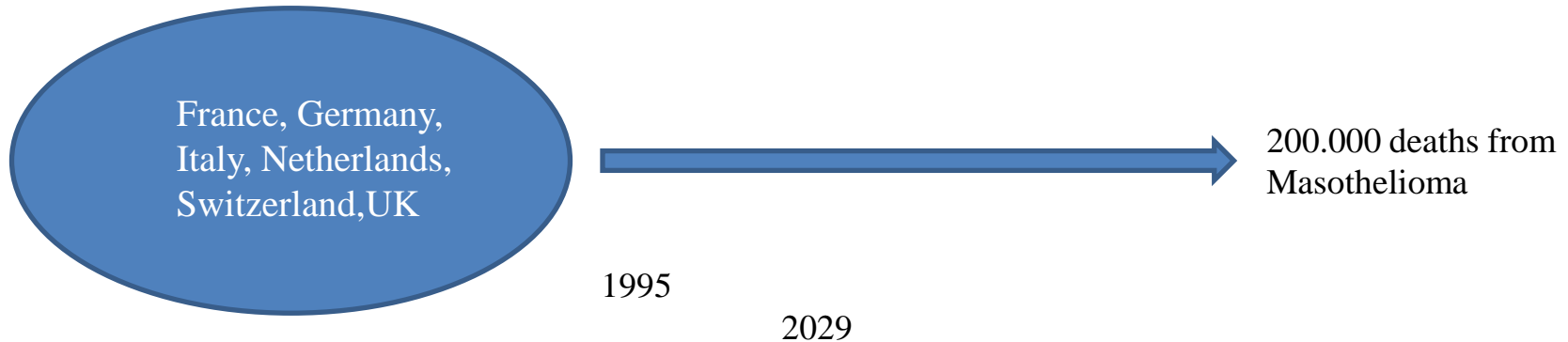


<http://www.bhp.aid.pl/>

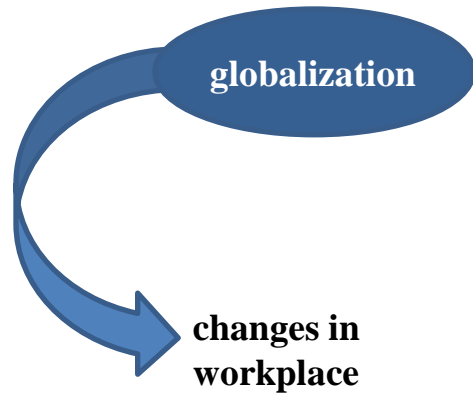


International
Labour
Organization

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



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





LOCAL MUSCLE DISORDERS

- Muscular rheumatism
- Fibrosis
- Myostis
- Muscle pain
- Myalgia
- Fibromyalgia
- Tenderpoint
- Triggerpoint

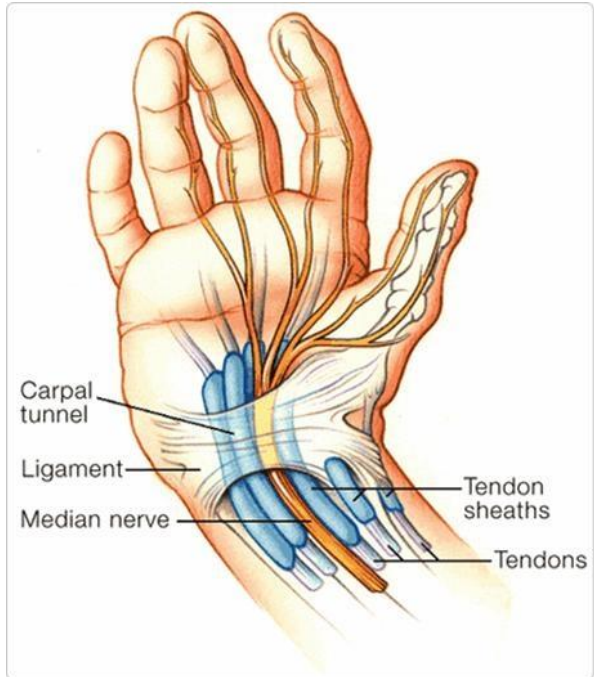
REGIONAL SYNDROMES

- Myofascial pain syndrome
- Tension neck
- Rotator cuff syndrome
- Compartment syndrome

GENERAL SYNDROMES

- Fibrosis syndrome
- Fibromyalgia syndrom
- 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 raport, 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:

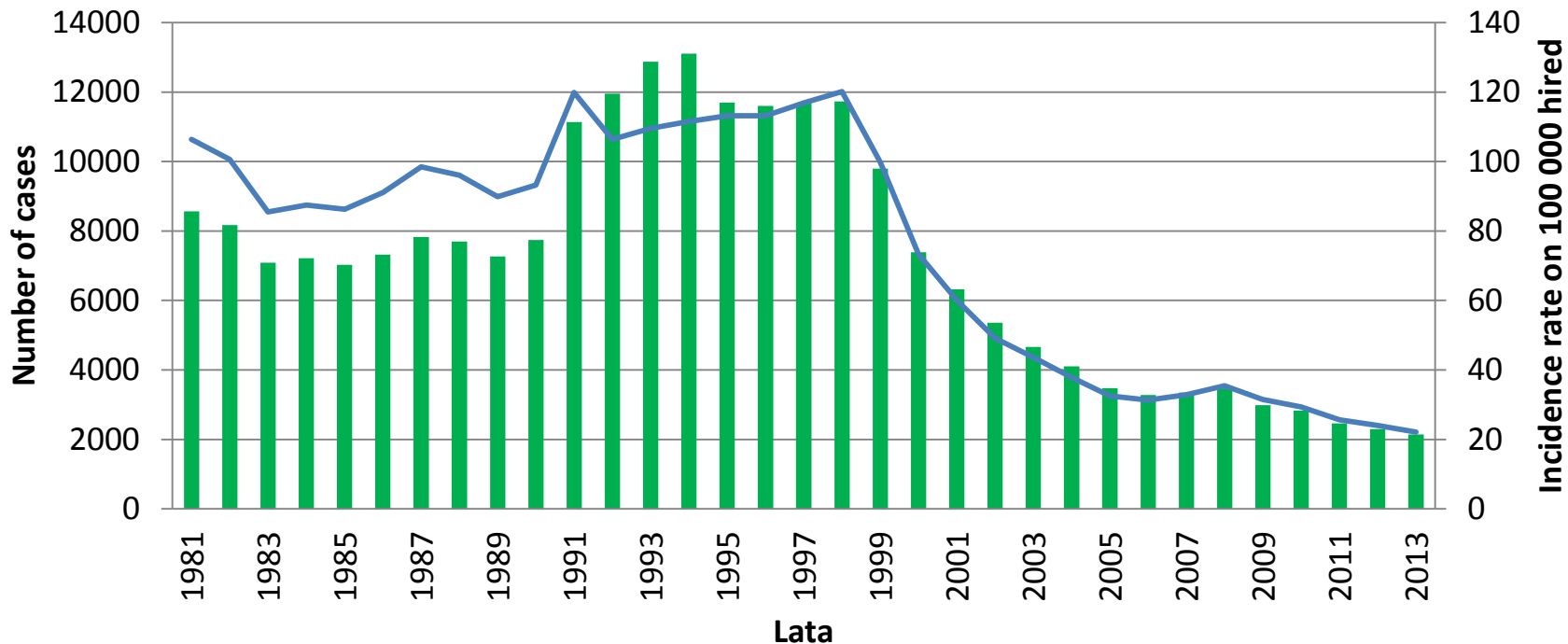
- natural rubber latex,
- acrylates
- dentists aids, dental technicians and orthodontists .
- medicines
- the most common cause allergy : neomycin and other antibiotics aminoglycosides , PNC and its synthetic products , benzocaine , sedative drugs , cytostatics .
- disinfectants
- flavoring

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

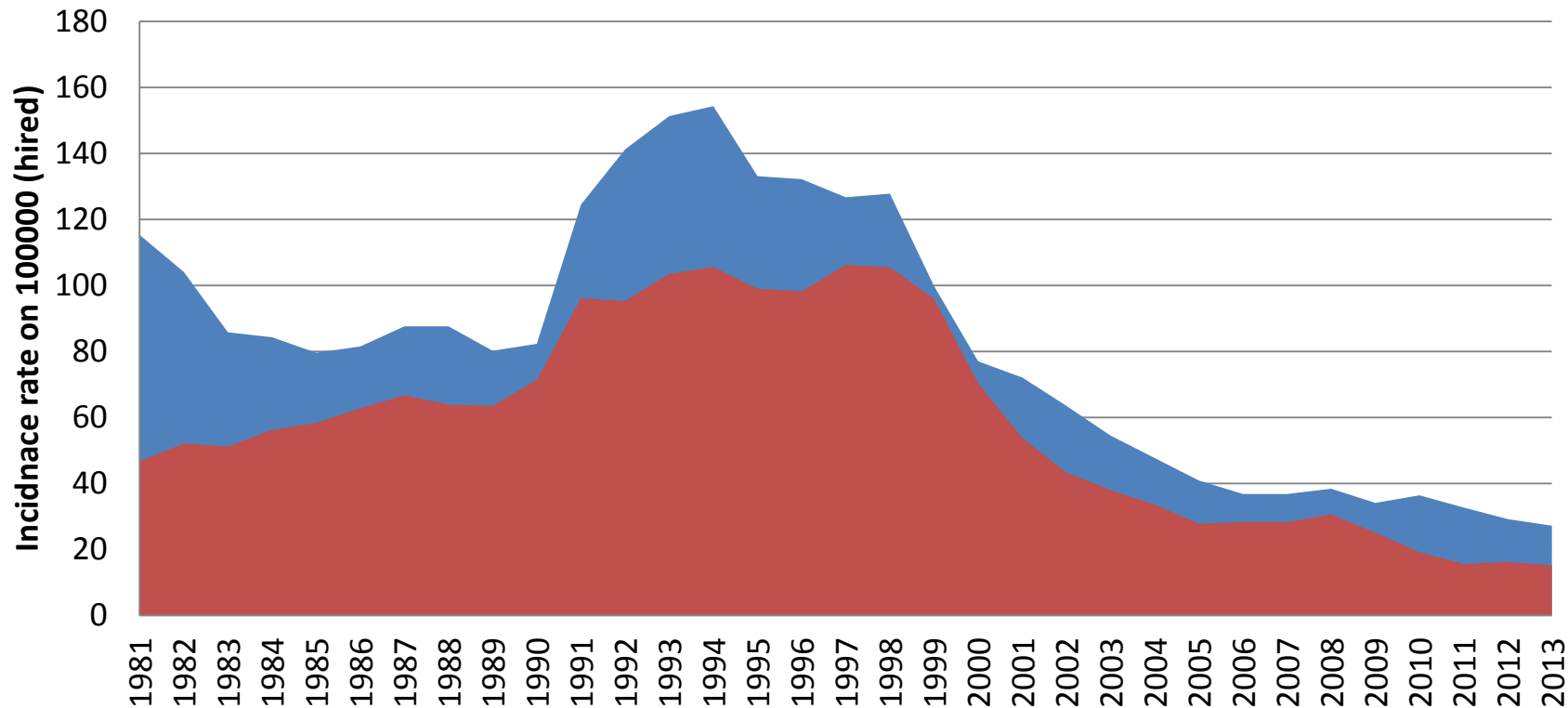
Epidemiology of occupational diseases in Poland

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



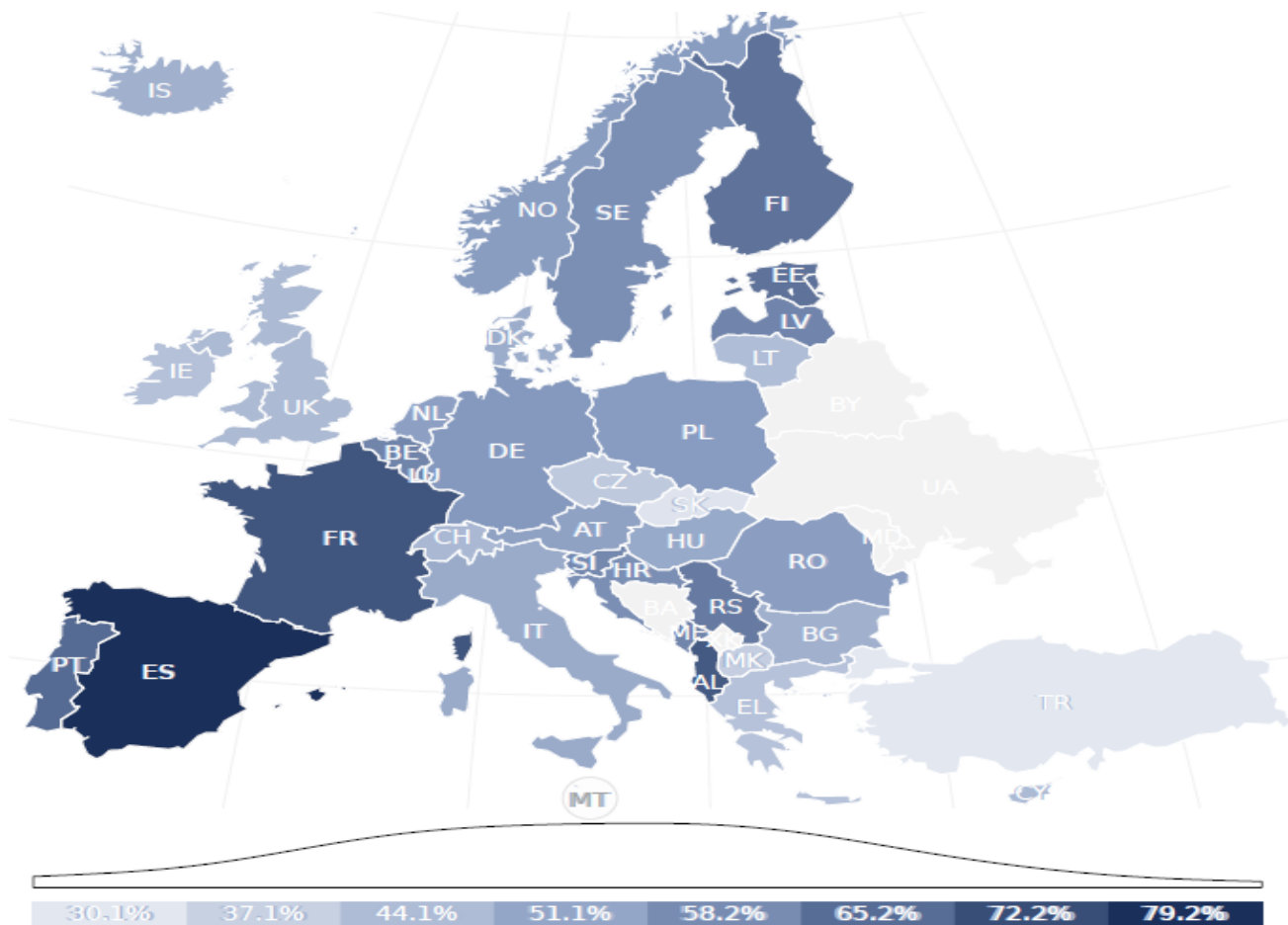
• Source: Based on data from IOM in Łódź

Europe - findings

Frequency of fatigue
or painful and long
sitting positions

SOURCE:

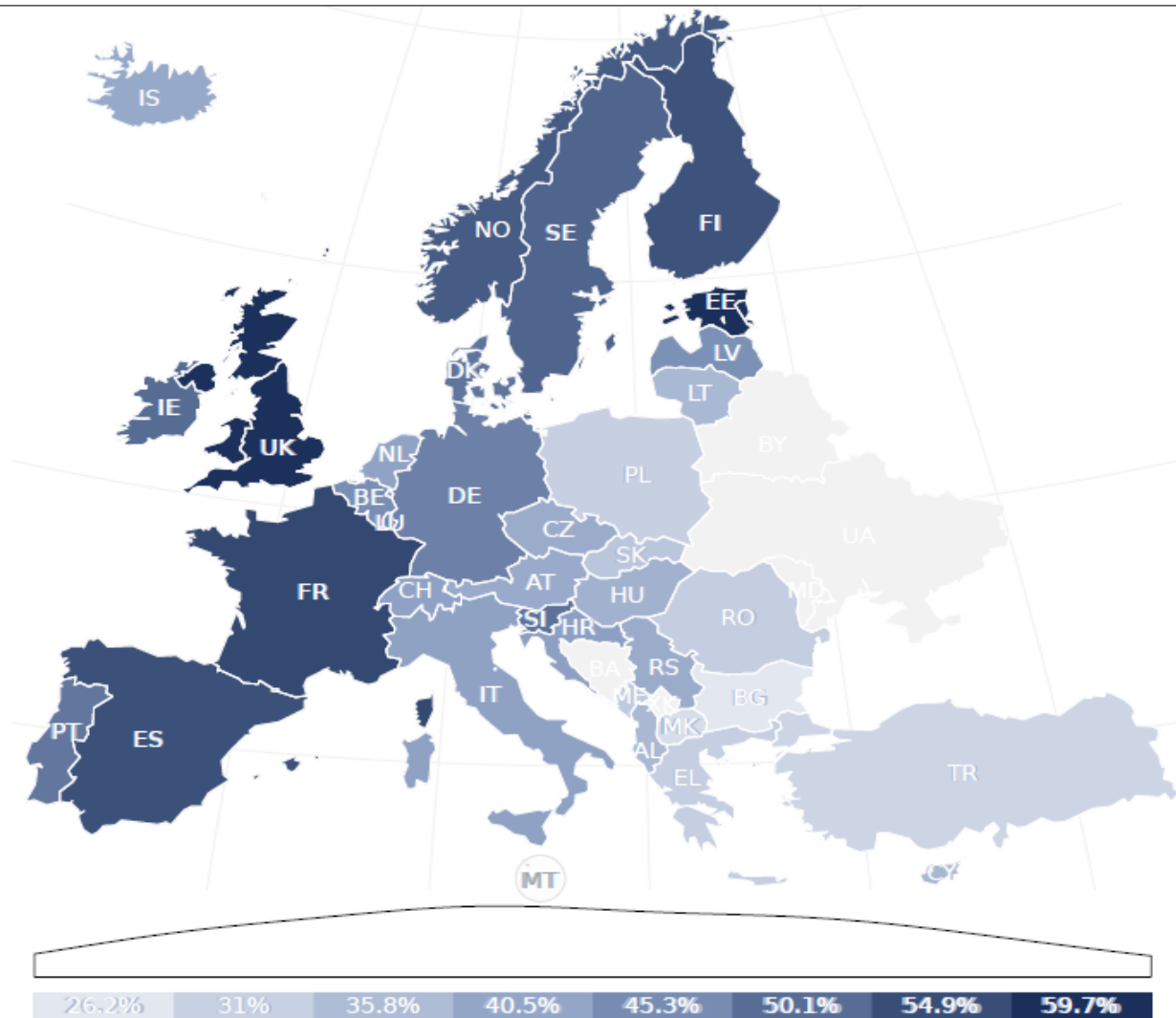
<https://osha.europa.eu/pl/surveys-and-statistics-osh/esener/2014>



Reported moving or lifting heavy objects

SOURCE:

<https://osha.europa.eu/pl/surveys-and-statistics-osh/esener/2014>



Reported noise

SOURCE:

<https://osha.europa.eu/pl/surveys-and-statistics-osh/esener/2014>

