

# Chapter I : General introduction on work and health

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## Objectives

### *Knowledge objectives :*

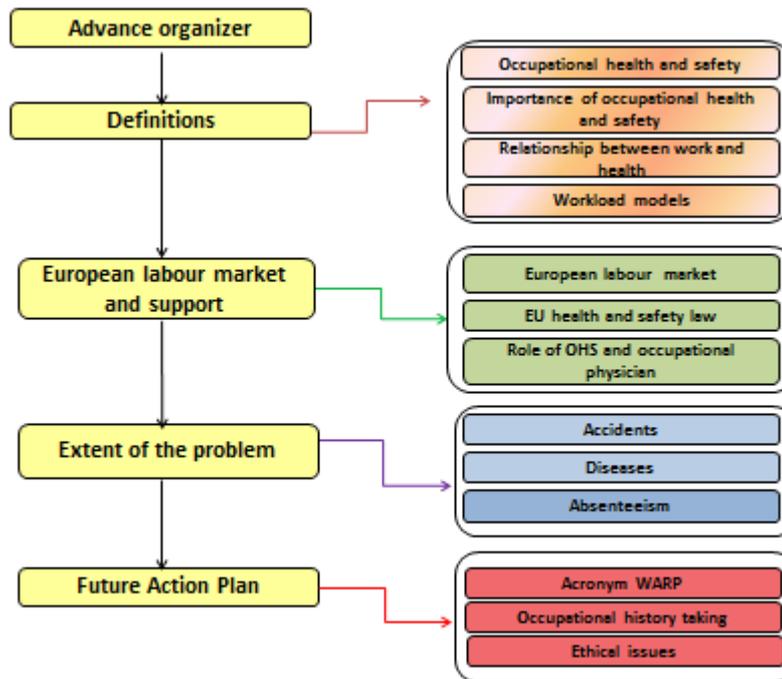
- The student gives international accepted definitions of the following concepts : occupational health, hazard, risk, exposure, occupational disease, work-related disease, occupational health service, fitness for work.
- The student maps the multidisciplinary approach to occupational health.
- The student identifies important hazards and risk factors in the work and work environment.
- The student explains the two-ways relationship between work and health.
- The student exemplifies the key elements in the model “balance between work load and individual work capacity”.
- The student gives examples of the technological and demographical changes in the labour market.
- The student summarizes the EU Safety and Health at Work law (Directive 89/391/EEC) and the national implementation of this legislation.
- The student explains the specific role, tasks and responsibilities of the occupational health services and occupational physician
- The student reproduces the general structure/organisation of occupational health and the access to occupational health services at his/her country level.
- The student can discuss the socio-economic impact of employment in terms of occupational diseases, accidents, work-related mortality and sickness absence, the impact of unemployment.
- The student compares national statistics on accidents/diseases, ... with international facts and figures.
- Students acknowledge the key competencies in the WARP model for work and health issues (Work, Activities, Referral, Prevention).

### *Skills/attitudes related objectives :*

- The student is attentive to the work context of a patient during a consultation session.
- Students adopt a preventive attitude when considering work and health issues.
- The student shows an ethical attitude when considering work and health issues.
- Students find reliable sources (e.g. Pubmed) with information and evidence about typical work related risks, health effects and preventive measures.
- The student identifies the (inter)national key organizations (e.g. EU, WHO, ILO, National institute, Ministry... ) that play a role in legislation, organization and content of occupational health care.

## Concept Map

### Framework



## Advance organizer

Tony is a 52- year- old man who lives alone since his divorce two years ago. He is not in good health : he suffers from a high blood pressure, is obese, exercises barely and has chronic low back pain (LBP).

As a truck driver employed for thirty years at a small Dutch transport company, he is used to carry perishable goods throughout Europe. His latest task was to drive from Amsterdam to Spain to deliver herring and pick up oranges.

The trip took him four days back and forth but it didn't go so well. He got thoroughly shaken up on the small, cobblestoned roads of the Spanish inland. His back was killing him and when he arrived at the delivery place he had to unload single-handedly all the crates of herring. A crate weighed twenty-five kg so you can imagine that his back suffered a lot.

Miserable as he was, he picked up the oranges and decided to drive back as fast as possible. He only stopped a few times to eat some fast-food, buy energy drinks and to do strategic naps. He felt very tired but the caffeine and the pain kept him awake. When he arrived in The Netherlands he ended up in a traffic jam. It drove him nearly crazy and

#### Work:

- carrying heavy weights
- vibrations
- noise
- long working hours
- sleepiness
- job stress,...

→ *chapter 2*

#### Activities:

- chronic low back pain
- hypertension
- obesity
- fatigue

<p>he was sure that his blood pressure was going through the roof!</p> <p>When he finally got home, he was totally exhausted. The next day he went to his general physician (GP). Tony was certain: “This isn’t healthy Doctor! It can’t go on like this anymore.”</p> <p>His doctor listened to Tony’s complaints and performed a physical examination. His blood pressure was 160/95 mmHg, he weighed 95 kg and was 175 cm tall. When he tried to bend or extend his lower back, it felt painful and impaired the range of motion in his lower back. There were no other signs that the pain in his back was something different than the mechanical LBP which was well-known by him and his GP.</p> <p>The message of his doctor was clear. He should continue to take his antihypertensive drug and spare his back during some weeks: no heavy lifting or bending. He got a receipt for an analgesic (Dafalgan® 1 gram - max. 4 gram/day) and he was encouraged to take exercise therapy and to lose some weight.</p> <p>But the biggest problem was his job. The shaking in his truck cabin and the loading and unloading of his cargo demanded a heavy toll of his back. His GP wrote him a sick note and referred him to the company’s occupational physician for further advice.</p> <p>Two weeks later Tony’s LBP was under control and he returned to work. When he arrived at the company, a health assessment with the occupational physician was organized. If he wanted to stay a truck driver and in order to prevent future episodes of LBP, his condition and the work circumstances needed amelioration and adjustments. They explored some of the possibilities and after discussion with the employer (financial implications of certain proposals), the following preventive measures were taken:</p> <ul style="list-style-type: none"> <li>– interrupt driving periodically for adequate rest and exercise</li> <li>– to lower vibration level, adopt a calm driving style</li> <li>– use adequate lifting and moving techniques for heavy or awkward loads</li> <li>– installation of a new ergonomically-designed driver's seat</li> <li>– learn to cope with stress, adopt a healthy eating pattern,...</li> </ul> <p>After some adjustments and with these advices in mind, Tony jumped soon back in his truck and drove off...</p>	<p>→ <i>chapter 3</i></p> <p><b>Referral:</b></p> <ul style="list-style-type: none"> <li>– for diagnosis (specialist, orthopedist)</li> <li>– for work-relatedness (occupational physician, occupational clinic)</li> <li>– for treatment (physical therapist)</li> <li>– for prevention (occupational physician)</li> <li>– for compensation (occupational physician, insurance doctor,...)</li> </ul> <p>→ <i>chapter 2</i></p> <p><b>Prevention:</b></p> <ul style="list-style-type: none"> <li>– lifting aids</li> <li>– handling techniques</li> <li>– ergonomic seat</li> <li>– health promotion: diet, physical activity</li> <li>– coping techniques</li> </ul> <p>→ <i>chapter 4</i></p>
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# 1. Definitions and general principles

## 1.1. Occupational health and safety

Occupational health and safety is a multifaceted and cross-disciplinary area concerned with protecting the safety, health and well-being of employed people. It may involve interactions among many specialized fields, including occupational medicine, occupational (industrial) hygiene, safety engineering, toxicology, ergonomics, work and organizational psychology, health promotion...

Since 1950, the International Labour Office (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950 and revised in 1995 (Ref 1).

The definition reads:

1. the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;
2. the prevention among workers of adverse effects on health caused by their working conditions;
3. the protection of workers in their employment from risks resulting from factors adverse to health;
4. the placing and maintenance of workers in an occupational environment adapted to physical and mental needs;
5. the adaptation of work to humans.

**Occupational Medicine** is the branch of clinical medicine most active in the field of Occupational Health. Occupational medicine is concerned with ensuring that workplaces and work practices are safe and not detrimental to employees' health, and that the work is adapted to the capabilities of the workers in the light of their state of physical and mental health.

## 1.2. Why is occupational health and safety important?

Most people spend a third of their adult life at work and occupation is an important determinant of human health. Occupational injuries and diseases have profound effects on work productivity and on the economic and social well-being of workers, their families and dependents.

The WHO provides regularly assessments of the leading risks to global health. The overall burden of disease is assessed using the disability-adjusted life year (DALY), a time-based measure that combines years of life lost due to premature mortality and years of life lived in states of less than full health. The five leading global risks for mortality in the world are high blood pressure, tobacco use, high blood glucose, physical inactivity, overweight and obesity. The leading global risks for burden of disease in the world are underweight and unsafe sex, followed by alcohol use and unsafe water, sanitation and hygiene.

In high-income countries (such as Europe and the US), occupational risks are on the tenth place among the leading risk factor causes of mortality and DALY's.

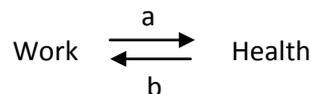
It is estimated that roughly four percent of the annual global Gross Domestic Product (GDP) is siphoned off by direct and indirect costs of work related accidents and diseases such as lost working time, workers' compensation, the interruption of production and medical expenses (Ref 2).

The world of work is changing rapidly in response to globalization and economic pressures. General trends include sustainable consumption and production, changes in working time and employment contracts; in work organisation; in the use of information and communication technology; in the composition of the workforce, with a higher percentage of older and female workers (See point 2.1).

All these issues can affect the type and nature of risks and have implications for occupational health and safety. The need for occupational health care will increase rather than decline. Occupational health professionals must be aware of their new role in relation to the protection of the community and of the environment.

### 1.3. Relationship between Work and Health

The relationship between work and health is bidirectional. It is as much related to the effects of the working environment on the mental and physical health of workers as to the impact of the workers' state of health on their ability to work.



#### a) Effect of Work on Health

a. *Negative effects* : work environments should be safe and healthy. Yet this is not the case for many workers. They are faced with unsafe working conditions (slippery floor, unguarded machinery,...) but also with exposure to a multitude of health hazards (See Chapter 2), such as:

- chemical agents : liquids, solids, dusts, fumes, gases,...
- physical agents : noise, vibration, lighting, radiation, extreme temperatures,...
- biological agents : bacteria, viruses, fungi , such as in infectious waste,...
- psychosocial factors : stress, violence, shiftwork, lack of social support,...
- ergonomic factors : lifting, bending, repetitive work,...

*Exposure* is the process of being exposed to something that is around; exposure can affect people in a number of different ways

*Hazard* means anything that can cause harm

*Risk* is the chance, high or low, that somebody will be harmed by the hazard

*Risk control* is taking steps to reduce the chance and/or mitigate the consequences, of the hazard causing harm

*Risk assessment* is evaluating the risks and deciding whether precautions are adequate or more should be done

As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all parts of the world (See point 3.1 and 3.2).

Occupational hazards and poor working conditions may not only have harmful effects on workers but also on their family members, offspring and other people in the community.

A classic example is the use of pesticides in agricultural work. Workers can inhale the chemicals during and after spraying, the chemicals can be absorbed through the skin, and the workers can ingest the chemicals if they eat, drink or smoke without first washing their hands. The workers' families can be exposed to residues which may be on the workers' clothes and other people can all be exposed by inhalation of pesticides which may linger in the air.

Prevention, control and management of risks at work is essential not only to ensure the health of workers, but also to contribute to the overall quality of life of working people and society.

- b. *Positive impact* : however, work does not only adversely affect people's health but employment has also strong positive effects. It can provide a sense of purpose and self-worth, opportunities to meet people and to learn new skills, it offers financial security and social status. Unemployed persons report more deterioration in health status, present more unfavorable behavior, have an increased use of health services and higher mortality in comparison with employed persons.

b) Impact (negative and positive) of Health on Work

Equally, the health condition of each individual has effects on their subsequent work capabilities. A good health condition may result in increased productivity and high-quality work while health problems may affect a person's fitness for work. Sickness absence can be due to mild or moderate ill health and people with chronic health conditions and diseases may participate or return to work with appropriate adjustments, adaptations or support (See Chapter 3).

General practitioners and other doctors should act in the best interest of the worker, discuss whether he/she may be fit for work and if necessary, give advice on possible benefits and follow the reporting guidelines for compensation.

#### 1.4. Workload models

As mentioned above, several hazards and work conditions can adversely affect workers' health. However, not every person will develop a work-related disease; there is wide variation in individual responses to the work load and substances in the work environment. For example, workers exposed to the same level of noise exhibit different levels of noise-induced hearing loss.

This large diversity in responsiveness among individuals is accounted for by:

- Differences in gender
- Differences in age
- Co-existing diseases or infections
- Differences in lifestyle (smoking, alcohol, nutritional status,...)
- Genetic susceptibility (differences in DNA repair capacity),...

To maintain a good health, the complex interplay between individual factors and workload/ environmental exposures should be in perfect balance (the image of a balance). Other more complex models to describe the interactions between the individual and the work situation have been elaborated e.g. stress models.

## 2. European labour market and support

### 2.1. European labour market

In 2010, the total population in the European Union (27 countries) consisted of more than 500 million persons and the labour force counted 235 million people. The economically active population (or labour force) encompasses all persons employed and all those who are unemployed. According to the definitions of the ILO, *persons in employment* are those who, during the reference week, did any work for pay or profit, or were not working but had a job from which they were temporarily absent. *Unemployed persons* comprise persons who were a) without work during the reference week; b) currently available for work; and c) actively seeking work. Statistics show that the EU employment rate is around 64% (calculated by dividing the number of persons aged 15 to 64 in employment by

the total population of the same age group); the unemployment rate is 9.9% (represents unemployed persons as a percentage of the labour force) (Ref 3).

The last decade, the European labour market is changing fundamentally. Findings from the Eurofound's fifth European Working Conditions Survey (EWCS 2010) demonstrate that there is a shift from employment in the industry and agriculture towards a domination of the service sector. There are also increasing numbers of small and medium-sized enterprises (SMEs) : there are 19 million SMEs in the EU, employing nearly 75 million people. Working hours vary between countries and average 37,5 h a week. Outsourcing, downsizing and economic globalisation result in more job insecurity and rising demands of flexibility and job intensity. Almost one fifth of European workers are having difficulties achieving a satisfactory work-life balance.

Demographic changes include increasing numbers of women and older people in the workforce. The employment rate for women rose from 50% to around 63% and the proportion of those aged between 50 and 64 years rose from around 49% in 2000 to more than 56% in 2009. In addition, vulnerable groups such as pregnant women, migrant and contractual workers, are getting more and more involved in labour market participation.

These many trends bring about a change in the type and nature of risks and result in new challenges with regard to workers' health and safety. Although traditional risk factors (chemical, physical and biological health hazards) still remain in many workplaces, stress and musculoskeletal disorders are the most frequently reported work-related ill health problems in Europe (Ref 4).

## **2.2. EU health and safety law**

EU legislation is drafted in consultation with employers and trade unions and is usually implemented through "directives". The EU health and safety law was introduced in 1989 (Framework Directive 89/391/EEC) and defines the employer's responsibility to provide: competent protective and preventive services (Article 7); information concerning safety and health risks and protective and preventive measures (Article 10); consultation and participation of workers (Article 11); training of workers (Article 12); and health surveillance (Article 14).

In addition to EU law, each country may issue its own specific legislation separate to and more demanding than EU law.

National legislation covering regulatory provision of Occupational Health Services (OHS) varies from country to country. The provision of OHS is compulsory in Belgium, France, Finland and Germany. In other EU countries, the provision depends on the number of employees (Spain), on the industrial sector (Austria, Denmark) or is voluntary. Different OHS models are in use but in several international guidelines it has been emphasized that OHS should be multidisciplinary and address to, not only health, but also safety, ergonomic, psychosocial, organizational and technical aspects of work and working conditions. Some large organizations have developed their own in-house health care services but for most workers occupational health care is supplied by external (certified) OHS.

(For more details, consult the supplementary document on the website on national structure, law and role in some European countries).

## **2.3. Role of the OHS and the occupational physician**

The principal role of the OHS and the occupational physician is the provision of health advice to workers and work organisations to ensure that the highest standards of health and safety at work can be achieved and maintained. The ILO Convention concerning Occupational Health Services (C161) and the ILO Recommendations on Occupational Health Services (R171) list a number of functions OHS have to carry out.

Activities and tasks of OHS and occupational physicians :

1. Identification and assessment of the risks from health hazards in the workplace. This involves surveillance of the factors in the working environment and working practices which may affect workers' health. It also requires a systematic approach to the analysis of occupational accidents, and occupational diseases.
2. Advising on planning and organisation of work and working practices, including the design of work-places, and on the evaluation, choice and maintenance of equipment and on substances used at work. In so doing, the adaptation of work to the worker is promoted.
3. Health promotion, training and education, providing advice, information, on occupational health, safety and hygiene and on ergonomics and protective equipment.
4. Surveillance of workers' health in relation to work : pre-employment health examination, periodic health examination, return to work health examination,....
5. Contributing to occupational rehabilitation and maintaining in employment people of working age, or assisting in the return to employment of those who are unemployed for reasons of ill health or disability.
6. Organising first aid and emergency treatment.

At best only 10-15% of the approximately 3 billion workers of the world have access to occupational health care and in many cases the content and quality, availability and distribution of services do not meet real needs. In Europe, the coverage of occupational health services varies between 15% and 95% (Ref 5). General physicians and other medical specialists are considered the first point of health care contact for many employees who develop health problems as a result of work.

The ILO Convention No. 161 on Occupational Health Services and the WHO Global Strategy on Occupational Health for All call for the organisation of services to all working people of the world. To address the new safety and health needs the WHO has launched a new Global Plan of Action on Workers' Health and the ILO has produced a Global Strategy on Occupational safety and Health and the ILO Convention No. 187 on Promotional Framework. In this strategy, more emphasis is put on implementing Occupational Health in the context of integrated primary health care, especially in developing countries. [www.who.int/entity/ipcs/features/workers\\_health.pdf](http://www.who.int/entity/ipcs/features/workers_health.pdf)

### 3. Extent of the problem

Despite extensive legislation in the EU, employees are still exposed to occupational risks and there remains a significant burden of work-related illness and injuries.

#### 3.1. Accidents

An accident at work is defined by the European Commission (Eurostat) as “a discrete occurrence in the course of work which leads to physical or mental harm”. This includes accidents in the course of work outside the premises of one's business, even if caused by a third party (on clients' premises, on another company's premises, in a public place or during transport, including road traffic accidents) and cases of acute poisoning. It excludes accidents on the way to or from work (commuting accidents), occurrences having only a medical origin (such as a heart attack at work) and occupational diseases.

The harmonized data on accidents at work are collected in the framework of the European Statistics on Accidents at Work (ESAW), on the basis of a methodology developed in 1990 and are provided by national reporting systems. However, differences between national institutes may exist and may lead to less reliable estimates of accidents at work.

According to the ESAW, 5.580 workers died in the European Union in a fatal accident at work in 2007 and approximately 2.9% of the workers had an accident with more than three days' absence from work.

Men are more likely to have an accident than women and accidents occur most often in the youngest age groups. Accidents are more prominent in the sectors of construction, agriculture, fishing and mining. With respect to different types of occupations, skilled manual workers are most likely to have an accident at work. The majority of accidents result from loss of control, fall or physical stress and most victims are injured by contact with or collision of an object. Wounds and superficial injuries, dislocations, sprains and strains are the most common types of injury. They are most often located on the upper extremities, followed by the lower extremities.

On the basis of ESAW 2007, it was estimated that accidents at work resulted in at least 65 million lost calendar days and permanent incapacity to work occurred in more than 100.000 workers (Ref 6).

#### 3.2. Diseases

Occupational diseases are defined as conditions for which occupational exposure is the sole or the major cause, for example: mesothelioma from exposure to asbestos.

The concept of work-related disease (WHO 1985) is wider than that of an occupational disease. It includes:

- a) Diseases in which the work or working conditions constitute the principal causal factor
- b) Diseases for which the occupational factor may be one of several causal agents, or the occupational factor may trigger, aggravate or worsen the disease
- c) Diseases for which the risk may be increased by work or work-determined lifestyles.

Examples of work-related diseases are coronary heart disease and musculoskeletal disorders. In the future, the potential for work-related diseases will increase in the more developed countries where traditional risk factors are decreasing and shiftwork, static work load and work-related stress are increasing.

In many countries there are official lists of occupational diseases, including lists of factors which may cause such diseases. However, in most countries there are no official records of work-related diseases since the diagnosis of work-related diseases does not have a definitive legal status in terms of compensation. There are epidemiological data available that show that these diseases and related health complaints are present on a massive scale in the working population.

Since the occupational origin has to be approved by the national compensation authorities, the concept of occupational diseases is dependent on the national legislation and compensation practice.

ILO guides the countries by the Recommendation No. 194: List of Occupational Diseases, 2002, in the prevention, recording, notification and, if applicable, compensation of diseases caused by work. In 2010, a new list of occupational diseases was approved, including a range of internationally recognized occupational diseases, from illnesses caused by chemical, physical and biological agents to respiratory and skin diseases, musculoskeletal disorders and occupational cancer. Mental and behavioural disorders have for the first time, been specifically included in the ILO list (Ref 7).

In the European Occupational Diseases Statistics (EODS) case-by-case data on occupational diseases recognized by the national authorities are provided by country. The EODS contains the number of newly recorded occupational diseases and fatal occupational diseases during the reference year.

Among the occupational diseases most commonly reported, those relating to physical hazards such as noise-induced hearing loss, and those relating to posture and the musculoskeletal system, account for more than 60%. Men were registered more often with an occupational disease than women. Most men with an occupational disease worked in the manufacturing and construction sectors, whereas most women worked in the wholesale and retail trade sector or the health and social work sector. Approximately 25 % of recognized occupational diseases led to permanent incapacity to work.

The International Labour Office estimates that 159.500 workers in the EU die every year from occupational diseases.

It is well recognized that a spectrum of diseases are undiagnosed and underreported. This is the so called phenomenon of the “iceberg”. The visible part of the iceberg denotes the clinically apparent cases of disease in a community. The part of the iceberg below the water level denotes the latent, subclinical, undiagnosed and carrier states in the community, which forms the major part. The hidden part is important in diseases like hypertension, diabetes and malnutrition. For occupational diseases the situation is much worse as for diseases in general! Several explanations for undiscovery and underreporting have been proposed, such as the long latency periods after exposure, lack of awareness about the occupational origins of some diseases, difficulties distinguishing occupational diseases from non-occupational diseases, the fact that a number of workers do not present to occupational health care and do not claim for compensation for fear of losing their job.

### **3.3. Absenteeism**

Sickness absence is defined as non-attendance at work due to health complaints, a disease or medical treatment when attendance was scheduled or clearly expected.

The causes of absenteeism are in general multi-factorial, and are influenced not only by the health status of individuals, but also the social insurance system, the work environment, attitudes and commitment to work, macro-economic conditions as well other medical, social and psychological factors. It is hard to obtain accurate measures of sickness absence, given the marked differences in definition, in social insurance systems across countries in terms of the level of sickness benefit, length of time before payment, request of medical certificate, etc.

Average rates of sickness absence across Europe are between 3% and 6% of working time. A reasonable estimate of the mean cost for Europe is about 2.5% of the total GDP (Ref 8).

Presenteeism is the phenomenon when an employee decides to go working despite feeling so ill that he or she judges that sick leave would have been proper. It has been suggested that the monetary impact of presenteeism even exceeds that of absenteeism : the productivity of someone who is present at work but either physically or mentally unwell, is reduced and not as effective and efficient as it would normally be. The proportion of employees reporting presenteeism during the last 12 months is generally in the range of 50% to 70% (Ref 8).

## 4. Future action plan

### 4.1. Acronym WARP

As described above, a majority of the workers in the world live without access to OHS and seek advice and treatment from general physicians. GPs, medical specialists, nurses and other health professionals should consider the work factor and pay attention to the effects of work on health and vice-versa.

Key questions for every physician in his/her consulting hour, regarding work and health, include :

1. **Work** : could the work of the patient be (part of) the cause or the aggravation of his/her complaint or disease? (Effect of work on health)
2. **Activities** : could the complaint/disease of the patient have consequences for his/her activities and participation in work (Fitness for work)
3. **Referral** : should I refer my patient to an occupational physician or another specialist (Structure/legislation/roles)
4. **Prevention** : can I do something to prevent the (return of the) complaint/disease?

If answers suggest that a patient's symptoms are work-related, an occupational history should be obtained (See point 4.2). An illness that fails to respond to standard treatment, does not fit the typical profile (e.g. lung cancer in a 40-year-old nonsmoker) or is of unknown origin, should raise suspicion of an occupational etiology.

The importance of recognizing a disease as occupational in origin is 3-fold: to limit its effect on the patient; to prevent its occurrence in others; and to compensate those disabled by it.

### 4.2. Occupational history taking

Learning about a patient's work does not have to take a lot of time. A standardized set of questions asked of every patient is the single most important method of recognizing the link between illness and occupation. The following screening questions can be helpful to gain fast information about current jobs and potential work-related conditions (Ref 9) :

Key screening questions :

1. What type of work do you do?
2. Do you think your health problems might be related to your work?
3. Are your symptoms different at work and at home?
4. Are you currently exposed to chemicals (metals, dusts,...), physical agents (noise, vibration,...), biological agents, job stress (bullying, shift work,...) or repetitive work? Have you been exposed to chemicals (metals, dusts,...), physical agents (noise, vibration,...), biological agents, job stress (bullying, shift work,...) or repetitive work in the past?
5. Are any of your co-workers experiencing similar symptoms?
6. Is there an occupational health doctor or nurse at your workplace who I could speak to?

When presuming a work-related disease or condition, additional questions can be used to elaborate more complex cases. Elements of a more comprehensive occupational history are listed below :

### List of jobs

Lifetime history with dates of employment and job duties (including military service, part time jobs, self-employment, summer jobs, apprenticeships, etc)

### Exposures

Type

Chemicals (e.g. formaldehyde, organic solvents, pesticides)

Metals (e.g. lead, arsenic, cadmium)

Dusts (e.g. asbestos, silica, coal)

Biological (e.g. hepatitis B, tuberculosis)

Physical (e.g. noise, repetitive motion, radiation)

Psychosocial (e.g. stress, violence)

Assessment of dose

Duration of exposure

Exposure concentration

Route of exposure (e.g. inhalation, ingestion, absorption)

Presence and efficacy of exposure controls

Collective control measures (e.g. general ventilation)

Personal protective equipment such as respirators, gloves, earplugs,...

Quantitative exposure data from inspections and monitoring

Timing of symptoms in relation to work

Symptoms occur or are exacerbated at work and improve away from work

Symptoms coincide with the introduction of new exposure at work or other change in working conditions

Presence of similar symptoms among co-workers with the same type of job and exposures

Evaluation of non-work exposures

Home environment (e.g., water, air, soil contamination)

Hobbies or recreational activities

### 4.3 Ethical issues

In the process of clinical decision making, treating and managing diseases, the physician requires several skills and competencies and he/she should adopt always a deontological and ethical attitude. (Inter)national codes of ethics and guidelines for medical practitioners are elaborated on the common basis of a set of bioethical principles.

These four principles have been described as:

1. Autonomy - respect for the individual and their ability to make decisions with regard to their own health and future. Actions that enhance autonomy are thought of as desirable and actions that 'dwarf' an individual and their autonomy are undesirable
2. Beneficence - actions intended to benefit the patient or others
3. Non-maleficence - actions intended not to harm or bring harm to the patient and others (primum non nocere)
4. Justice being fair or just to the wider community in terms of the consequences of an action

A physician dealing with work and health-related issues, has not only to consider the individual doctor-patient relationship but has also to include the employer/company and co-workers as a third party in his actions and decisions (Ref 10).

*Case : Eric, a 25-year-old married man with a baby of six months, is looking for a job. Anxious about finding work in the worst economy in decades, he accepts work in the construction. In this sector, workmen often use drills, saws, riveters, and other equipment that are very loud and can damage one's hearing. As a child, Eric got the mumps resulting in a severe hearing loss of his left ear.*

*Questions : Take into consideration not only the legal obligations but also socio-economic factors, the safety aspects and ethics!*

- *When Eric comes for a (pre-employment) health examination, would you declare him fit for the job?*
- *As his (family) physician would you advise him to keep the job?*
- *What would you advise to keep Eric from losing any more hearing?*
- *Is wearing ear protectors comfortable and safe? In some work settings it is not allowed to wear ear coverings because they may mask alarm signals.*

## Summary

Occupational health and safety encompasses the social, mental and physical well-being of workers in all occupations.

Hazards can be found in every workplace in a variety of forms (chemical, physical, biological, psychosocial and non-application of ergonomic principals). Work-related accidents and diseases are common and often have direct and indirect negative consequences for workers, their families as well as society. Nevertheless, the benefits of work might be perceived as much more important than the risks : the harmful effects of long-term unemployment and prolonged sickness absence can have a substantial impact on the life of the worker and his family.

Employers have a moral and legal responsibility to protect workers' safety and health. Multidisciplinary occupational health services and specialists in occupational medicine should give assistance and work proactively : this means taking action before hazards become a problem. They should provide risk assessment, health surveillance, recommendations and information to eliminate, prevent or reduce exposure and risks.

In many health care systems the general practitioner is the first health care professional who is consulted by workers for potentially work-related health problems. GPs should be aware of a possible link between the patient's work and illness. Vice-versa, diseases can influence work ability.

Therefore, in their consultations GPs and other doctors should be able to discuss work, health and rehabilitation with their patients.

## Key words

Absenteeism  
Accident  
Directive 89/391/EEC  
Hazard  
Iceberg phenomenon  
Occupational disease  
Occupational health  
Occupational health service (OHS)  
Occupational history taking  
Occupational medicine  
Occupational physician (OP)  
Presenteeism  
Risk  
WARP  
Work-related disease

## References

1. International Labour Office (ILO). Joint ILO/WHO Committee on industrial hygiene : report of the first meeting: Aug 28-Sept 2 1950. Geneva: ILO:1950.
2. World Health Organisation (WHO). The global burden of disease: 2004 update. Geneva : WHO:2008.  
[http://www.who.int/healthinfo/global\\_burden\\_disease/global\\_health\\_risks/en/index.html](http://www.who.int/healthinfo/global_burden_disease/global_health_risks/en/index.html)
3. European Statistics (Eurostat)  
<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>
4. European Foundation for the Improvement of Living and Working Conditions (Eurofound). Changes over time – First findings from the fifth European Working Conditions Survey. Dublin, 2010.  
<http://www.eurofound.europa.eu/surveys/ewcs/2010/index.htm>  
<http://www.eurofound.europa.eu/surveys/smt/ewcs/results.htm>
5. Rantanen Jorma. Basic occupational health services – their structure, content and objectives. Scandinavian Journal of Work environment and Health. Supplement 2005;1:5-15.
6. Health and safety at work in Europe (1999-2007). A statistical portrait. Eurostat. Luxemburg: Publication Office of the European Union, 2010.
7. ILO. List of occupational diseases (revised 2010). Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases. Geneva, ILO, 2010 (Occupational Safety and Health Series, no. 74).
8. Eurofound. European Working Conditions Observatory. Paul Edwards and Kay Greasley. Absence from work.  
<http://www.eurofound.europa.eu/ewco/studies/tn0911039s/tn0911039s.htm>
9. M Lax, W Grant, F Manetti et al. Recognizing occupational disease – Taking an effective occupational history. American Family Physician. 1998;58(4).
10. P. Westerholm. Codes of ethics in occupational health-are they important? Continuing Medical Education, 2009;27(11):492-494.