

*Occupational health and prevention of accidents and occupational diseases
in the work environment*

الصحة المهنية والوقاية من الحوادث والأمراض المهنية في بيئة العمل

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Abstract:

Occupational health in the workplace is considered one of the important topics that has drawn the attention of many organizations and researchers in recent years for economic, psychological, technical and health related reasons, Its main objective is to preserve the safety and comfort of employees while carrying out their tasks, and to reduce risks, accidents and occupational diseases that may cost a person his life while exposed to them in the work environment, and accidents and Occupational diseases that may cost a person their life when exposed to them in the workplace . these issues also cause institutions huge human and material losses, which require intervention to limit and greatly reduce them. For this reason, this article will address the definition of Occupational health in the workplace , the impact of work on health, the impact of health on work and preventive measures , leading to the most important steps organizations take to achieve occupational safety.

Keywords:: Occupational health; Prevention of accidents and occupational diseases; Workplace.

ملخص باللغة العربية:

تعتبر الصحة المهنية في بيئة العمل من المواضيع المهمة التي استدعت اهتمام العديد من المنظمات والباحثين في السنوات الأخيرة لأسباب اقتصادية، نفسية تقنية وصحية، وذلك لأن الهدف منها هو المحافظة على سلامة الموظفين وراحتهم أثناء القيام بمهامهم، و للحد من المخاطر والحوادث والأمراض المهنية التي قد تكلف الانسان حياته اثناء التعرض لها في بيئة العمل، وتكبد المؤسسات خسائر بشرية ومادية ضخمة تستدعي التدخل للحد منها وتقليلها الى حد كبير، لهذا سنتطرق في هذا المقال الى تعريف الصحة المهنية في بيئة العمل، تأثير العمل على الصحة، وتأثير الصحة على العمل والوقاية منها وصولا الى أهم الخطوات التي تتخذها المنظمات للوصول الى السلامة المهنية.

كلمات مفتاحية: الصحة المهنية؛ الوقاية من الحوادث والأمراض المهنية؛ بيئة العمل.

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1- Introduction

Employment and working conditions are key determinants of health and have a significant impact on health equity. Interesting, quality employment has a positive influence on a person's income and social status, social contacts, and sense of identity and purpose; conversely, being unemployed has a negative effect on health.

However, working conditions can also contribute to many different health problems, acute or chronic. In Switzerland for example, almost a quarter of the reasons for consultation with primary care physicians are work-related. Certain occupational exposures such as biomechanical, psycho-organizational, chemical, biological and physical constraints can either cause occupational or work-related diseases or aggravate certain pathologies. The most common are depression, musculoskeletal disorders, dermatoses, lung diseases, deafness, cancers, pregnancy pathologies.

The World Health Organization (WHO) estimates that these occupational risks contribute significantly to the burden of chronic disease: 37% of back pain, 16% of deafness, 13% of chronic obstructive pulmonary disease, 11% of asthma, 9% of lung cancer, 8% of depression, 8% of accidents and 2% of leukaemias.

The impact of the relationship between work and health must be examined in both directions.

- Work → Health: can the pathology from which my patient suffers be the consequence of his current or previous occupational exposures or can it be aggravated by his work?
- Health → Work: does my patient's pathology, whether or not it is related to his work, affect his or her ability to work?

2- Occupational Health:

Definition:

Occupational health should aim at the following objectives:

- **Promote and maintain** the highest degree of physical, mental and social well-being of workers in all occupations.
- **Prevent any damage** caused to their health by their working conditions; protect them in their employment against the risks resulting from the presence of agents harmful to their health.
- **Place and maintain the worker in a job** suitable to his or her physiological and psychological capacities; in short, to adapt work to man and each man to his task.

(Anne, Laurent, & Jérémy, 2020, p.293) (Maj, 2020, p.182)

3- Impact of work on health, relating a pathology to professional constraints:

Work can have an impact(s) on health:

- In the physical and/or psychological field.
- Temporality:

- In the short term, accidents at work, commuting accidents.
- In the medium term, other pathologies.
- Long-term +: occupational diseases.

(Anne & J r my, 2020, p.293) (J r my ,2020,p.143)

3-1- Professional Examination

A full-time employee spends at least 1600 hours per year at work. Knowledge of a patient's current and previous profession can make it possible to evoke an occupational etiology of his pathology.

The professional interview cannot be satisfied with a job title, but must go into more detail about the work situation, asking about the associated occupational exposures and the physical or psychological constraints. Similarly, knowledge of the professional background (*curriculum laboris*) of an active or retired patient can be useful. Indeed, some pathologies appear several years after exposure. This is the case, for example, with most occupational cancers where exposure to the carcinogen occurred several years or decades before diagnosis.

The search for the rhythmicity of symptoms or clinical signs according to the professional activity is often an important element to look for. It results from the comparison of the chronology of exposure to the various nuisances during professional practice with the chronology of the appearance or disappearance of the signs of the disease. This is called a professional rhythm.

Establishing the link between the disease and exposure is all the easier if there is a short period of time between exposure to the nuisance in question and the onset of the disease. In this case, it is possible to analyse the effects of the elimination of exposures (holidays, weekends) and re-exposure (return to the post) through questioning. For example, asthma and dermatitis lend themselves perfectly to this approach because there is an improvement or disappearance of clinical signs after cessation of professional activity for several days and the reappearance of symptoms upon new occupational exposure.

Establishing the link is more difficult when the latency time is long (time between the beginning of exposure and the onset of the disease), which is sometimes several decades, as is often the case with chronic pathologies (e.g. pneumoconiosis or cancer). The search for other associated occupational pathologies constitute complementary arguments without proving the causal relationship (for example: the discovery of pleural plaques in a patient suffering from bronchial cancer points to previous exposure to asbestos).

On the other hand, the individual professional interview can be supplemented by collective data from the occupational physician of the companies in which the patient has worked: for example, it is a question of questioning the occupational physician about exposures at the workplace, or about the presence of other employees suffering from the same pathology.

For difficult cases, the consultation centres for occupational and environmental pathologies of the University Hospitals provide their expertise to help determine the link.

(the French Society of Legal Medicine and Medical Experts, 2022, p.232)

3-2- Example of occupational pathologies:

In Algeria, the Interministerial Order (AIM) of 5 May 1996, establishing the list of Suspected work-related diseases: Diseases presumed to be of occupational origin are classified into three (03) groups:

- GROUP N°1: relating to the morbid manifestations of acute or chronic poisoning.
- GROUP N°2: relating to microbial infections.
- GROUP N°3: relating to diseases resulting from the working environment and attitude.

(.Lebouabi, HadeF, & Haddar, p.3)

Generally, common pathologies of occupational origin:

- **Joint and peri-articular disorders** related to postures or repetitive tasks:
 - Musculoskeletal disorders.
 - Chronic lower back pain.
- **Pulmonary pathologies related to dust:** asbestosis (asbestos), silicosis (silica), siderosis (iron)...
- **Allergies:** contact dermatitis, eczema, asthma.
- **Cancers:** asbestos, organic solvents, ionising radiation, etc.

Mental disorders: stress, depression. (Clément, 2016, p.248)

4- Impact of a chronic pathology on work capacities:

Medical prognosis and occupational prognosis

When hiring, when dealing with a person with a disability or to prepare for the return to work after a work stoppage, it is necessary to anticipate medico-social problems.

Certain pathologies can have an impact on the ability to work and lead to an inability to hold one's job. The professional but also social prognosis is then at stake.

Here are a few examples:

- Certain pathologies may contraindicate work in so-called safety positions in a workstation where there is a risk of serious accident in the event of sudden failure of the operator, for example, roofer, truck driver, in the event of a nuclear failure, etc. Pathologies that potentially lead to sudden loss of consciousness, such as epilepsy or insulin-dependent or insulin-requiring diabetes, can pose a problem in the event of an imbalance for this type of position.
- Physical exertion (related, for example, to carrying a load) may be contraindicated in the aftermath of certain cardiac pathologies.

- Diabetes or epilepsy may require work on fixed hours, or even be incompatible with certain night or alternating shifts.

In all these cases, an adaptation of the workstation or a change of position will have to be considered. It is up to the occupational physician to prescribe the periodicity and the modalities of the occupational health monitoring that must be carried out.

The pre-resumption visit allows the occupational physician to anticipate the patient's return. This visit can only be carried out at the initiative of the patient, his or her attending physician, the occupational physician or the medical advisor. It is therefore important that the treating physician informs his patient of this possibility. This pre-resumption visit is in principle reserved for patients who are off work for more than 1 month.

However, it should be remembered that any employee always has the possibility of requesting a spontaneous consultation with the occupational physician (so-called consultation at the request of the employee). The role of the occupational physician during these consultations is to assess, on the one hand, the patient's ability to work, according to the medical information available to him, and on the other hand, the constraints of the workstation and to deduce recommendations for the adaptation of the workstation, the change of position or the professional training of the patient if necessary.

The occupational physician may call on the skills of the other members of the multidisciplinary team to help the employee remain in employment: nurse, ergonomist, psychologist for example, and other people specialized in job retention and external to the occupational health service, in particular specialized placement agencies.

(the French Society of Legal Medicine and Medical Experts, 2022, p.234)

The occupational physician sends his recommendations, with the employee's agreement, to the employer. Among the frequent recommendations issued to the employer are

- The layout or adaptation of the workstation: for example, recommendations for the ergonomic layout of the workstation.
- Change of workstation to a position adapted to the employee's so-called remaining capacities.
- Professional training to be organised in order to facilitate the redeployment of the employee or his or her professional reorientation.

5- Prevention:

There are three levels of prevention:

- Primary
- Secondary

- Tertiary

5-1- Primary prevention:

- To reduce the incidence of morbid phenomena related to a professional activity (work accidents and occupational diseases).
- The means implemented are collective and include, for example:
 - Risk assessment: single document, job visit, surveillance network, registers of occupational diseases, occupational accidents, etc.
 - Risk elimination: limiting or eliminating the use of dangerous products, etc.
- Information and training for prevention agents and exposed employees.
- The implementation of good practices (signage, general hygiene, etc.)

(Tavolacci, Rongère & Coffy-Cloupet., 2014 ,p .275)

5-2-Secondary prevention:

- Decrease the prevalence of morbidity.
- The means implemented are collective and individual. They include, for example:
 - Risk assessment.
 - Elimination of risks.
- Information and training for prevention agents and exposed employees.
- Implementation of good practices (signage, general hygiene, etc.)

5-3- Tertiary prevention:

- To avoid the aggravation of work-related diseases and to promote the integration of people with disabilities.
- Adaptation or change of position.
- Professional redeployment. (Tavolacci et al., 2014 ,p .275)

5-4- Prevention actors:

Within the company, the employer, the occupational physician, the CHSCT or the staff delegates are the main actors.

Health, Safety and Working Conditions Committee (CHSWC):

- It is mandatory in companies with more than 50 employees. It includes:
 - The head of establishment.
 - A staff delegation.
 - Guests: occupational doctor, head of security, others...
- Its mission is to:
 - Contribute to the protection of the health and safety of employees.
 - Improve working conditions.
- In certain situations, he can be assisted by an expert.

- The CHSWC meets at least once a quarter and after each accident. It must also be convened if two of its members so request.
- The employer must provide the CHSWC with all the information necessary for the performance of its mission by sending it once a year:
 - A report on the situation of the establishment in the field of health, safety and working conditions.
 - An annual programme for the prevention of occupational risks and the improvement of working conditions.
- In the absence of a CHSWC, it is the staff delegates who exercise the powers normally assigned to the committee. (Tavolacci et al., 2014 ,p .276)

5-5- Means of prevention:

Collective prevention:

- Refers to all the means used to reduce the risk at the level of an exposed group.
- It is the first to be implemented before individual prevention because it is more effective.
- It includes, for example:
 - Risk assessment: job analysis, exposure analysis, identification of risk situations, inventory of exposed personnel, measurements (noise, atmospheric dosage, etc.) compared to regulatory or non-regulatory limit values, hazard analysis (effects of products on the human body, labelling of chemical products, bibliography, etc.)
 - Replacement of the most dangerous processes, replacement of toxic products, labelling, etc.
 - Machine safety equipment.
 - Work in a closed system, partitioning of workstations.
 - Signalling
 - Suction system and general ventilation.
 - Information for staff.
 - Training in first aid, actions to be taken in case of emergency, safety (fire, explosion, falling device, chemical product release, etc.).

Individual prevention:

When collective prevention is not sufficient, when the employee remains exposed to a significant amount of risk or when collective prevention is not applicable, personal prevention equipment adapted to the risk is used (a surgical mask is not effective against toxic gases): gloves, mask, helmet and safety shoes, glasses, hearing protection, etc (Tavolacci et al., 2014 ,p .277)

6- Conclusion:

Professional questioning is a key element in supporting a link between professional activity and a pathology. This includes in particular the curriculum laboris, the precise description of the tasks performed. the search for a professional rhythm.

Some common pathologies may have an occupational etiology. Most of them are described in the tables of occupational diseases. Here are some examples:

- Musculoskeletal disorders related to repetitive work.
- Allergic pathologies.
- Infectious diseases.
- Pneumoconiosis.
- Cancerous pathologies.
- Pleural plaques related to exposure to asbestos.
- Noise-related hearing loss.

The adaptation of a workstation or professional redeployment is often a multidisciplinary process, which can take time. It is therefore necessary to refer the patient early enough for a pre-resumption visit in order to allow time for the search for the most suitable solutions.

The resumption visit is mandatory for any shutdown of more than 60 days. But be careful, if a workstation adjustment is foreseeable, it must be anticipated with a pre-resumption visit.

Job retention measures:

- Therapeutic part-time work, which is a therapeutic prescription from the attending physician; it is not the occupational physician who prescribes it; Working time does not necessarily correspond to half-time.
- Disability.

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