Good Practice in Occupational Health Services:
A Contribution to Workplace Health

WHO Regional Office for Europe

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ABSTRACT

This publication provides guidance for good practice in performance of Occupational Health Services and for quality performance in contribution of occupational health professionals to occupational health objectives in client enterprises and organizations. It is written with the aim to address primarily the perspective of safety and health professionals and experts carrying responsibilities and tasks in enterprises and in organizations providing services to enterprises in European countries. This broad category includes occupational health physicians, and occupational nurses, physiotherapists and ergonomists, occupational hygienists, safety engineers, occupational psychologists and managers of occupational health service units or organizations. The guidance document is, however, also written with an eye on all those who purchase and use the services provided by occupational health services, i.e. their customers and clients, who have a legitimate interest in seeking services of adequate quality and cost-effectiveness and service providers delivering services needed.

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Intended Audience:

- Managers and staff of occupational health services.

- Public health departments of local and national authorities.

- Social and labour departments of local and national authorities.

- Organizations and representatives of employers.

- Trade unions and workers' representatives.

- Social and health insurance institutions.

- Schools of public and occupational health

- Academic departments involved in research, education and training in occupational health.

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Editorial Committee

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Foreword

This publication provides guidance for good practice in the performance of Occupational Health Services, and for quality performance in the contribution of occupational health professionals to occupational health objectives in client enterprises and organizations. It is written with the aim of addressing primarily the perspective of safety and health professionals and experts carrying out responsibilities and tasks, in enterprises and in organizations providing services to enterprises in European countries. This broad category includes occupational health physicians and occupational nurses, physiotherapists and ergonomists, occupational hygienists, safety engineers, occupational psychologists and managers of occupational health service units or organizations. The guidance document is, however, also written with an eye on all those who purchase and use the services provided by occupational health services, i.e. their customers and clients, who have a legitimate interest in seeking services of adequate quality and cost-effectiveness, and service providers delivering services needed.

This booklet is not intended to be a textbook in quality management or evaluation. In addressing the issues of Good Practice it is, however, not possible or desirable to avoid touching on issues related to these aspects. To put it briefly, the term "quality", in the context of these guidance notes, implies not only the perspectives of customer quality, professional quality and cost-effectiveness seen in isolation from one another. "Quality" in this document refers to a comprehensive perspective in which all these three mentioned aspects are addressed, and a framework supplied for continuous competence development, customer satisfaction, creativity and effectiveness. The contents of the booklet can be used to facilitate self-evaluation of occupational health professional performance, professional auditing, consumers auditing, third party auditing, benchmarking and, in general, participation in reviews of service performance. It is therefore important to keep in mind that the booklet addresses primarily the roles, tasks and performance of occupational health professionals, acting in their advisory capacity to those who carry the responsibility for health and safety in enterprises and workplaces. For these tasks the employers are responsible, regardless whether occupational health professionals are consulted or not.

One important point of departure for the guidance document is the European Framework Directive 89/391 on Occupational Safety and Health. In Article 7 of the European Directive it is stated that employers who do not within their enterprise make use of persons with the requisite expertise to organize safety and health preventive activities are to consult experts external to the enterprise for this purpose. This Article has been given widely differing interpretations in EU member countries, and in European countries outside the EU.

The present document is, in terms of structure and approaches, based on innovations in OHS quality thinking manifested in the conception and drafting of Good Occupational Health Practice guidance documents, addressing specifically the activities of OHS in European countries. Such documents have been published first in Finland and, more recently, in Norway. The focus of this guidance document is now set in a European perspective. In our view it is to be seen as an advisory document, with no prior intent of harmonizing or coordinating activities between or within individual countries. It may, however, clearly also be used for such purposes.

These guidance notes build on the 1999 WHO/Europe report "Guidelines on Quality Management in Multidisciplinary Occupational Health Services" (EUR/CP/EHBI 020203) which addressed assessments of quality issues of service performance using the ISO 9001.

The task of producing this guidance document was assumed as a task of the WHO Regional Office for Europe, in collaboration with the International Commission on Occupational Health (ICOH), acting through its scientific committee on "Health Services Research and Evaluation in Occupational Health". The process of production was launched at a meeting of WHO experts in Bilthoven on 23–24 November 2000, with a master plan for draft text production and ensuing reviews of draft texts produced. A provisional agreement was made by the participants of this meeting on criteria, pertinent to assessment of occupational health professional performance to be selected for further examination and draft text production. A review procedure implying an expert review of all draft texts was set up and agreed.

All draft texts were reviewed in meetings of WHO/ICOH experts in Lodz, Poland in September 2001. Following this, the texts have been reviewed by selected experienced senior occupational health professionals, and edited by the Editor with the assistance of an editorial committee. The final draft texts have been reviewed following the routine practice of the WHO Regional Office for Europe.

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1. Introduction

Over the last two decades, European societies have undergone significant changes and developments, with important repercussions for issues of health at work, and expectations of specialist knowledge and performance of occupational health professionals. For enterprises, markets have become globalized, and national boundaries are no longer obstacles to the transfer of capital resources, technologies, labour force and knowledge. Both private and public sectors of economic life operate under pressure for development, and often conditions of hard competition. There have at the same time been cuts in public expenditure in many countries. Technology developments, in most labour market sectors, branches, continue at high pace.

There are implications for the health of the labour force and conditions at the workplace in these developments. The increasing speed and volume of work, pressures for flexibility in organizations and people, and the slimming of organizations, lead to strains and stresses on the staff of enterprises and organizations. Physical workplace hazards are increasingly controlled and managed, but also replaced by psychological strain at work, and health disorders related to mental stress.

These changes have health effects on the individual employee level, organization or enterprise level and society level.

- On the individual level the health disorders caused by physical workplace injuries and stresses and strains at work cause suffering and loss of quality of life. They also cause economic loss and insecurity in employment, leading to loss of control with regard to individual and family life.

- On the organization/enterprise level they lead to loss in production capacity, due to absence of staff from work for health reasons, and constant needs to recruit new staff to compensate for loss of competence and experience through high staff turnover.

- On the society level there are increasing social security costs for sickness benefits and pensions, and for payments of compensation for occupational disease and – with regard to public sector functions – losses in capacity of public services.

European countries are – like most other countries – not in position to afford these trends of development. Enterprises in the 21ˢᵗ century are under pressure to develop into learning organizations, acting in the knowledge-based society. They constitute a major setting where available knowledge may be used to:

- Protect health in preventing health and safety hazards at work;

- Promote health through appropriate work culture, work organization and support for social cohesion;

- Promote wellbeing and mental health and, on the individual level, healthy life style and preventing cardiovascular and other noncommunicable diseases supported by specific workplace health policies and management tools;

- Sustain the health and maintain the work ability of all staff, and thereby also employability throughout working life;

- Reduce health care costs of injuries, diseases, illnesses and premature retirement, caused by a combination of occupational, environmental, life style and social health determinants; and

- Use natural resources effectively and efficiently, protecting the natural environment.

In view of the above considerations, enterprises are an essential element of the national public health system. Investors, employers, and employees make a number of decisions at work which have an influence on the quality of living and working environment, work organization and work cultures, and on the use of natural resources and the preservation of the ambient environment. These decisions have an obvious impact on their own health and, indirectly, on their families. Obviously, they have consequences for the enterprise in many ways. Health management at work has a link with the capability of the national health care and social security system. These causal relationships have been reflected in the updated definition of occupational health adopted in 1995 by the Twelfth Session of the Joint ILO/WHO Committee on Occupational Health (previously agreed in 1950), which focus primarily on three key objectives:

1. The maintenance and promotion of workers' health and working capacity;

2. The improvement of working environment and work, to become conducive to safety and health; and

3. The development of work organization and working cultures in a direction which supports health and safety at work, and in doing so also, promotes a positive social climate and smooth operation, and may enhance the productivity of the undertaking.

Over the last fifty years, a need to combat and alleviate occupational accidents and diseases forced the social partners (employers and employees) and governments to establish an occupational health infrastructure, with occupational health services as an advisory and supportive component of that infrastructure. The rapid development of occupational health services has also, in part, been driven by the expanding programme of EU legislation in the areas of health, safety and environmental protection, and the need by employers to respond to this legislation. The occupational health services have, in many European countries, increasingly been recognized also as important components of public health strategies.

There is, however, great variation between European countries in the provision of occupational health services, ranging from: (i) no legal requirement, through (ii) requirements for enterprises to manage and control occupational health risks implying appropriate use of external consulting services, to (iii) a requirement for every enterprise to provide occupational health services.

The access of employees to occupational health services has increased mainly in the countries which have implemented the 89/391/EEC EU Framework Directive. Comparable data on coverage and access for the entire European Region are not available. In descriptive documents on national public health resources, the OHS are commonly not taken into account. The estimated coverage varies from 20% to 90% of the entire work force in the countries of the European Region. In the 1990s trends can be observed in European countries, to deregulate and to operate occupational health services on a health market basis, implying competition with other service providers and management consultants. During the same period the introduction of quality thinking and management systems, for ascertainment of quality in products and services, have been increasingly implemented. This has been the case both in the private and in the public sector of European

countries. Effective quality management of company production and health and safety has also been observed to complement and support effective environmental management in enterprises. The approaches to quality in production and company activities have been observed to strengthen awareness of issues related to the external environment, and to consideration of choices, aiming at clean production technologies.

These challenges for health and the external environment have called for reconsidering the role of occupational health in public health. The Public Health programme of the European Union for 2001–2006 proposed by the European Commission emphasizes the need to link public health with other health-related initiatives such as e.g. health and safety at work, environmental policies, and to develop a comprehensive health information system. The WHO Regional Office for Europe has adopted the same approach to support the achievement of the main WHO objective: attainment by all people of the world of a level of health that will permit them to lead socially and economically productive live (WHA, 1977). The involvement of workplace health stakeholders in improvement of management of health determinants at work is in agreement with the fundamental concept of public health being the response given by a society to improve the health of its population.

The tasks and expectations of Occupational Health should be seen in the perspective of the public health relevance and significance of good occupational health, and good occupational health practice.

The issue emerging from these considerations is the continuous restructuring and re-orientation of occupational health services, to meet challenges created by the changing nature of working life and environment. In Europe today in many countries there is a transition to a new model of preventive services. This implies an improved integration of several occupational health professions, and other specialists, into multidisciplinary preventive services capable of detecting, assessing and advising on the management of occupational, environmental and non-occupational hazards, which may affect the working capacity, health and wellbeing of employees at work, and also hazards arising in the general environment. Good access to preventive services, covering a broad range of competencies, is a necessary element for coping with the new challenges in health and

life quality at work, and increasing equity in health and wellbeing within and between nations. Local alliances of health and labour authorities, large enterprises, external occupational and environmental health services and primary health care services can all be involved in delivering health protective and promotive services to Small and Medium-sized Enterprises (SMEs).

Ascertaining quality, effectiveness and efficiency of occupational health services is a shared responsibility of national and local health authorities, health professionals' associations and the employers and employees organizations. There is also much to be gained in efforts to harmonize methodology to evaluate OHS performance between and within countries. During the ICOH Congress in Singapore, August 2000, there were requests to develop international guidelines in this area. Recently several studies have been conducted in Europe, to compare the scope and effectiveness of occupational health services in the EU and non-EU countries, thus providing knowledge for developing such guidelines.

It is recognized that the principles and procedures presented in this guidance document are not, and will not be, immediately implemented in their entirety in European countries. It has, however, been the aim of all those who have contributed to it to present a set of principles, methods and approaches, which are based on a broad consensus of professional opinion in European occupational health practice.

These guidance notes aim to help employers, employees, authorities and occupational health professionals in reaching the following objectives:

- To assist in assessing the contribution of OHS in implementing a company based occupational health policy;

- To assist in the setting and achieving of health and environmental targets by the employers in collaboration with the working community and other stakeholders involved;

- To facilitate contribution of occupational health services to health, environment and safety management in enterprises, particularly in SMEs;

- To make effective OHS contributions and interventions to the health of employees and employers, work environment and work organization;

- To add to the credibility of professional OHS performance with regard to effects on environmental, life style and social determinants of health of employees;

- To assess and to improve contribution of OHS to attainment of national public health strategies, as appropriate;

- To assess positive and negative impacts of workplace conditions on general health and well being of the nations (as a contribution of general health impact assessment); and

- To assist in the assessment of the role of OHS in supporting education and training, aimed at maintenance of work ability and employability.

2. Health, environment, safety and social management in enterprises (HESME)

Occupational diseases and injuries, work-related and workplace-preventable diseases and injuries are responsible for much of the current levels of reduced work capacity, increased temporary and permanent work disability, shortened life expectancy, and premature retirement or death. The high rate and early onset of chronic diseases contribute to the high expenditure of national health care systems, as well as to high demands for disability pensions and compensation from social insurance funds. In addition, industrial and other enterprises that lack adequate prevention and control measures, contribute to environmental pollution and pose health risks to the population.

There are emerging challenges in Europe that require policy changes for health at the workplace. Some of them are:

- Ageing of the working population – resulting in different occupational health needs;

- Changing structure of employment – increase in temporary employment;

- Diversity and dispersal of the traditional work structures (e.g. outsourcing);

- Increased number of interpersonal contacts at work – psychosocial problems;

- Intensification and repetitive work;

- Unpredictable working hours;

- Violence and harassment at the workplace.

None of these problems can be solved using traditional methods focused on reduction of physical, chemical or biological hazards at work. However, they can be addressed by the holistic approach to management of health, environment and safety.

The needs of customers (employers, employees, insurance institutions, others) greatly depend on current legislative requirements, but also upon their vision of health management at work. The analysis of recent policy documents issued in Europe by the key organizations and institutions representing those stakeholders shows that this vision is slowly changing, from the strict concept of "prevention of occupational injuries", to overall protection and promotion of workers' health. However, indicators used in most of countries for the evaluation of performance in occupational health do not reflect the role and impact of the workplace as a setting for health, nor do they sufficiently reflect the need for change in occupational health practice.

Major changes in the global economy, and the continuous restructuring of production and service organizations, coupled with subsequent changes in working life and in the responsibilities of employees, have created an urgent need to strengthen and adapt the tools and methods used to ensure that health, environment and safety matters are protected, promoted and properly managed at the enterprise level. In addition, it is evident that successful leading multinational enterprises are increasingly integrating health, environment and safety issues into their overall management systems. Challenges posed by globalization require enterprises to adopt holistic and integrated views of health and environment management, to retain competitiveness on well-regulated markets.

The decisions of enterprise leaders, guided by legal regulations, governmental and municipal policies, as well as by individual knowledge and values, have an obvious impact on their own health, as well as on that of their families, neighbours and customers. Health, Environment, Safety and Social Management in Enterprises (HESME) is a multidisciplinary approach to promote health at the workplace, and to minimize its harmful impacts on the environment. HESME also deals with the impact of the workplace on neighbourhood health, on the health and environmental impact of products and services, and on preservation of the general environment. HESME may be a powerful tool for municipal and other local authorities willing to promote an effective health dimension to social, economic, environmental and development policies.

HESME is composed of four major management areas, quite often kept isolated, which increase their costs and lower their effectiveness since they are highly interrelated: 1) occupational health and safety, 2) health promotion, 3) environmental management and environmental health and 4) social capital and community development.

HESME is a process of comprehensive workplace health promotion, involving all stakeholders inside and outside an enterprise. It aims at empowering them to take control over their own health and their family's health considering environmental, lifestyle, occupational and social health determinants and quality of health care. The occupational health services are well placed to play a major role in promoting GP HESME.

The objectives and processes of HESME fit well into the agenda of the WHO Global Strategy on Occupational Health for All, endorsed by the 49th World Health Assembly and the political agenda of other concerned intergovernmental bodies (EU) and international organizations (ILO, UNEP, OECD and others). The promotion of information, awareness and commitment of citizens and the business community, as well as the integration of the environment into other policies, are among new tools advocated by the 6th EU Environmental Action Programme. The ILO Technical Guidelines on Occupational Safety and Health Management Systems (OSH-MS) as well as procedures developed by UNEP for implementation of Cleaner Production, are complementary and can be used for implementation of HESME. OECD has already initiated a discussion among companies

and governmental agencies, looking for advantages or disadvantages, and tools available for integrated management of safety, health and environment in enterprises.

The meeting of the European WHO Collaborating Centres in Occupational Health held on 11–12 September 2001 in Lodz, Poland concluded that the HESME concept complements traditional occupational health and safety with health promotion, environmental health and has important role in the further integration of efforts in these related areas. This comprehensive workplace health promotion concept is also moving forward due to actions undertaken by the European Union Network on Workplace Health Promotion.

3. Occupational Health Services (OHS)

3.1 Objectives of OHS

3.1.1 Development of OHS

In most developed countries, occupational health care evolved as a consequence of the industrial revolution. In 1950 the World Health Organization (WHO) and the International Labour Organization (ILO) formulated a definition of occupational health care, and described the essential content of occupational health services (OHS)[1]. The

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[1] Definition, adopted by the Joint ILO/WHO Committee on Occupational Health in 1950 and revised in 1995: "Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risk resulting from factors adverse to health; the placing and maintenance of workers in an environment adapted to their physiological and psychological capabilities; and, to summarize, the adaptation of work to workers and of each worker to his or her job. The main focus in occupational health is on three different objectives: (i) the maintenance and promotion of workers' health and working capacity; (ii) the improvement of working environment and work to become conducive to safety and health; and (iii) development of work organizations and working cultures in a direction which supports health and safety at work and, in doing so, also promotes a positive social climate and smooth operation, and may enhance the productivity of the enterprises. The concept of working culture is intended in this context to mean reflection of the essential value systems adopted by the enterprise concerned. Such culture is reflected in practice in the managerial systems, personnel policy, principles for participation, training policies and quality management of the enterprise."

Occupational Safety and Health Convention 1981 (No. 155) and Occupational Health Services Convention 1985 (No. 161) adopted by the General Conference of International Labour Organization with the adjoining recommendation No. 164 and No. 171 had a major influence on the development of European occupational health regulation.

In Europe, OHS are now largely based on legislation. One of the most concrete factors behind the development of OHS is the transposition and implementation of the Framework Directive 89/391/EEC on Safety and Health at Work, and in this context particularly its articles 5, 6, 7 and 14, which have implication for the tasks, methods and structures of OHS. In spite of harmonization efforts, there still is wide variation between the national laws and practices stipulating OHS. While some countries require provision of comprehensive services to all working people, some others require coverage only of those "in need". Still, there is growing evidence, that occupational health care, while primarily targeting the prevention of harmful effects from work, also has a positive economic impact on both national and enterprise level, and thus may be regarded as a productive factor, rather than an economic burden. If future business success is to depend increasingly upon well-qualified, motivated, efficient and healthy employees, modern comprehensive occupational health strategies (safety, health protection, promotion of welfare and health, competence and personality development) can significantly contribute to prepare employees and companies to meet the challenges of the future.

Rapid changes in work life, as a consequence of globalization, bring new challenges to workers health, while classical risks are still present. Occupational health professionals, therefore, will need broader training and competencies than in the past, while at the same time they have to provide service to an ever increasing number of small and difficult to serve enterprises, and to ensure coverage and continuity of services in environments where changes are very dynamic, with discontinuities in the operation of enterprises, and fragmented work contracts. Also, small enterprises are a highly heterogeneous group of enterprises, operating under very different conditions. Risks, needs for care, and intensity of care differ clearly, if for example. bakeries, hairdressers, construction or ICT firms are being compared.

This explains why there are currently numerous service provision options to be identified across and within the countries of Europe, and why there are still additional new alternative models being developed and tested for effectiveness and efficiency. It stresses the need for good cooperation within a multidisciplinary team, or at least, among the actors of different profession, serving the same company, although working as independent self-employed professionals. It also highlights the need to make best use of intermediaries and networks, and most important, to have positive communication with well-informed and motivated employers and employees.

To establish this kind of constructive interaction requires the OHS to offer company-tailored solutions, based on an understanding of actual need, prudent sense of feasibility and timing, and also trust in partnership and a common interest in a healthy and motivated working population. Wherever possible, a firm integration of workplace health issues into daily managerial practices should be advocated.

3.1.2 Prevention, health protection and safety

What, then, are the objectives of OHS in general? While the responsibility for workers' safety and health rests with the employer, the OHS will be required to give expert advice to employers, individual workers and their representatives, and to carry out essentially preventive functions. These functions should aim at:

- establishing and maintaining a healthy and safe work environment;

- maintaining a well-performing and motivated workforce;

- the prevention of work-related disease and accidents; and

- the maintenance and promotion of the work ability of workers.

They hence may comprise the following:

- identification and assessment of the health risk in the workplace;

- surveillance of the work environment factors and work practices that affect workers' health, including sanitary installations, canteens and housing, when such facilities are provided by the employer;

- participation in the development of programmes for the improvement of working practices, as well as testing and evaluation of health aspects of new equipment;

- advice on planning and organization of work, design of workplaces, choice and maintenance of machinery, equipment and substances used at work;

- advice on occupational health, safety and hygiene, and on ergonomics and individual and collective protective equipment;

- surveillance of workers' health in relation to work;

- promoting the adaptation of work to the worker;

- collaboration in providing information, training and education in the fields of occupational health, hygiene and ergonomics;

- contribution to measures of vocational rehabilitation;

- organization of first aid and emergency treatment; and

- participation in the analyses of occupational accidents and occupational diseases.

The conditions of modern work life call for these classical actions to be complemented by:

- initiation of, or collaboration in, workplace health promotion activities;

- making best use of resource, by establishing and maintaining good work relationship (networks) within and beyond the enterprise (employer, workers representative, safety personnel; labour inspectorate, accident insurance fund, sick fund, social insurance institutions, general practitioners etc.); and

- quality assurance of occupational health care.

Modern occupational health care is to be seen as a comprehensive process that aims at the prevention of health hazards at work, and the prevention of work-related disease. Occupational health care activities, therefore, should not be regarded as unrelated actions, but rather as integral parts of an ongoing process, that start with the assessment of the company-specific need for OHS, continue with the planning and follow-up of applicable services and end with documenting and assessing the achieved results. Goal– and process–

orientation also ease the discussion with stakeholders, assist in priority setting, evaluation of programme efficiency, quality management and further continuous improvement. Occupational safety and health performance can be optimized when properly conducted, continually evaluated and improved in a systematic and organized way.

It is important to recognize that for effectiveness in occupational safety and health activities, the full commitment of enterprise management and the participation of enterprise staff, are necessary prerequisites.

In order to establish an occupational safety and health action plan tailored to company need, it is necessary to agree, among all stakeholders, upon the base-line situation of the enterprise, to set common goals, plan procedures and intervention strategies, and to decide on how and when to evaluate the results. While it is important to comply with regulation, to take into account the results of work place surveys and health examinations and to refer to sickness and accident statistics, it is just as advisable to learn to understand the employer's vision and views (e.g. the economic situation of the company, regional and sectoral peculiarities, past experiences and future planning, related to workers' health), his expectations from the OHS as well as the concerns and needs of the employees.

The action plan should be agreed upon, and responsibilities should be clearly assigned. The action plan and OHS resources should allow for modification in response to unforeseen events. Answers to newly arising problems at the company level have to be provided by the OHS within a reasonable time frame.

3.2   Work organization

An increasing general awareness of the organization of work, to include important determinants of health, wellbeing and safety at work, has emerged with a significant impact on occupational health and safety management practices during the recent two decades. The concept of work organization can be summarized as issues of design and contents of work tasks, their distribution and management. An unhealthy work organization may cause mental strain, and contain workplace health hazards, which are left unattended. It is a challenge

and a task for occupational health professionals to identify and to provide counselling for prevention of health disorders related to work organization.

The organization of work thus covers a considerable range of structural, cultural and functional aspects of how an organization, such as an enterprise, is set up and manages to fulfil its tasks or to achieve its objectives. It also embodies the processes of change and development of an organization. The term should thus be seen to embrace all aspects and actions planned and taken to achieve an optimal flow of work input of personnel, raw materials, information and information processing, decision-making and management functions ensuring profitability or effectiveness and quality in output of materials, manufactured goods and services. It equally applies with regard to innovation of products, processes and competences, with the overarching objective of achieving sustained economic and societal activity of the organization.

In this context, the first priority of a professional occupational health agenda is to work towards "humanizing" the workplace, which means valuing people and their potential for creativity and growth, so that both the organization, and the individuals who represent its most valuable resource, can benefit.

The work organization and its various components may be directly, or indirectly, related to occupational health issues. In this section of this document, reference will be made to aspects on which occupational health professionals may become involved for assessments and counselling, as well as redesign and implementation with reference to the occupational health aspects of the organization of work in a client or customer organization.

The determinant factors of a rationally conceived organization may be referred to under the following five rubrics:

- Objectives
- Strategies
- Structure
- Methods
- People

Objectives cover the aims and tasks of the organization-at-issue in terms of quantity of produced items or their quality, service objectives (related to customers needs and demands) and cost-efficiency objectives.

Strategies refer to the means selected to pursue policies and to achieve policy objectives implying the choices and priority setting of fundamental importance, in relation to company behaviour in the marketplace, taking into account both the needs to develop capacity, and competencies and expectations on the company in its societal setting.

Structure refers to distribution of work tasks and responsibilities, and outlines of management structure, including decision and information processes.

Methods refer to work processes and techniques, equipment, routines and work instructions, steering systems, reinforcement methods.

People refers to the multitude of aspects related to the health and quality of life of staff and their work satisfaction. This includes development of competences, skills and responsibilities and it also embodies social relationships, social support and social cohesion in the organization.

3.2.1 The features of work

Here will be mentioned 13 domains of issues, related to the organization of work and pertinent to occupational health, as seen in the broad scope of a subset of public health:

- Leadership in organization based on clear vision and a set of values shared by all in company;

- Company production goals realistic and achievable taking into account human values and societal expectations;

- Transparency in management and decision making and in all company internal communications;

- The balance of life at work and life off work. This implies the basic prerequisites for an optimal balance of work and leisure time or time devoted to family life;

- Social interaction and relations to work colleagues and management. This implies the social relationships and interpersonal relations at work. This aspect also includes management support and social support provided at work. Social interaction also implies management methods, leadership styles, mechanisms, consultation, clearness of tasks and responsibilities to promote loyalty and motivation and to prevent moral and sexual harassment, bullying, discrimination and conflicts;

- The value of own work, as perceived by management, fellow workers and in workers self-image. Feedback, criticism, encouragement and support;

- Physical and mental strains and burdens of work, volume or quantity of work, work-related stress, time aspects of work (time schedules, shift-work). If any short cycled work is inevitable, this should be restricted to short periods of time during the working day, and alternated with other work;

- A reasonable workload and work demands, implying adequate supply of resources and a balancing of workload peaks and less stressful periods or moments during the work shift. Possibility for relaxation during times off work;

- Physical and chemical exposure factors, ergonomic workplace conditions, body movements and position, noise and lighting conditions, workplace air quality;

- Changes in organizations i.e. the processes in structural change, development of structure, functions and staff. In addressing needs for change, reallocation of managerial tasks and responsibilities and sharing of decision making at all levels in the company, making all staff involved in decisions with an impact on work situation;

- Opportunities to control one's own work situation: autonomy, participation, regular consultation, and cooperation;

- Opportunities to learn and develop competencies and skills at work, career perspectives;

- Availability of personal support in adjusting the work tasks and working conditions to the employees' changing (personal) situation and development.

3.2.2 Features of an Organization Valuing Human Capital

To be successful, the organization should create an environment conducive to an empowered workforce. The following five features characterize a "Good" Organization from an Occupational Health point of view:

1. Maintains a work/life balance:

*   The organization takes a holistic approach, understanding and supporting the fact that staff have lives OUTSIDE work;

*   By creating a family friendly environment, the organization is assisting staff to manage the relationship between their work and home lives.

2. Provides employees with a sense of control over, and commitment to, their work:

*   The organization does not operate in a paternalistic manner;

*   There is shared decision making at all levels in the organization, with employees directly involved with decisions that impact on their work;

*   Employees are provided with the appropriate level of accountability and skills, and are involved in negotiating their goals and targets.

3. Treats employees as the organization's most valuable asset:

*   The organization is considered an employer of choice, and the staff are proud that they belong to the organization;

*   A working environment has been created in which staff are involved in meaningful, challenging work and enjoy high levels of job satisfaction;

*   Human factors are taken into consideration in managing all aspects of the business including:

    (a) establishing policies and procedures and determining appropriate demands for individuals;

    (b) setting profitability targets;

    (c) making decisions on hiring and firing.

- The organization is effective at attracting and retaining quality staff, and is seen to have an appropriate level of staff turnover.

4. Fosters open and informed communication:

- There is a high level of trust, transparency and honesty in the workplace;

- The staff feel valued, they are informed and feel they are an integral part of the success of the organization, not just another cost;

- This type of work setting:

   (a) supports risk-taking which is critical for creativity and innovation;

   (b) encourages healthy debate; and

   (c) effectively deals with problems and differences in an overt and constructive manner.

5. Acts with a view to be recognized as a socially accountable and responsible enterprise.

This implies, in addition to satisfying legal obligations according to national law and practice, investments in human capital, paying attention to effects of enterprise activities on external environment and to sustaining good working relationships with the workers and their representatives, and with clients and customers and other stakeholders.

The Occupational Health Professional implementing Good Practice Guidelines provides support and counselling to enterprises seeking such assistance, with a view to achieving a Healthy Work Organization, an organization valuing human capital.

3.3 Workplace surveillance

3.3.1 Risk assessment/exposure monitoring/risk management

Risk assessment is the process of identification and evaluation of risks to the workers health and safety, arising from hazards at the workplace. The risk assessment provides the basis for planning and

organization of the work, and measures to ensure safe and healthy performance. The purpose is to enable the employer to undertake actions for prevention, elimination or reduction of the risks or applying control measures where necessary.

The practice of risk assessment is in conformity with the national legislation which in many European countries implements EC rules laid down in Council Directive 89/391/EEC.

3.3.1.1 Assessment of safety and health conditions at workplace

- Assistance in planning and organization of all aspects of work, at all stages, to ensure working conditions which will not in the short or longer term impair the health and safety of the employees;

- Collaboration with the Internal Safety service, Safety Committee and participation of workers, to ensure that all aspects of health and safety at work are included in the workplace assessment and the solution of problems;

- Principal elements of the assessment – principles of prevention are implemented in advising how the work is to be planned and performed. All company documentation needed for the risk assessment is collected, workplace and individual employee files are kept. Workplace assessment is performed in a systematic and expedient way also with regard to the environment. Appropriate instructions to the workers and their education are included; and

- Necessary training and expert assistance when needed are ensured.

3.3.1 Risk communication

The recognition of risk, its source and its potential impact, as well as strategies for reducing risks, are required core competencies for specialist occupational health practitioners. Risk management is fundamental to occupational health practice, focusing on individual safety, threats to health and risks to society. The perception and evaluation of risk differs between experts, workers and the public. The expert evaluates risk scientifically, the non-expert intuitively. The non-expert perceives the risk of a large man made explosion to be a

greater risk than a natural occurrence such as an earthquake or a volcanic eruption, and voluntary risk i.e. not wearing protective clothing or smoking cigarettes to be of lesser risk. If risk communication is to be effective, a clear understanding of the factors that influence the perception of risk is essential.

Given comparable objective risk, the public tends to overestimate risk if:

1. the effect is larger, especially catastrophic, although its probability may be extremely low;

2. the exposure to risk is involuntary: Voluntary risks tend to be underestimated, e.g. smoking;

3. the risks and effects are less known to the people involved;

4. the risk is more difficult for sensory perception;

5. personal control is less;

6. the effects are long-term (vs. short-term);

7. the risk is man-made (vs. natural);

8. there have been previous accidents, especially when victims have a known identity;

9. experts are not consistent in their opinions;

10. there is less confidence in the people responsible for control;

11. last, but not least: when there is more media attention.

All these factors can, and will, influence risk perception. It is of major importance to know them when communicating on risk.

Any professional involved in instruction and teaching, including risk communication, has to take into account nine recommendations:

1. Know your target group(s). What does the workers already know? What is already being done about instruction? What are they worrying about?

2. Know your goal: what things have to change?

3. Know the expectations of your target group.

4. Be trustworthy.

5.   Your message should be unequivocal.

6.   The communication should be timely.

7.   The communication should be open and transparent.

8.   The communication should be consistent.

9.   Keep the initiative yourself.

These nine principles appear to increase the chance for effectiveness in communication. They can be applied as a checklist for developing teaching programmes for workers and managers. More and more, occupational health services and training institutes involve behavioural scientists (educational experts, psychologists) in the development of instruction methods and materials.

Whilst there are different situations in different countries, the hazards and risks that workers and the public are exposed to are changing. In the developed world, risks from physical and chemical hazards are declining, and new technology and changing work patterns are introducing new hazards and risks. For example, the emerging risks associated with an ageing workforce, home working, and working in call centres, requires expert and different communication skills to that of factories and chemical industries. There are increasing productivity demands, more individual responsibility, and possible conflicts with safety requirements. Stress related to physical hazards can develop as a result of anxiety about being harmed. Stress related to psychological and social factors can develop through psychosocial hazards such as job design, organization and management of work, workload and individual control. In every situation, the principles of risk management apply, namely, the identification, analysis, evaluation, elimination and implementation of control measures, and systematic monitoring and review.

The increasing pressure on managers and workers to meet targets and goals can lead to bullying. Harassment and discrimination can occur in any workplace, causing stress and ill health. Understanding individual perception and communicating this perception is a vital part of managing this risk. Clear policies for identifying, reporting and managing bullying, harassment and discrimination in the workplace are essential. Occupational health specialists often gain the first indication of the risks. They should be part of the organization policy

development and strategy groups, and communicate the risk to the individual, the team and the organization.

It is important to involve the workers in all aspects of risk communication, and to consider the risks from their perspective. The expert must be clear and open, and give as much information as possible. Communication must be at all levels of the organization, and include the workers, as well as the supervisors, the workers' representatives and managers. Effective communication helps to close the gap between perceived and actual risk and supports the development of safe practice. Participation in policy formation and strategic planning groups allows for the occupational health point of view to be included.

Risk communication should be a consistent process that involves the whole organization. It is a determinant of quality and clinical governance, and provides a foundation for effective management.

3.4   Health surveillance

Workers' health surveillance is an essential task in preventive occupational health care. Workers' health surveillance should be linked to the surveillance of occupational hazards present at the workplace, and should be appropriate to the specific risk in the individual enterprise. Particular programmes must clearly demonstrate need, relevance, scientific validity, reliability, effectiveness and efficiency, in order to be acceptable for management and workforce.

Since health surveillance will be handled by occupational health services (OHS) professional expertise, independence and impartiality as well as workers' privacy and confidentiality of individual health information must be ensured.

Health surveillance programmes should lead to preventive action. This means that collection, analysis and communication of information on workers' health should have, in general, effects on workplace and working conditions, as well as on workers' health and livelihood (work, job security/income).

A comprehensive health surveillance system should:

- Include individual and collective health assessments, occupational injury recording and notification, sentinel event notification, surveys, investigations and inspections;

- should describe the health status of working populations and socio-economic groups, by estimating the occurrence of occupational injuries and diseases and work-related ill health (frequency, severity, trends in mortality and morbidity, work-related health complaints, and working conditions as experienced by the workers);

- should stimulate epidemiological studies to explain the causes of negative work-related health effects, by identifying the causative physical, behavioral, organizational, psychological and occupational exposure factors;

- should predict the occurrence of work-related adverse health effects and have early warning capabilities;

- prepare action-oriented research and intervention studies, to eliminate causal factors through prevention;

- assess the effectiveness of previously implemented control measures; and

- provide guidance on company occupational health and safety policies and programmes, including the financing of their implementation.

Medical examinations are the most commonly used means of health assessment of individual workers. In most European countries these examinations are carried out on employees prior to employment, if the job entails health hazards, or if it involves special health requirements. These examinations are usually carried out:

- when an employee starts such work;

- when work task or conditions change essentially;

- after periods of illness affecting the employee's work ability; and

- when placing at work an employee with deficient work capacity.

Most European countries have legal regulations on the provision of such health examinations, and all do, where workers are exposed to specific hazardous substances or physical agents work otherwise involving special risk. Usually there also is detailed regulation on follow-up examinations. Often there is guidance provided on how to conduct the examinations. The methods used should be scientifically validated, correctly used, and their results should be correctly interpreted. If evidence-based methods are not available, the procedures employed should reflect at least the state-of-the-art. The periodicity of these examinations should depend on the type and the level of the health risk assessed, and the probability of adverse health effects occurring. European countries differ considerably in the organization and contents of health surveillance. There is a need for European guidelines defining the best approach to health surveillance, depending from the health risks at the workplace (Council of Europe 2002, ILO 1998). The Framework Directive (European Communities 1989, Article 14) also provides a good basis for such guidelines.

Pre-employment health examinations should aim at:

- assessment of employee's health as basis for follow-up;

- recognition of diseases affecting work ability, when the work imposes special requirements on health;

- adjusting the work environment according to the special requirements of the employee, as far as possible; and

- excluding especially susceptible employees from work that is hazardous to their health, if appropriate measures for protection are not available.

However, selection for reasons of health must be based on clear scientific evidence and approved criteria. Since a person's pre-employment health condition may safely be regarded as a poor indicator of later illnesses or early retirement, a trial period should be considered.

While the primary goal of **periodic health examinations** may be the prevention of work-related diseases, and thus the prevention of personal unhappiness and of cost for enterprise or society, these examinations should also be employed for the promotion of health and work ability (advise on safe behavior at work; advice on lifestyle

choices and health-promoting habits; introduction to workplace health promotion activities of the enterprise, if available; early detection of changes in health and work ability and referral for treatment or rehabilitation). It should be stressed that these interventions may only be carried out with the informed consent of the worker himself.

The participation of employees in health examinations in general is voluntary. However, if the work entails a special risk of illness, which has legal significance regarding the employer's responsibility (third-party-risk), or – even more important – if the work demands are extraordinarily heavy, the employer is bound to insist on participation in health examinations. The employee's refusal to participate, consequently, will preclude his employment at the specific workplace.

Examination results will be transmitted to the individual employee. General information on the health status of employees must be provided to the employer in an appropriate manner for prevention, protection and promotion purposes, as usually is specified in national regulation. In general, the employer should be informed only in terms of fitness for work or particular restrictions of working capacities.

All results from workers' health examinations are to be documented and kept confidential in personal health files. Personal health files and medical records must be kept secure under the responsibility of the OHS for a length of time that usually is prescribed by national regulation.

Occupational health professionals of the OHS should establish connections with appropriate partners inside and outside the company and also the OHS in order to ensure the necessary flow of information and to be able to provide comprehensive health care (prevention, rehabilitation, treatment, compensation). They also should establish links between the workers' health surveillance targeted at specific hazards, specific diseases in particular groups of workers, workplace health promotion programmes, environmental health programmes and research in occupational health.

New findings on occupational health issues emerging from workers' health surveillance should be reported to the scientific community and to all stakeholders, when appropriate. Where possible (e.g. by means of standard examination methods for large groups of employees

within the same branch of industry), workers' health data should be pooled and analysed in a way that population health changes can be traced in an early stage. This pooling requires the cooperation of OHS services and professionals on a regional or even national level.

3.5   Counselling

The occupational health professionals can provide support throughout the employment pathway, using counselling and reflective listening skills. This requires appropriate training. The occupational health team, because of their unique knowledge of the individual worker, the type of work and the organization, is able to identify where intervention might be of benefit. Their position of trust provides a point of contact for the individual who has personal problems that may affect their ability to work effectively. Their specialist knowledge of the potential hazards and risks within the workplace enables them to assess, and give advice in, situations such as:

- Exposure to blood and bodily fluids;

- Health surveillance;

- Bullying and harassment;

- Violence and aggression;

- Sickness and absence assessment;

- Workplace stress;

- Drug and alcohol abuse.

Their ability to work within all levels of the organization, and their ability to form working partnerships with other professionals, allows the specialist occupational health team to coordinate multidisciplinary support for individuals or for organizational groups. Access to external expert opinion, and where appropriate, referral to treatment or support agencies may be necessary. In such instances, the occupational health specialist acts as an essential communication conduit between the organization and the treating specialist. However, the prime responsibility for advising about fitness for work should be retained.

3.6 Workplace health promotion

Health promotion, as a new dimension of health strategy, is a key issue of the WHO Health for All Policy, and it reached conceptual maturity in the 1986 Ottawa Charter for Health Promotion. It is defined in the Charter as the process of enabling people to increase control over, and to improve, their health. Since in the past mostly health educators used the term health promotion, quite often this term was erroneously restricted only to activities aimed at promoting healthy lifestyles. That was the reason why health promotion was sometimes used as an excuse to shift responsibility for protection of worker's health at the workplace from the employer to the worker. In fact health promotion has a much broader scope. The Ottawa Charter calls for putting health on the agenda of policy makers in all sectors and at all levels, for adopting a socio-ecological approach to health, for empowering communities, also working communities, to control their own endeavours and destinies, to enable people to learn throughout life, to reorient health care services to open channels between the health sector and broader social, political, economic and physical environmental components of healthier life. Health, in that strategy, is seen as a resource for every day life, not the objective of living.

For the successful development of workplace health promotion management, it is important:

- to recognize the central role of the empowerment of employees, in terms of competency, level of autonomy, and sense of coherence;

- to ensure an appropriate balance between the processes of effectiveness increasing and the capacities of the workforce;

- to include a comprehensive understanding of health in company policies and in all procedures involved in a continuous improvement process;

- to identify factors contributing to development of health;

- to facilitate and strengthen impact of such factors conducive to health of all staff;

- to ensure the establishment of an enterprise-wide participatory infrastructure; and

- to enable all levels of employees to share their interests and expertise with the key players.

An essential quality of health promotion is the direct involvement of people in maintaining or improving their own health. The assessment of health promotion needs in an enterprise, and the evaluation of work towards meeting them, are the essential components of health promotion management.

- a successful organization adopts strategies for health promotion;

- a conscious organization identifies and prevents ill health; and

- a reactive organization identifies and rectifies manifest ill health by means of curative care and rehabilitation.

The conceptual and strategic basis of the Ottawa Charter for Health Promotion was adapted to European conditions by the Luxembourg Declaration of European Network for Workplace Health Promotion, a network initiated and supported by the European Commission. A cornerstone of the European Community's public health action in this field is the setting-based approach to health promotion at the workplace. As defined in the Luxembourg Declaration, Workplace Health Promotion (November 1997) is the combined effort of employers, employees and society to improve the health and wellbeing of people at work. This can be achieved through a combination of:

- improving the work organization and the working environment;

- promoting active participation of employees in health activities; and

- encouraging personal development.

Workplace health promotion is seen in the Luxembourg Declaration as a modern corporate strategy that aims at preventing ill health at work (including work-related diseases, accidents, injuries, occupational diseases, and stress) and enhancing health promoting potential and wellbeing in the workforce. Expected benefits for workplace health programmes include decreased absenteeism, reduced cardiovascular risk, reduced health care claims, decreased turnover, decreased musculo-skeletal injuries, increased productivity, increased organizational effectiveness and the potential of a return on

investment. However, these improvements do not have to be long lasting, and require continuous involvement of employees, employers and society.

How to make operational health promotion at work may be exemplified by the outline of healthy workplace criteria published in 1998 by National Quality Institute and Health Canada:

1.   Leadership
For healthy workplace system to be successful, it must be viewed as a line management task supported through either direct involvement by senior management (notably in small and medium sized enterprises), or through directives from senior management (in case of a large organization). Acknowledgement of the value of people within organization is referenced within the vision and/or mission statement of the enterprise.

2.   Planning
A formal assessment should be done to evaluate employee needs, attitude and preferences in regard to healthy workplace programmes. The key elements of the healthy workplace plan are: the physical environment, health practices, social environment and personal resources, financial resources.

3.   People focus
The enterprise/organization has methods in place that make it easy for people to provide ongoing input on healthy workplace and organizational issue, and seek assistance. The enterprise's healthy workplace programme is aligned with the human resources development strategy.

4.   Process management
Efforts are undertaken to examine how processes that have a direct impact on a healthy workplace are controlled and improved, notably those key processes that are critical to sustaining actions and a strong focus on employee wellbeing across the organization.

5.   Outcomes
Data and trends in overall accomplishments in meeting the established targets in regard to employee health and well being in the workplace are discussed (e.g. employee turnover, accidents rate, absenteeism,

reintegration of people back into workforce from illness or injury, utilization of the organization's healthy lifestyle programme, skill development, implementation of employee suggestions). Data and trends that indicate employee participation and behavioural changes as result of involvement in a healthy workplace programme are analysed and discussed.

Combining health promotion with occupational health and safety activities may be more effective in maintaining and improving the working capacity of employees, and in reducing the rate of sickness absenteeism or premature permanent work disability, than only protecting the health and safety of employees from traditional occupational risks.

3.7   Work ability and rehabilitation

Work ability can be defined as a person's capacity to do the work tasks he is required to do. Personal resources such as health and competence, as well as factors related to work community, work environment, and organization and management of work determine how a person is coping at work. Thus, work ability cannot be maintained only by targeting actions to a person, all aspects of work ability have to be maintained simultaneously. Consequently, the vision, values, strategies and key processes of an organization become important. Work ability issues should be an integral part of a good person, team and organizational leadership practice. Promotion, follow-up and assessment of work ability can be developed and evaluated as any process of an organization using, for example, quality principles and standards.

Promotion of work ability is composed of: 1) actions directed to maintain and improve employees' physical and mental health and social wellbeing; 2) actions directed to competence building, better control of work, encouragement and motivation; and 3) actions directed to developing work environment, work processes and work community that are safe and healthy.

The occupational health service has a role and function in all of the three areas of action mentioned above. However, it is necessary to notice that the employer has the responsibility for the actions at the

workplace, and without employees' full participation, any action in maintenance of work ability is not likely to be successful. The occupational health service can motivate, activate and support work ability activities at workplace, it can promote, follow and assess work ability and health at individual, team and organizational levels, it can participate in design, assessment and development of safe and healthy work environment and processes, and it can follow and report development in health, safety and wellbeing to the management. An example of a useful tool is the work ability index (WAI) developed in Finland, and already translated into 15 languages.

Occupational health services are in have excellent position for making individual assessment of work ability, in that they have access to both medical and workplace data. The reasons for assessment of work ability can be many, such as the need to avoid diseases becoming chronic, return to work after sick leave, or assessment for social benefits. Yellow and red flag-type of early warning signs could be used to select persons with current or possible future reduction of work ability for assessment in occupational health service. "Flags" can be, for example, a reduction in WAI, accumulation of sickness days, certain medical conditions or physically or mentally demanding work tasks. Networking with social insurance, work pension funds, rehabilitation institutes, and employment service can be used to plan and manage medical and vocational rehabilitation. Even when work ability is greatly compromised, the remaining personal capacities can help to reinstall a person back to work. Close liaison with person's workplace is necessary. Three basic situations are faced in work ability assessments:

1. is it possible to continue in the same work with modifications and extra support?

2. is there a need to start medical or vocational rehabilitation?

3. is a person unable to work considering his medical condition, remaining work ability, age, educational background, social circumstances and possibilities for employment in his living area, i.e. are the requirements for pension fulfilled?

3.8   First Aid/Accident management

A first aid and accident management programme should demonstrate evidence of an effective policy, statement of responsibilities and procedures, adequate training, provision of personnel, communication with employees, and evidence of effectiveness.

An employer must inform his employees about first-aid arrangements, including the location of equipment, facilities and identification of trained personnel. New employee induction training, and when commencing work in a new area are necessary times to do this. This is normally done by describing the arrangements in the safety policy statement, and the displaying of at least one notice giving details of the location of the facilities and trained personnel. Training, documentation, equipment and first aid supplies should be up-to-date.

The employer must ensure that adequate numbers of trained personnel are provided to administer first-aid. These have received training and acquired qualifications approved by the national systems, and any additional training which might be appropriate under the circumstances, such as in relation to any special hazards. All relevant factors have to be taken into account when deciding how many "suitable persons" will be needed. These include:

- **Situations where access to treatment is difficult**. First-aiders would be required where work activities are a long distance from accident and emergency facilities.

- **Sharing first-aiders.** Arrangements can be made to share the expertise of personnel. Usually, as on a multi-contractor site, one contractor supplies the personnel.

- **Employees regularly working away from the employer's premises**.

- **The numbers of the employees**, including fluctuations caused by shift patterns. The more employees there are, the higher the probability of injury.

- **Cover for first-aiders** through illness or annual leave, by other first-aiders, or at least someone capable of taking charge of a situation, and calling for an ambulance when needed.

Working at a great distance from medical services, or in inaccessible workplaces (such as in mines) requires special arrangements to be made for transporting patients to hospital, or for bringing medical assistance to the workplace. Training in, and documentation, of these procedures is also essential.

Organizations or operations with potential major hazards should have a documented management plan in place, and personnel trained in their responsibilities.

Incidents and accidents should be reviewed, to check whether procedures and provisions are satisfactory, and the effectiveness of the whole system should be reviewed from time to time.

3.9   Occupational Health and Primary Health

Recent studies indicate that even 25% of diseases can be work-related. The relation can be strong, for example when an isocyanate causes occupational asthma or weak or spurious, when blood pressure is increased by work stress. Although these two conditions have different medico-legal connotations, both require individual corrective actions and actions at work and other social factors. Curative care in OH service differs from common practice by considering how the patient's symptoms are related to his work and what are the underlining processes behind the symptoms. An OH unit is in an excellent position to do this, because of its know-how about the effects of work, working conditions and work community on patient's condition.

Multidisciplinarity is another strong argument for organizing curative service in OH. Good results have been achieved by, for example, combining the expertise of occupational health physician and physiotherapist in the management of musculo-skeletal disorders. Evidence from the scientific literature and best practice guidelines should be used to guide the management of medical conditions. By using, for example, flow charts, identifying the key actors and the content and ways of transmitting information between the actors and other stakeholders the internal and external service processes can be made explicit and easier to evaluate.

In occupational health services, corrective actions are directed not only to individual but also to his work and work community. These actions can be, for example, reduction of exposure, ergonomic adjustments or reduction of stress and tensions in the work community. The aim is to restore person's work ability as quickly and effectively as possible. This demands active collaboration with the workplace, and networking with other health and social service providers. Creation of uninterrupted service chains and networks is the key for effective management of occupational and work-related diseases, in particular when a patient's work ability is threatened.

The question of curative activities' share in OHS depends on each country's tradition, legislation, organization of Labour Inspection and health care services, and the aims of OHS. Curative care may draw the attention from prevention and mislead OHS towards less important goals, but it can be very good and an essential part of OHS, related to its main aim. Recent Finnish research indicates that OHS with curative care achieved more prevention than without.

Some possibilities for evaluation of curative care in OHS:

Health care needs evaluation:

- individual needs (often specific and related to health and wellbeing);
- needs of a company (often more general and related to reduction of personnel risks);
- Are the needs and objectives clearly identified and recorded? (association with work).

Inputs evaluation:

- types and qualification of OHS personnel required;
- number of personnel;
- equipment;
- facilities;
- funds available;
- Are the inputs adequate to achieve the set objectives?

Process evaluation:

- internal audits;

- external audits;

- customer satisfaction;

- Are the tasks and processes relevant to achieve the objectives?

- Is the performance of service efficient?

Output evaluation:

- Statistics (distribution of diagnoses, percent of work-related symptoms and disorders, absenteeism, type of rehabilitation, type and number of advice to patient, type and number of recommendations to work place).

Effectiveness evaluation:

- changes in personal health parameters;

- changes in work, working conditions and work community towards better health and safety.

4. Management of Occupational Health Services (OHS)

4.1 Planning and management of OHS

An effective OHS needs good planning of time, resources, contents and activities of the service. Management of OHS is a process in which each of the above components is continuously and interactively balanced with the needs and priorities of a client or several clients. A formal expression of this process is the **OHS plan**. The plan should be based on appropriate analysis and prioritization of both immediate and long-term health risks and needs of the personnel and company. Risk assessment means considering the probability of risks and severity of consequences. This is best done in a dialogue between OHS experts and the work place. Some sort of prioritization is always needed, and entails cost-benefit and cost-effectiveness calculations. It is a process in which also attitudes and values are important. When the health of human beings is at stake, cost-effectiveness cannot be the only basis

for prioritization of actions. Some actions may be necessary regardless of the costs involved. National and international laws and standards can help in decision-making. Data from scientific literature and good practice guidelines should be used when available. The actions should be evidence-based, generally acceptable by the scientific community and experts in the field, and possible to implement with the resources available.

The plan is a written statement of needs, targets, actions, timetable and responsible persons. Integrating OHS plan in the management of a company is essential. An indication of successful integration is that the plan has been communicated to and discussed with the company staff, approved by the management, and that adequate economic and human resources have been allocated for its realization. Because OHS plan is such an important document, enough time should be reserved to make it realistic and functional. The plan needs to be reviewed regularly. Internal or external audits can be used. It is often sensible to make the plan e.g. for three years and review it yearly, and also when marked changes happen in the work, work environment or work community. Realistic midterm targets and mutually agreed indicators of meeting the targets help in follow-up, increase motivation, and allow redirection of actions.

When organizing the work of an OHS unit it is important to recognize the core services. Law often sets the role, tasks and responsibilities of the OH personnel. However, they are always influenced by the customer-service provider relations and activity at hand. For example, the role of an OHS provider can be in one situation a consultant, in another an auditor or a health and safety educator. If certain activity falls outside the competence of identified core services, it is better to collaborate with other specialists or service providers. Partnership arrangements allow to tailor a complete service package for a client. Service process can be evaluated by looking at how well it satisfies the needs of a client and objectives set together with a client. It is also important to evaluate how well the process itself functions. It is useful to ask, for example, "Are the tasks and responsibilities clear?" "Is the time management effective?" "Is communication open?" "Are records kept?" and "Are there gaps in competence of the personnel?" It can be useful to draw a flow chart and try to identify the knot points, in which a client is met, the type of information needed then, and what information is transferred of that meeting to other actors inside and

outside the service system, and in what form (letter/fax, e-mail, telephone etc.). The aim is to build up an uninterrupted service chain.

Some possibilities for evaluation of planning and management of OHS:

The evaluation of OHS planning and management should follow all stages listed below. Some specific indicators are given in chapter 5.

Needs evaluation:

- Are the hazards identified and risk assessed?

- Are the occupational health protection and promotion needs identified?

- Is there a written OH service plan?

- Is it approved by the employer and employees?

- Are the targets right?

Input evaluation:

- Own resources (time, money, facilities, equipment, etc.);

- Core services (preventive, health promotion, curative);

- Other resources required.

Process evaluation

- Does the OH service fulfil the law and regulations?

- Is the OH service input integrated in the every day management process of a company?

- Action planning:

  - Who does what and when?

  - Effective time management;

  - Personal planner: week-month-year

  - Deadlines.

Output evaluation

- OH service plan existing and updated;

- Companies in service;

- Number of workplace visits.

Effectiveness evaluation

- Percent of targeted persons benefiting of an intervention (e.g. percent of workers eligible for rehabilitation completed it);

- Percent of targets met during a planning period (e.g. 20% reduction in work absenteeism or, reduction of exposure at work due to improvements made at workplace);

- Client satisfaction.

4.2   Ethics

Introduction

An essential cornerstone in good occupational health practice is professional ethical awareness and conduct in relation to customers, consumers, occupational health professional colleagues and other stakeholders in providing services and in relation to professional responsibilities and work tasks.

The ethical awareness and the implementation of the principles of professional ethical conduct of occupational health professionals are to a significant extent determined by the cultural and societal sets of value in the setting and the context in which OHS are carrying out their work. It is an indicator of Good Practice and Good Quality of the organization providing occupational health services to have written ethical principles for the ethical standards which apply for all staff in providing services to customers/clients.

Professional guidance and guidelines on ethics in occupational health are available in many countries. The International Commission on Occupational Health (ICOH) has published a Code of Ethics for Occupational Health Professionals in 1992 which has been revised in 2002.

It is a fundamental consideration that ethical standards are an integral part of professional standards in health care providing organizations. It follows from this that employers, employees and others who make use

of OHS have a right to expect high standards and a right to know what these standards are:

Examples of matters leading to ethical considerations are:

- Confidentiality of health information. Managers have no right to be given any health information, which is of confidential nature about employees. Employers have a right to know whether persons in their employment are fit for the work tasks for which they are employed;

- The necessity of securing the informed consent of the subject before the release to others of any individual health information of confidential nature in possession of occupational health professionals. Such information on individual client staff members is to be strictly and effectively protected;

- The extent and scope of the occupational health professionals' duty of care towards the employer, the individual employee, towards groups of employees served or towards the public may entail multiple loyalties;

- Conflicts of interest may arise over safeguarding the rights of the individual employee and those of the employers, other employers and the general public;

- The need for care in the handling, safeguarding and transfer of occupational health records to avoid confidential information being disclosed to unauthorized persons or organizations.

Some points to keep in mind:

- Occupational health professionals honour agreements and contracts made with customers, clients or other partners giving attention to cost-effectiveness of services provided;

- Occupational health professionals act on the basis of best available documented scientific evidence and recognized professional experience;

- Occupational health professionals operate within their professional competence and do not offer judgements on issues outside their professional command;

- Occupational health professionals are committed to continuing competence development and to seek to achieve best recognized standard of quality in organizing and carrying out their tasks;

- Occupational health professionals regard all information on clients' production, organization and documentation of working conditions as confidential material unless being otherwise authorized or unless material is publicly available;

- Occupational health professionals recognize the ethical requirements of other professional groups with particular attention to those of other health professionals;

- Occupational health professionals recognize the need to safeguard their professional independence in relations with customers, clients and other stakeholders and take appropriate steps to achieve this, as need arises, for instance by inclusion of a clause of ethics in service or employment contracts.

The quality and ethics in good practice of occupational health professionals, acting as individual professionals, or as a professional organization, is assessed on the basis of documentation and implementation of the principles referred to above. OHS service organizations may, for instance adopt nationally recognized codes or guidance documents for one or more professional organizations in the occupational health field. In the absence of such documents, the ICOH International Code of Ethics may be considered or the equivalent guidance documents of other countries.

4.3 Education and training of OHS personnel

In the daily practice of occupational health services (OHSs), different professionals participate in the activities (collection of information, internal processes, and output to clients and customers). To be able to offer a comprehensive package of preventive services to their customers, OHSs need people with a large variety of professional skills. Nowadays there is general agreement that a fully equipped OHS employs not only physicians and nurses, but also engineers, hygienists, psychologists, ergonomists and personnel for administrative and managerial support. All these professionals should cooperate, or even – in the ideal case – constitute an occupational

health team, caring for one customer organization, to comply with its particular occupational health needs and demands.

All OHS professionals should have sufficient knowledge and skills and an appropriate attitude to perform the tasks belonging to their own profession and necessary for the customers they are working for. In summary, they should be competent for their particular job. Although the needed professional competencies may differ from country to country and are also dependent from the customer's profile (branch of industry, health risks, the organization's health policy etc.), some general statements about these competencies can be made.

OHSs should also provide a good environment for continuous professional development. Each professional has the duty to keep his competencies on an appropriate level during their professional life. It is the task of the OHS to provide them with the opportunity for postgraduate courses, visit of congresses or participation in scientific or other relevant meetings. In commercially managed OHSs, especially when these are operating in a competitive market, the willingness to contribute to continuous professional development of professionals can be endangered, because of the high expenses and the periods of time the professional is absent from his work for educational purposes.

The professional should have access to an up-to-date library with the most important professional handbooks and scientific journals and Internet connection. Moreover, the professional should be given enough time for reflection about the problems they meet in their work. Sessions dealing with current practical problems can be very useful, provided these sessions are managed very strictly. Professional competencies need to be assessed from time to time. In most cases, professionals can carry out a form of collective self-assessment in so-called intercollegial testing sessions, or "mutual peer audits". In these sessions, they can also agree about the most desirable approach of their OHS for a given problem, taking into account the available national and international professional guidelines. In some European countries continuous professional development is stimulated by a system of professional certification as well as certification of the OHS units.

A good OHS is a teaching as well as a learning OHS. Criteria for this particular OHS quality should be formulated and added to the certification criteria of OHSs, in countries where there exists such a system, or where the introduction of OHS certification is considered. Education and training of the own professionals is not an arbitrary policy choice of an OHS. It is a critical condition for good quality of services. Many OHS acknowledge the importance of education and training, and make annual budget reservations for this purpose.

Education and training of professionals are key activities for OHSs. Perhaps this is the most promising strategy for maintenance and improvement of professional quality.

4.4 Competencies

Effectiveness of occupational health services depends on a number of factors. In addition, it may be assessed from several standpoints. In many countries the views of customers and clients are now considered to be important, as well as those of the professionals providing services. We must consider, also, the effectiveness of occupational health services in meeting national health agendas.

Occupational health services operate at the interface between the health care sector and the management of organizations, or enterprises. This means that the assessment of competencies within a service must focus on both clinical and non-clinical performance. Being competent means being capable of performing required tasks. Any quality assurance system for an occupational health service must ensure that the staff has the requisite knowledge, skills and experience, both individually and collectively, to carry out their tasks competently and consistently. In a continually changing world, it is necessary to review competencies on a regular basis, to ensure that they are relevant to, and sufficient for, the activities of the service.

Historically, professional competencies have been determined by academic standard-setting organizations, in relative isolation from the customers of services. The ethos has been that the professionals know best. This is no longer tenable. Competencies must be determined such that occupational health professionals can meet the challenges of the twenty-first century. The demands of cost–, as well as clinical–,

effectiveness will encourage multidisciplinary team working and the development of evidence-based practice. It is also relevant that occupational health activities vary greatly between enterprises and nations. The concept of an "average" occupational health service is not helpful and benchmarking is realistic only between services within the same industry and, probably, the same nation. The objectives of services may be concerned with protecting and promoting the health and work ability of individual workers or working populations, assisting enterprises in meeting legal obligations and/or quality measures, or promoting the health of communities by reducing work-related ill health and tackling lifestyle issues relevant to a workplace context. Outputs from occupational health services may vary, therefore, and a review of service level agreements could be a good starting point for determining the optimal structures and processes for the delivery of services.

The assessment of the competence of a service may be made by comparing structures, processes and outcomes with agreed standards. These may specify numbers of staff with relevant qualifications, numbers of staff for a set number of workers, types of activity, need for ethical practice, response times, outcome measures, and so on. Whilst this "counting" approach is attractive as it is relatively easy to do, it is crude and may not provide a reliable assessment of the performance of the service. Aspects of service, such as customer care, communication, multidisciplinary team working, quality of advice and consistency of performance, are more difficult to measure accurately and reliably. They may, however, be much more relevant to an assessment of the effectiveness of the service.

Check list for assessing competencies

- Being competent means being capable of performing the required task. Ensure that there is an explicit understanding of what the occupational health service is and the occupational health professionals in the service are, required to do.

- Occupational health services should be multidisciplinary. The various OHS professionals must possess evidence that they have the necessary knowledge, skills and experience for the job they are employed to do. Information may be obtained from national or international academic institutions.

- There is a duty on all OHS professionals to participate in continuous professional development. There should be evidence that this duty is being discharged appropriately.

- The competence of an OHS is determined by both quantitative and qualitative factors. Whilst quantitative measures are easier to collate, they may give a misleading impression of the effectiveness of the service, if evaluated in isolation from qualitative measures, such as effectiveness of communication, team working and customer care.

4.5   Multidisciplinary team working in occupational health

Occupational Health specialist teams and the service that they provide differ throughout the world. The principles to which they work are comparable. Throughout the employment pathway diverse skills and competencies are required to meet the expectations of employing organizations, employees, their representatives and occupational health professionals.

The optimum multidisciplinary team in occupational health is a group of specialists whose expertise is directed towards improving the health and wellbeing of the working population and the community at large. Using science, practical skills, ergonomics, health, safety and risk management, as well as clinical and academic skills, the aim is to improve the health and safety of the individual in relation to their work and working environment, advise the employer and to address public and environmental health issues.

Today's approach to workplace health management requires close co-operation and collaboration between all of the experts. The collaborative team may include specialist nurses and physicians, engineers, hygienists, ergonomists, scientists, psychologists, sociologists and health, safety and risk managers and experts in rehabilitation. This team might also collaborate with chemists, toxicologists and public health experts, and promote cooperation between relevant interest groups and sectors, in the formulation and implementation of strategies.

The shared aims and objectives require that the team understand the core values of all of the members and respect the skills and

competencies that each member brings. Consideration should be given to addressing issues such as confidentiality, impartiality and professional ethics. Working within such a team can be mutually beneficial as teams make better use of individual expertise, and act as a stimulus for service and individual development.

The strength of the multidisciplinary occupational health team lies in its flexibility and its ability to work in partnership with other experts, using technology to facilitate networking, share experience and to solve common problems. The partnership itself can be adaptable, the core team accessing expertise either from within the organization or from external consultancies. There is a need for openness, for sharing and for understanding the contribution that each can bring to the common goal.

The benefit for the working population and for the public health lies in the combination of skills directed toward improving workability and promoting health.

4.6   Financing of OHS

The way OHS have been organized and financed reflects the interests of the government and social partners on work safety and health. OHS can be financed by the government, enterprises, trade unions, insurance systems, social security funds, or a combination of these. Usually some governmental control and economic incentives are used to direct the extent and content of services.

Small companies especially regard OHS as an extra cost. This may be true if work safety and health is seen narrowly, mainly curative services are offered, and only direct costs of OHS are counted in. The broader view maintains that good work environment and work ability of the personnel are part of good production practice. The necessary inputs should be seen as part of production costs. Economic cost-benefit analyses have shown that OHS investments pay back quickly by improved productivity and profitability. The best results have been achieved in companies that have integrated occupational health and safety in the management and production, and OH service has had an active role in prevention and rehabilitation. Not all investments to safety and health are *per se* profitable. However, there are profound

moral reasons as well as legal requirements to take care of these issues in the companies.

It is essential that OHS are organized in a financially sustainable way. It requires vision and strategy, good planning, effective management and control of processes, continuous professional development of the staff, teamwork, networking, and good internal and external communication. Clients' needs, fulfilment of legal requirements, use of best available scientific and other information, and review of the effectiveness of actions should guide the work. Sound values and high ethical standards should be maintained. For example, the "Balanced Scorecard" method can be used to organize and evaluate OHS (Kaplan 1996).

The right price of service is important. It has to be such that the client is willing to pay it and that it is possible to produce the service profitably without compromising its quality. The constant and variable costs have to be in balance. It helps to make a division between the core services and services that are better to buy from other service providers. Because personnel costs are usually the largest part of costs of OH service, it is necessary to follow them carefully and keep the size of personnel optimal. Sometimes client segmentation and sectoral specialization can be used to rationalize service and lower costs. Today clients are demanding and want value for money. The better the cost structure of a service process is known, the better it is to control the costs and market services. The OH service contract (plan) with the client should always contain also a cost estimation.

4.7 Quality management/Continuous improvement

The management of quality is not different from other management topics in an organization. To maintain and improve the quality of services quality issues have to be given proper attention from the top of the organization to the bottom. Nowadays it is fashionable to outsource all those organizational activities that you cannot handle well. Wouldn't it be really handy to hire a quality agent who assures that the quality of your services is guaranteed? However it doesn't work that way. If you want to be effective in quality management everyone in the OHS has to monitor the quality of services constantly. Only when this is the case, tools for quality management can be

helpful such as a quality handbook or a quality manager. This is also envisaged by the term Total Quality Management: quality is not just a matter of a person or a guide but must be there always and for everyone.

Quality management can be voluntary or enforced by government. In some countries like the Netherlands, quality management in OHS is obligatory. If health service providing organizations fail to comply with quality management standards their certificate to function as an OHS will be withdrawn. This system has not yet been evaluated. Probably it only guarantees a basic quality standard and at the same time it creates a lot of bureaucracy.

One essential cornerstone of all quality management is the identification of objectives of the OHS service output and the key processes designated to be leading to the objectives. There are many ways of classifying objectives for quality activities. One way is to differentiate between objectives of:

- Organizational structure (distribution of work tasks and responsibilities, decision-making processes, information pathways, etc);

- Methods (routines, work instructions, methods and techniques of work, equipment);

- Personnel (health and wellbeing of staff, individual development, knowledge and competence development, human relationships and social cohesion, etc.);

- Service performance in terms of quantity, quality and efficiency.

Each of the broad categories objectives framed for the OHS as above may be further operationalized and detailed to provide a basis in conceiving the approaches and strategies adopted to achieve the specific objective. This, in turn, provides the framework for evaluating whether and in what regard the objectives are achieved with the activity under evaluation. The development of professional staff competencies is, for example, commonly pursued with collective or individual training programmes, sometimes supported with a mentoring system of senior experienced staff.

A preventive programme addressing workplace alcohol and drug abuse problems may be evaluated in monitoring observations or occurrence of such problems at the workplace, and the successes in rehabilitation of staff with such problems back to work. Objectives and strategies or key-processes may also be defined in redesigning workplace to achieve ergonomic improvements, in management of sickness absence among key staff or in workplace accident prevention

The recognition and framing of objectives is a fundamental pre-requisite for staff participation in quality work, in designation of an appropriate organization to deal with OH needs in client systems and in continuous improvement of professional OH practice.

The International Organization for Standardization (www.iso.ch) has published a series of guidelines on how to manage the quality of products (ISO 9001) and services and lately the quality of the environment. (ISO 14001). Some discussion has been going on to have an ISO standard for implementing occupational health in organizations as well, but it has not yet been realized. There is a wealth of literature about the system, which can easily be found on the Internet. Implementing an ISO 9000-like quality system is one of the basis requirements for quality management in OHS.

The basic features of all quality systems can best be illustrated by the Deming quality circle: ***plan, do, check, act***. It means that you have to plan your services, carry them out and subsequently check what you have been doing. If there have been any deviations from what has been planned you have to act to get it changed.

Although ingenuous in its simplicity, in practice it usually is more difficult to implement a quality management system. As can be inferred from the above, most of quality management is about processes, defining what and how you are doing and who is involved at what moment. A flow-chart is an instrument to give more insight in processes. It forces you to think about the way you have organized services and it makes it more transparent to all people involved. There are many helpful computer programmes to make flow-charts. Finally all processes can be compiled in a Quality Handbook, which can be updated regularly.

Now it is easy to see why quality management is a dynamic procedure. There must be continuous checking for deviations of the planned processes and approaches, in their relation to the objectives defined at outset, to keep the quality circle round. So, there must be some kind of measurement system to monitor the quality of services. The system must be able to report deviations from the planned quality. In OHS these output or performance indicators could be the number of workers turning up for health check ups falling below 80% of the number expected, or the number of workers on long term sick leave increasing beyond 10%. The next step is to find the causes of these problems. Sometimes it is hard to find causes of quality deviations, processes that went wrong. Instruments that can help to find such causes are fish-bone diagrams, in which you systematically go from problem to cause and subsequent causes until you have found the fundamental problem. Pareto charts that provide a graphical frequency distribution of the problems encountered form another instrument to help detecting problems. The famous Pareto rule holds that 80% of the process defects arises from only 20% of the process issues. From this frequency distribution it can be easily seen which problem should be fixed first.

These quality management tools can be used at internal quality audits, in customer audits and also in third-party evaluations such as auditing for quality certification. But also here it holds that a quality audit can't be some bureaucratic institution that is used to check quality every once and a while. Everyone involved in the problem should be involved in finding causes and in finding solutions continuously. This can be done in forming quality teams. Whenever problems are encountered quality teams have to be formed that analyse problems, formulate and implement solutions and check that they have the required results. Then the OHS will have a continuous quality improvement. But this requires that all players are on the same side of quality management.

Procedures for self-evaluation
In some countries an audit matrix has been proven to be a useful instrument for self-evaluation. The audit matrix is a tool to evaluate the quality of services that are delivered by your OHS. Basically, the audit matrix is a checklist that enables an OHS provider to check important aspects of their services. For these criteria are given to judge the quality of the services at different levels. The idea behind it

is that if your score is below the top level, the quality of services can be improved.

5. Evaluation of Occupational Health Services (OHS)

In chapters 3 and 4 we have already given some examples on how to evaluate. This chapter will give a more systematic approach to evaluation in OHS.

5.1 Definitions

Evaluation
Evaluation is attributing value to an intervention by gathering reliable and valid information about it in a systematic way, and by making comparisons, for the purposes of making more informed decisions or understanding causal mechanisms or general principles.

Quality assurance
Quality assurance (QA) is a general term for activities and systems for monitoring and improving quality. QA involves measuring and evaluating quality but also involves other activities to prevent poor quality and to ensure high quality.

Audit
Audit is an investigation into whether an activity meets explicit standards, as defined by an auditing document, for the purpose of checking and improving the activity audited. The auditing process can be carried by external auditors or internally for self-review, and the knowledge process is specific to the service and cannot be generalized. The standards can be external and already made, or can be developed by the service providers for self-audit – in clinical research ideally using scientific research.

Quality – three dimensions of health service quality

Client – patient quality concerns the ability to provide a service giving clients/patients what they want.

Professional quality – Professionals views of whether the service meets clients/patients needs as assessed by professionals (outcome being one measure) and whether staff correctly select and carry out procedures which are believed to be necessary to meet such needs.

Management quality – The most efficient and productive use of resources to meet client/patient needs, within limits and directives set by higher authority or person or body carrying executive responsibility.

5.2   General framework of evaluation

5.2.1 What is evaluation?

Everyone in OHS has always been, and will always be, involved with evaluation. It is an activity that we carry out constantly. We evaluate the health status of workers who come for a periodical health examination. We evaluate if working conditions are still below critical health standards. So, we all know how to evaluate. Under ideal circumstances we measure certain features of a person or a workplace and compare these to a standard of a known health hazard. Blood pressure should be below 160/95 mm Hg to avoid the risk of ischaemic heart disease. Noise level should be below 80 dB(A) to avoid the risk of noise induced hearing loss.

However, when you are asked to say something about the evaluation of your own work it is much more difficult. Some might answer, "I do my best" or "I work hard". It would be difficult to quantify this, or compare it to a general standard. So, apparently there is a need for a framework of evaluation of the work of occupational health professionals.

Literally taken, evaluation means to assess the value of something. However, if you want to assign a value to something you have to know for what it can be used. Therefore, any evaluation starts with stating the objectives of a certain action, product or process. Then it is immediately apparent that different stakeholders might have different objectives, as is very often the case in occupational health.

Usually we value something in relation to the extent to which the stated objectives have been met. A disposable fork that breaks after it

has been used ten times is of high quality. A metal fork that breaks after being used a hundred times is of low quality, because it was intended for life-long use. To put it differently, evaluating is assessing the quality of a product or a process.

5.2.2 Why evaluate?

In a formal bureaucracy, everyone does a tiny little piece of work for which there seems to be no objective. Nowadays, health care is moving more and more away from being a bureaucratic institution, and almost everywhere market competition is introduced. In a market there are clients who want their needs to be satisfied. An important quality aspect of market driven production of goods or services is to keep consumers satisfied. Service providers are, therefore, forced to maintain and improve the quality of their services, to be able to meet the objective of satisfying their customers. For this quality improvement, constant evaluation is needed. Occupational health services seem to be at the forefront of market driven health care, and will benefit most from evaluation methods.

In addition, not only consumers but also governments, trade unions and political parties as stakeholders of OHS, ask for accountability of the services. To what end are we doing health-check-ups, and how come the OHS has so little influence on sickness absence figures? To answer these questions we need effective and transparent evaluation methods. In health care, thorough evaluation of interventions is also increasingly stressed. It is part of the core content of good professional guidelines that only interventions are recommended for which there is evidence that they are effective.

5.2.3 Analysis of work and measures of quality

Before starting evaluation, first, we need more insight in work processes. Much of this we owe to the work of Donabedian, who structured health care according to its structure, processes, and outcomes. In figure 1 this is explained for the work the OHS is doing in the field of prevention of Noise Induced Hearing Loss. The analysis of the work in hearing conservation can be described as follows. To be able to carry out any work you need a structure of people, buildings, and finances to keep it going. For noise prevention you need occupational physicians, occupational hygienists, occupational nurses

to be able to carry out all the tasks. The structure is there to be able to carry out processes, our actual daily work.
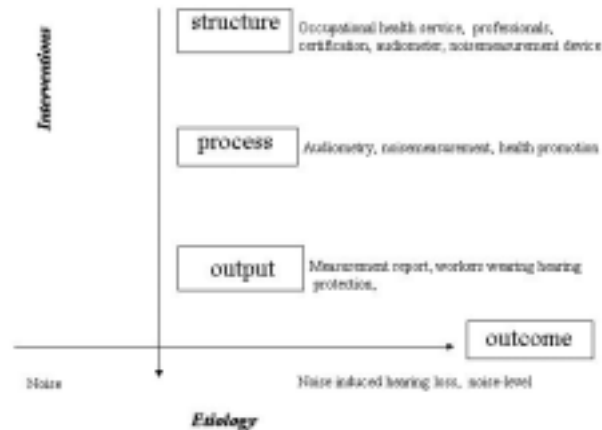

Figure 1: Process of occupational health interventions

Processes in noise prevention are noise measurement, tests of hearing acuity, health education and motivation for hearing protection. The objective of these processes is to attain a better health outcome or to decrease a health hazard for the workers that form the target population of the OHS. The outcome of our hearing conservation programme would be to decrease actual noise levels and to maintain hearing acuity of those exposed to the noise. The figure illustrates that, until now, most work in OHS has been done to evaluate the impact of working conditions on health. A necessary next step is the evaluation of the effectiveness of OHS interventions because if we do not know how to prevent the health hazards, the knowledge of these hazards is more a burden than an asset.

In OHS it is sometimes hard to assess a health outcome, because it will take years of exposure before it will occur. At times this assessment is also difficult, because OHS will be dependent on employers implementing a preventive strategy. This means that it might be difficult to assess the quality of the work of an OHS by measuring health outcomes alone. An intermediate indicator should then be used, between process and outcome in the form of an output-

indicator. For noise-prevention, the output indicator could be a noise-measurement report, or a report of the quality of the processes performed.

5.2.4 Methods of professional and scientific evaluation

In our professional work, evaluation of our work processes usually has the objective of improving the quality of services. This contrasts with the scientific evaluation of health care. In scientific research, evaluation of interventions is done with the purpose of assessing the effectiveness of an intervention, preferably with little influence of time and place where the interventions are performed. In evaluation research these differences are also indicated by formative research directed at improving quality and evaluative research directed at assessing effectiveness. Therefore, for evaluation of professional work and for scientific evaluation different methods are used.

The first step in evaluating our own practice is counting what we are doing. In annual reports we usually find these figures: how many pre-employment examinations, how many consultations for work-related symptoms. The next step will be to not only count, but also to compare to a standard. This way of evaluating our professional practice is called auditing. Auditing means that we measure essential aspects of our work and compare them to a pre-set standard. In some countries the method of medical audit is widespread or even obligatory. There are simple audit checklists available, which can help OHS professionals greatly in evaluating their services.

Nowadays, the standard for medical audit will often be an evidence-based guideline. Another method of finding out about the quality of our services is to survey client satisfaction. Both methods will reveal deficits in processes that can be eliminated with subsequent improvement of quality.

Guidelines are the link between evaluation of our professional practice and scientific evaluation. Development research and evaluation research should lead to guidelines for effective interventions to be used in OHS. These should be the standard to compare our daily practice with. OHS should strive to comply with the guidelines. Evidence for the effectiveness of interventions can be rated according to the strength or believability of it. Generally, evidence of

randomized controlled studies is rated as stronger than that of non-randomized studies.

In conclusion, the evaluation of occupational health services should be guided by the analysis of the work processes and their objectives. At the professional level, the results of evaluation should contribute to improvement of the quality of our services and at the scientific level, evaluation research should provide best evidence for occupational health practice.

5.3   Selection of indicators

The effectiveness of an occupational health service (OHS) is influenced by the commitment, health awareness policy and processes adopted and implemented by the enterprise management, and also by the active participation and commitment of all staff. Indicators are designed to provide different stakeholders with information in order to aid assessments of performance, effectiveness or efficiency of the occupational health services (OHS) or of company management of occupational safety and health.

Monitoring and evaluation of performance and outcomes should be an integral part of target setting, management by objectives and the development of workplace occupational safety and health programmes. At the company level, it is essential to identify and use key criteria and indicators for the functioning of the company occupational health and safety management system (OHSMS). Such systems may extend to include policies and strategies relating to the community and environmental setting of the company. If so, the management system may be referred to as a HESME-system. Evaluation of OHSMS or HESME systems of companies is part of the tasks of occupational health professionals. The competencies required to conceive, measure and analyse such indicators and to set up a system for audits, reviews and evaluation, as appropriate, should be important learning objectives in academic and vocational training programmes of occupational health professionals.

Ideally, the effects of occupational and work related environmental factors, lifestyle and social factors should be taken into consideration when designing indicators and evaluation programmes. However,

many enterprises may be interested only in their own workplace issues.

Indicators should:

- Be relevant and meaningful to improving health;

- Be selected to show changes and progress in OH&S;

- Provide a basis for benchmarking;

- Provide a basis for assessment for all interested parties;

- Provide a basis for self assessment;

- Provide a basis for quality assurance.

5.4 National and community levels

The working population of an enterprise is a sample of the entire municipal and national working population. It is therefore necessary for occupational health clinicians to have a working knowledge of public health as well as work-related ill health in other enterprises. The basic data to develop or calculate indicators useful for monitoring and assessing the impact of workplace health hazards on health at the regional and national levels are commonly collected by various organizations such as social and health insurers, labour inspectorates, public health (sanitary) agencies, environment protection inspections, own sources of local authorities, employers associations, trade unions, scientific institutions and non-governmental organizations. Some data are collected routinely; some can be obtained by special surveys. Surveys may provide more precise and validated data, quite often at lower cost than setting a permanent infrastructure for data collection.

These data could be used as benchmarks for comparison as well as for planning prevention activities to maintain general health of employees and to prolong their working life expectancy

5.4.1 Health indicators in the local or national working community

5.4.1.1 Work related health disorders

- Occupational injury fatality rate by cause, age, gender, industrial sector, occupation;

- Rate of injuries (over 3 day sick leave) by cause, age, gender, industrial sector, occupation;

- Incidence and prevalence of occupational compensated diseases by cause, age, gender, industrial sector, occupation;

- Rate of early retirement as a result of occupational accidents or disease per 100 000 employees or per 1000 occupational accidents (in total and in selected economic sectors);

- Percentage of partially disabled persons of working age in regular occupational activity (by cause, age, gender, occupation);

- Estimated rate of work related diseases: incidence/ prevalence/mortality by cause, age, gender, industrial sector, occupation.

5.4.1.2 Occupational exposure assessment

- Percentage of employees exposed to harmful factors (by type of factors: physical, chemical, biological, and affecting mental health) at concentration or intensity higher than national occupational exposure limit;

- Percentage of employees exposed to carcinogenic factors including environmental tobacco smoke (ETS);

- Percentage of employees with occupational health risk assessment of grouped according to type of exposure and industry, occupation, gender and age.

5.4.1.3 Other Health Indicators

- Disability free life expectancy in working age population e.g. at age 45 years in municipality or province by age group, gender, industrial sector, occupation (figure 2);
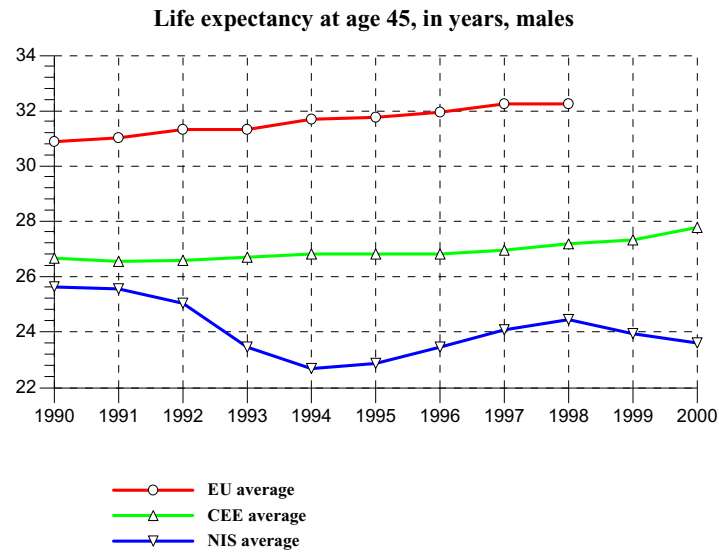
Life expectancy at age 45, in years, males

Figure 2: Life expectancy of males at the age of 45 in countries of European Union (EU), Central and Eastern European countries (CEE) and newly independent states (NIS). Source: European Health for all database. WHO Regional Office for Europe, Copenhagen, Denmark 2002.

- New invalidity/disability cases per 100 000 population by cause, age, gender, industrial sector, occupation;

- Sickness absenteeism at work by cause, age, gender, industrial sector, occupation;

- Mortality rate in the working population (18–65 years old) by cause, age, gender, industrial sector, occupation (figure 3);

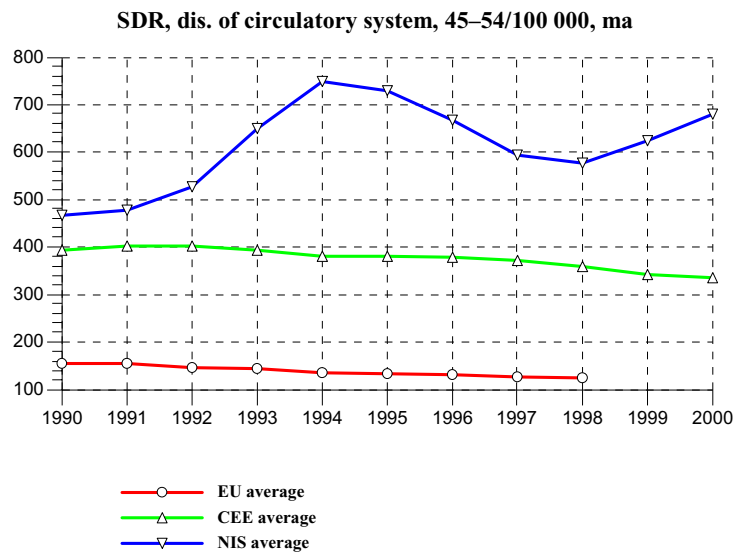**SDR, dis. of circulatory system, 45–54/100 000, ma**

Figure 3: Standardized death rate of males in the age group 45–54 years in countries of European Union (EU), Central and Eastern European countries (CEE) and newly independent states (NIS). Source: European Health for all database. WHO Regional Office for Europe, Copenhagen, Denmark 2002.

- Morbidity rate in the working population (e.g. ischaemic heart diseases ICD–10: I20–I25), musculoskeletal disorders (M00–M99), mental and behavioural disorders (F00–F99) by cause, age, gender, industrial sector, occupation;

- Rate of early retirement due to ischaemic heart diseases (ICD–10: I20–I25) per 100 000 employed (total and in selected economic sectors);

- Rate of early retirement due to musculoskeletal disorders (M0–M99) per 100 000 employed (in total and in selected economic sectors);

- Rate of early retirement due to mental and behavioural disorders (F00–F99) per 100 000 employed (in total and in selected economic sectors);

- Percentage of population in working age under regular assessment of health promotion needs by (age, gender, occupation);

- Percentage of population employed in enterprises offering specific workplace health promotion programmes by (e.g. smoking cessation, prevention and treatment programmes for employees with alcohol abuse, consultation on healthy nutrition, promotion of physical activity, maintenance of work ability, education and training programmes to increase employability);

- Percentage of working population participating in vaccinations (HBV, influenza) programmes by (age, gender, occupation).

5.5 Enterprise level

A comprehensive set of indicators is generally designed to cover input, process, output and outcomes indicators.

5.5.1 Input indicators

The input indicators are used to assess and evaluate the input given by different stakeholders to protect, maintain and promote the health of the working population and to maintain or improve internal (working) and external (general) environments, including environmental stewardship of the products. The occupational health service organizations (OHS) do not usually exercise control of the input of various stakeholders (employer, employees, insurance organizations, local authorities: enforcement agencies, social and employment services, others). They are, however, commonly in a good position to monitor such inputs, since these have a great influence on the outcome and effects of the health services contributions.

Examples of input indicators

- Commitment of top enterprise manager to implement GP OHSMS or GP HESME;

- Financial investment in OHSMS and/or HESME as percentage of the enterprise total budget or gross income;

- Contracts with external preventive service organizations (occupational health services and others) specifying their role in OHSMS or HESME;

- Numbers and qualifications of in house occupational health specialists;

- Inclusion of risk assessment activities in job specifications of workers;

- Reporting to Board.

5.5.2 Process indicators

The final outcome and performance of the enterprise OHSMS or HESME management systems and the occupational health services is determined by many factors and processes. Some of them depend solely upon the enterprise:

Examples of process indicators

- Participation of the enterprise in OHSMS or HESME benchmarking comparisons with enterprises in the same industrial sector or the same region or community;

- Procedure for implementation of management reviews;

- Procedures for involving workers in participative efforts;

- Procedures for monitoring and prevention of workplace accidents;

- Existence of a quality manual with procedure documents for key processes in production of services and goods and in occupational and environmental health;

- Waiting times;

- Turnaround times;

- Complaints management;

- Practice Guidelines, protocols, policies and work instructions;

- Access.

5.5.3 Output indicators

In the broad activity domain of OHS many kinds of service outputs are seen. Generally, Occupational Health and Safety outputs serve Occupational Health objectives. Assessments of their quality are, accordingly, determined by underlying objectives or policies. In the activity agenda of OHS there is a broad range of service outputs and interventions to evaluate. Examples are:

- Health surveillance activities including health examinations of staff and field surveys of staff perceptions of own health and health of organization;

- Work environment surveillance including surveys and monitoring programmes;

- New employment health examinations;

- Risk assessments of occupational health hazards;

- Assessments of environmental health hazards and their health impact;

- Needs assessment;

- Ergonomic assessments;

- Workplace Health Promotion Programmes;

- Sickness absence management;

- Rehabilitation programmes for staff members recovering from health disorders and for staff members with disabilities;

- Proportion/percentage of staff members characterized by optimal health behaviour (low rate of absence from work, healthy lifestyle etc.);

- Vaccination programmes;

- Curative (primary medical care) services;

- Training programmes on Occupational Health subjects;

- Training programmes on Environmental Health subjects;

- Counselling and information.

One type of output measurement of output indicators is commonly a counting of the number of activities performed. This does not, in

itself, give any indication as to the quality or relevance of the output observed. For assessments of output quality, well defined and operational criteria are needed. For activities aiming at health hazard prevention or health promotion indicators for output should be based on the operational objectives of the health promotion programmes.

The item **"Curative primary medical care"** is an example of an activity where the provision of services, which are not specified, is an end in itself, commonly without operationalized objectives. The number of consultations is in such instances one commonly used indicator of service performance. Assessments of client satisfaction are also used to indicate perceived quality of services (see further below).

The term **"Counselling"** is a term covering a considerable scope of transactions and communication between a service provider and a customer-consumer. OHS is commonly a professional expert body with advisory functions. It may be very difficult to identify pertinent indicators of this type of outputs from OHS professional organizations. In seeking such output indicators the first elementary step is to define the target object of the intervention involving the OHS. The target object may be an individual employee, a group of staff at a workplace, an organization (an enterprise in whole or in part), a work process or work organization.

In defining the target object it is also equally essential to define what the intervention or service output aims to achieve.

To conclude, the output indicators are best selected on the basis of OHS and customer – client agreed objectives. Indicators should be selected to reflect both quantity and relevant quality of service items. Output indicators defined in this way may be helpful in evaluating or assessing effects and effectiveness of services provided.

5.5.4 Outcome indicators

Outcome indicators are more related to final results of workplace health management, although factors beyond control of the HES management system can influence a value of outcome indicators: e.g. sickness absenteeism rate. Rate of occupational diseases, accidents or work-related diseases are the most common used outcome indicators.

The outcome indicators are endpoints bearing a significant value for assessment of quality of working and living. Number of employees declaring work satisfaction, number of people with partial work disability participating in working life or higher number of employees with increased vocational qualification as result of the enterprise-supported training can also be used as outcome indicators. The concept "outcome" also includes what is often referred to as "impact".

5.5.5 Customer satisfaction

Customer satisfaction is a multidimensional and complex concept, nevertheless fairly simple to assess and may be done in many different ways. It should be assessed as a natural part of good OHS practice and the enterprise management and representatives from the employees and the OHS should be involved.

The main objective is to improve the quality of the OHS services provided, rather than the scoring of quality as such which in this context is regarded as of less importance. It should be performed on a periodic basis, for instance once a year, as a part of the regular planning of OHS activities.

The assessment may include:

- Customer relations (e.g. cooperation, communication, OHS ability to meet time limits and customer needs, customer ability to clarify expectations and demands and facilitate the OHS work, price on OHS services, etc.);

- Quality of services provided (e.g. contribution to risk assessment and HESME, health surveillance, patient handling in consultations, rehabilitation issues, etc.);

- New demands (discuss new areas of HES that the OHS should address, example: external environment issues, advisory on conflicts, etc.).

Checklists may be used for this purpose (annex 1).

The outcome of the assessment should be a more competitive OHS delivering high quality and "tailor made" services leading to a better working environment and better health of the employees.

5.5.6 Ill health costs, efficiency and productivity

Prevention of work-related ill health is a legal and moral obligation, however there are also large costs involved. According to European Agency for Safety and Health at Work the costs of occupational illness range from 2.6% to 3.8% of Gross National Product. Depending upon country the various elements of costs are taken into account: costs of sick leave and invalidity (in Netherlands in 1995 – €4.8 billion), health care costs (in Netherlands in 1995 – €0.6 billion, loss of production due to unfitness to work (in Germany €45 billion in 1995), loss for victims and their family (in United Kingdom €6.3 billion). Total costs of accidents and occupational illnesses to public purse in Italy in 1996 amounted to €28 billion. Due to differences in calculation methods comparisons between various countries are at present not possible (source: Economic impact of occupational safety and health in the members of the European Union. European Agency for Safety and Health at Work, Bilbao, 2000. ISBN 92-828-2634-1).

There is strong evidence that the major health benefits of technological innovation implemented in response of stringent health, environment and safety standards are usually neglected in cost-benefits calculation due to changes in value of health and environment as time passes and the standard of living improves.

Only a few systematic studies about the economic efficiency of Occupational Health Services (OHS) have been made. In a large study among nearly 300 Finnish small and medium-sized companies it was estimated that the potential benefits of increasing the OHS services were 10–20 times higher than the current net costs for OHS. Although the economic effects are largely dependent on the legal context the study indicates that companies can benefit from OHS more than is generally assumed.

The productivity of OHS is determined by the relationship between the immediate output of and the input to the service activities. The relationship between the goal achievement and the input determines the efficiency of the activities. The relationships can be described as in figure 4.
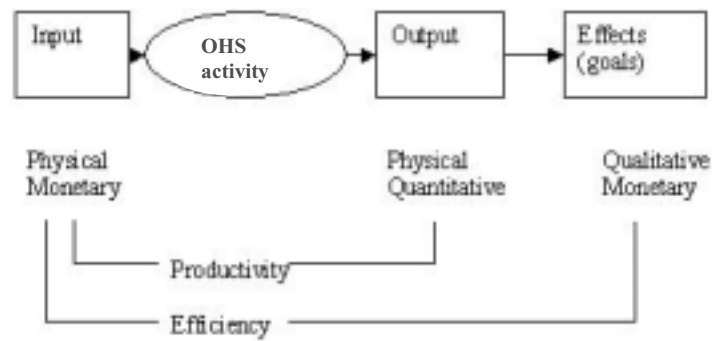
Figure 4: The productivity and efficiency concepts

The inputs to OHS activity can be measured both in physical and monetary terms. Typically the inputs are expressed in number of working hours and costs. The outputs are expressed in the number of completed operations, such as number of patients treated. The effects of the OHS activity are the desirable outcomes of the activity. The effects can also be expressed in monetary terms, which is normal for business companies. If the economic effects of the activity are compared to the input costs of it efficiency equals profitability.

Both the whole OHS activity and its parts can be examined in terms of productivity and efficiency. In modern Activity Based Costing (ABC) analysis the activities of a business unit is broken down to revenue (money) generating activities, all of which are analysed separately. Then, in principle, all the activities should be equally efficient. This is, however, possible only when the goals can be expressed exclusively in monetary terms. This is not always the case with OHS units, which are a part of a bigger company.

To gather information for productivity and efficiency analysis of OHS activity the following table can be used:

Activities (1)	Inputs (2)	Outputs (3)	Effects (4)	Productivity (3/2)	Efficiency (4/2)
Activity A					
Activity B					
Total OHS					

The relationship between productivity and efficiency can be surprising. This is shown by the above-mentioned SME study. In the study it was found that some activities to promote work ability among employees correlated significantly with profitability (efficiency), but not with productivity (Lindström, et.al. 2000). The reason behind this phenomenon may be that some of the effects of work ability promotion only affect the final outcome of work, the cash flow of the company, not the quantitative amount of produced goods and services.

5.5.7 General well-being indicators

5.5.7.1 Motivation

A well-motivated staff is an asset to an organization. If OHS can contribute to make and to maintain the workforce motivated this would be an interesting point to evaluate. However, motivation is a complicated concept. The internal forces that make us do something can define it best. In our case the motivation to work would be the most interesting topic. In organizational psychology many theories about motivation have been described. By some it was assumed that satisfaction was the main determinant of motivation. Satisfied workers were thought to work harder. However, there is little empirical evidence that this is true. Then there are theories that explain motivation by incentives. If workers are given reward or encouragement for good performance, then they will be better motivated and work harder. The incentive theory probably only works under certain conditions: the reward has to be perceived as worth the extra effort and the performance can be clearly attributed to the individual. OHS are sometimes seen as a fringe benefit. This is an extra form of reward/payment and which is not a necessary form of health care for all workers. The third category of theories is based on Maslow's idea that all human being have basic needs which they want to fulfill such as self-actualization needs, esteem needs, belonging and love needs, safety needs, physiological needs. The sort of theory we subscribe to will to a large extent influence our views on people and organizations. OHS have to be aware how and where they can contribute to motivated workers.

5.5.7.1 Job satisfaction

Job satisfaction can be used as an outcome measure in occupational health because it is related to both staff turnover and mental health. OHS are often involved in the prevention of mental health disorders or

in the promotion of wellbeing at work. Preventive programmes that have the objective to prevent mental health disorders or to promote wellbeing can use job satisfaction as an outcome measure.

Job satisfaction can be defined as a positive attitude towards work based on the evaluation of different aspects of work that are important to a worker. The most important feature of job satisfaction is that it is an indicator of the tendency of staff to stay in the current job. Therefore, job satisfaction becomes more important for employers in times of a tight labour market when there is a lack of personnel. So, job satisfaction is linked to the answer to the question: "why work here?" However, it is not proven that job satisfaction is related to productivity and therefore does not give an answer to the question "why work harder?" The answer to this question can be found in the many theories that try to explain why people are motivated to work. However, it is more difficult to explain and measure motivation in general than job satisfaction.

Job satisfaction can be measured with questionnaires. These questionnaires usually measure one or more of the following ten underlying dimensions or work-related aspects of job satisfaction: autonomy at work, the challenge posed by work content, communication, financial rewards, possibilities for career advancement, personal growth, co-worker relations, meaningfulness of the job, recognition and work load. Job satisfaction questionnaires are usually good at signalling problems. However, it is unclear to what extent they are able to measure change as well.

A good example of a job satisfaction questionnaire is that constructed by Spector, which consists of 36 items, covers most dimensions and can be used for any occupational group.

5.5.7.3 Wellbeing at work

Wellbeing at work can be defined as a state of feeling well and a positive attitude towards work. It goes beyond the mere absence of mental disorders such as burnout or even the absence of stress at work. Wellbeing also implies that workers are able to experience personal growth and positive energy from their work. It touches upon job satisfaction but it is used in a wider context.

Creating tasks that fulfill the basic human needs can enhance wellbeing. Some argue that every task should be complete, contain organizing elements, consist of not too short cycles, be of sufficient challenge, increase autonomy, contain possibilities for social contacts, and should contain sufficient information for the worker. These elements make it possible to make an objective assessment of the risks that threaten wellbeing in the workplace. However, the assessment methods are not very well validated and not in common use.

In addition to the objective methods there are many questionnaires that measure stressors, strains or stress consequences such as sickness absence or recovery needs. Many are based on the stress model put forward by Karasek and Theorell also called the job demand/job control model. The model states that stress increases as workers have high job demands in combination with a lack of job-discretion or autonomy. Social support would mitigate the influence of stress. There are also models for assessment of mental strain at work, such as the effort-reward model conceived by Siegrist et al. There are other models in development using questionnaires, to measure the extent to which work increases wellbeing in the sense of giving energy and personal growth.

To date, the best way to measure well being at work would be to use one of the validated stress questionnaires or to use a objective method of risk-assessment of tasks.

5.5.8 Exposures

Defining reporting criteria for health is complicated because there are many diseases, some conditions develop a long time after exposure, and doctors (and compensation law) differ in their diagnoses. Therefore reporting of exposures to harmful agents is important.

The following information should be reported for each significant occupational health risk:

- Number of people exposed above the occupational exposure limit, and the number above a tenth of the limit (not taking into account the protection provided by personal protective equipment);

- The occupational exposure limit;

- The current exposure average and range (or other distribution indices);

- Percentage compliance with personal protective equipment requirements;

- Numbers of people smoking or working in a room with someone smoking.

It is also desirable to report the numbers of people exposed to occupational physical and psychological stresses. Some work is required to define how these indicators should be expressed.

Definitions

Number of Persons Exposed in relation to an Occupational Hygiene Hazard
The exact number or estimation of the number of people exposed to levels in excess of the occupational exposure level (OEL) of the hazard, and in excess of a tenth of this value. Persons exposed to levels above the OEL but wearing personal protective equipment should be included.

Occupational Exposure Limit (OEL)
Occupational Exposure Limit refers to concentration of substances or levels of exposure to physical agents that represents conditions under which nearly all workers may be repeatedly exposed day after day without adverse health affect. This level must take into account the daily exposure time of the individual.

5.5.9 Environmental impact

Environment denotes all that which is external to the individual human host. Prevailing systems for decision-making in many countries tend to separate economic, social and environmental factors at the policy, planning and management levels. This fragmentation does not facilitate effective use of financial and human resources in all type of preventative services, including occupational health services.
There is a strong link between environmental management in enterprises and the health of the society living near by, particularly in case of toxic or other harmful emissions. Even the health of people living at a distance from an enterprise may be affected if dispersed

wastes or air pollutants change their living environment. Unhealthy or unsafe products may also affect health of customers.

Environmental management at enterprise level aims at:

- Simultaneous achievement of economic and environmental benefits and the integration of environmental management into mainstream management practice;

- Application of an integrated, preventive environmental strategy to production processes, and to products throughout their life-cycle;

- Minimization of risks to human health by improving workplace health and safety; and

- The sustainable use of natural resources.

It should cover energy efficiency, waste minimization, cleaner production, and eco-efficiency.

Clean Production is a new holistic and integrated approach to environmental issues centered on the product. This approach recognizes that most of our environmental problems – for example global warming, toxic pollution, loss of biodiversity – are caused by the way and rate at which we produce and consume resources. It also acknowledges the need for public participation in political and economic decision-making. As defined in UNEP IE International Declaration in 1998 Cleaner Production is "the continuous application of an integrated, preventive environmental strategy applied to processes, products and services to produce economic, health, safety and environmental benefits" (http://www.unepie.org/pc/home.htm).

The strengthening of environmental management in enterprises in order to promote a process of continuous improvement was one of the major commitments reached at the Fourth Ministerial "Environment for Europe" Conference, Aarhus, Denmark, June 1998. Under this Convention each contracting party shall guarantee the right of access to information, public participation in decision-making, and access to justice in environmental matters in order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and wellbeing.

Small and medium sized (SMEs) enterprises have to comply with environmental regulations and adopt good environmental practice. Large companies have the resources and the skills to meet these obligations. SMEs may have difficulty in accessing the necessary skills. In order to provide an equitable service, comprehensive multidisciplinary occupational health teams will require cross discipline training and education, e.g. occupational hygienists, safety engineers and occupational health clinicians.

The typical environment management indicators at the enterprise level would be:

- Total energy use;

- Energy use per unit of production or per unit of total gross income;

- Total water use;

- Total wastes volume generated (reused, recycled, incinerated, dumped);

- Solid wastes generation by the enterprise (tons);

- Hazardous wastes generation by the enterprise (tons);

- Emission to air;

- Discharges to water.

Large enterprises may wish to report on additional aspects of environmental performance (described in the full in the Sustainability Reporting Guidelines, see annex 2).

For environmental quality management in industry there are two related and generally accepted tools in Europe. The Environmental Management and Audit Scheme (EMAS) Regulation is an EU policy instrument to foster the implementation and auditing of environmental management in industry. The other, based on the ISO (and CEN) 14001 Standard. Responsible Care movement already developed within the chemical industry, seem to indicate the feasibility of these approaches. It shows that existing industrial experience should be used as much as possible to avoid duplication of efforts.

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Annex 1

EVALUATION OF CUSTOMER SATISFACTION

Name of OHS: "NN"   Customer: Date:

Customer = company management or department management and employees representative. The OHS fills in the name of its "products" and sends it to the customer. Having filled in the form, the OHS and customer discuss their assessments in order to find areas of improvement. This may be a regular part of customer meetings deciding what types of services the OHS should contribute to during the next period of time, f.i. 12 months.

Answer on a scale from 0 – 6. *) 6= very satisfied, 0= not satisfied **) 6=very important, 0=not important

A: Customer relations	Assessment*	Comments
1. Cooperation		
2. Communication		
3. OHS ability to meet customer time limits		
4. Customer ability to facilitate the OHS work		
5. OHS ability to meet customer needs		
6. Customer ability to clarify his expectations and demands		
7. Price on OHS services		
B: Name of products (to be filled in by the OHS)	Quality assessment*	Comments
1. Work environment surveillance		
2. Risk assessment		
Etc……		
C: Proposed new products	Assessment importance**	Comments

If needed, use the reverse side of this sheet

Annex 2

EXTRACT FROM THE GLOBAL REPORTING INITIATIVE'S SUSTAINABILITY REPORTING GUIDELINES: EMISSIONS, EFFLUENTS AND WASTE

According to the Sustainability Reporting Guidelines on Economic, Environmental, and Social Performance, Global Reporting Initiative, 2000, Boston, USA, 11 Arlington Street Boston, MA 02116 USA. www.globalreporting.org.

Emissions, Effluents, and Waste (tonnes or kilograms)

Generally Applicable

6.14 Greenhouse gas emissions (per Kyoto protocol definition) in tonnes of CO_2 equivalent (global warming potential).

6.15 Ozone-depleting substance emissions (per Montreal protocol definition) in tonnes of CFC-11 equivalent (ozone depleting potential).

6.16 Total waste (for disposal). Provide definition, destination, and estimation method.

Organization-Specific

Waste Returned to Process or Market
6.17 Quantity of waste returned to process or market (e.g., through recycling, reuse, or remanufacture) by type as defined by applicable national, sub-national, or local laws or regulations.

6.18 On- and off-site management type (e.g., recycling, reuse, remanufacturing).

Waste to Land
6.19 Quantity of waste to land by material type as defined by applicable national, sub-national, or local laws or regulations.

6.20 On and off-site management type (e.g., incineration, land filling).

Emissions to Air
6.21 Emissions to air, by type (e.g., NH 3, HCl, HF, NO 2, SO 2 and sulphuric acid mists, VOCs, and NOx, metals, and persistent organic chemicals) and nature (point or non-point).

Effluents to Water
6.22 Discharges to water, by type (e.g., oils/greases, TSS, COD, BOD, metals and persistent organic chemicals) and nature (point or non-point).

6.23 Profile of water bodies into which discharges flow (e.g., ground water, river, lake, wetland, ocean).

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This publication provides guidance for good practice in performance of Occupational Health Services and for quality performance in contribution of occupational health professionals to occupational health objectives in client enterprises and organizations. It is written with the aim to address primarily the perspective of safety and health professionals and experts carrying responsibilities and tasks in enterprises and in organizations providing services to enterprises in European countries. This broad category includes occupational health physicians, and occupational nurses, physiotherapists and ergonomists, occupational hygienists, safety engineers, occupational psychologists and managers of occupational health service units or organizations.

The guidance document is, however, also written with an eye on all those who purchase and use the services provided by occupational health services, i.e. their customers and clients, who have a legitimate interest in seeking services of adequate quality and cost-effectiveness and service providers delivering services needed.