

Basic Occupational Health Services

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Author: Professor Jorma Rantanen, MD, PhD, Specialist in Occupational Health, President of the International Commission on Occupational Health

Editing: Suvi Lehtinen, Finnish Institute of Occupational Health

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Basic Occupational Health Services –

Strategy, Structures, Activities, Resources

1 Introduction

Of the total 3 billion workers in the world, more than 80% work and live without having access to occupational health services (OHS). This in spite of the fact that several authoritative bodies, including the International Labour Organization (ILO), the World Health Organization (WHO) and numerous professional organizations and the organizations of workers have, already for several decades, emphasized the need for services. The coverage, i.e. the proportion of workers and workplaces with access to services, is today diminishing rather than expanding. The ILO Convention No. 161 on Occupational Health Services and the WHO Global Strategy on Occupational Health for All call for the organization of services to all working people of the world. We are still far from this goal, and it is not likely that the coverage will essentially expand without concerted efforts. To address the new safety and health needs the WHO has launched a new Global Plan of Action on Workers' Health and the ILO has produced a Global Strategy on Occupational safety and Health and the ILO Convention No. 187 on Promotional Framework.

The introduction of the concept of Basic Occupational Health Services (BOHS) has its roots in the WHO Alma Ata Declaration from the year 1978, which spells in article VI: *"Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods.....It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work....."*.

As the previous health policies were primarily focused on developing hospital infrastructures, the Alma Ata policy with the WHO Health for All Strategy has shifted the priority to the organization of primary health care services for large populations throughout the world. The health impact of this policy shift cannot be over-estimated. It has made the health services accessible to people in villages and remote areas, and to poor people, i.e. to all those who have been traditionally underserved.

The BOHS are an application of the Alma Ata principles in occupational health. It is an effort to provide access to occupational health services to the so far underserved majority of the workers of the world. The BOHS are simultaneously a way to the development of occupational health services to the level required by the ILO Conventions Nos. 161 and 155.

The globalization changes the economic structures and conditions of work substantially in virtually each workplace of the world. The need for occupational health services increases rather than declines. The needs for the services change also qualitatively, and become more versatile, more difficult to organize and the served groups become more dynamic and mobile, the workplaces more unstable, and the jobs more precarious and temporary.

These trends set special demands to the provision of occupational health services in terms of their structure, contents and methods. Although the ultimate objective is to provide OHS which correspond to the level defined in the ILO Convention No. 161, the underserved sectors need a starting point which opens the way to such development.

This publication is a third edition of the guideline produced with the support of the Finnish Institute of Occupational Health (FIOH), WHO, ILO and International Commission on Occupational Health (ICOH). It is a basic guideline in the series of new tools for the implementation of the decision of the Joint ILO/WHO Committee on Occupational Health to develop Basic Occupational Health Services in collaboration with the International Commission on Occupational Health, ICOH, and as a joint priority during the 5-year period 2004–2008. This guideline has been commented by Dr. Gerry Eijkemans, WHO, Dr. Jukka Takala, Dr. Igor Fedotov and Dr. Shengli Niu, ILO, as well as Dr. Kari Kurppa, FIOH.

The guideline will be followed by a number of short practical guides (toolboxes) for various technical activities of the BOHS (see Figure 4 on page 11).

2 Policy and mission of BOHS

2.1 Strategy background of BOHS

More than half of the world population belong to the global workforce. Health, safety, work ability and well-being of every worker are a key issue for the overall socio-economic development of each country. Health at work and healthy work environments are among the most valuable assets of individuals, communities and countries. Occupational health is an important strategy not only to ensure the health of workers, but also to contribute positively to the national economies through improved productivity, quality of products, work motivation, job satisfaction, and to contribute also to the overall quality of life of working people and society.

The overall strategic paradigm for BOHS is presented in Figure 1.

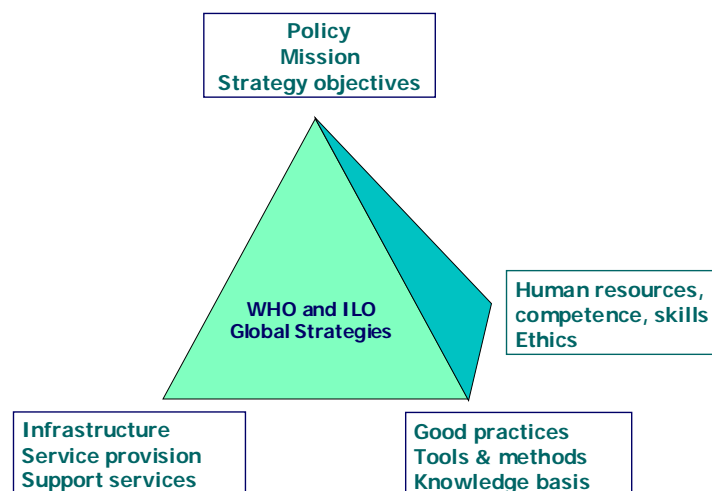


Figure 1. The WHO and ILO Global Strategy for Basic Occupational Health Services

Both the WHO Global Strategy on Occupational Health, WHO Global Plan of Action on Workers' Health, the ILO Global Strategy on Occupational Safety and Health, and the ILO Convention No. 187 on Promotional Framework define as an important objective the strengthening of occupational health services, expanding their coverage, and improving their content and activities. Training of occupational health personnel, organizing support services and providing a research basis and standards for OHS are the most important means to achieve that goal. To meet these objectives for the whole global workforce the BOHS initiative was made.

2.2 Concept and objectives of BOHS

The Basic Occupational Health Services are an essential service for the protection of people's health at work, for promotion of health, well-being and work ability, as well as for prevention of ill-health and accidents. The BOHS provide services by using scientifically sound and socially acceptable occupational health methods through primary health care approach.

The objective of Basic Occupational Health Services is to ensure the provision of services for all workplaces in the world (in both industrialized and developing countries) which so far have not had such services available or the services have not met their occupational health needs. The BOHS are an effort to provide occupational health services available to each and every working individual in the world irrespective of sector of economy, size of company, geographical area, or nature of employment contract.

The following principles will be applied in the organization of Basic Occupational Health Services:

- **Available to all working people**
- **Addressing to local needs**
- **Adapted to local conditions**
- **Affordable to providers and clients**
- **Organized by the employer for employees**
- **Provided by the public sector for the self-employed and the informal sector**
- **Supported by intermediate level services**

3 BOHS system and infrastructures

3.1 Stepwise development of the OHS system

As described above, a majority of the workers in the world live without access to OHS. Many responsible decision makers find a high threshold in starting the establishment of infrastructures for OHS as there may be many other competing priorities. On the other hand, every worker is entitled to a safe and healthy work and work environment. The countries which have developed well-working OHS have found it beneficial, not only from the health point of view, but also for the promotion of work ability, productivity and thereby also the economy of the workers, companies and nations.

In order to gain such benefits from OHS the relevance, competence and quality of services need to be ensured. In other words, the OHS need to respond to the real needs of the workers and enterprises. And the activities need to be adjusted to the national and local circumstances, without compromising the real content of OHS. In the primary health care (PHC) services, the PHC worker needs to know what the communicable disease is he or she is dealing with, and what the methods of choice are to prevent and control the disease. Also the OHS staff need to know the most important occupational health hazards and their origin, nature and means for prevention. This implies that OHS cannot be provided without at least a minimum amount of special training in OHS substance and methods.

To get the OHS developed, a stepwise strategy is recommended. Every country should analyse its prevailing situation in OHS. On the basis of such an analysis, a national strategy and action programme need to be drawn up. Different geographical areas or different sectors of economy may have a very different situation in the OHS development. Well-organized industries may have an excellent service, while the neighbouring informal sector or small enterprises may have no services at all. The actions should be adjusted to these differences without, however, compromising the real content of OHS.

Thus, depending on the situation, the development steps may be started from different levels. The development stages of OHS are divided into four steps, starting from the very initial one and continuing to more developed stages of OHS.

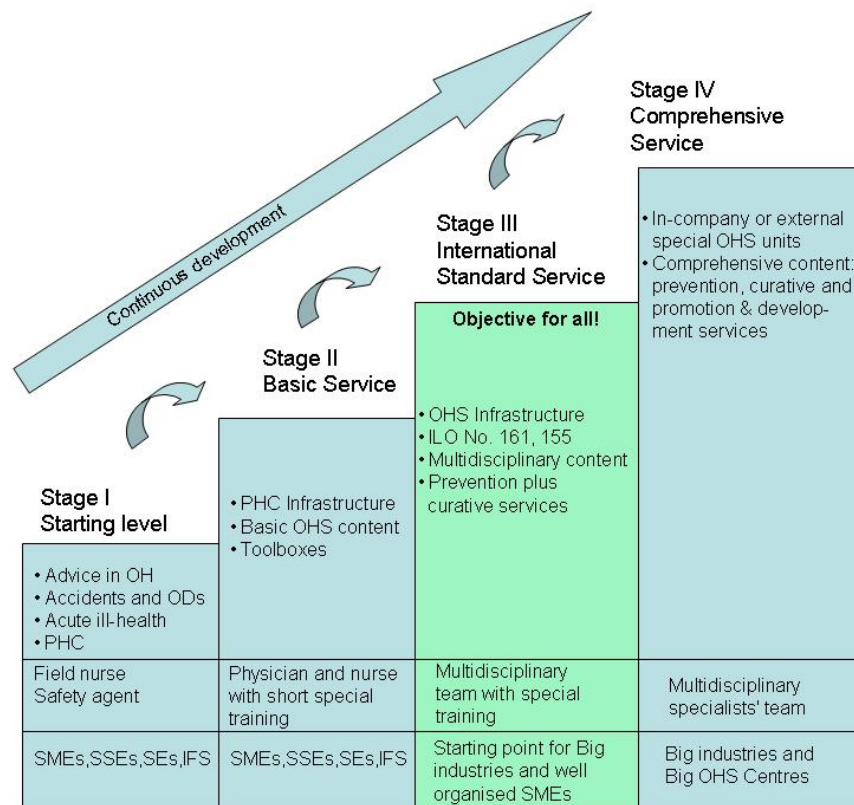


Figure 2. Stepwise development of occupational health services

ODs = occupational diseases, PHC = Primary Health Care, OHS = occupational health services, SME = small and medium-sized workplace, SSE = Small enterprise, SE = Self-employed, IFS = Informal sector

Stage I: Starting level

To the workers and workplaces, which do not have any OHS at all, this is a reasonable starting point. The stage is planned to lower the threshold for initiation as much as possible and still preserve the OHS competence and content. This is the service utilizing field OHS workers (if possible, a nurse and safety agent), who have a short training in OHS and who work for a primary health care unit or a respective grassroots level facility. The content of the service focuses on accident risks, heavy physical work, basic sanitation and hygiene, and on the most hazardous chemical, physical and biological factors (including HIV/AIDS). Advising the clients to seek help from expert services constitutes an important part of the service.

Stage II: Basic Occupational Health Services (BOHS)

This is the infrastructure-based service working as close as possible to the workplaces and communities. The service provision model may vary depending on the local circumstances and needs (see page 17). The personnel, usually a physician and a nurse, have a short training (some 10 weeks) in occupational health. They would benefit from the support of a safety expert who is competent in accident prevention and basic safety. The content of services is described in this leaflet and the associated practical guides (toolboxes).

Stage III: International Standard Service

This level is the minimum objective for each country as stipulated by the ILO Convention No. 161. The service infrastructure has several optional forms and the content is primarily preventive, although also curative services may be appropriately provided. The service staff should be led by a specially trained expert (usually an occupational health physician) and the team should preferably be multidisciplinary or the multidisciplinary content of the service should be ensured with appropriate support services from specialized units (such as an institute of occupational health).

Stage IV: Comprehensive Occupational Health Services (COHS)

This level is usually found in the big companies of industrialized countries or it may be provided by large OHS centres providing services for high numbers of various types of client companies. The staff works as a multidisciplinary team often including several specialists like specialist physician, occupational health nurse, occupational hygienist, ergonomist, psychologist, safety engineer, etc. The content of services is comprehensive covering prevention, curative services, health promotion, promotion of work ability, and development of healthy work organizations.

The Stages I and II are primarily designed for the smallest and micro-enterprises, the self-employed and the informal sector which have no possibilities to start immediately from the International Standard level three. Big industries and well organized SMEs should, however, always start to establish the level three services and that level should be the minimum objective for each country and each workplace in the long term as stipulated by the ILO Conventions Nos. 161 and 155.

3.2 BOHS as a part of an integrated OSH infrastructure

The BOHS are an application of the Primary Health Care policy in the sector of occupational health. A wide and sustainable coverage of services cannot be achieved without BOHS infrastructure. The BOHS are a part of the overall occupational safety and health

(OSH) infrastructure. The OSH infrastructure is called the OSH system. The current ILO trend is to promote an integrated OSH system. A model integrated system with numerous possibilities for national and local modifications looks like the following:

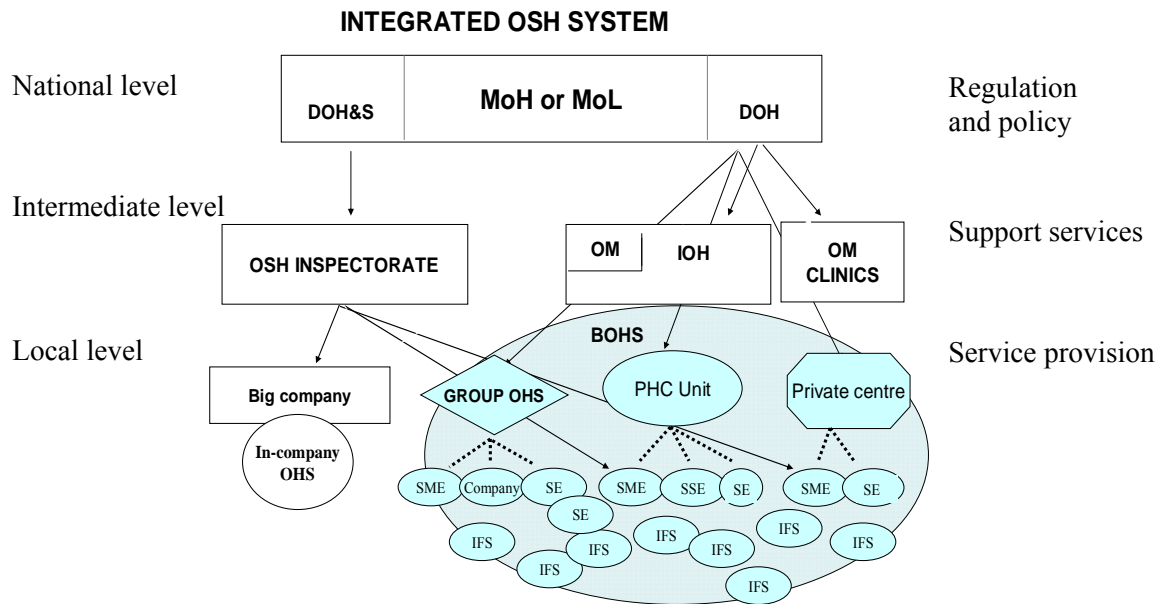


Figure 3. The infrastructure system for OSH. The main field of operation for BOHS is indicated in the shadowed circle. (Abbreviations; MoH = Ministry of Health, MoL = Ministry of Labour, DoHS = Department of Occupational Safety and Health, DoH = Department of (public) Health, IOH = Institute of Occupational Health, OM = Occupational medicine, PHC = Primary Health Care, SME = small and medium-sized workplace, SSE = Small enterprise, SE = Self-employed, IFS = Informal sector, OHS = Occupational health services, OSH = Occupational safety and health

The overall national system for health services and for occupational safety and health determines the organizational form of the BOHS infrastructure system. BOHS are a part of that interaction either organizationally or functionally. For example, the role of the health administrator becomes more prominent if the occupational health services belong to the Ministry of Health. The key issue is not the form but the availability and functionality of the system so that the health and safety needs of working people in all sectors and every workplace are adequately addressed.

The infrastructure of BOHS has the following characteristics:

- 1. Constitutes a part of integrated infrastructure for health and safety**
- 2. Can be carried out by several types of service units**
- 3. Collaborates with and takes support from primary health care**
- 4. Collaborates with safety services**
- 5. Specially tuned to serve the small and underserved workplaces**

4 Activities and content of BOHS

In several international guidelines it has been emphasized that OHS should be multidisciplinary and address to, not only health, but also safety, ergonomic, psychosocial, organizational and technical aspects of work and working conditions. Qualitatively the scope of activities of BOHS follow this principle, but as the available resources often are a physician and nurse only, the multidisciplinary content needs to be achieved with the help of adequate training of the BOHS personnel and, if possible, with the support services. The model content of BOHS is described in Figure 4.

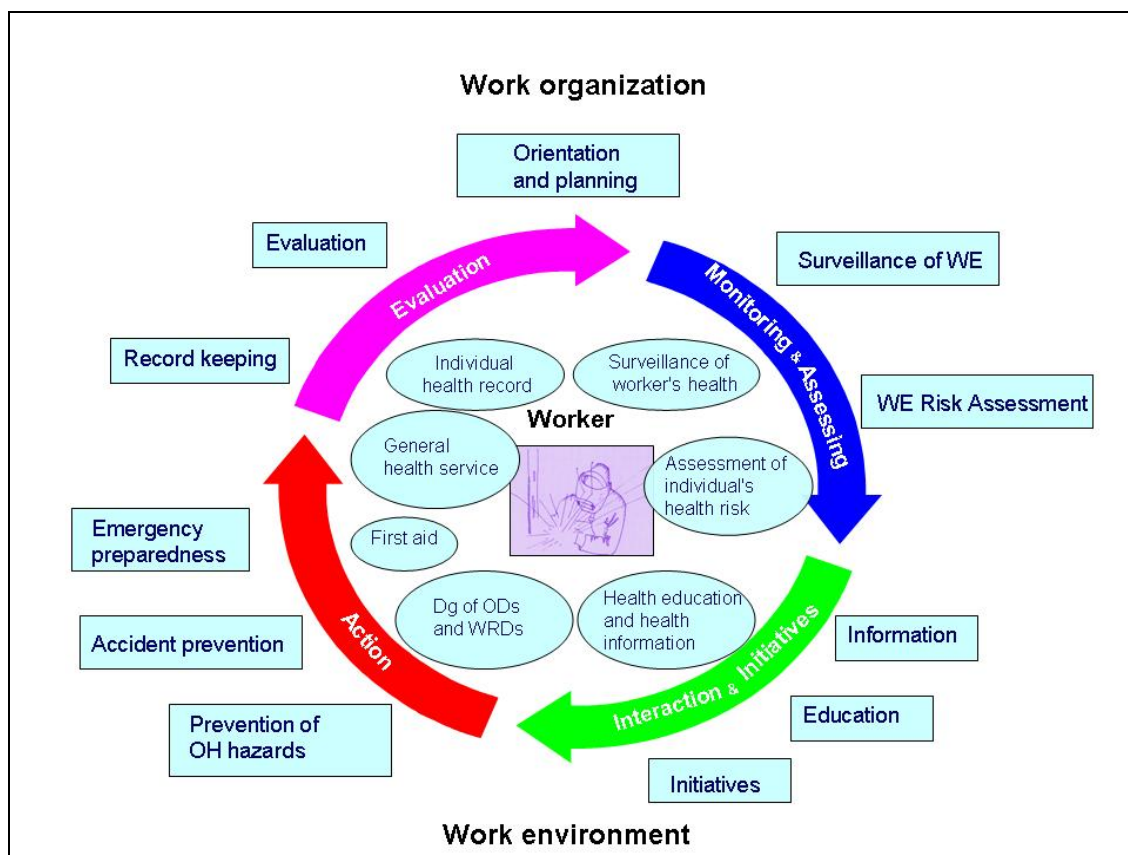


Figure 4. The flow scheme of activities within the framework of BOHS

The BOHS cycle follows the conventional action model: identification of needs → assessment of problems → management of actions → evaluation of effect → revision of the programme. The various steps indicated in Figure 4 have a dual target: the work environment-oriented activities (outside the action cycle) or the worker-oriented activities (inside the action cycle), and often both simultaneously. It is important to see BOHS as a functional process instead of a number of separate actions. The key steps in the process are described below and each step will be specifically guided by a guideline.

4.1 Orientation and planning

If occupational health services have not been previously provided or when new occupational health service staff members are recruited, a preliminary orientation to the occupational safety and health situation of the enterprise is needed. This step provides information on what kind of client workplaces (e.g. agricultural, industrial, services) and

worker groups (e.g. manual workers, office workers, construction workers) the services are dealing with.

This involves the following steps:

- 1. Analysis of the type of production indicating the risks and problems typical of the branch or occupation in concern**
- 2. Review of problems that have been identified previously in the company**
- 3. Review of the characteristics of the workforce of the company**
- 4. Available data on occupational diseases and accidents**
- 5. Data on working methods, chemical substances, etc.**
- 6. The knowledge by employers and employees of occupational health problems**
- 7. Plans for changes in production systems, e.g. installation of new facilities, machinery and equipment**

Such orientation helps to decide the types of activities need to be planned in more detail.

4.2 Surveillance of the work environment

The surveillance of the work environment is one of the key activities of BOHS. It is carried out for the identification of hazardous exposures and other conditions of work, identification of exposed workers, and assessment of the levels of exposures for various groups of workers. At best, surveillance is made by regular walk-through surveys by a multidisciplinary occupational health team supplemented by employers' and workers' representatives. In smaller companies it may be done by the occupational health personnel alone together with the representatives of workers and the employer.

The survey may contain:

- 1. Identification and evaluation of ergonomic factors which may affect the workers' health**
- 2. Assessment of conditions of occupational hygiene and factors, such as physical, chemical, and biological exposures which may generate risks to the health of workers**
- 3. Assessment, where appropriate, of exposure of workers to adverse psychological factors and aspects of work organization**
- 4. Assessment of risk of occupational accidents and major hazards**
- 5. Assessment of collective and personal protective equipment**
- 6. Assessment of control systems designed to eliminate, prevent or reduce exposure**
- 7. Assessment of general hygiene and sanitary facilities**

4.3 Surveillance of workers' health

The surveillance of workers' health is made through various types of health examinations. The main purpose of health examinations is to assess the suitability of a worker to carry out certain jobs, to assess any health impairment which may be related to the exposure to harmful agents inherent in the work process, and to identify cases of occupational diseases which may have resulted from exposure at work. They are also used to check the ultimate effect of preventive actions and, for example, for assessing work ability of workers. Health examinations may also help in making observations on early effects, which have not yet developed a disease.

Numerous guidelines are available for health examinations, their methodology, conclusions and actions on the basis of results, and communication of information to various parties taking into consideration the confidentiality of personal health data. Health examinations should always be combined with the knowledge of workers' exposures. If adverse health effects are observed, preventive and control actions should be immediately initiated.

The following types of health examinations are carried out either on the basis of regulations or as a part of good occupational health practice:

- 1. Pre-assignment (pre-employment) health examinations**
- 2. Periodic health examinations**
- 3. Return to work health examinations**
- 4. General health examinations**
- 5. Health examinations at termination or after ending of service**

A new type of health examination has recently been introduced for assessment of work ability of ageing workers.

4.4 Assessment of health and safety risks

Information from the surveillance of the work environment is combined with the information from health surveillance, and information from other relevant sources, and all these data are used for risk assessment.

The steps in an occupational health risk assessment include:

- 1. Identification of occupational health hazards (as a result of surveillances)**
- 2. Identification of workers or groups of workers exposed to specific hazards**
- 3. Analysis of how the hazard may affect the worker (ways of entry and type of exposure, threshold limit values, dosage/ response relationships, adverse health effects it may cause, etc.)**
- 4. Determination of intensity (level) and magnitude (volume) of risk**

- 5. Identification of individuals and groups with special vulnerabilities**
- 6. Evaluation of available hazard prevention and control measures**
- 7. Making conclusions and recommendations for the management and control of risks**
- 8. Documenting the findings of the assessment**
- 9. Periodic review and, if necessary, reassessment of risks**
- 10. The results of risk assessment must be documented.**

The assessment of individual's health risk is made in connection of health surveillance and health examinations.

4.5 Information and education on risks and advice on the need for preventive and control actions

Surveillance and risk assessment constitute the basis for risk management. Information on identified workplace health hazards and risks must be communicated to the managers responsible for implementing prevention and control measures. Legislation also requires full information to the workers on risks and on methods for protection and on avoidance of risks. The national law and practice may also require appropriate information to the Occupational Safety and Health Committee and, often in case of severe risks, to occupational safety and health authorities. In informing on health conditions of individual workers the regulations on protection of confidential data and on informed consent must be observed.

To ensure proper understanding and use of information concerning special risks the employer is responsible for education of his/her workers on risks and hazards at work and on their avoidance, prevention and protection, as well as on safe work practices.

Such information and education tasks are often delegated to occupational health experts. The information and education include the following aspects:

- 1. The employer and the self-employed have an obligation to know the hazards of the workplace and works in concern.**
- 2. The workers have a right to know and get continuously information on hazards related to their own work and the workplace.**
- 3. The employer is responsible for training the workers on safe and healthy work practices.**
- 4. The workers have a duty to follow the safety instructions and safe and healthy work practices.**
- 5. Confidential health information of an individual worker is subject to special legislation and practices and to informed consent.**
- 6. The advice provided by OHS personnel must be given in a form which is easily understood by employers and workers.**
- 7. Information given to various partners should be documented.**

4.6 Preventive actions for the management and control of health and safety hazards and risks

Occupational health services should propose, initiate and advise on appropriate preventive and control measures for the elimination of hazardous exposures and for protecting workers' health (risk management actions). Where appropriate, the measures are recommended after consulting the enterprise management, employers, workers or their representatives. Recommendations must be documented.

Control measures should be adequate to prevent unnecessary exposure during normal operating conditions, as well as during possible accidents and emergencies. Planned modifications in the work processes should also be taken into account and recommendations should be adaptable to the future needs. In many countries, the use of best available technology for safety management is required by legislation. The overriding principle of occupational health and safety is the primary prevention of hazards and risks.

Numerous guidelines for occupational health and safety management systems provide a practical approach for such actions. It is important to document the proposed recommendations so that their implementation can be followed up. Such documentation should emphasize the responsibility of the management for preventive and control actions at the enterprise, and collaboration between the employers and workers.

The risk management actions may comprise:

- **Control of hazards at the source**
- **Ventilation or control technology**
- **Dust control**
- **Ergonomic measures**
- **Use of personal protective equipment**
- **Regulation of thermal conditions, etc.**

4.7 Prevention of accidents

Accidental injuries are one of the most common adverse health outcomes at work. BOHS have a role to play in accident prevention in several different ways:

- Accident risk is identified and assessed in the surveillance of the work environment
- Several factors in the work environment may aggravate accident risk, such as exposure to chemicals, haste and stress, and shift work.
- The health aspects of the worker may affect accident risk.

Accident risks are managed according to the same logic as other risks at work: identification of risks, assessment of the magnitude of risk, identification of exposed workers and planning and proposing preventive and control measures. The practical methods for accident risk control or elimination are, for example:

- 1. Safe planning of facilities, machinery, etc.**
- 2. Good housekeeping, order and cleanliness**
- 3. Making walkways and other structures safe (e.g. scaffolds, fences)**
- 4. Guarding dangerous machines**
- 5. Technical aids for moving and lifting heavy loads**
- 6. Safe tools and safety equipment for workers**
- 7. Analysis of major hazard risks and provision of "redundant safety"**

Dozens of sector- or work-specific checklists and guidelines are available for the identification and management of accident risks in various works. These guidelines also include methods for risk elimination, prevention or reduction, and methods for the analysis and control of major hazards.

4.8 Maintaining preparedness to first aid and participation in emergency preparedness

Capacity and readiness to first aid is a legislation-based activity of OHS in most countries. The BOHS personnel need to be able to provide first aid and train the workplace personnel in first aid activities. The BOHS should also periodically control the availability and condition of first aid facilities and equipment at the workplace.

Although the BOHS are not primarily responsible for major hazard preparedness, the occupational health experts need to participate in the building up of emergency preparedness, to ensure appropriate planning, training, equipment, first aid and other emergency resources and contacts with the emergency polyclinics and hospitals, as well as with the rescue teams.

The role of BOHS in first aid and emergency preparedness is:

- 1. Providing first aid services at the workplace when appropriate**
- 2. Introducing and training first aid practices to workers and supervisors**
- 3. Maintaining and periodically inspecting the first aid readiness and facilities**
- 4. Participating from the health point of view in emergency planning and organizing the health elements in emergency response**

4.9 Diagnosis of occupational and work-related diseases

Occupational diseases are diseases caused by work (physical, chemical, biological, ergonomic and other factors). In many countries there are official lists of occupational diseases, including lists of factors which may cause such diseases. ILO guides the coun-

tries by the Recommendation No. 194: List of Occupational Diseases Recommendation, 2002.

Occupational diseases may be detected in connection of health examinations, in diagnosis and treatment of general diseases or on symptoms presented by the worker him/herself. Many occupational diseases can be diagnosed in the BOHS service but many of them need to be referred to specialized occupational medicine clinics. In both instances, the diagnostics follows a special scheme:

- 1. Identification of exposure which may cause the disease**
- 2. Examination of clinical findings which are known to be associated with the specific exposure (lists of occupational diseases)**
- 3. Exclusion of non-occupational factors as a possible cause of disease**
- 4. Conclusion on existence or non-existence of occupational disease (diagnosis)**
- 5. Statement on occupational disease for workmen's compensation**
- 6. Proposals for preventive actions to the workplace of the worker in concern**
- 7. Notification of occupational diseases to authorities**

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

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

The diagnosis of work-related diseases does not have a definitive legal status in terms of compensation, but it may have an important impact on preventive and control measures. The prevention of work-related diseases often comprises actions towards work, work environment and individual health characteristics of the worker.

4.10 General health care, curative and rehabilitation services

BOHS personnel may provide general preventive health services by providing immunizations and by guiding preventive and health promotion activities to introduce healthy lifestyles.

Besides the diagnosis of diseases, BOHS services may be involved in the treatment and rehabilitation of occupational and work-related injuries and diseases. The knowledge of occupational diseases and injuries coupled with the knowledge of the job demands, hazards of the work environment and occupational exposures present in the workplace enable the occupational health professionals to play a key role in the management of work-related health problems and in rehabilitation. Ageing workers, pregnant women,

adolescents and other vulnerable groups have special needs for the adjustment of work and the workplace to the worker. A special activity is focused on the workers returning to work after an injury or a long sick leave.

In some countries, occupational health services provide ambulatory general health services (usually at general practitioner (GP) level) during working hours. Certain benefits from such services are found in providing quick service to workers and thus saving working time and also in combining the information on occupational health, working conditions and general health of workers. This is necessary, for example, in the promotion and maintenance of work ability of ageing workers. This activity may be fully integrated with BOHS if the occupational health services are provided by primary health care units.

Where appropriate, the BOHS may include:

- 1. Immunizations and other preventive measures**
- 2. Participation in public health actions and programmes**
- 3. GP-level general health services**
- 4. Inspection and advice on canteens, sanitary facilities**
- 5. Advice and education in general personal and community hygiene**
- 6. Actions for rehabilitation and adjustment of work for workers after injuries, diseases, reduced work ability and on return to work from long sick leaves**
- 7. General health promotion and introduction of healthy lifestyles**

4.11 Record keeping by BOHS

As a health service BOHS have a general obligation to keep record on health services provided to the workers, on exposures detected or measured, and on all events dealing with the health of individual workers, or health and safety aspects of the workplace.

In occupational health there are several record-keeping obligations, such as:

- 1. General health record, if the workers are treated as patients or health service clients**
- 2. Data on surveyed, detected and measured occupational exposures and risk assessments made**
- 3. Statistics on occupational diseases and injuries**
- 4. Data on health examinations**
- 5. Documents on proposals for preventive and control measures**

In many countries special legal provisions are given for recording, organizing, maintaining and protecting confidential personal health data.

4.12 Evaluation

To learn from the experience and to undertake measures which may be needed for the improvement of services the BOHS should periodically make a self-evaluation on its own activities and their effectiveness in the prevention of health and safety hazards and in the provision of services to working people. The recorded data, collected in BOHS activities, should be used for such an evaluation. The evaluation result should be documented and presented to the employers' and workers' representatives.

The following items are considered in evaluation:

- 1. Evaluation is carried out as an inbuilt part of BOHS activity, at least annually**
- 2. Evaluation is made when the working methods, production structures or other aspects at work are substantially changed**
- 3. Evaluation is made if the methods or conditions of operation of services are substantially changed**
- 4. The following questions are answered through evaluation:**
 - a) Do the services respond to the needs of the workplace?**
 - b) Are the activities directed to priority problems?**
 - c) Is good occupational health practice followed?**
 - d) Are the resources, human and technical, sufficient?**
 - e) Are the services effective in elimination of health problems?**
 - f) What can be improved?**

The evaluation should support continuous improvement of BOHS activities and give input to re-planning and, if needed, re-orientation of services.

5 Provision of BOHS

In general, numerous models for the provision of occupational health services are available:

- Primary health services model**
- Big company model with in-company services**
- Group services organized jointly, e.g. by several SMEs**
- Social security institution as a service provider**
- Private physician who has special competence in occupational health**
- Private health centre either providing occupational health services only or occupational health as a part of its services**
- Local or regional outpatient clinic of hospitals**

The clients for BOHS are mainly the SMEs and the self-employed, as well as farmers and the workers in the informal sector. This excludes the use of some models either for

structural (scattered distribution) or economic (affordability) reasons. The widest coverage of services is possible to achieve through primary health services unit model. In the countries where the public primary health care units provide BOHS for SMEs and the self-employed, they may cover a substantial proportion of the total occupational health service provision in the country. Often they are in practice the only option to cover the informal sector. The social security institutions organize occupational health services in some countries. The coverage is there defined by the coverage of insurance and the non-insured are not covered. In some countries, the hospital outpatient clinics provide publicly funded occupational health services for the SMEs and other underserved groups. In some countries trade unions have organized OHS for their members.

As the competence of the frontline BOHS is not sufficient to ensure solution of all the problems of practical occupational health and safety, the governments should consider organizing the necessary secondary level support services which provide specialized analytical, measurement and consultation services to BOHS providers, including clinical services in occupational medicine, psychological services etc. and training in occupational hygiene for the BOHS personnel, and for employers and workers.

6 Human resources for BOHS

In the optimal case, the occupational health services will be provided by a multidisciplinary team (comprising a physician, nurse, occupational hygienist, ergonomist and psychologist). Such a resource is not possible to organize for most of the small service provision units and particularly for the SMEs, rural agricultural and informal sectors. The service provision needs to be trusted to a physician and a nurse who may not always have specialty in occupational health.

In many industrialized countries, the basic training curricula for physicians and nurses contain a short introductory course in occupational health. Such an element should be included in curricula in all countries. While larger units may have a possibility to hire occupational health specialists, most of the BOHS will be provided by non-specialists, primary health care personnel, or general practitioners. It is, however, not possible to provide competent occupational health services without special training in occupational health. Therefore, it is vitally important that even the non-specialists have a certain minimum training in occupational health services. In some countries, a well-designed post-graduate course of 10 weeks supplemented with a certain amount of self-studies is considered as a reasonable minimum. Periodic complementary education is also needed.

The quantitative need for OHS personnel in BOHS is not easy to estimate as the structures of constituents and their needs may vary widely. An experience-based estimate speaks for a minimum need of one physician and two nurses per 5000 workers with a great variation depending on the branch of industry and size of workplaces, as well as on their geographical distribution. The public authorities are responsible for ensuring that such a resource is available and its competence is regularly updated in every country.

As indicated in Figure 2, the starting level should have a minimum of a field nurse with short training in OHS and preferably a safety agent who knows the basic elements of safety. The BOHS level should have a physician and a nurse, who work for either a

PHC unit or for other facility (infrastructure) and have a short special course in OHS. The levels III and IV are run by experts with specialist training.

7 Financing

According to the ILO Convention No. 161 on Occupational Health Services, the financial responsibility for the provision of occupational health services rests on the employer. As the ability of the SMEs and the self-employed, and particularly the informal sector enterprises and workers, to buy external services is poor or non-existent, often the only possibility to provide services is the provision of BOHS by the public sector, i.e. the primary health care units, public polyclinics or by social security organizations. In some countries, special external OHS are well developed and the OHS units can provide services through the market mechanism to all enterprises and workplaces that wish to get them. Even in such a model the ability of the underserved sector to buy services needs to be ensured through some kind of financial support. Irrespective of the service provision model it is realistic to assume that the need for subsidizing of services for SMEs and the self-employed, agricultural and informal sectors is substantial, amounting to 50–100%. Innovative models for combining public, community and workplace resources have been experimented and the lessons should be distributed to the countries. Occupational health is not only a financial burden for enterprises; there is evidence speaking for the positive economic impact of well-organized occupational health services.

Where accident insurance is available, the premium policy should be used as an incentive for the organization of occupational health and safety services.

8 Actors in the organization and development of BOHS

The overall responsibility to ensure occupational health services for all working people belongs to the Government. In well-organized sectors the employer is responsible for the organization and financing of services. The Government's competent authority controls the compliance of employers according to national law and practice.

The clients of BOHS are often heterogeneous, scattered, poorly organized and poor in resources. A major part of them do not have an employer-employee relationship as they are self-employees. The only party with an overall view is the public sector, government's occupational health and safety, health or social security authority (often Ministry of Labour or Ministry of Health).

In the absence of an employer, the responsibility for the organization of services rests on the Government or other bodies of the public sector. The organization of services requires several other actors, who vary according to the sector and the target group. In addition to the government's competent authority, the following partners can contribute to and should be involved in the activity, when appropriate:

- **Government's special agencies in occupational safety and health and in the health sector**
- **Provincial and local municipal authorities**
- **Social partners, employers' organizations and trade unions**
- **Branch organizations and chambers of commerce**
- **Associations of agricultural producers and small enterprises**
- **Associations of occupational health professionals**
- **Safety representatives of local workplaces and communities**
- **Ministry of Agriculture and Ministry of Industry**
- **Universities and other training institutions for training support**

References

1. Alli BO. Fundamental principles of occupational health and safety. International Labour Office, Geneva 2001. 154 p.
2. Basic Occupational Health Services (BOHS). Working Paper for the Joint ILO/WHO Committee on Occupational Health, 9–12 December 2003. Geneva
3. Global Plan of Action on Workers' Health. Endorsed by the World Health Assembly in May 2007. Geneva 2007.
4. Global Strategy on Occupational Health for All. The Way to Health at Work. World Health Organization, Geneva 1995.
5. ILO Global Strategy on Occupational Safety and Health. International Labour Office. Geneva 2003.
6. International Labour Conference. Convention concerning Occupational Health Services. Convention No. 161. International Labour Office, Geneva 1985.
7. International Labour Conference. Convention No. 187 on Promotional Framework. International Labour Office. Geneva 2006.
8. International Labour Conference. Recommendation concerning Occupational Health Services. Recommendation No. 171. International Labour Office, Geneva 1985.
9. International Labour Organization. Recommendation No. 194 List of Occupational Diseases Recommendation. International Labour Office, Geneva 2002.
10. Rantanen J, Lehtinen S, Mikheev M (eds). Health protection and health promotion in small-scale enterprises. Proceedings of the Joint WHO/ILO Task Group 1–3 November 1993. World Health Organization, Finnish Institute of Occupational Health, Helsinki, Finland 1994. 178 p.
11. World Health Organization. Identification and control of work-related diseases. Technical report series 714. WHO, Geneva 1985:1–71.
12. www.icohweb.org
13. www.ilo.org/safework
14. www.who.int/oeh

Useful guidelines

1. Encyclopaedia in 6 languages, free on web in several languages (www.ilo.org/encyclopaedia/ and CD-ROM).
2. Guidelines on Workers' Health Surveillance, Guidelines of Occupational Safety and Health Management Systems, ILO-OSH 2001 (in 21 languages).
3. List of other Codes of Practice:
<http://www.ilo.org/public/english/protection/safework/cops/english/index.htm>. (Ambient Factors, Recording of Accidents, Asbestos, Insulation Wools...)
4. Training materials <http://www.ilo.org/public/english/protection/safework/training/english/index.htm> e.g. Agrochemicals, Chemical Training Modules, Basic Safety and Health.
5. International Chemical Safety Cards in some 20 languages:
<http://www.ilo.org/public/english/protection/safework/cis/products/icsc/index.htm>
6. http://www.ilo.org/public/english/protection/safework/ctrl_banding/index.htm