

HEALTH AND SAFETY OF WORKERS IN THE HEALTH SECTOR

A MANUAL FOR MANAGERS AND ADMINISTRATORS

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I. Title

1. OCCUPATIONAL HEALTH

2. HEALTH SECTOR

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5. SAFETY TOOLS

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This book is intended in particular for students, workers and professionals of health in Latin America. It is distributed through **The Expanded Textbook and Instructional Materials Program (PALTEX)** of the Pan American Health Organization, an international organization established for the countries of the Americas to promote the health of its inhabitants, and the Pan American Health and Education Foundation. This program is implemented with financial cooperation of the Inter-American Development Bank.

PREFACE

Today, workers' health has come to be recognized throughout the world as a key element in the sustainable development of nations. The health of health workers is particularly important.

The health sector employs more than 20 million workers in Latin America, the Caribbean, and the United States – a labor force that represents more than 5% of the economically active population and generates, on average, 7% of the gross domestic product and, as such, is of enormous social and economic importance. Moreover, this labor force is critical for the operation of the Region's health systems. Clearly, the quality of a patient's medical care in a hospital or health center is intimately tied to the health of doctors, nurses, technicians, and other health workers, as well as to the safety conditions in their workplaces. Reconciling the needs of those who receive care with the needs of those that provide it is an ambitious undertaking, and it is compounded by external factors that are difficult to control. Rapid technological development, health sector reforms, and the drain of competent professionals who leave their countries in search of a better life are some of the factors that adversely affect human resources in health.

The development of specific tools to change or decrease the effect of these factors will benefit the health sector's human resources. In terms of PAHO's work, these activities are carried out within the context of environmental risk assessment and management goals. The joint work of the Workers' Health Team within the Sustainable Development and Environmental Health Area and the Human Resources for Health within the Health Systems Strengthening Area to create this publication deserves special mention. Just as important is the Organization's diligence in ensuring that this Manual presents the widest possible consensus on the topic. We also praise the inter-institutional work of the World Health Organization, the governments of some member countries, various universities and medical societies, the United States National Institute of Occupational Safety and Health (NIOSH), and other Collaborating Centers in the Region of the Americas, which contributed and reviewed this book with great vision and commitment. This effort reflects a new spirit of work at PAHO, whereby tools are developed as a result of an inclusive, interactive, and synergistic effort.

We hope that this Manual will help foster a management culture that protects workers' health and safety. We also encourage all decision makers working in the field of health to use this book as a strategic tool in health service management, thereby enhancing the quality of the services.

We are sure that this Manual will help to improve occupational health and safety by decreasing workers' vulnerability to serious occupational and environmental risks. Biological agents such as AIDS and hepatitis B; physical ones such as ergonomic problems

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and exposure to radiation; chemical agents such as exposure to anesthetics and sterilizing agents; psychosocial problems such as burnout syndrome, stress, and harassment; and environmental hazards such as sick building syndrome and exposure to hospital waste are some of the threats.

We are very happy to issue this Manual and make it available to the countries of the Region. It attests to our commitment to the health of health sector workers and will directly benefit their health and working conditions.

Dr. Mirta Roses Periago
Director
Pan American Health Organization

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ABOUT THIS MANUAL

This manual is a product of Pan American Health Organization (PAHO) through its Programs of Workers' Health and Human Resources Development (of the Sustainable Development Area and Strategic Health Development Area, respectively) with the support of World Health Organization (WHO), consultants, and Collaborating Centers on Occupational Health in the Americas. It was initiated within the framework of PAHO/WHO Regional Plan on Workers' Health (Resolution CD41/15), in agreement with ILO/WHO guidelines (Convention 161 of 1985; Recommendation 171 of 1985; Standards for Occupational Safety and Health Management Systems of 2001; and the Joint ILO/WHO Committee on Occupational Health and Safety of 2003).

The Manual is intended for managers, administrators, planners and, in general, for all who are involved in decision making at establishments that administer health services in the Latin American and Caribbean Region whether affiliated with the public or private sector. The Manual may also be utilized by labor unions. It aims to offer basic operational concepts of occupational health and safety (OH&S) management at health care facilities and highlights the hazards commonly encountered in the health care sector and its operations to which workers in the health services are exposed in their work. Practical, easily applicable guidelines are provided based on international standards of good practice.

Though not a conclusive treatise or an all-inclusive handbook of procedures, the Manual intends to stimulate the incorporation of occupational health and safety management in the administration of health services in accordance with a PAHO/WHO Directive for the area of Human Health Resources (resolution 6 CD43).

The early stages of the preparation of this Manual included the compilation and adaptation of available materials on occupational health predominantly from industrialized countries. The *Guidelines for Healthcare Sector* of New Zealand Occupational Health Services, the *Manual of Healthcare Workers* of Alberta Health and Safety Administration, Canada, and the Workbook *Joint Occupational Health and Safety Committee* of Workers' Compensation Board of British Columbia, Canada were sources for a considerable amount of material. References and websites were consulted. The texts were reviewed and adapted to the Latin American realities. Pertinent regional references and successful experiences were identified and included.

This Manual does not pretend to exhaust the entire OH&S field in the health sector. It would be impossible to cover all types of services, hazards and professional settings in the sector within a single treatise. In addition, the enormous diversity of health care scenarios in the Latin American countries, even within each country itself, reflects different foci and priorities thereby making the adaptation of proposed guidelines to local conditions necessary.

This said, and in spite of all the effort to offer easily applicable and economical practices, the reader may consider these guidelines demanding in relation to the local OH&S situation and available resources. This applies particularly to Module 4 (General Conditions and

Safety of the Establishments). However, establishment of better working conditions in such a complex field is a continuous process that requires dedication and persistence. Any progress during this long process will be welcomed and can be reached by adopting an occupational health management system oriented towards realistic short, medium and long term goals compatible with the norms SIO 9000, ISO 14000 and OSAHS 18000. This will ensure improvement of the quality of the services provided, increase productivity, and reinforce competitiveness by a workforce that enjoys optimal conditions of motivation, satisfaction and well-being.

HOW TO USE THIS MANUAL

This Manual addresses primarily professionals in charge of the administration of any kind or level of health care facility, irrespective of the academic level or type of contract of the professional. In order to fully benefit from a Manual that intends to inform and alert administration and workers to the basic aspects of occupational health and safety, a multidisciplinary team is necessary, including both executives at high decision level and those who are directly involved in patient care.

A director needs to be aware of the impact of workplace accidents on the productivity and quality of services provided for the clients. The decision to develop an OH&S management system must be based on motivation, necessary resources, and effective management support throughout the entire process.

Ample experience has demonstrated that the costs of occupational health and safety, let alone adding an important ethical dimension to labor relations, actually represent highly profitable investments. For those directors of services who would wish to conduct cost-benefit analyses of the OH&S investments, we suggest using the data of the costs of accidents and illnesses at his/her service facility. An analytic tool developed by the Regional Center for Occupational Safety and Health (CERSSO) is available. Though this tool was developed for textile maquilas, the risk, investment and cost parameters are the same in the health sector and can assist in understanding the topic and keep the necessary motivation active and on the right track.

The tool is available as a text version at www.cersso.org/mat_pmchtradicional. An electronic version for the calculations is found at www.cersso.org/mat_pmherramientas.asp. The CERSSO cost-benefit analysis may also be conducted by any workers' committee, as commissioned by the administration or through the committee's own initiative.

Five basic aspects are covered by the Manual:

1. Basic concepts and important aspects of occupational health and safety for the administration of a health care facility (mainly Modules 1 and 2).
2. Basic aspects of common occupational hazards in the health sector (mainly Module 3).
3. Guidelines of occupational health and safety (mainly Modules 3 and 4).

4. Practical instruments for the implementation of occupational health and safety programs in health care facilities (last section of the Manual).

5. References for further information or other purposes are found at the end of each section.

Once informed of the contents, objectives and application of this Manual, the reader should feel free to search for answers to his/her questions and utilize the Manual for various purposes such as:

- self study according to personal interests;
- group study to motivate the team to analyze its work environment; and
- a source of practical tools that, once adapted and applied, permits the actor to orient his/her activities toward the implementation and improvement of the occupational health and safety management system.

GLOSSARY

All terms used in this Manual have commonly accepted significance or are defined by dictionaries or other documents such as legislation and codes of practice. For improved clarity, the following definitions are given:

Acute toxicity: The harmful or potentially lethal effect of a substance that occurs immediately or shortly after a single or short-term exposure.

Administrative controls: Administrative arrangements that contribute to the reduction or elimination of worker exposure to a hazard in the work process through changes in duration, frequency and/or intensity of exposure. Examples include: rotation of workers to jobs free of the specific hazard; adjustment of work schedules and shifts; and provision of adequate staffing when the work output is increased.

Blood: Human blood, its components and the products derived from it.

Bloodborne pathogen: Hazardous microorganisms present in human blood capable of causing diseases in humans.

Chronic toxicity: The harmful effects of a chemical substance that manifest after repeated or prolonged exposures or after cessation of exposure.

Contamination: The presence of blood, other body fluids and other potentially infectious biological materials on an instrument or on a surface.

Cytotoxic: An element or substance that is toxic to living cells and may destroy them.

Engineering controls: The technological measures, interventions and procedures that aim to isolate or remove hazards from the workplace. Examples include dilution or local exhaust ventilation and the adoption of a scavenging system in an operating room to reduce worker exposure to anesthetic gas waste.

Hazard: A situation that may cause damage or harm. For the purposes of this Manual, the term "hazard" refers to dangerous working conditions present in the work processes that generate increased exposure and increased probability of risk to workers' health and to the integrity or productivity of the establishment.

Mutagen: A chemical or physical agent capable of inducing or increasing the mutation rate in an organism. Many chemical products, ionizing radiation and viruses are mutagens.

Mutation: A change in the genetic material (DNA) in a chromosome of a cell.

Oncogenic: Inducing tumors or causing tumor growth.

Parenteral: Administration of a drug by a route other than the oral or digestive tract. Usually via intravenous or intramuscular administration.

Prophylaxis: Treatment or action undertaken for the prevention of the occurrence of a disease.

Risk: Possibility or probability of a damage, ailment or injury. For the purposes of this Manual, the term “risk” refers to the probability of an adverse health effect, such as a disease.

Standard precautions: A collective term used for the standardized measures adopted in the health services by isolating patients in order to prevent transmission of infections. Standard precautions are designed to reduce the transmission risk of infectious agents through bodily fluids, not only blood.

Sterilization: The physical or chemical destruction of all microbic life, including highly resistant endospores.

Teratogenic: Capable of producing abnormalities in a developing embryo or fetus and thereby causing birth defects.

Universal precautions: According to the definition of CDC (U.S. Centers for Disease Control and Prevention), “universal precautions” refer to a set of precautions designed to prevent transmission of bloodborne pathogens in health-care settings such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), and others. Under universal precautions, blood and certain body fluids of all patients (not only those in risk groups or those with signs or symptoms) are considered potentially infectious for HIV, HBV and other bloodborne pathogens. Universal precautions apply to possible transmission through blood, other body fluids containing visible blood, semen, and vaginal secretions. Universal precautions also apply to tissues and to cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids but not to feces, nasal secretions, sputum, sweat, tears, urine, and vomitus unless they contain visible blood. Universal precautions do not apply to saliva except when visibly contaminated with blood or in the dental setting where blood contamination of saliva is predictable.

Work practice controls: Changes introduced in practices, habits, forms, attitudes and styles of the worker in order to reduce the likelihood of his/her exposure to hazards in performing a work task. Examples include prohibition of using the “two-hand technique” for the recapping of used needles and the substitution of this practice with destruction through mechanical accessories and safe disposal of needles in solid containers.

ABBREVIATIONS

- EAP:** Employee Assistance Program
- HSC:** Health and Safety Committee, also called Joint Health and Safety Committee, or Occupational Health and Safety Committee (OSHC)
- IARC:** International Agency for Research on Cancer, a World Health Organization Agency
- ILO:** International Labour Organisation
- LAC:** Latin America and the Caribbean
- NIOSH:** National Institute for Occupational Safety and Health (Centers for Disease Control and Prevention, CDC, USA)
- OH&S:** Occupational Health and Safety
- OHSU:** Occupational Health and Safety Unit
- OSHA:** Occupational Safety and Health Administration, an Agency of the Ministry of Labor of the United States
- PPE:** Personal Protective Equipment
- WHS:** Workers in the Health Services

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- OHSU:** Occupational Health and Safety Unit
- OSHA:** Occupational Safety and Health Administration, an Agency of the Ministry of Labor of the United States
- PPE:** Personal Protective Equipment
- WHS:** Workers in the Health Services



MODULE ONE:

Developing an Occupational Health and Safety Management System for Health Care Facilities

The health sector is of extraordinary socioeconomic importance in the Americas. It is a huge source of employment that provides jobs for more than 12 million workers in the United States and 10 million in Latin America and the Caribbean (LAC) (PAHO estimates for 1999). Brazil alone employs more than one million persons in its health services (Brazil, Ministry of Health, 2003). It is important to note that most health workers are women, who suffer not only those risks directly tied to their work in the health sector, but also bear the burden that arises from gender inequalities.

Several health sector reforms have been introduced in Latin America and the Caribbean in the last decade, but they have not considered work conditions as a priority. The labor market in the health sector has moved toward more flexible models, which has redefined work processes, increased job instability, and, in most cases, decreased financial compensation (1). For example, nurses report that they need to hold two or three jobs to be able support their families. They also say that new health care models require them to perform more work in a shorter time and with fewer staff, that they care for populations that are sicker, and that they do so under greater restrictions in terms of supplies, equipment, and services in the facilities where they work (2).

Substandard working conditions in health care facilities have led to a shortage of trained professionals (3, 4), with serious consequences in health service outcomes. For example, a shortage of nurses in the United States has disproportionately affected developing countries whose professionals leave their land in search of higher salaries and better opportunities. This instantly leads to erosion in operational capacity, poorer performance, and lower productivity in health care facilities in the developing countries (5, 6).

Health workers are particularly vulnerable to occupational accidents and illness when they work in understaffed units and under precarious working conditions thus creating a vicious cycle. Studies in 11 United States cities have shown that nurses working in facilities with a high prevalence of AIDS patients report three times more needle-puncture injuries when they work in undersupplied and understaffed units that have lower nursing leadership and higher levels of emotional exhaustion (7).

Furthermore, technological advances in the health sector are far outstripping the development of procedures that ensure occupational and environmental safety (8). In the United States, occupational-accident rates among health workers rose in the 1990s. In contrast, that country's agriculture and construction sectors, which traditionally have been two of the most dangerous, are safer today than in the 1990s. In Latin American and Caribbean countries, where there is less available data than in the United States, the situation may very well be worse for several reasons, including:

- nonexistent, weak, or non-representative labor unions;
- a high prevalence of preexisting illnesses in the workforce, which increases the vulnerability to exposure to toxic and biological substances;
- a higher workload;
- a higher proportion of the health sector is privately funded (about 54% in 1994); this figure is higher than it is elsewhere in the world, except for South Asia;
- infrastructure and equipment tend to be ergonomically inadequate and hazardous;
- the elevation, temperature, and humidity levels in some countries may contribute to develop physical and biological risk factors; and
- qualified professionals in occupational medicine and safety are scarce. As anywhere else, general practitioners are not trained to identify occupational problems.

The cost of occupational injuries and illnesses goes well beyond the directly observable expenditures for treatment, rehabilitation, and pensions. It has been estimated that the indirect costs (absenteeism, loss of productivity, overtime pay) are between two and four times greater than direct costs (10).

Furthermore, it has been demonstrated that deficient occupational health and safety management results in errors that may be subject to legal suits for negligence and incompetence, both against the health services and the health workers themselves (11). Clearly, the development of a management system for occupational health and safety will help improve the quality of health care provided and decrease the risk of legal suits.

Patient safety and the output quality of health care have been consistently linked to the personnel providing the care and to the characteristics of the organization (12, 13). This linkage underscores the extraordinary importance of the human component in the administration of health care systems (14).

Adequate management of workers' health and safety ensures:

- **a decrease in absenteeism due to illness and lowered costs in health care and social security;**
- **healthy and motivated employees;**
- **better cooperation, organization, and harmony in the workplace;**
- **an increase in productivity; and**
- **better health care provided.**

ADDITIONAL INFORMATION:

(PORTUGUESE)

Portaria 37 -proposta de texto de criação da Norma Regulamentadora No. 32 –

Segurança e Saúde no Trabalho em Estabelecimentos de Assistência a Saúde.
<http://www.mte.gov.br/Temas/SegSau/Conteudo/941.pdf>

Ministério de Saúde do Brasil – Anuário estatístico 2001 –
<http://portal.saude.gov.br/saude/aplicacoes/anuario2001/index.cfm>

(SPANISH)

NTP 472: Aspectos económicos de la prevención de riesgos laborales: caso práctico
http://www.mtas.es/insht/ntp/ntp_472.htm

NTP 540: Costos de los accidentes de trabajo: procedimiento de evaluación
http://www.mtas.es/insht/ntp/ntp_540.htm



MODULE TWO:

Basic Concepts of Occupational Health and Safety Management

The employer should have overall responsibility for the protection of workers' safety and health, and provide leadership for occupational safety and health activities in the organization.

_From "Guidelines on Occupational Safety and Health Management Systems" ILO-OSH 2001

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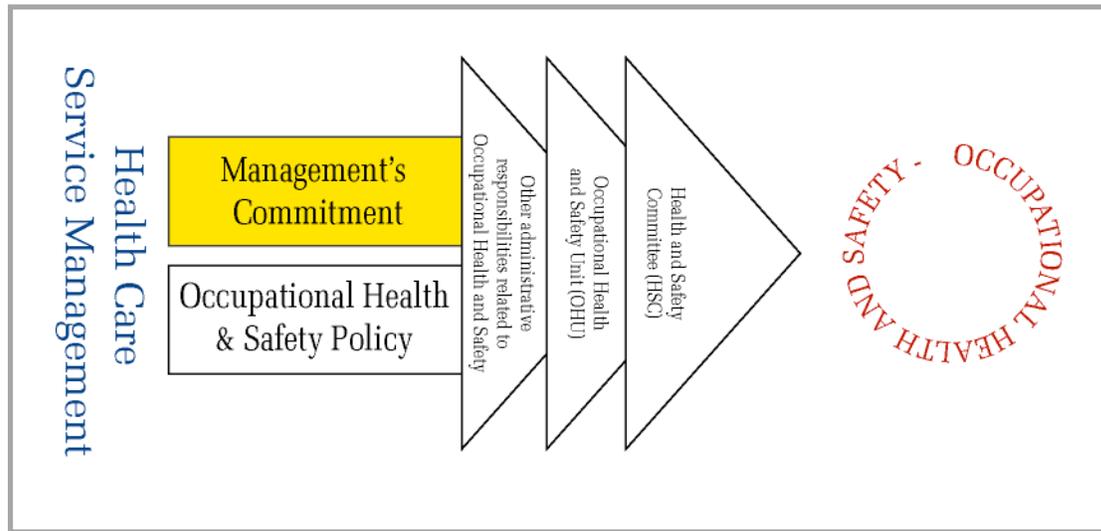
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There already are model programs that improve health and decrease costs. It is not knowledge that is lacking, but penetration of those programs into a greater number of settings.



Health Care
Service Management

2.1 MANAGEMENT'S COMMITMENT



The most effective strategy for managing health and safety in the health services and for providing health care is to incorporate occupational health and safety into an institution's managerial objectives. Handling health and safety objectives in the same way that objectives dealing with finances, the services, or quality are handled will help attain a high performance standard in health and safety.

It is management's responsibility to ensure that the health care facility under its responsibility establishes adequate policies and programs supplied with sufficient human and financial resources to provide a healthy and safe workplace.

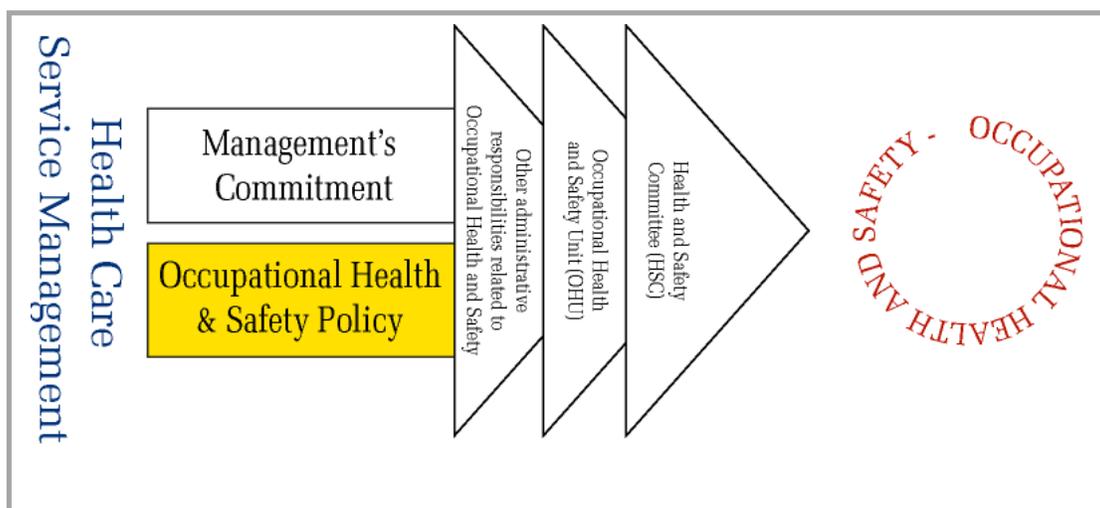
If necessary, one or more persons from top management should be given the responsibility, authority, and duty to collaborate with workers' representatives to:

- develop, apply, and periodically monitor and evaluate the occupational health and safety management system;
- periodically report on the operation of the occupational health and safety management system to the highest management level; and
- promote the participation of all members of the organization.

The extent to which employee activities are channeled toward a common goal depends on the extent of the administration's commitment and participation. In addition to directed activities carried out by the director or by persons specifically assigned to the health care facility's occupational health and safety management system, other top-management actions (in various areas) will demonstrate the support of the leaders to the management of occupational health and safety. For example:

- conduct regular worksite visits to communicate with workers and identify deficiencies to be resolved;
- promote and participate in regular meetings specifically held to discuss safety and health issues or introduce the discussion of these issues in regular daily meetings;
- observe if and how workers adopt work routines that could have serious consequences and set up a dialogue to discuss alternative ways of performing work;
- show an interest in the causes of occupational accidents and in how they have been taken care of. After an accident, assure workers that management cares for them, especially while victims are recovering;
- serve as an example by using personal protective equipment in work areas that require it and always respect existing prevention standards;
- adopt a participatory leadership and heed the opinions of the members of the organization as a way to establish the necessary confidence;
- establish and foster an organizational structure that supports activities of the risk prevention and risk control programs; and
- secure the necessary financial and human resources to ensure that the occupational health and safety system functions well.

2.2 OCCUPATIONAL HEALTH AND SAFETY POLICY FOR THE HEALTH SERVICES

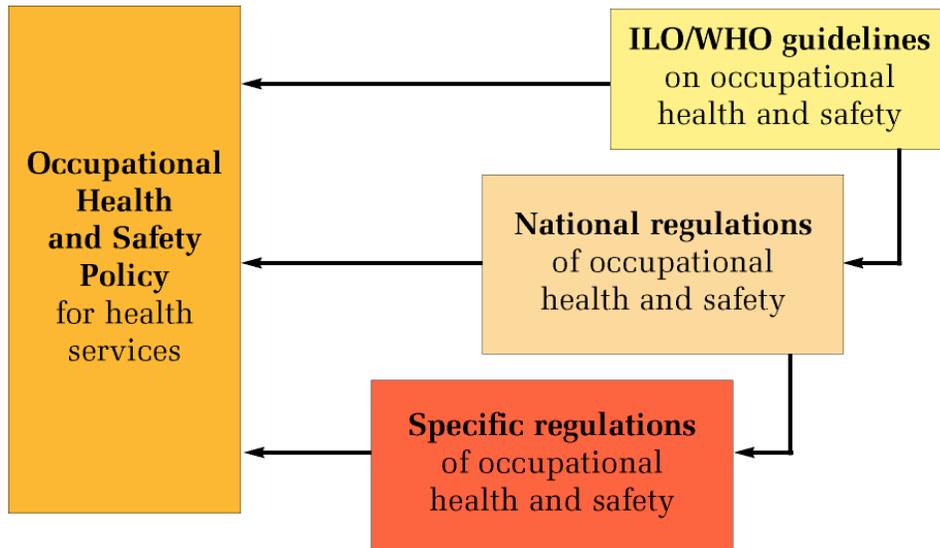


In order to provide a foundation for its health and safety management system, each health care facility should formulate a concise and clear statement of its institutional policy explaining how management intends to fulfill its commitment to worker safety and health. Tool 1, for example, presents a component of the occupational health and safety policy of a health care facility that deals with health care provided to employees.

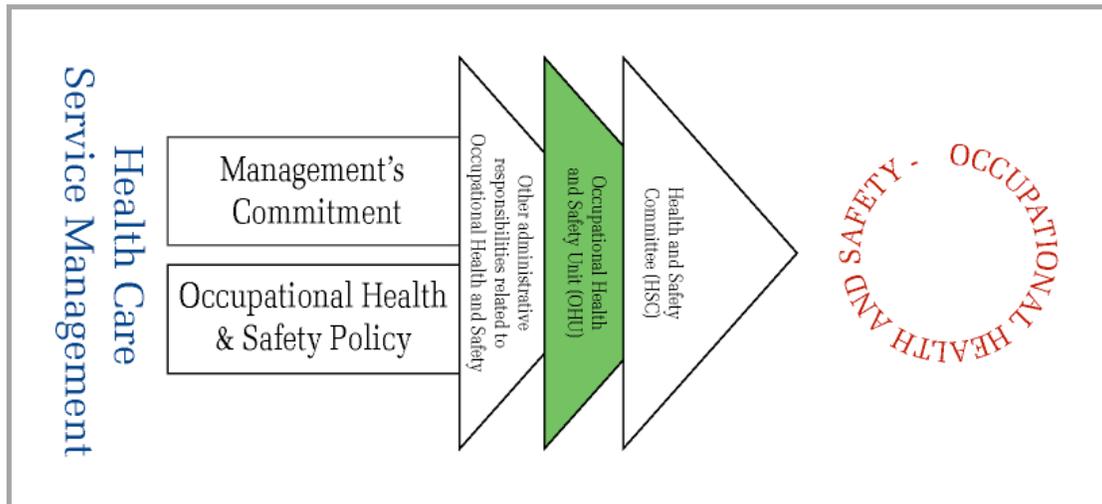
Institutional Policy:

- The institution's policy must be clear and presented in writing, stating the organization's commitment to the health and safety of its workers.
- The policy should outline the responsibilities and accountability of managers and supervisors at all levels. It should specify who is responsible for what and what arrangements are in place for identifying, assessing, and dealing with hazards and risks. Health and safety responsibilities should be incorporated into each job description and should be part of the employees' performance evaluation. A health and safety coordinator or an occupational health unit can help counsel managers thus helping to attain specific health and safety goals.
- The institution's policy should contemplate establishing an occupational health unit to work towards attaining specific health and security goals. In small establishments, a designated health-and-security coordinator can assist managers to attain the goals. (Also see the section following entitled, "Occupational Health and Safety Unit").
- A Health and Safety Committee should be established composed of worker and management representatives included in the health and safety unit. The Committee serves as an executive and advisory entity of the occupational health and safety management system and conducts ongoing, efficient, and direct activities. (Also see the section following entitled, "Occupational Health and Safety Committee.")
- The policy should be developed through a consultative process between management and workers or their representatives authorized by the highest management level.
- The policy should be effectively communicated to workers.
- A clear mechanism should be established and it should be evaluated periodically to ensure that the policy is duly updated.
- The policy should cover all staff, as well as patients, visitors and anyone else who comes in contact with services provided.

- The policy must be developed in line with international guidelines (on which this Manual is based), national legislation on occupational health and safety, and establishment’s specific facility regulations (see the following Figure below.)¹



2.3 OCCUPATIONAL HEALTH AND SAFETY UNIT (OHSU)



¹ This Manual is intended to be used in all PAHO member states, but it is impossible to present here every country’s national legislation. To get this information, please consult the Internet web links and the documents of the ministries of labor and of health of the country where the specific health service facility is located.

In order to ensure effective management of occupational health and safety, the administration should foster the establishment and development of an Occupational Health and Safety Unit (OHSU).²

In consultation and collaboration with workers and management through the Occupational Health and Safety Committee, the Unit should coordinate activities to ensure compliance of the following four basic functions:

- monitoring of the work environment;
- surveillance of employees' health;
- advisory services and communication (providing information, education, training, and counseling on occupational health and safety to management and employees); and
- health care, such as first aid, collaboration with health authorities, and health programs (vaccination, etc.).

Although the Occupational Health and Safety Unit primarily has a preventive function, it may also be charged with dispensing medical treatment to workers and their families, as determined by national legislation and local needs.

Depending on the size of the health establishment and the particular needs of its workers, the Occupational Health and Safety Unit may be comprised of a group of professionals or by a single member.

If national laws permit, an Occupational Health and Safety Unit may serve a group of health care facilities in a given geographical area provided that this does not impede the staff member from carrying out duties in his or her establishment and taking into consideration the requirements of the work itself.

Professionals who Constitute an Occupational Health and Safety Unit:

An Occupational Health and Safety Unit is best staffed with specialized professionals. If none are available, existing professionals should undergo special training. A multidisciplinary team is a priority (occupational medicine, occupational hygiene, ergonomics, occupational nursing, etc.).

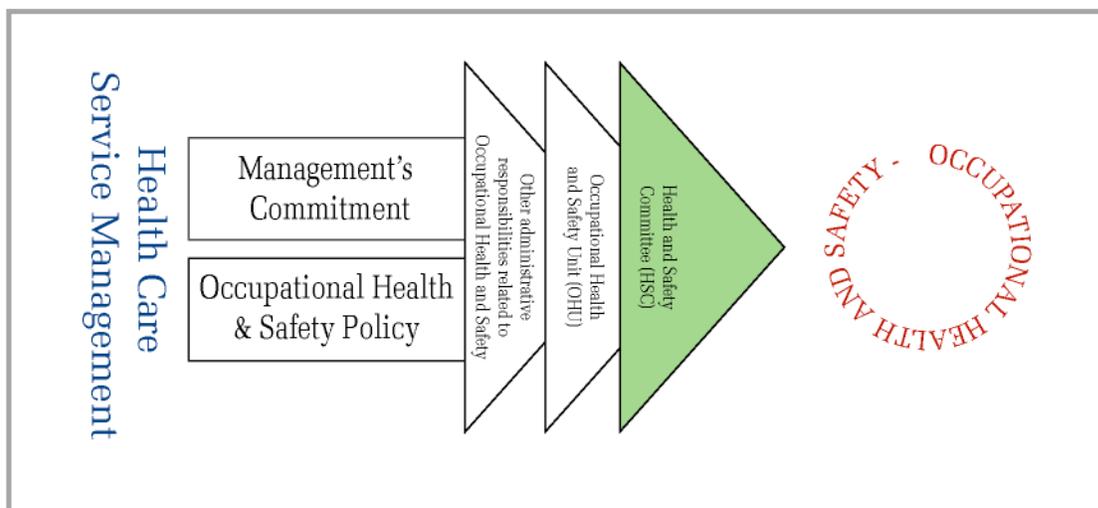
² The legislation and the web provide alternative terms: Serviços de Saúde no Trabalho (ILO Brazil), Servicio de salud en el trabajo (ILO in Spanish), Occupational Health Services (ILO in English), Basic Occupational Health Service (BOHS, more recent documents of ILO/WHO). Since this Manual addresses persons employed in health services, we avoid the use of the term “service” to refer to the medical and social assistance offered to the employee in order not to confuse between in-house services and services offered to the community.

Some Requirements for the Proper Functioning of the Occupational Health and Safety Unit

- The Occupational Health and Safety Unit must have adequate space to carry out its activities and so its staff can perform its administrative functions.
- The professional independence of the Unit's members must be safeguarded in accordance with national laws and with standards agreed upon between management and workers.
- The Unit's professionals must adhere to confidentiality standards concerning information they receive on employees while performing their functions. Professional confidentiality is subject to exceptions defined in the legislation and in national regulations.

The items in the section “Strategies of Occupational Health and Safety” mention the role of the Occupational Health and Safety Unit in accomplishing occupational health and safety strategies. See also ILO recommendations concerning establishing an Occupational Health and Safety unit in the tool section of this Manual (Tools 2 and 3).

2.4 OCCUPATIONAL HEALTH AND SAFETY COMMITTEE



The Occupational Health and Safety Committee is an extraordinarily important tool in the management of occupational health and safety. It is a permanent group composed of representatives of employees and the employer who communicate and collaborate to identify and solve health and safety problems at the workplace, providing orientation and support to the occupational health and safety unit.

The Committee is charged with issuing recommendations to solve occupational health and safety problems, but is not responsible for implementing those recommendations. The ultimate responsibility for guaranteeing worker safety rests with the employer; in other words, the management or administration of the health care facility. The Committee may collaborate in implementing the recommendations, provided that management has established favorable conditions for the collaboration to occur (clear delegation of responsibilities, training, support personnel, etc.).

If the number of workers in the health care establishment is small, alternative arrangements may need to be made or the establishment may resort to pertinent technical norms. Thus, a small primary health care unit with fewer than ten workers probably will not be able to establish a committee. In that case, one of the workers may be designated as a health and safety representative. This worker would be the focal point for all occupational health and safety situations and matters. The worker may also represent his or her establishment and its workers in a health and safety committee made up of representatives from primary health care establishments from other health systems or from other geographical areas.

What Does the Occupational Health and Safety Committee Do?

The committee's activities to promote a safer and healthier working environment are the following:

- promote occupational health and safety in the workplace in order to increase awareness and interest in them;
- respond to workers' health and safety concerns;
- help solve occupational health and safety problems;
- participate in hazard awareness campaigns;
- promote worker attendance at training and orientation sessions;
- review safe work practices;
- help select tools, equipment, and personal protection equipment;
- participate in worksite inspections to identify hazards;
- review accident and illness reports to identify their causes and prevent their recurrence; and
- develop safety policies and procedures that are secure and realistic; and

- establish links with other committees such as the infection control committee.

Benefits of a Productive Occupational Health and Safety Committee

1. Accident reduction. Time lost due to accidents will decrease. Additional expenses such as funds paid for overtime, retraining, and compensation to other workers who stopped working or helped the accident victim also will be cut down.

2. Prevention of occupational diseases. The adoption of adequate preventative measures to protect workers can prevent the acute effects of hazardous chemical substances such as headaches, dizziness, nausea, disorientation, intoxication, and dermatological problems. Long-term, chronic effects such as cancer, respiratory diseases and neurological damage also can be prevented.

3. Morale boost in the workforce. This comes about as a result of the committee's calling of attention to the needs and improvements in health and safety issues and providing a communication channel for every worker to ensure that his or her concerns will be taken care of. Workers see results and can verify that the employer is genuinely interested in eliminating hazards. The worker then views his or her workplace as cleaner, more orderly, and pleasant.

4. Damage reduction. The causes of damage to materials and equipment are, by and large, the same as those of damage to the worker's physical integrity. Both imply high costs to the establishment human costs due to the damage to the person and financial costs to repair or replace equipment or material.

5. Productivity optimization. Time lost due to equipment failure or poor work practices will be avoided.

6. Reduction of material loss. Losses often result from precarious work processes that can be controlled by health and safety practices.

How to Establish and Develop the Health and Safety Committee

National legislation regulating the composition of the Health and Safety Committee may already exist. If no national norms are in place, it is recommended that a minimum of four members be designated, at least half of whom should represent workers and the remainder, the employer. It may be useful to add a fifth member elected by both parties to facilitate decision making. Worker representatives should be elected by their colleagues for a predetermined term and with a guarantee of job security unless they are found to have committed a serious misconduct.

Training of Occupational Health and Safety Committee members is a must. Copies of all legislation relating to workers' health policies and their procedures, as well as

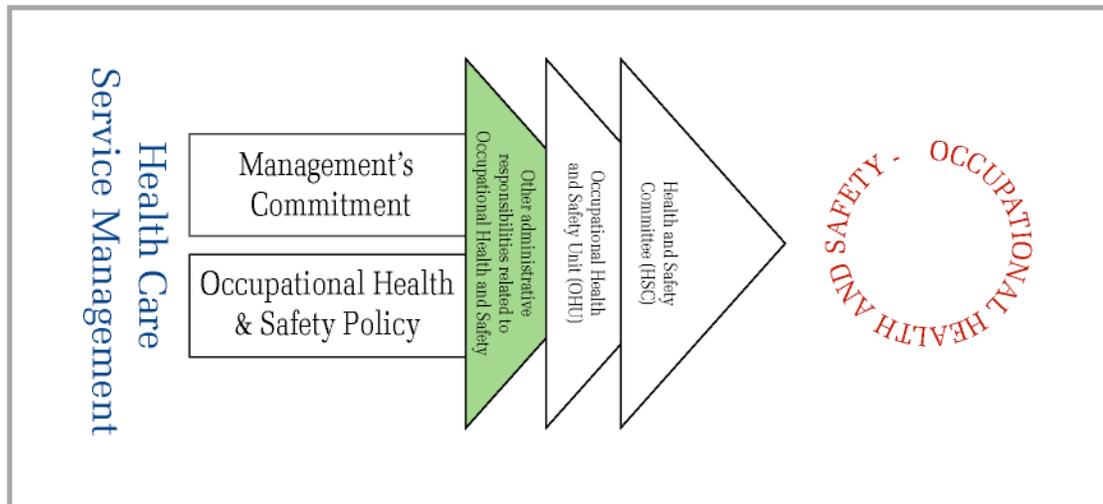
information on workplace alerts and hazards, must be sent to committee representatives. Outgoing members should brief new members.

The Committee should hold regular meetings with management. Workers and the administration must be equally represented at the meetings, or worker representatives should be the majority. Regular joint meetings of the Committee and management are necessary. Representatives should receive standard compensation for the time they spend on their functions and attendance at committee meetings.

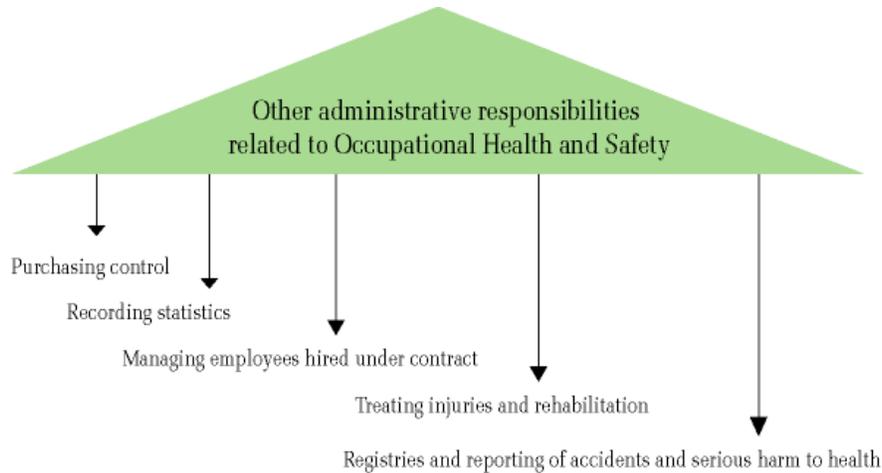
To ensure that the Committee functions effectively, assistance can be requested from such institutions as ministries of labor or of health, the PAHO/WHO Country Office, and the International Labor Organization (ILO). These institutions may have useful posters, booklets, films, and guides. There may also be courses offered for members interested in improving the Committee's efficiency.

The last section of this Manual provides useful tools (Tools 4, 5, 6, 7 and 8) to assist in establishing and maintaining the Occupational Health and Safety Committee.

2.5 ADDITIONAL ADMINISTRATIVE RESPONSIBILITIES RELATED TO THE OCCUPATIONAL HEALTH AND SAFETY UNIT



As a way to reinforce the occupational safety and health system, management should create administrative systems or adapt existing ones so that they include occupational health and safety components. This will strengthen the interface between the Occupational Health and Safety Unit and the administration of the health services, which will be adjusted to coordinate responsibilities for achieving occupational health and safety goals.



2.5.1 Purchasing Control

Management's responsibilities concerning the occupational health and safety of its staff members include dealing with those who design and manufacture products such as machinery, equipment, substances, and protective clothing. It is essential that purchasing regulations consider health and safety. The administration should have the support of the Health and Safety Committee in these matters, so that all potential risks and the costs of implementing controls are considered before any equipment, products, or services are introduced into the workplace.

A purchasing system should require that suppliers and vendors comply with the health care facility's specific health and safety standards as well as with all pertinent industrial standards norms. The suppliers and vendors should provide written information (such as technical information on the safety of materials) on the health and safety of all their products, chemicals or substances. Advice and training should be provided to all those responsible for any acquisition.

2.5.2 Managing Employees Hired Under Contract

In a health care service, the responsibilities of management, self-employed workers, employees, supervisors, and contractors (those who contract persons who are not employed by the health care facility) must be clearly defined.

Management is responsible for applying all practical measures to ensure that persons hired as staff, contractors, subcontractors, as well as any other persons who happen to be in the area, are not injured while the contracted work is performed. This does not absolve the contractor or subcontractor from his or her responsibilities as employer.

There may be many different types of work performed under contract at the same health care facility including long-term contract work (i.e., laboratory services that are

performed by private providers) and short-term contract work (i.e., nursing professionals contracted to cover a specific period).

The health care establishment should develop adequate administrative and procedural policies to deal with contractors and subcontractors in order to arrange their responsibilities to management and ensure that all subcontracted work complies with expected standards.

Large organizations with long-term contract arrangements should establish formal systems and negotiate compliance with health and safety requirements as part of the contracting process.

The coordination among contractors, those contracted, local management, and the health care facility's employees should be negotiated when contracts are determined for construction or maintenance projects as these jobs may generate hazards such as noise or solvent vapors that could affect patients and health care personnel.

The contractor should present the administration with a health and a safety management plan, stating the following:

- compliance with workers' health and safety standards and other pertinent regulations and codes of conduct;
- a system for identifying new and existing hazards for the duration of the contract and a plan to control serious hazards;
- health and safety information and training for contract workers;
- roles and responsibilities (a flow diagram would be useful);
- an employee supervision system, wherever necessary; and
- pertinent procedures to report and investigate accidents and incidents that may occur during the course of the contract work and procedures to advise management of said accidents and incidents.

Before contract work can begin, the establishment must ensure that all contractors are fully aware of the health and safety procedures applicable at the worksite.

This should include the following:

- information on any known health hazard contract workers may be exposed to at the worksite and ways to control those hazards;
- established emergency procedures to be adhered to in the event of an emergency; and

- observation of all instructions, warnings, and restricted areas.

2.5.3 Registries and Reporting of Accidents and Serious Harm to Health

Management should maintain registries of work-related accidents and of serious harm to health. Registries should record all accidents that cause injury (or could have caused injury, such as exposure to body fluids of a patient). Registries and reporting should cover the following persons:

- (a) any employee at the workplace,
- (b) any person at the workplace who is under the employer's control.

Employers also should investigate, jointly with employees, every accident, injury, or risk of injury to determine whether it was caused by a significant hazard and propose changes to prevent the recurrence of another incident.

Employers should immediately report all serious injury to an employee during his or her work to the appropriate governmental office. Depending on the country's legislation, a reporting form may also need to be filled out.

If the injury is serious, the accident scene must not be disturbed, except to:

- save lives or avoid suffering;
- maintain public access to essential services, such as electricity or gas; or
- prevent severe damage or loss of property.

The responsible governmental office may want to investigate the accident and may dictate actions that should be undertaken in the meantime.

2.5.4 Treatment of Injuries and Rehabilitation

A comprehensive health and safety management system integrates rehabilitation with prevention strategies.

The goal of a rehabilitation program is to promote an injured employee's return to work as quickly as possible. The program should therefore be designed, run, and overseen so as to ensure that the recovery process is maintained and the risk for further illness and injury is eliminated.

Human Resources management should work closely with the Occupational Health and Safety Unit during the reincorporation of employees whose illnesses or injuries require rehabilitation and gradual reintroduction to work.

If its structure permits, management may assume responsibility for the administrative and financial components (authorizations, pensions, etc.) and delegate responsibility for the medical and rehabilitation components to the Occupational Health and Safety Unit through the Employee Assistance Program (EAP).

Most employees will require only basic medical treatment for their injuries and illnesses and will return to work after short-term assistance without the need for formal rehabilitation. Injuries or illnesses that have caused serious harm or have required a long absence from work, however, will require more involved assistance procedures before recovery and a return to work can occur. (Also see sections “Occupational Health and Safety” and “Health Care, Rehabilitation, and Reintegration” found in this chapter.)

These procedures may include the following:

- early measures necessary for notification, intervention, and evaluation;
- clearly defined responsibilities within the rehabilitation program (e.g., the appointment of a rehabilitation coordinator);
- a multidisciplinary rehabilitation process;
- an established system so that the injured person, those in the workplace whose work has been affected by the injured party’s absence, and health professionals can communicate with one another;
- a system for monitoring recovery and coordinating the recovery with rehabilitation;
- follow-up after the employee returns to work; and
- a system for identifying alternative work duties.

Initiation programs for new employees should clearly explain the rehabilitation policy, ensuring that the process is well understood.

Needle injury episodes call for urgent action. Tool 18 at the end of the Manual’s last section includes a form to be used when reporting wounds caused by sharp objects. The form could be used as part of a program for monitoring biological risks (Also see the section “Biological and Infectious Risks” in the next chapter.)

Investigation

It is important that all occupational illnesses and injuries be fully investigated, so that:

- the real causes can be identified;
- effective methods to prevent similar occurrences in the future can be developed; and
- national health and safety legislation requirements can be met.

2.5.5 Registries and Statistics

Registries and statistics are extremely important tools (see Tools 20 and 21 in the last section of this Manual). They can be used:

- to compile and analyze data on the causes of injuries and illnesses so that specific control measures can be adopted;
- to identify particular work situations such as sites, departments, and tasks (for example, lifting of heavy loads) associated with high risk of injury or disease, in order to target prevention efforts;
- to provide concrete information for employees, management, and Health and Safety Committee representatives so they can objectively evaluate health and safety programs; and
- to evaluate progress and efficacy of injury and accident prevention efforts.

Management should ensure that information included in registries and reports be summarized and disseminated periodically (such as in monthly and annual reports; see Tool 21). This information should be used to steer the institution's occupational health and safety management system.

Monthly summaries should be prepared without delay (for example, within 30 days) after the end of each month and as the data become available. The monthly occurrence history can be analyzed for adopting necessary preventive measures. Typically, a monthly report presents monthly totals, cumulative data (for example, over the preceding 12 months), and necessary information needed to calculate injury and illness rates and trends.

Annual summaries of work-related occurrences showing cumulative totals of the previous year should be prepared without delay at the end of the year (for example, within 30 days).

2.6 PROCEDURES FOR MANAGING OCCUPATIONAL HEALTH AND SAFETY

An occupational health and safety management system is inherently cyclic and participatory in providing continual feedback as it searches for information and improvement. This system is implemented in two phases: the first establishes the conditions so that the system can be created (initial steps) and the second allows the participatory and feedback features to clarify the system and procedures (ongoing improvement).

It is up to management to initiate the process if possible by consulting with existing occupational health and safety entities in the institution. The first steps may include the search for information to validate the decision to establish an occupational health and safety management system at the facility. (References at the end of Module 2 are useful for conducting a cost-effectiveness study in this regard.)

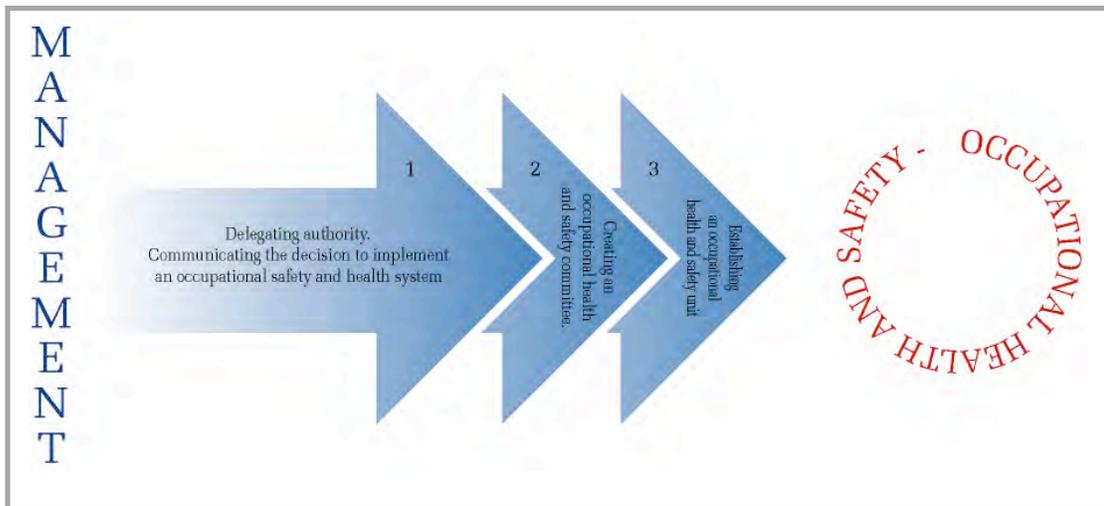
2.6.1 First Steps

Management may already be sufficiently committed to implement or improve an occupational health and safety system. If so, the next goal should be to inventory all existing structures and practices in the establishment that deal with occupational health and safety (hospital infections committee, disaster management, vaccination routines, etc.). Tool 9 in the last Section presents a checklist that can be adapted and applied for this purpose.

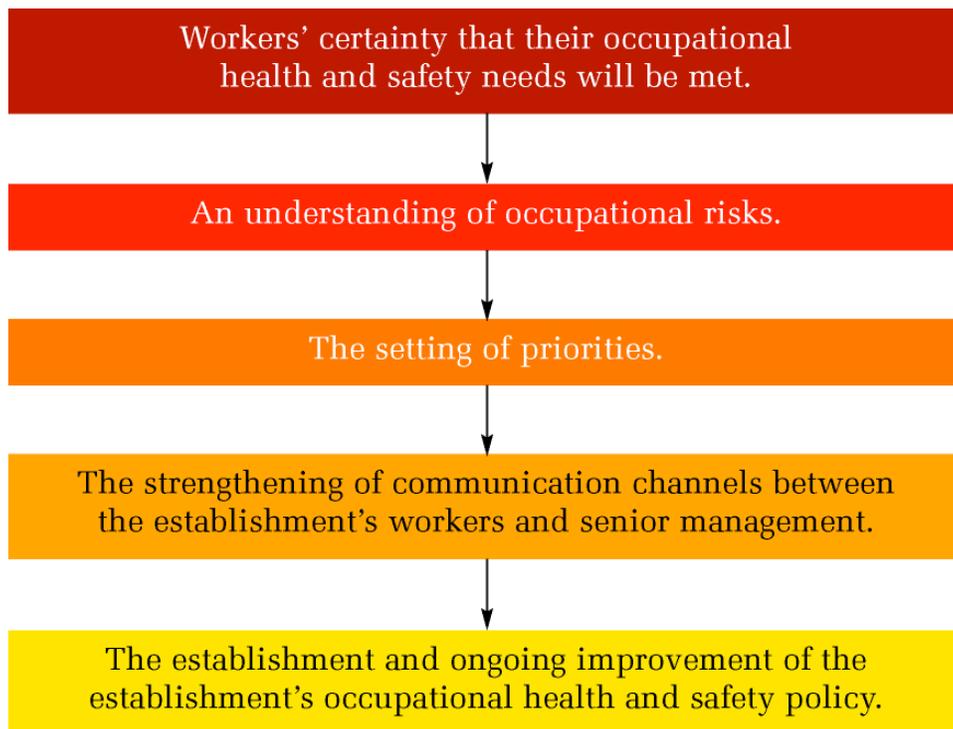
Initial-stage inventories, planning, and actions may be undertaken by the director or management may delegate, and duly authorize, the responsibility to an employee, an existing occupational health and safety entity, or a consulting firm specifically hired to that end. Two actions are required: the delegation of authority and the communication to all employees of the decision to establish (or improve) an occupational health and safety management system.

The initial phase should end in the establishment of a system's minimal structure, which should always be in compliance with regulations issued by ILO/WHO and national bodies, as well as in consideration of local conditions. The minimal structure should include the following:

- an Occupational Health and Safety Committee (also see section "Occupational Health and Safety Committee" earlier in this chapter) and
- an Occupational Health and Safety Unit (see section "Occupational Health and Safety Unit" that appears earlier in this chapter) or mechanisms for tapping into the Occupational Health and Safety Unit that covers all health care facilities in the geographical area or a group of health care facilities.



The occupational health and safety management system will begin to fully operate only after the Health and Safety Committee and Unit have been implemented. With the implementation of these two entities, the system has the minimal structure to begin the cycle of self examination and improvement of the health services in terms of occupational health and safety. The structure will reinforce the following:



2.6.2 Continued Improvements

This section will describe five essential processes for the ongoing operation of an occupational health and safety management system. These processes were included when the initial steps were undertaken. Now, with the system's minimal structure in place, these activities should become routine and should occur continuously.

These processes need not follow a prescribed sequence. Their order will depend on the system's level of development and current needs.



Dialogue or Consultation

Dialogue, or consultation, should be inherent in good management and administration. It is the means through which employers and workers can work together to improve health and safety in the workplace. When changes in the workplace are being planned, consultation should take place as early as possible, and they should be ongoing.

Dialogue or consultation can lead to improvements in health and safety practice as workers become aware of the hazards in their work and suggest effective solutions. Employee involvement in identifying problems and in workplace changes also helps ensure worker commitment to the changes.

Dialogue or consultation includes:

- the development of policies, procedures, and plans of action for identifying, assessing, and controlling workplace hazards;
- the review of accident statistics;
- participation in solving problems;

- the involvement of senior management, workers, and the labor union;
- the consultation with workers or their representatives about major occupational safety and health concerns; and
- the guarantee that workers have access to all pertinent information and training on occupational health and safety.

There are several ways to consult with workers ranging from an exchange of ideas with supervisors, to discussions held in the committees, to the use of surveys. As an example, Tool 19 presents a survey form asking about workers' dietary habits and physical activity. The information gathered may be used to help design health promoting programs for workers and their families.

Planning

In order to attain uniform occupational health and safety goals throughout the health service facility, each institution must develop an administrative plan. Planning is essential if a health care facility is to have consistent focus and maintain adequate environmental and working conditions.

Planning should:

- be conducted by competent persons in consultation with workers and/or their representatives;
- be based on a situation analysis. The results should be documented and should achieve the following five points:
 - identify the national and specific occupational health and safety legislation and directives in effect;
 - identify existing occupational health and safety practices, voluntary protection programs, and other initiatives already in place in the institution;
 - identify the most significant occupational risks and adapt the existing control mechanisms accordingly;
 - serve as the basis for developing an occupational health and safety management system; and
 - serve as a reference for the ongoing evaluation of the occupational health and safety management system.

- define clear objectives and establish quantifiable goals or standards that should be attained; and
- incorporate an action plan that sets task assignments and deadlines.

Planning also should consider the provision of adequate information and training for personnel at all levels so that the staff can assume their responsibilities.

Providing Information

Employers should provide information to health care workers, patients, suppliers and to anyone in the community who uses the health care facility. This will ensure that the legal requirements in effect are known and that relevant and updated information is adequately provided on an ongoing basis regarding:

- all identified hazards;
- control of priority hazards (such as steps taken to control the likelihood that hazards could result in damage);
- the use and maintenance of personal protective equipment as necessary;
- any hazard workers may generate during work and the ways to control the likelihood of incurring harm to themselves or others;
- new hazardous processes, products, equipment and measures taken to control the likelihood of any associated damage;
- standards for work methods and practice;
- the health care facility's emergency procedures; and
- any means and procedures established through the occupational health and safety management system to ensure awareness by all so that the system is kept active and has the support of the workers.

There are many activities that can be used to disseminate information on health and safety. Recommendations include:

- the use of existing administrative and other staff meetings to provide and promote information on health and safety;
- development of new or modified job and duty descriptions;
- bulletin boards;

- inclusion in employee initiation training;
- supervisors' instructions to workers; and
- election of a health and safety representative for each work area.

The information should be presented in an appropriate format with consideration of employees' reading and writing level and language needs. It may be necessary to present and explain the information as well as verify the workers' understanding of the information they have received.

Visitor Information

The system put in place should ensure that visitors (such as deliverers, volunteers, merchants, patient visitors, or inpatients) are aware of the health service facility's occupational health and safety requirements and comply by them.

Information should include:

- the facility's emergency procedures;
- the observance of, and strict compliance with, all instructions and precautions;
- the use of safety and warning signs in high-risk areas; and
- the banning of visitors from certain work areas where they might be affected by hazards or present a work hazard themselves.

Education and Training

Employers should provide education and training in occupational health and safety for their workers as part of their responsibility to ensure a healthy and safe workplace. Employers should offer such training at all levels, including management, to ensure that the administration and workers can assume their responsibilities and to strengthen the culture of prevention of occupational health hazards at the facility.

Training in occupational health and safety should be integrated into the overall in-house training program. Occupational health and safety training should be periodically evaluated as part of the overall monitoring of the occupational health and safety program in order to ensure that all training needs regarding workplace hazards and their management have been identified and handled.

Workers' occupational health and safety training may be incorporated into:

- new employee initiation training (including training on workplace standards, occupational hazards and risks, controls, the use of personal protective equipment, accident notification system, and emergency procedures);
- job site training (handling of machinery, equipment, procedures, etc.);
- training of managers and supervisors (handling human resources and health care processes); and
- training of persons assigned to roles and responsibilities such as occupational health and safety coordinators and representatives, committee members, and emergency and first-aid responders.

A training record should be kept for each employee with data on acquired skills and competencies and any additional training that may be required. Training records should be updated regularly with the workers. (See also the section on “Fire Precautions” in Module 4.)

Supervision

Employers should ensure that workers who do not yet have sufficient knowledge or experience to conduct their tasks and duties are supervised by an experienced worker until they can perform work without causing harm to his or herself or to others.

Audit and Review

Health and safety audits and work performance reviews are the final steps of the health and safety management control cycle that effective organizations employ to maintain and improve risk management to the fullest extent. This process aims at ensuring coherent functioning and updating of the control mechanisms in relation to their intended goals.

Reviews should become part of all the facility’s occupational health and safety practices; auditing should be done periodically. Both should measure results such as the attainment of goals and objectives, trend analyses, and program efficacy. They also should be used to identify issues that require modifications to elements of the occupational health and safety program thereby improving the overall efficiency.

As a way to evaluate results, employees should be interviewed, tested, and observed at work to assess their understanding of health and safety policies, procedures, and training. Program effectiveness also may be evaluated by institution-wide and departmental trend statistics of occupational injuries and illnesses.

Auditing and review permit the policy to be evaluated according to the following four key indicators:

- attainment of set occupational health and safety performance standards;
- achievement of specific objectives of the action plan;
- identification of areas where standards are absent or inadequate so as to intervene immediately; and
- ongoing analysis of incident, accident and illness data.

Periodic audits should determine whether the occupational health and safety management system:

- is effective in terms of the health care facility's occupational health and safety policy and objectives;
- is effective in promoting full worker participation;
- responds to the conclusions of former reviews and audits;
- complies with national laws and regulations; and
- meets the goals of ongoing improvements and better occupational health and safety practices.

2.7 OCCUPATIONAL HEALTH AND SAFETY STRATEGIES

Occupational health and safety procedures may be organized along three main complementary strategies. A single strategy or a combination of these strategies can be used depending on the status of diseases and injuries that are targeted and on the local conditions.

Occupational Health and Safety Unit and Occupational Health and Safety Committee activities adhere to health and safety chosen occupational strategies.



2.7.1 Prevention of Injuries and Illnesses

This is probably the most widely used occupational health and safety strategy. It is based on the management of occupational hazards that may lead to injuries and diseases. It targets workplace risk factors that need to be identified, assessed, and controlled in order to prevent adverse health outcomes that have been selected for prevention.

This module sketches a broad concept of a system for the analysis and prevention of occupational risks. For a more applied treatment, consult Module 3, which presents the most frequent occupational hazards in the health sector and their preventive measures.

Systems for Identifying, Evaluating, and Controlling Hazards

Occupational health and safety hazards and risks cannot be effectively identified, evaluated, or controlled unless the facility maintains a system for hazard identification, evaluation, and control. The system should be standardized for the entire health care facility to ensure that there will be no confusion about managing the occupational hazards and risks.

The occupational health and safety action plan should outline the details of the procedures that the personnel and administration must follow to identify, evaluate, and control hazards in their work environment.

It is important to conduct an inspection of the health care facility in order to make an initial diagnosis.

A. Hazard Identification

Comprehensive hazard identification is the basis for the prevention of human or equipment damage or loss and interruption of processes.

The initial hazard identification makes it possible to:

- identify pertinent and important hazards in the health care process;
- establish appropriate controls;
- define objectives for training and information needs;

- clearly define the responsibilities of management, supervisors, and workers; and
- draft and implement comprehensive work standards and integrated practices, including emergency procedures.

The methods of hazard identification include:

- area-specific identification based on the division of the workplace into identifiable areas. (Tool 10 shows a list of hazards that were identified by the site of their most frequent occurrence);
- task-specific identification of hazards by each step in the task;
- process-specific identification of hazards at each process stage; and
- job-specific identification of the hazards by stage in the process.

None of the above methods is unique or ideal for hazard identification. The preferred system depends on the type of services rendered, the processes involved, and the types of installations at the health care facility. A combination of methods may, therefore, be the best choice.

Tools 11 and 12 provide checklists for the identification of occupational hazards during a survey of the installations. The checklists may cover too much ground or may miss important aspects for the level of complexity of the workplace where they will be applied. They therefore need to be reviewed and adapted to the particular context where they will be used.

Existing resources_such as codes of practice and guidelines, health sector information booklets, information and specifications from medical supplies and equipment manufacturers, reports from inspectors or consultants, and environmental health reports_should be used to identify hazards. Registries of accidents, diseases, and absenteeism, as well as records of results of dialogue and consultations with workers are important sources of information.

A gender approach must be applied to the methods listed above because a person's sex may affect the effect of a given risk. For example, pregnant women may be particularly susceptible to radiation. Likewise, alternate shifts seem to affect women to a greater extent (e.g., menstrual dysfunctions,¹⁵ greater alcohol and tobacco abuse.¹⁶)

B. Hazard Assessment

As health hazards in the workplace are identified, decisions should be made to:

- immediately set up measures to control priority hazards or
- introduce control methods to reduce or eliminate the likelihood of injury from hazards that are not considered priorities.

Tool 14 in this Manual's last section provides a hazard-assessment worksheet designed to facilitate the decision making process.

C. Hazard Control

Hazards that have been identified and assessed as priorities require the employer to implement adequate control measures.

Control measures should follow the hierarchy described below, with a strong emphasis on eliminating hazards at the source, whenever possible.

- 1) Take all feasible measures to eliminate the hazard (for example, by substituting or modifying the process).
- 2) If elimination is impractical or remains incomplete, take all feasible measures to isolate the hazard (for example, instituting engineering controls such as insulating noise).
- 3) If it is totally impossible to eliminate or isolate the hazard, its likelihood to cause injury should be minimized. This effort should include:
 - ensuring that effective control measures are being applied, such as installing proper exhaust ventilation and providing personal protective clothing and equipment that is properly used and maintained, and
 - monitoring exposure among at-risk workers.

D. Hazard Mapping

"Hazard maps" for a given health facility are graphic and visual representations of occupational hazard data for that facility. Visual representation facilitates the identification, location, and assessment of hazards and yields a clearer understanding of the exposure that various groups of workers are subjected to.

Hazard maps should incorporate data collected with tools (Tools 10, 11 and 12) that were used to identify and quantify hazards.

Data may be presented for the establishment as a whole or for part of it. If a suitable floor plan is unavailable, a sketch of the overall architectural distribution or task distribution may be used to facilitate understanding and discussion.

This information should be systematic and easily updated. The process should not be viewed merely as a way to collect, organize, and analyze data.

The objectives of mapping are to:

- locate occupational hazards and risks and associated working conditions;
- understand conditions that may expose workers to existing occupational hazards; and
- understand measures adopted by establishment to control existing hazards in each task or area.

The methodology includes:

- 1) Elaborate work descriptions.
- 2) Develop a sketch of work areas.
- 3) Design inspection and hazard assessment manuals (tools presented here for the hazard identification and assessment may be adapted for this purpose).
- 4) Conduct relevant inspections followed by the identification of existing hazards by area or work process.
- 5) Point out the hazards that were identified and assessed.
- 6) Assess identified hazardous situations in order to seek and implement preventive measures to control the risk factors.

Mapping of the facility's various areas should present information through signs composed of:

- geometric forms (indicating information, precaution, prohibition, or warning);
- colors (indicating existing hazard, hazard in control phase, and hazard under control); and
- symbols or pictograms indicating the nature of the hazard.

Universal symbols facilitate understanding and should be used whenever feasible. It is recommended that signals that are similar to those used in signaling safety in the work areas be used in order to avoid misinterpretation.

Generating a map for each physical subdivision would be ideal. In special cases, specific maps may be prepared, depending on the complexity that of what needs to be represented.

Tool 13 in the last section of this Manual presents an example of a hazard map and signals that may be used in preparing maps.

Monitoring

Monitoring refers to any evaluation or follow-up intended to establish the current condition of the workplace or the workers in terms of a hazard that has been determined to be a priority.

There are two major types of monitoring:

- environmental monitoring—an evaluation of the extent of a physical, chemical, or biological hazard or exposure at the workplace; and
- monitoring of workers or of worker exposure to physical, chemical, or biological hazards in the workplace.

For ethical reasons, informed consent is required of each worker before personal health monitoring is conducted. As with any medical records, monitoring records of workers must be kept confidential between the worker and the person that carried out the monitoring, unless the worker explicitly grants permission to have the results made available to the employer. The only results of biological monitoring that would normally be accessible to the employer are aggregate group results in which the identification of individuals has been obliterated.

Emergency Procedures

A health care facility must be prepared to respond to a variety of emergencies—fires, riots, earthquakes, hurricanes, acts of terrorism, chemical accidents, etc.—and to take care of external clients, workers, and collaborators.

To this end, management should develop an emergency and disaster plan and conduct emergency simulations for all facility personnel so that the staff is fully prepared to react properly during emergencies or disasters. Every worker must know exactly what to do in every type of emergency. The police, fire departments, emergency services, and other authorities should be included in the emergency response plan.

Management is responsible for ensuring that such a program is instituted and that it is reviewed and updated frequently. All employees should be given the opportunity to fully

participate in the development of emergency procedures so that every health worker knows what to do in these emergencies.

At a minimum, the program must include:

- a corporate policy statement that emphasizes the importance of emergency response planning and affirms management's endorsement of the emergency response initiative;
- an outline of the chain of command or responsibility during an emergency that ensures rapid and effective response;
- clearly defined functions and responsibilities of all facility staff members during an emergency;
- a clearly defined communications network and warning system to be used during normal working hours and beyond;
- detailed emergency responses for every type of emergency;
- preparation and posting of emergency evacuation procedures and routes;
- procedures to be followed by workers who remain in charge of critical facility operations or are charged with shutting them down before the facility's evacuation;
- clearly defined early notification requirements establishing who is responsible for notifying within the organization and to external authorities about an incident ;
- training requirements for all staff in the facility; and
- regular reviews and updates of the emergency response plan.

The section "Registries and Reporting of Accidents and Serious Harm to Health" presented earlier in this module gives an overview of notification and registration of accidents and serious injuries.

2.7.2 Health Promotion

Health promotion has the widest perspective on workers' health, safety, and performance. It is a tool that can help to prevent injuries and illness by substituting risky situations and behaviors for less hazardous ones. Thus, in promoting healthy lifestyles, health promotion not only targets the working environment but also other health risks and protective factors in workers' lives.

Preparing health promotion materials and activities for the workplace may help prevent work-related injuries as well as encourage healthy practices and behaviors that could have a beneficial effect outside of the workplace (for example, a physical activity program can help offset some musculoskeletal risks).

Health promotion emphasizes the following aspects:

- an comprehensive focus with multidisciplinary collaboration and the establishment of a favorable environment in the workplace;
- responsibility for oneself and for others;
- prevention of illnesses and injuries;
- strengthening of overall health;
- participation and empowerment of workers; and
- equity and access.

Tool 19 in the Manual's final section presents a questionnaire that can be administered to workers to orient the design of health promotion programs.

Policy on the Consumption of Tobacco, Alcohol, and Psychoactive Substances in the Workplace

Considering that several countries regulate these substances, it will be necessary to consult technical norms in force within the country to guide the programs concerning these substances and their use. At any rate, management, in consultation with workers, should develop a policy to cover the consumption of tobacco, alcohol, and psychoactive substances in the workplace.

The policy on smoking at the workplace (even if the country does not have standards in this regard) should be based on the principle that non-smoking workers should be totally protected from tobacco smoke in the workplace because there are no safe parameters on what constitutes a safe level of exposure to cigarettes in the environment. To this end, it will be necessary to incorporate a series of minimum restrictions in health care facilities, including a smoking ban:

- in elevators;
- when working with certain chemical products (for example, flammables), when performing certain tasks or processes, or when working in certain spaces (for example, entrances into confined spaces or where patients are being cared for);

- in offices where more than one person works; or
- in an enclosed space where air is shared.

The policy should focus on:

- communicating with employees (through clear policy, such as defining where smoking is permitted in outside areas);
- education (providing information that justifies the policy); and
- support for employees who wish to quit smoking (providing counseling and support groups as part of the institution's policy to help employees withdraw from tobacco).

Similar practices can be adopted to deal with the consumption of alcohol and other psychoactive substances. In countries where there are no specific regulations in this regard, policies at health care facilities should incorporate elements to prevent the use of these substances, not only because they may injure the health of the user, but also because of the danger they represent to the health care process, the installations, and other workers.

FURTHER INFORMATION

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To request a list of publications, write to: Work Research Centre Ltd. 22 Northumberland Road, Ballsbridge, Dublin 4, Irlanda (fax: 353 1 6683142).

Wynne R. A Manual for Training in Workplace Health Promotion.

Dublin, European Foundation for the Improvement of Living and Working Conditions, 1997.

Standards for Health Promotion in Health Promoting Hospitals
http://www.who.dk/healthpromohosp/Publications/20030127_7

Griffiths, JH: A Practical Guide to Health Promotion in the Workplace: Guidelines for Alliance-building and Networking with Companies. European Health Promotion Series, No. 5. Cardiff, World Health Organization, 1995.

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Relatoria taller estrategia de promoción de la salud de los trabajadores en América Latina y el Caribe. Temas: empresas, centros y puestos de trabajo saludables - OPS/OMS - San José, Costa Rica, 2000. <http://www.cepis.ops-oms.org/bvsast/e/fulltext/relcosta/nexo5.html>

Estrategia de promoción de la salud en los lugares de trabajo de América Latina y el Caribe. OPS/OMS. <http://www.cepis.ops-oms.org/bvsast/e/fulltext/relcosta/anexo6.html>

2.7.3 Health Care, Rehabilitation and Reintegration to Work

The emphasis should be on the care and rehabilitation of existing health problems with the aims of restoring the employee's physical and mental health, preventing recurrences, and facilitating the return to work.

Personal problems, including health concerns, may seriously affect work performance and result in less safe and less healthy work practices. This may endanger the worker, fellow workers, patients, clients, and other persons in the work area. The workplace should have a management system for these situations as soon as they emerge. This system is called the Employee Assistance Program (EAP).

Personal problems that may be dealt with by the Employee Assistance Program include:

- alcohol or drug dependency;
- financial difficulties;
- family difficulties;
- stress;
- bereavement;
- physical or mental health problems; and
- return to work and rehabilitation.

The primary objective of the Employee Assistance Program is to assist the worker in restoring his or her health and work performance to satisfactory levels. Care should be taken, however, not to let this become the main function of the specialist physician. In other words, the medical professional should not become so overwhelmed with triage consultations and prescribing rest that reduce his capacity for occupational health tasks.

The policy and practices of the Employee Assistance Program should be developed in consultation with the workers and adapted to local conditions.

It is a good idea for the Employee Assistance Program to become a component of the health care facility's Occupational Health and Safety Unit, or at least function in close communication with it (see the section "Occupational Health and Safety Unit" presented earlier in this module, the International Labor Organization's Convention 161, and Recommendation 171 on occupational health services in Tools 2 and 3 presented in this Manual's last section). This arrangement favors the use of the Occupational Health and Safety Unit's resources (e.g., its privileged communication with Human Resources' administrative areas, its medical knowledge of personnel, etc.) to manage cases and even to provide medical and psychosocial care in varying degrees of collaboration with other assistance units.

Depending on available resources and the legislation in force, the above collaboration may be extended to include professionals at the health care facility, the local health system, social security, the network of associated professionals and enterprises in legal or psychological services, etc.

It is essential that the staff members' medical care be integrated with the facility's other administrative units that deal with occupational health and safety (for example, those responsible for registries and statistics, administrative processes for acquisition of treatments, gradual return to original duties, etc.).

Referrals and other matters related to counseling and treatment of workers must conform to strict confidentiality and discretion requirements.

Tool 16 at the end of this Manual presents a medical form that may be adapted for use in the Employee Assistance Program.

FURTHER INFORMATION

Tools for Cost-benefit Analysis of OH&S Management:

(traditional version) www.cersso.org/mat_pmchtradicional

(electronic version) www.cersso.org/mat_pmcherramientas.asp.

Download the software for epidemiological and statistical procedures (Epi Info™) at <http://epi.minsal.cl/epi/html/frames/frame1.htm>

Construction Safety:

"Medical facility Renovation". Garvey DJ et al. Professional Safety. PP 20-24. June 2001. American Society of Safety Engineers.

Emergency Preparedness:

(Draft) Standard Guide for Hospital Preparedness. <http://www.astm.org/cgi-bin/SoftCart.exe/DATABASE.CART/WORKITEMS/WK4344.htm?L+mystore+uyjm6753>

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Occupational Health Services: ILO R171; 1985.
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Joint occupational Safety and Health Committee:
http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/jointoch.pdf

Management of Health & Safety Program, CDC, 2001.
<http://www.cdc.gov/od/ohs/manual/mannav.htm>

EPINet, International Health Care Worker Safety Center Univ. Virginia,
<http://www.healthsystem.virginia.edu/internet/epinet/>

Workplace Health promotion Programs: Tools and Techniques for Evaluating Progress; Health Canada. <http://www.hc-sc.gc.ca/hecs-sesc/workplace/pdf/Tools.PDF>

Literature Review: Evaluation of Workplace Health Promotion Programs, Health Canada.
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WORKPLACE HEALTH: DISCOVERING THE NEEDS, Health Canada, 2002.
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http://www.hchsa.on.ca/products/resrcdoc/lap_269.pdf

Healthy Settings – Canadian Cases Studies, Health Canada.
<http://www.hc-sc.gc.ca/hppb/ahi/pdf/healthysettings.pdf>

Joint Occupational Health & Safety Committee. Education and Development Section Prevention Division Workers' Compensation Board of British Columbia. 2000.
http://www.worksafebc.com/publications/health_and_safety_information/by_topic/assets/pdf/jointoch.pdf

(PORTUGUESE)

Portaria 37 - Proposta de texto de criação da Norma Regulamentadora N.º 32 – Segurança e Saúde no Trabalho em Estabelecimentos de Assistência à Saúde.
<http://www.mte.gov.br/Temas/SegSau/Conteudo/941.pdf>

CAMINHOS DA ANÁLISE DE ACIDENTES DO TRABALHO

Secretaria de Inspeção do Trabalho – SIT - 2003
Esplanada dos Ministérios, Bloco F, Sala 147 – Ed. Anexo
Tels.: (0xx61) 317-6672/6671/6688; Fax: (0xx61) 224-3538

Ministerio da Saúde (2001) MANUAL BRASILEIRO DE ACREDITAÇÃO HOSPITALAR.
Série A. N.117. 3a Edição.

(SPANISH)

Guía para el Diseño, Implantación, Evaluación y Control de Programas de Seguridad y Salud en el Trabajo. http://www.cersso.org/mat_pmgst.asp

Guía de Evaluación de los Riesgos Laborales del Instituto Nacional de Seguridad e Higiene en el Trabajo de España. <http://www.mtas.es/insht/practice/guias.htm>

Investigación de accidentes, método árbol de causas.
http://www.mtas.es/insht/information/Ind_temntp.htm

SAISO = Sistema de Vigilancia

<http://epi.minsal.cl/epi/html/frames/frame1.htm> y

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Trabajo y Salud: *Manual para la formación de trabajadores. 1999.*
http://training.itcilo.it/actrav_cdrom2/es/manuale/cap01_01.html



MODULE THREE:

Hazards, Their Potential Effects and Their Control

The occupational hazards to which health workers are exposed are well documented and generally fall into the following six basic categories:

- **Biological or infectious hazards.** These include infectious and biological agents such as bacteria, viruses, fungi, or parasites that may be transmitted through contact with contaminated material or with bodily fluids or secretions (examples of these hazards include the human immunodeficiency virus [HIV]; hepatitis B and C viruses; tuberculosis bacillus).
- **Environmental hazards.** An adequate water supply and a clean overall environment are basic for protecting workers and patients in a health care center as asepsis and cleanliness are required for successful medical interventions. Adequate natural or artificial ventilation is essential to combat many of the threats to workers' health such as the transmission of tuberculosis and the exposure to anesthetic gases. In addition, health care facilities generate contaminated water and hazardous solid waste that require proper treatment, processing, and disposal. Ignoring these hazards would put workers and the entire community at risk.
- **Physical hazards.** These hazards involve agents in the work environment such as radiation (X rays, laser, etc.), electricity, extreme temperatures, and noise that can cause tissue damage and other injury.
- **Chemical hazards.** These are various chemical substances that are toxic or irritating to the body system, including medications, solvents, and gases (for example, ethylene oxide, anesthetic gas wastes, glutaraldehyde).
- **Mechanical hazards.** These factors in the work environment increase or augment the risk of accidents, wounds, injury, or discomfort (e.g., poor lifting devices or inadequate equipment, slippery floors, etc.).
- **Psychosocial hazards.** These are factors and conditions associated with work tasks or working environments that cause or augment the risk of stress, emotional strain, and interpersonal problems (e.g., stress, work shifts).

This Manual contains modifications to the above classifications in order to emphasize various hazards particularly relevant to health workers which would otherwise be overlooked. Thus, hazardous waste management, ergonomic hazards, laboratory safety, and violence in the workplace were extracted from other classification categories to become hazard categories in their own right thereby increasing the number of categories in this module to 10.

The order in which hazards are presented in this module is not ranked. The importance of each risk factor varies depending on the type of services provided and the characteristics of the health care facility such as size and location. However, the serious and widespread risk presented by bloodborne microorganisms (chiefly hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus (HIV)) calls for the urgent adoption of control measures.

3.1 BIOLOGICAL AND INFECTIOUS HAZARDS

Biological and infectious agents may be transmitted to a person through inhalation, injection, or by skin contact. Sources include patients, asymptomatic carriers, or vectors such as rats, cockroaches, and mosquitoes. The number of organisms in the environment, coupled with their virulence and a person's resistance to them, determine whether the person will contract the disease or not.

An infection control program should define the necessary policies, procedures, and practices in order to minimize the risk of disease occurrence and transmission at a health care facility. This requires that workers be consulted and that the effort is supported by all of management and staff.

It is important that the policy and the practice of infection control consider the characteristics and risks of infection for each establishment given that health care facilities vary widely in size, patient population, inpatients, and available resources.

A. Responsibilities

Management Responsibilities

The employer in a health care facility is responsible for providing adequate protection against infections and offering a safe working environment to all staff. At the end of this Manual, you will find references that provide further details on biological safety programs.

Any establishment that provides health services should define safe work practices within the context of hazard identification, assessment, and control. These practices should include:

- baseline monitoring of previous exposures (for example, hepatitis B immunity status, baseline Mantoux, etc.) as a part of recruitment;
- staff access to appropriate testing, vaccinations, and counseling;
- procedures for conducting biological monitoring of workers' health;
- procedures for reporting illnesses, accidents, and injuries and for conducting appropriate follow-up including the surveillance of occupational and work-related illness and accident occurrence (this is particularly important for the prevention of occupational HIV, hepatitis B, and hepatitis C). Tool 18 presents the EPINET form for registering cuts and needle punctures;
- reporting serious accidents to responsible governmental offices;
- educating and training staff on the principles, policies, and practices of infection control. This applies to all personnel including both those in support positions and clinical staff;
- the implementation of adequate controls including engineering controls such as appropriate ventilation systems (these are very important in the prevention of airborne transmission of infections such as tuberculosis). See links for further information at end of this chapter;
- standard work practices that improve safety (for example, infection control in the administration of injections, Tool 17);
- the provision of necessary personal protective equipment to protect workers' health (e.g., gloves for general precautionary measures, masks, clothing, etc.) and safety equipment to prevent puncture injuries from needles and other sharp objects (such as hard containers for the disposal of materials used during injections and surgery);
- regular monitoring of the work environment and work practices to assess compliance with infection control as part of the facility's occupational health and safety policy; and
- practices that ensure that "universal precautions" are implemented throughout the facility.

Worker Responsibilities

All workers are responsible for taking every necessary step to protect their health and that of their workmates, patients, visitors and other users of the health care facility. These practices must be followed in order to ensure that the policies and practices of the facility's infection control program are implemented.

B. Management of Biological Hazards

In general, Hepatitis B, hepatitis C, HIV, and tuberculosis are among the most important risks for health workers. In addition, many other microorganisms such as influenza, cytomegalovirus, etc. may present occupational hazards for health sector workers.

The policies and practices for controlling risks should cover all tasks and routines related to cleaning the facility overall as well as in specific areas such as isolation wards, operating rooms, patient-care equipment, and the handling of spills.

The following section deals with the most important issues related to the management of biological risks in health care facilities.

Cleaning and Laundry Services

Laundry services also should have safe policies and procedures to collect, handle, store, and distribute linens to ensure that there is no risk of biological contamination. These procedures should cover handling contaminated items and clothing of persons known to be infected.

Vaccinations

Because health workers are often exposed to, and have contact with, persons that are likely to be infected, these workers can be a significant source of transmission (such as transmission of measles to children). This makes it all the more important to have immunization programs in place.

Given the seriousness of hepatitis B, its high prevalence worldwide, and the availability of a highly effective preventative means through vaccination, it is important to implement hepatitis B immunization programs for each worker (17) including the often overlooked workers who collect waste.

Vaccination of workers against hepatitis B:

- should be implemented as early as possible;
- does not routinely require booster vaccines; and
- if possible, should be followed by a determination of antibody response 2–6 months following the last dose.

The following table shows the most highly recommended vaccinations for health care workers in general. This table serves as a guide that should be adapted to local epidemiological conditions and national legislation.

GENERIC NAME	ADMINISTRATION SCHEDULE	INDICATIONS	PRECAUTIONS AND CONTRAINDICATIONS	SPECIAL CONSIDERATIONS
HEPATITIS B RECOMBINANT VACCINE	Two doses IM in the deltoid muscle 4 wks apart (up to 2 months); 3 rd dose 5 mo. after 2 nd ; booster doses not necessary	Workers at risk of exposure to blood or bodily fluids	No apparent adverse effect on developing fetus; not contraindicated in pregnancy. Persons with history of anaphylactic reaction to common baker's yeast	No therapeutic or adverse effect in HBV-infected persons. Cost-effectiveness of pre-vaccination screening for susceptibility to HB virus depends on the cost of vaccination, antigen testing, and prevalence of immunity in the group of potential vaccinees; health workers that have ongoing contact with patients or blood should be tested 1-2 mo after completing the vaccination series to determine serological response
INFLUENZA VACCINE (INACTIVATED WHOLE OR SPLIT VIRUS)	Annual single-dose IM	Workers in contact with high-risk patients or working with chronic care installations; workers with high-risk medical condition and/or are ≥ 65 yr	History of anaphylactic sensitivity to eggs	No evidence of maternal or fetal risk
MEASLES LIVE-VIRUS VACCINE	One dose SC, 2 nd at least 1 month later	Workers without documentation of (a) receipt of two doses of live vaccine on or after 1 st birthday (b) physician-diagnosed measles, or (c) laboratory evidence of immunity	Pregnancy; immuno-compromised state (including HIV-infected persons with severe immuno-suppression); history of anaphylactic reaction after gelatin or receipt of neomycin; or recent receipt of immune globulin	MMR is the vaccine of choice if recipients are also likely to be susceptible to rubella and/or mumps; persons vaccinated with (a) killed measles vaccine alone; (b) killed vaccine followed by live vaccine; or (c) a vaccine of unknown type should be revaccinated with two doses of live measles vaccine
MUMPS LIVE-VIRUS VACCINE	One dose SC, no booster	Workers considered susceptible can be vaccinated; adults born before 1957 can be considered immune	Pregnancy; immuno-compromised state; history of anaphylactic reaction after gelatin or receipt of neomycin	MMR is the vaccine of choice if recipients are also likely to be susceptible to measles and/or rubella
RUBELLA LIVE-VIRUS VACCINE	One dose SC, no booster	Workers of both sexes who lack documentation of receipt of live vaccine on or after their 1 st birthday or of laboratory evidence of immunity; adults born before 1957 can be considered immune, except women in childbearing age	Pregnancy; immuno-compromised state; history of anaphylactic reaction after gelatin or receipt of neomycin	Women pregnant when vaccinated or who became pregnant within 3 mo. of vaccination should be counseled on the theoretic risks to the fetus, the risk of rubella vaccine-associated malformations in these women is negligible; MMR is the vaccine of choice if recipients are also likely to be susceptible to measles and/or mumps
CHICKENPOX-ZOSTER LIVE-VIRUS VACCINE	Two 0.5 ml doses SC 4-8 wk apart if ≥ 13 yr	Workers without reliable history of varicella or laboratory evince of varicella immunity	PREGNANCY, immuno-compromised state; history of anaphylactic reaction after receipt of neomycin or gelatin; salicylate use should be avoided for 6 wk after vaccination	Because 71-93% of persons without a history of varicella are immune, serologic testing before vaccination may be cost-effective

Universal Precautions and other Standard Precautions

“Universal precautions” are those that the entire health personnel apply to all outpatients and inpatients, regardless of their presumed infectious status. These precautions assume that the blood of any person (or any substance contaminated with blood) may be infectious. Precautions are required to reduce the risk of disease transmission from known or unidentified sources of infection.

Standard precautions combine the most important aspects of universal precautions (designed to reduce the risk of transmission of bloodborne pathogens) and the isolation of other bodily substances (designed to reduce the risk of transmission of pathogens from moist bodily substances). Standard precautions include, but are not limited to, handwashing, use of protective gloves, and use of barrier protection. These precautions are established according to the type of services dispensed, clientele, etc.

Websites with more detailed information on standard precautions by type of services are listed at the end of this chapter.

Minimal Precautions

At a minimum, every health service should implement the following general precautions for its workers:

-
- **Avoid contact with blood and all bodily fluids, secretions, and excretions except sweat (whether they contain blood or not), broken skin surfaces, and mucous tissue, by:**
 - **using gloves in operating rooms and elsewhere. Gloves should be doubled during surgical operations where extensive exposure to blood is expected;**
 - **using masks, face shields, protective eyewear, and gowns where spills or effusions may occur;**
 - **using waterproof bandages to cover the worker’s cuts and wounds;**
 - **immediately cleaning and decontaminating all spills, blood spots, and other bodily fluids;**

- **preventing injuries from sharp objects; not covering needles; using puncture-proof containers to dispose of used needles, etc**
 - **Provide rigorous training in the basic techniques for using sharp instruments**
 - **Combat fatigue by establishing rest periods**
 - **Establish an institutional approach for treating exposure to accidents**
-

Treatment after Exposure

The institution's approach to post-exposure treatment should include:

- a sustained educational campaign on hazardous exposure for the entire facility;
- a protocol on immediate exposure management made available in the work areas;
- post-exposure assistance within one hour;
- a protocol for handling questions on problems such as hepatitis B, syphilis, etc. (not HIV);
- antiretroviral agents that are immediately available;
- a protocol for examining the "source patient";
- availability of medical follow-up for those who decide to undergo antiretroviral chemotherapeutic prophylaxis;
- confidential medical registry of exposure; and
- serological follow-up of all involved patients.

The following table shows the norms that the United States Federal Government uses for the post-exposure prophylaxis to materials potentially contaminated with hepatitis B virus.

Table: Recommended Post-exposure Prophylaxis for Exposure to Hepatitis B Virus

Vaccination and antibody response status of exposed workers*	Treatment		
	Source HBsAg [†] Positive	Source HBsAg Negative	Source Unknown or Not Available for Testing
Unvaccinated	HBIG [§] x 1 and initiate HB vaccine series [¶]	Initiate HB vaccine series	Initiate HB vaccine series
Previously vaccinated Known Responder**	No treatment	No treatment	No treatment
Known Non-Responder ^{††}	HBIG x 1 and initiate revaccination or HBIG x 2 ^{§§}	No treatment	If the high risk source is known, treat as if source were HBsAg positive

* Persons who have previously been infected with HBV are immune to reinfection and do not require post-exposure prophylaxis.

† Hepatitis B surface antigen

§ Hepatitis B immune globulin; dose is 0.06 mL/kg intramuscularly.

¶ Hepatitis B vaccine

** A responder is a person with adequate levels of serum antibody to HBsAg (i.e., anti-HBs \geq 10 mIU/mL).

†† A nonresponder is a person with inadequate response to vaccination (i.e., serum anti-HBs <10 mIU/mL).

§§ The option of giving one dose of HBIG and reinitiating the vaccine series is preferred for nonresponders who have not completed a second 3-dose vaccine series. For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred.

¶¶ Antibody to HBsAg

Source: "Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Post-exposure Prophylaxis," MMWR, June 29, 2001, Vol. 50 (RR-11): 22

Several tools that can be used for managing biological risks are presented in the final section of this Manual. Tool 15 presents tables organizing the use of personal protective equipment by the task performed. After adaptation for local use, these tables may be kept in places where workers can consult them before beginning their respective tasks. Tool 17 provides WHO norms, including the most adequate practices for the control of infections when administering injections. Tool 18 is a form for registering wounds caused by needles or sharp objects (based on the EPINET surveillance system) that is widely used in many countries that have experience in occupational health and safety management.

ADDITIONAL INFORMATION

GENERAL:

(ENGLISH)

Standard Precautions: Part II. Recommendations for Isolation Precautions in Hospitals. CDC. <http://www.cdc.gov/ncidod/hip/isolat/isopart2.htm>

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3.2 ENVIRONMENTAL HAZARDS

Environmental hazards occur frequently in Latin American and Caribbean (LAC) health care facilities. Most of the time, these hazards are generated by:

- inadequate supply, distribution, and availability of water for human consumption;
- air quality problems in confined spaces that aggravate chemical and biological hazards; and
- improper handling of hazardous solid waste (this item will be treated in detail in the section entitled “Hazardous Solid Waste” found later in this chapter).

PAHO offers guidance on the use of appropriate technology for dealing with these environmental hazards.

3.2.1 Water Supply for Health Care Establishments

The principal hazards associated with water supply in health care establishments are:

- water scarcity due to low coverage of the water supply system, intermittent supply, or inadequate installations and maintenance at the health care facility;
- contamination of water supplies due to inadequate or nonexistent management, treatment, and protection of water sources by municipal authorities or contamination of the establishment’s water sources caused by improper discharge of wastewater; and
- environmental contamination of the buildings due to inadequate treatment of municipal wastewater. Only 14% of all Latin American and Caribbean (LAC) wastewater drainage networks lead to some kind of wastewater treatment and only half of those are sanitary.¹⁸ This often results in the contamination of the entire surrounding area, making it necessary to treat the establishment’s wastewater before it leaves the premises because it contains infectious, radioactive, and laboratory subproducts and sterilizing agents.

The consequences of disregarding environmental hazards include a risk of infectious and parasitic diseases to workers and patients because necessary antiseptic routines cannot be maintained or harm to medical procedures such as hemodialysis that have strict norms for the water that is being used. The ecosystem and the entire population in the area may also be put at risk.

3.2.2 Air Quality Problems

Air quality problems in a health care facility are mainly due to:

- improper flooring material - the insufficient cleaning of floors may lead to infections and allergic conditions; excessive use of sterilizing agents are associated with neoplastic and reproductive diseases; and vinyl and latex spills are associated with allergies;
- air conditioning and ventilation problems - air flow should move from a less contaminated area toward a more contaminated one in order to protect workers against transmission of tuberculosis and inhalation of hazardous substances;
- laser fumes that may contain viruses, dead cells, and toxic gases that promote visual problems and cellular mutation;
- cigarette smoke from smoking workers or visitors;
- asbestos - this compound is often seen in heat-resistant laboratory gloves that begin to break down at high temperatures as well as in the insulating material used in chimneys and ceilings. It is a causal to lung, stomach, and brain cancer and tumors as well as other pulmonary problems; and
- lead-based paints - this has been linked to different forms of anemia, hypothyroidism, male reproductive problems and various renal, cardiac, and cerebral problems.

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Contact Jolie Patterson at jpatterson@hcwh.org to receive free brochures

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MER-02 Protecting by Degrees: What Hospitals Can Do to Reduce Mercury Pollution

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3.3 HAZARDOUS SOLID WASTE

Health care facilities produce large quantities of hazardous solid waste generated during various phases of medical care such as diagnoses, treatment, immunization, research, etc. These wastes are sources of infectious, neoplastic, and reproductive diseases.

In addition to common waste (administrative, foodstuffs, packing materials, etc.), there are other types of medical waste, such as:

- infectious waste, meaning waste that contains pathogens; and
- special wastes - corrosive, reactive, flammable, toxic, explosive, or radioactive materials.

The establishment that generates the waste should be responsible for ensuring its safe disposal through an environmental waste management policy that conforms with legal requirements. The procedure adopted should protect the health and safety of those in the facility and in the community.

In order to protect persons charged with waste disposal from risk of HIV or hepatitis, for example, through accidents involving contaminated sharp objects, solid waste disposal containers must be closed before they are completely filled to avoid accidents. In addition, refuse collectors should be given personal protective equipment (special gloves, etc.) and should be provided with training and vaccination against hepatitis B.

Policies for handling hazardous waste should be developed in consultation with the workers who generate and handle the waste and those who dispose of it. The chain of

responsibility, and the responsibilities at all levels of the organization, have to be identified as the policy is developed and implemented.

Waste management policies should cover the entire process, from the origin of the waste to its final destination. At a minimum, policies should cover:

- the identification of waste materials;
- a comparison between the benefits of using the materials and the problems linked to their disposal;
- preparation of a transport and disposal flowchart from the waste's point of origin to its final destination;
- clear assignment of responsibilities at each step in the process; and
- training of personnel on waste management procedures and hazards .

It is unclear which practices are best for the final disposal of institutional solid waste. Controversies include economic and organizational factors and the environmental risks of incinerators, among others. The safest strategies involve minimizing waste, which can be attained by separating waste; working on source reduction, recovery, and recycling; and properly treating and disposing of the waste.

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contact Jolie Patterson at jpatterson@hcwh.org to receive free brochures

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3.4 PHYSICAL HAZARDS

Physical hazards that affect health workers include exposure to noise, vibration, ionizing and nonionizing radiation, and electricity. A systematic survey should be conducted in order to identify all possible hazards. For the purposes of identification, an inspection can be conducted during the installations with a properly trained person or a selected group representing the Health and Safety Committee following consultations with workers in each area. All hazards and potential risks should be identified and recorded.

Tools 11 and 12 in the final section of this Manual present two checklists that can aid in identifying occupational hazards, including physical hazards. These checklists can be used during an inspection of the installations.

After identifying hazards and their potential effects, risks should be assessed to establish which ones can cause serious harm (Tool 14). Once priority hazards have been identified, a series of steps ranked by importance should be implemented to eliminate, isolate or minimize these risks.

3.4.1 Noise

Exposure to excessive noise levels may cause hearing loss and annoyance. Excessive noise levels also can interfere with communication and lower performance.

Excessive noise levels may be encountered in various areas of a health care facility such as in workshops, laundry areas, and orthopedic units, as well as in areas where plaster casts are prepared. A preliminary assessment should be conducted to identify the areas where noise levels exceed or could exceed permissible exposure levels.

A more detailed assessment may be necessary in order to:

- determine noise levels to which workers are exposed;
- help identify sources of noise;
- develop noise control strategies; and
- determine the needs for hearing protection.

A clear hierarchy of controls should be adopted, making the control of risk due to noise through engineering controls the highest priority. When dealing with machinery or processes where engineering controls do not sufficiently reduce noise levels, exposure should be reduced by isolating workers from the noise. Personal noise protectors should be used continuously only when engineering controls and isolation are not feasible.

As new techniques are developed to control noise, management must stay on top of technological advances and be prepared to purchase the most effective equipment for noise reduction as it becomes available.

Many countries have specific noise-reduction regulations. In the United States, for example, the allowable limit for an eight-hour workday is 90 dBA. Hearing protection programs are mandatory for workers who work eight hours at an average level that exceeds 85 dBA. In Brazil, the law sets an 85 dBA limit for an eight-hour work day and requires the implementation of a hearing protection program.

Hearing Protection Program

Excessive noise can be controlled by introducing hearing preservation programs in the workplace. Such programs may include:

- identifying the risk of hearing loss in the workplace;
- assessing noise hazards;
- developing a noise abatement policy;
- implementing control measures;
- conducting periodic audiometric testing of all employees continually exposed to excessive noise;
- providing training in noise reduction and prevention;
- disseminating information to ensure that workers perform work tasks in a safe and healthy manner; and
- consulting with the workers at each step of the process.

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New Zealand's OSH Publications:

Management of Noise at Work: Resource Kit, including

- Control Guide: Management of Noise at Work
- Approved Code of Practice for the Management of Noise in the Workplace
- List of Graded Hearing Protectors
- Fact Sheets and Employee Booklets

Noise-induced Hearing Loss of Occupational Origin: A Guide for Medical Practitioners

Noise-induced Hearing Loss - A Message to Employees on Preventing Hearing Loss

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3.4.2 Vibration

Noise processes are often associated with vibration. Intense vibration may be transmitted to workers who drive vehicles or use hand-held equipment or tools. Workers may be exposed to vibration in different ways:

- whole body exposure, as while driving an ambulance; or
- partial or local body exposure, as while using vibrating tools such as drills in orthopedic rooms.

Exposure to whole body vibration is primarily associated with lumbar pain and early degeneration of the spine. Operators of hand-held vibrating tools have an increased risk of “white finger syndrome.” In addition, vibration can affect tendons, muscles, bones, joints, and the nervous system. As a whole, these effects are known as “hand-arm vibration syndrome.” Exposure to cold can aggravate hand symptoms.

Exposure should be controlled at all times and kept within limits that protect from adverse health effects. International standards and other documents contain recommendations for limits (for example, see ISO 2631 and ISO 5349). Obviously, the most effective control is to reduce vibration. This includes:

- ascertaining the vibration levels in a given tool or machinery before deciding to purchase it; wherever possible, low-vibration equipment should be chosen;
- considering whether the work can be done without high-vibration tools;
- using tools designed to minimize vibration;
- providing good maintenance of tools and equipment;
- assuring that workers use tools correctly; and
- changing work to reduce the grip and pressure the worker needs to apply.

When workers must carry or use high-vibration tools, other measures may be adopted to assist in the reduction of harmful effects, such as:

- the establishment of work breaks to avoid long periods of continuous exposure to vibration
- showing workers hand and finger exercises to stimulate blood flow; and
- informing and training workers on vibration hazards, signs of injury, risk reduction methods, and reporting of any symptoms.

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ISO 5349: 1986. Mechanical vibration - Guidelines for the measurement and the assessment of human exposure to hand-transmitted vibration

3.4.3 Radiation

Management in a health facility that uses any source of radiation is responsible for:

- a) protecting exposed workers and
- b) complying with all technical standards.

3.4.3.1 Non-ionizing Radiation

As with visible light, non-ionizing radiation can increase the temperature of a targeted object. The different types of non-ionizing radiation include radio frequency waves, microwaves, infrared light, visible light, ultraviolet radiation, lasers, magnetic fields, and ultrasound.

Ultraviolet Radiation

Ultraviolet radiation is used in certain dermatological procedures. It also is used as a germicidal lamp in tuberculosis control. Germicidal lamps are used to disinfect foodstuffs, in the sterilization of equipment, in phototherapy lamps, and in illuminating lamps. The biological effects of exposure to ultraviolet light are due to damaging photochemical reactions in living tissue and depend on the wavelength range of the radiation. Since penetration is low, effects are limited to the anterior parts of eyes and to

unprotected skin causing temporary conjunctivitis, partial loss of vision, early aging of the skin, and cancer of the skin.

When sources are sufficiently intense to pose a risk, protection against overexposure can be achieved by combining:

- administrative control methods;
- engineering control methods; and
- personal protection.

Administrative and engineering controls should be given priority so as to minimize the need for personal protection.

Lasers

Laser radiation may damage living tissue, primarily by a thermal effect. The extent of damage depends on the frequency of the radiation, the intensity of the beam, the duration of exposure, and the type of exposed tissue. The most sensitive tissues are those of the eyes and the skin - the retina may be temporarily or permanently damaged, skin may sustain burns, and tissue proteins may be denatured.

Lasers are used in surgery, microsurgery, blood tests, ophthalmologic surgery, and dental procedures.

In general, the number of persons exposed in the vicinity of a working laser should be minimized, and the duration of their potential exposure should be kept as short as possible. Laser operations should be under the control of a competent person who is aware of the hazards. A functioning laser should only be accessible to authorized personnel.

The potential hazards from direct or reflected emission may be reduced using physical barriers (closed rooms, absorbent panels, closed instrument cases), interlocks, and beam shutters.

Health care facilities should launch special laser safety programs. Exposed workers should be educated and trained in laser precautions. At a minimum, these programs should include:

- policies and practices for the safe use of lasers;

- training of workers in the proper use of lasers;
- assurance that the points of laser impact are free of flammable or combustible substances;
- warning signs placed at the entrance of laser-use areas; and
- precautions that are put in place for the safe use of lasers, including:
 - providing eye protectors, protective eyeglasses, or goggles to patients and exposed workers and ensuring that they are properly used;
 - protecting eyes, skin, and tissue during laser use;
 - extracting fumes at the source (e.g., isolation) whenever particulate matter is produced and providing high-filtration masks (or respirators if this is unfeasible); and
 - providing baseline and periodic medical surveillance (e.g., eye and skin examinations) of exposed personnel.

Microwave and Radio Frequency Radiation

These can be dangerous because they can produce heat within body tissue. The degree of heat depends on the radiation's intensity, the duration of exposure, and the tissue's water content and its capacity to dissipate heat. A potential effect of this type of radiation is an observable decrease in sperm count.

Microwaves are generally used for cooking or heating meals or in patient rooms. They also may be found in physiotherapy or surgery areas where they are used to heat up various elements. Microwaves can cause disturbances in pacemakers. Warning signs should be posted where microwaves are present.

Radio frequency radiation is found in communication systems that transmit radio waves, walkie-talkies, and cellular telephones used at the facility. They also are found in telemetry systems and cardiac monitors, magnetic resonance procedures, and improperly covered video terminals. Warning signs should be posted wherever radio frequency radiation may cause injury.

Infrared Radiation

Exposure to infrared radiation can occur during laser and thermographic operations. They may cause skin burns and eye injuries.

Ultrasound

Ultrasound is used in physical therapy, surgery, diagnostic procedures and obstetrics. Ultrasound consists of high-frequency sound waves that cannot be detected by the human ear.

Although ultrasound apparently does not pose harm to health, exposure to auditory radiation greater than 19 kHz may result in a syndrome involving nausea, migraine headache, tinnitus, pain, dizziness, and fatigue. Temporary hearing loss also could occur.

Low-frequency ultrasound radiation also could have consequences for persons who touch areas where ultrasound is being applied. Exposure to potent ultrasound sources may cause injuries to the peripheral nervous system and to vascular structures at contact points.

Workers who operate or install ultrasound equipment may need to use adequate protective equipment for a given task if there is a probability of exposure to radiation higher than 10 kHz or low frequency radiation.

Cellular Phones

Because cellular telephones use high frequencies, they may interfere with electromedical equipment. Studies have shown that cell phones generate enough electromagnetic interference to reach up to 2 m. Through this distance, interference can go through solid concrete walls, floors, and ceilings, as well as a room's interior. Obviously, there must be a clear policy on the use of cellular telephones in a health care establishment.

3.4.3.2 Ionizing Radiation

Ionizing radiation has the same properties as non-ionizing radiation with an added capability of producing ions in the exposed material. This ion production may result in direct damage to cellular genetic material and/or the production of cytotoxic materials (e.g., peroxide).

The different types of ionizing radiation are:

- alpha particles;
- beta particles;
- neutrons;
- X rays; and

- gamma radiation.

Ionizing radiation is used in a variety of treatment and diagnostic procedures, such as:

- X rays
- fluoroscopy
- angiography
- computerized axial tomography (CAT or CT scan)
- nuclear medicine scans
- teletherapy
- cobalt treatment

The effects of ionizing radiation are cumulative and can, in the long run, damage tissue. Patients and workers must be monitored and protected against scattered and direct non-essential exposure.

There are several chemical products (radiopharmaceuticals) that contain radioactive substances such as unencapsulated radioisotopes that are injected or implanted into patients. These radioactive substances are potentially absorbable. Normal use of these products causes none or minimal risk to workers, but certain accidents, such as spills, may expose workers to high radiation levels. It is therefore necessary to comply with guidelines for the handling of these substances.

Radiological Protection

The basic principle of radiological protection is to avoid all unnecessary exposure to radiation. Three fundamental strategies should be adhered to:

- **Time.** The shorter the duration of exposure, the lower the dose. Very careful work planning is therefore recommended to avoid unnecessary exposure.
- **Distance.** The greater the distance from radiation source, the lower the dose. Distance provides highly effective protection against radiation exposure.

- **Protective shielding.** If physical conditions preclude reducing radiation's intensity by increasing distance, adequate absorbent material should be placed between the worker and the radiation source such as lead aprons and other leaded barriers.

Among additional recommendations of ILO, WHO, and PAHO on occupational exposure to ionizing radiation, the following principles deserve mention:

- Work conditions should not depend on whether there is a possibility of occupational exposure. Special remuneration, agreements, or preferential treatments in terms of salary, insurance coverage, work hours, vacation time, additional days off, or retirement benefits should not be granted or used as substitutes for a provision of appropriate safety measures that ensure the required conformance to corresponding standards.
- Any woman worker should notify her employer if she thinks she is pregnant so that her working conditions can be modified accordingly. Pregnancy notification cannot be used as a reason to exclude a worker from her job. Rather, the employer must adapt working conditions to ensure that the fetus receives the same protection from exposure as does the public at large.
- No worker under age 16 shall be engaged in work involving ionizing radiation.
- No worker under age 18 shall be authorized to work in a controlled area unless under supervision and only for training purposes.

Video Terminals and Computers

Most video terminals today are based on cathode ray tube (CRT) technology. CRT emits various types of ionizing and non-ionizing radiation. There is no conclusive study to date that shows the health effects of occupational exposure to radiation emitted by video terminals. At the same time, there is no assurance that they are harmless. Alternative technology such as the most recent generation of terminals - liquid crystal display (LCD) - exposes workers to lower radiation levels.

Health risks associated with video terminals in the workplace are closely tied to how tasks are organized: volume, rhythm, degree of worker control, hours of work and rest periods, and overall working environment (see section on "Occupational Overuse Syndrome" which appears later on in this chapter).

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COMISSÃO NACIONAL DE ENERGIA NUCLEAR (CNEM)

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<http://www.mte.gov.br/Temas/SegSau/Conteudo/941.pdf>

(SPANISH)

International Commission on Non-ionizing Radiation Protection: Recomendaciones para Limitar la Exposición a Campos Eléctricos, Magnéticos y Electromagnéticos (hasta 300 GHz)

<http://www.icnirp.org/documents/emfgdlesp.pdf>

Efectos de los Riesgos Ocupacionales en la Salud Reproductiva de la Mujer, NIOSH.
<http://www.cdc.gov/spanish/niosh/docs/99-104sp.html>

Notas Técnicas de Prevención (NTP) sobre diferentes factores de riesgo: adiciones ionizantes NTP 304. http://www.mtas.es/insht/information/Ind_temntp.htm

3.4.4 Electricity

Improper use of electricity may cause death or serious injury. The health care facility should ensure that all electrical equipment and fixtures pose no risk to the health and safety of workers, patients, and other users.

In general, a health care facility's manager or administrator should ensure that:

- adequate equipment has been chosen for each task, taking into account the environment, the design, and capacity;
- equipment has been properly installed by a competent person, adhering to the manufacturer's instructions. If doubt exists concerning the possible electric overload when a new machine is brought on line, an electrician should be consulted;
- operators have been properly trained in the use of the equipment and understand that defective, obsolete, redundant and home-made or home-repaired equipment is unacceptable in the workplace; and
- all electrical equipment is properly maintained by qualified persons; "Do Not Use" and "Lockout" signs may be used when necessary.

Principal subcontractors should ensure that all independent employers and workers in a project comply with electrical safety requirements.

Inspections and regular checks of all electric equipment in the unit are good preventive and maintenance practices.

All new equipment should be inspected before first use, preferably by an authorized electrician. This is particularly important in the case of imported equipment in order to verify that they comply with national electrical safety specifications.

Electrical installations in hazardous areas such as locations where ignitable dust, vapors or gases may accumulate should be especially designed. This may imply the use of fire-resistant equipment, purging systems, intrinsically safe and/or dust-eliminating equipment, and protective equipment against ignition. If the ambient air is highly corrosive, protecting the equipment or using different equipment is recommended.

High-voltage Equipment

Some laboratory equipment such as electrophoresis baths utilize energy supplies capable of delivering high voltages and currents. This type of equipment and its power supply should incorporate:

- automatic breakers if ground leaks are detected;
- protection against overloads to safeguard the supply unit;
- security breakers to shut off power;
- grounded outlets;
- unobstructed air intakes;
- clean, unsaturated dust filters; and
- operation strictly in accordance with manufacturer's specifications.

Once this type of equipment is in use, the unit and the power supply should be labeled using signs with the warning, "DANGER – HIGH VOLTAGE".

FURTHER INFORMATION

(ENGLISH)

NZCEP11: 1993 New Zealand Electrical Code of Practice for Inspection and Testing of Low Voltage Installations for Certification Purposes

NZCEP12: 1993 New Zealand Electrical Code of Practice for Electrical Installations - The Safe Use of Electricity in Medical Locations and Associated Areas

Standards of the United States of America

AS 2500: 1986 Guide to the Safe Use of Electricity in Patient Care

AS 3003: 1995 Electrical Installations - Patient Treatment Areas of Hospitals and Medical and Dental Practices

AS 3551: 1988 Acceptance Testing and in Service Testing of Electro Medical Equipment

3.5 CHEMICAL HAZARDS

Several factors can affect the injuries caused by chemical hazards in the workplace. These factors include the toxicity and physical properties of the substances, work practices, the nature and duration of exposure, the effects of combined exposure, the routes of entry to the body, and the worker's susceptibility.

A chemical safety program's main objective is the systematic identification and investigation of potentially harmful risks so as to minimize the occurrence of damaging effects on health caused by chemical substances in the workplace.

The program should define ways to ensure that workers potentially exposed to chemical agents are offered education and training on the nature of the risks and ways to assess and control chemical exposures. This includes safe storing and emergency plans.

Transport, storage, and disposal of chemical wastes and therapeutic and diagnostic agents should comply with toxic waste/residue management policies.

Principles of Operational Control

The principles of operational control for the use of chemical products are:

- eliminating hazardous substances wherever feasible;
- substituting a less hazardous substance or process (for example, a less flammable solvent);
- isolating the hazard by increasing the distance or erecting a barrier between the substance and the worker;
- minimizing the risk during installation by providing overall and local ventilation to remove or reduce the concentration of airborne contaminants such as fumes, gases, vapors, and mists;
- establishing engineering controls to control or minimize the generation of hazardous substances (for example, smoke extractors)
- protecting workers by providing personal protective equipment to prevent physical contact with contaminants; and
- establishing safe work practices; these usually include management decisions that require workers to work in a safe manner (for example, giving access to authorized persons only; reducing re-exposure time; systematic cleaning and decontamination, etc.).

Potentially Hazardous Chemical Substances

Health care workers are potentially exposed to many chemical substances in the workplace, such as:

- anesthetic waste gases and vapors (nitrous oxide, enflurane, halothane, isoflurane);
- chemotherapeutic agents (antineoplastic, cytotoxic, antiviral, and antibacterial drugs);
- cleaning agents (disinfectants such as isopropyl alcohol, iodine, betadine, chlorine);
- sterilizing agents (such as glutaraldehyde, ethylene oxide);
- X-ray developing agents;
- insecticides and rodenticides;
- medications;
- soaps and detergents;
- solvents (such as ethanol, acetone, benzoin);
- tissue fixers and agents;
- inorganic mercury;
- latex.

The following sections summarize the most common categories of chemical hazards.

3.5.1 Aesthetic Gases and Wastes

Occupational exposure to anesthetic gases may cause spontaneous abortions, infertility, congenital malformations, and cancer. Nitrous oxide is also responsible for hematological abnormalities and neurological injuries, while enflurane (ethrane[®]) is also hepatotoxic, a nervous system irritant, and cardiotoxic.

Anesthetic gases may be released into work areas such as operating rooms, patient recovery areas, and delivery wards.

While most gas leaks occur through defective equipment seals, poor administrative techniques and exhalation by patients also can be sources. Low levels of nitrous oxide, halothane, enflurane, and isoflurane may be released by any of these means. Exposure to gases generated by anesthetic vaporizers while the anesthesia technician fills the vaporizer also may occur.

Recommendations

Adequate ventilation, gas scavenger systems for extracting waste and exhaled gases in induction masks, and regular checks of anesthetic equipment are important components of exposure reduction programs.

3.5.2 Chemotherapeutic Agents

Some medications may be extremely dangerous for those handling them frequently in their work. This category of chemical substances includes most of the antineoplastic agents (used in the treatment of cancer and other tumors) such as vincristine, dacarbazine, mitomycin, cytosine, arabinoside, and fluorouracil. The handling of antibacterial, antiviral, and other classes of drugs (e.g., interferon A, chloramphenicol, etc.) also requires special precautions.

The most severe dangers are mutagenicity (cancer) and genotoxicity (malformations in children and fetal loss).

The greatest risk of occupational exposure to cytotoxic drugs occurs while they are being prepared and administered. Other aspects of patient care such as the management of spills and waste may generate additional occupational hazards.

There are no available screening tests that reliably assess exposure. Employers are responsible for ensuring that the employees who are involved in the handling of cytostatic drugs are aware of the latest techniques for monitoring their exposure and health.

Recommendations for Health Care Facilities that Use Cytotoxic Drugs

- All workers who could be exposed should be fully informed of all potential hazards and of the need to take adequate precautions.
- Written policies and procedures must be set.
- Management should invest in educational and training programs in order to teach personnel about the hazards associated with handling these types of drugs, the different exposure routes, and the ways to protect themselves and others from unnecessary exposure.

- Adequate safety measures should be taken in preparing and administering drugs to patients, managing spills, and routinely disposing of wastes as ways to reduce unnecessary worker exposure.
- Any direct exposure should be documented for future consultations.

3.5.3 Sterilizing Agents

This section describes some of the most frequently used agents in health care establishments.

Ethylene Oxide

Ethylene oxide is used in the health industry as a sterilizing agent for accessories and medical equipment. Hospital areas that use sterilizing agents include operating rooms, supply centers, renal dialysis units, departments of respiratory therapy, and areas with autoclaves. Its use is particularly important in the sterilization of items that are sensitive to heat and humidity such as some plastics that cannot, therefore, be sterilized with vapor.

There is evidence that the inhaled gas may cause leukemia among sterilization service personnel. The liquefied gas provided in gas cylinders can cause dermatitis, blisters, and burns when spilled or splashed upon the skin. It has also been reported that ethylene oxide induces premature births and abortions after exposure during pregnancy.

Recommendations

- Apply effective control measures (for example, enclosed use or installation of local exhaust ventilation).
- Introduce safe work practices in order to reduce worker exposure.

Since the odor of ethylene oxide cannot be detected until concentrations reach roughly more than 700 ppm, significant exposure may occur without the worker's awareness. This characteristic underscores the importance of establishing an effective and reliable exposure control system.

Formaldehyde

Formaldehyde is a tissue sterilizer and preservative used in dialysis units, pathology departments, supply centers, and anatomy laboratories.

Gaseous formaldehyde is an eye and respiratory-tract irritant. As a liquid solution, formaldehyde can cause primary irritation and allergic dermatitis. Formaldehyde exposure has been associated with occupational asthma in hospital settings and other working environments.

The U.S. Environmental Protection Agency (EPA) has classified formaldehyde as a probable human carcinogen, the use of which has to be controlled in order to maintain exposure levels as low as possible.

Recommendations

- educate personnel on chemical risks;
- conduct health surveillance of exposed workers; and
- provide adequate ventilation.

Glutaraldehyde

Glutaraldehyde is used as cleansing agent, disinfectant, sterilizing agent, biological tissue fixative, and as a component in the development of X-ray films.

Skin contact with glutaraldehyde solutions, aerosols, and vapors may cause eye irritation and irritant or allergic contact dermatitis. Inhalation of vapors and aerosols may cause nose, throat, and lung irritation as well as headaches and nausea. Respiratory sensitization may cause allergic rhinitis and reactions that resemble asthma.

Recommendations

- substitute a less hazardous product for glutaraldehyde or change the process; and
- if it is impossible to introduce a substitute, isolate the procedures and processes where glutaraldehyde is used, institute proper work practices, install local exhaust ventilation and use personal protective equipment (gloves, eye protectors, masks, and, when necessary, certified respiratory protective equipment).

3.5.4 Chemical Products for Processing X-ray Films

Because there are so many chemicals involved in developing X-ray films, it is important to fully understand the best procedures that can be used to avoid associated health risks.

Repeated skin exposures to certain chemical products may cause dermatitis. Gases produced may irritate the eyes and throat as well as cause respiratory difficulties. Extreme exposure may cause headache or chest pain.

Recommendations

Control should focus on containing chemical substances at their source. Ventilation should be provided as a second-line defense. If technically possible, safer chemical substances should be substituted.

Skin contact should always be avoided. Adequate protective work clothing should be worn during the routine cleaning of processor units and while manually mixing chemical products.

3.5.5 Inorganic Mercury

Acute exposure to mercury vapor can produce nausea, chills, malaise, thoracic pains, breathing difficulties, coughing, inflammation of buccal mucosa and the gums, salivation, and diarrhea. Acute inhalation of a large quantity of the substance may cause serious respiratory irritation and kidney damage. Chronic exposure may cause fatigue, anorexia, and gastrointestinal disturbances.

Mercury contamination in health care facilities is primarily caused by breakage of thermometers and blood-pressure monitors. Most of these spills do not pose serious hazards provided that proper cleaning measures are taken. If the spills are not properly cleaned, mercury may accumulate on a surface and then evaporate where it will then be constantly inhaled by workers.

Recommendations

- The first step should be to immediately isolate and clean the area.

- As with any hazardous substance in the workplace, a procedure should be established for managing spills and cleaning contaminated surfaces.
- Any person who cleans up spills should use adequate personal protective equipment including protective clothing and gloves.
- Cleaning after a major spill or a major mercury contamination (for example, mercury extracted from manometers) should be conducted exclusively by trained persons.
- The floor and working surfaces in areas where equipment that contains mercury is used should be waterproof.
- It is important to control the disposal of mercury waste in dentistry centers.

3.5.6 Latex Sensitivity

The introduction of standard universal precautions in health care has brought about major improvements in infection control. Gloves are a principal means of protection. Health care workers they protect themselves against HIV and other bloodborne diseases by using protective gloves.

Sensitivity to latex is a serious threat to the health and work of some health professionals and patients. It can cause a variety of allergic reactions ranging from urticaria to rare anaphylactic shock. Skin injuries caused by the allergic process can be a portal for infections.

Recommendations

- Disseminate information on the effects of latex sensitivity to enable workers to identify adverse reactions and adopt preventive action before the symptoms worsen.
- Encourage personnel to seek help when actual or potential allergy is present.
- Provide alternatives to latex-based equipment, if possible.
- Compile information about different options to be considered for purchase.

FURTHER INFORMATION

(ENGLISH)

Cytotoxic Drugs: <http://www.cdc.gov/niosh/pdfs/88-119-p.pdf>

Chemical Safety:

http://osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html

<http://www.cwru.edu/finadmin/does/web/Forms/PDFdocs/ChemMan.PDF>

City of Albuquerque Pollution Prevention. Free Educational Materials.

Biomedical Laboratories Code of Practice. <http://www.cabq.gov/p2/index2.html>

Dental Waste Guidelines. http://www.cabq.gov/p2/Dental%20grant/dental_booklet.pdf

Chemical Safety Manual, Case Western Reserve University, 1998.

<http://www.cwru.edu/finadmin/does/web/Forms/PDFdocs/ChemMan.PDF>

Chemical Safety, CDC, 2001. <http://www.cdc.gov/od/ohs/manual/mannav.htm>

Controlling Exposures to Nitrous Oxide During Anesthetic Administration, NIOSH, 1994.

<http://www.cdc.gov/niosh/noxidalr.html>

Control of Nitrous Oxide during Cryosurgery <http://www.cdc.gov/niosh/hc29.html>

Written Methylene Chloride Program, Case Western Reserve University, 1999.

<http://www.cwru.edu/finadmin/does/web/Forms/PDFdocs/Methylene.pdf>

Written Formaldehyde Program Case Western Reserve University, 1995.

<http://www.cwru.edu/finadmin/does/web/Forms/PDFdocs/Formaldehyde.pdf>

Written Benzene Program, Case Western Reserve University, 1999.

<http://www.cwru.edu/finadmin/does/web/Forms/PDFdocs/Benzene.pdf>

American Nurses Association (ANA) Latex Allergy page: <http://nursingworld.org/osh/latex.htm>

Massachusetts Chemical Fact Sheet: Ethylene Oxide <http://www.h2e-online.org/pubs/eo.pdf>

OSHA Safety and Health Topics: Hazardous Drugs <http://www.osha.gov/SLTC/hazardousdrugs/>

Agency for Toxic Substances and Disease Registry (ATSDR) fact sheet

<http://www.atsdr.cdc.gov/tfacts137.html>

Ethylene Oxide Sterilizers In Health Care Facilities: Engineering Controls and Work Practices

http://www.cdc.gov/niosh/89115_52.html?

Latex Allergy, NIOSH, 1997. <http://www.cdc.gov/niosh/latexfs.html>

Latex Allergy, HCHSA, Canada, 2003. http://www.hchsa.on.ca/products/ffacts_e/lap_139.pdf

Preventing Allergic Reactions to Natural Rubber Latex in the Workplace, NIOSH, 1997.

<http://www.cdc.gov/niosh/latexalt.html>

Fast Facts – Preventing and reducing latex allergies. March 1999. HCHSA of Ontario.
Tel (416)250-7444. <http://www.hchsa.on.ca>

Health Care without Harm Publications:
contact Jolie Patterson at jpatterson@hcwh.org to receive free brochures

GEN-06 Green Birthdays

MER-02 Protecting by degrees: What Hospitals Can Do to Reduce Mercury Pollution

(PORTUGUESE)

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(SPANISH)

Gestal Otero, Juan Jesus. Riesgos del trabajo del personal sanitario. Editorial. Madrid, España.

Notas Técnicas de Prevención (NTP) sobre diferentes factores de riesgo: (óxido de etileno NTP470, Glutaraldehído NTP 506,) Hospitales EPI NTP 572.
http://www.mtas.es/insht/information/Ind_temntp.htm,

Efectos de los Riesgos Ocupacionales en la Salud Reproductiva de la Mujer, NIOSH,
<http://www.cdc.gov/spanish/niosh/docs/99-104sp.html>

Anestésicos en Odontología: <http://www.siafa.com.ar/notas/nota69/control.htm>

Alergia al Látex:

Cómo Prevenir Reacciones Alérgicas al Látex de Caucho en el Trabajo, NIOSH, 1997
<http://www.cdc.gov/spanish/niosh/docs/97-135sp.html>

Alergia al látex, NIOSH, 2003
<http://www.cdc.gov/spanish/niosh/fact-sheets/fact-sheet-705006.html>

3.6 LABORATORY SAFETY

Conducting hazard assessment in hospital laboratories is particularly difficult considering the wide range of occupational hazards present: fires, explosions, toxic aerosols and vapors, corrosive-substance spills on the skin and eyes, thermal burns, cryogenic burns, falls, cuts, and abrasions. Chemical substances and radiation and infectious agents are the

most difficult to assess. Compared to industrial environments, laboratory exposures are typically short lived, intermittent, and involve small quantities of compounds and mixtures. Little is known about the health effects of such exposures.

Given the difficulties in quantifying risk, an effective strategy for achieving laboratory safety is to ensure that control measures are developed or that universal precautions are applied. In this context, “universal precautions” are understood as the measures such as ventilation, substitution, personal protection, and documentation of storing, handling, and disposal procedures that can be taken to eliminate exposure regardless of the agent involved.

The first step in establishing a laboratory health and safety system is to develop policies and procedures. For the system to function adequately, policies and procedures must be converted into standardized work practices.

FURTHER INFORMATION

(ENGLISH)

<http://www.cwru.edu/finadmin/does/web/ChemSafety/ChemManual/ChemMan.PDF>

<http://www.who.int/csr/resources/publications/biosafety/en/Labbiosafety.pdf>

<http://www.hchsa.on.ca/products/resrcdoc/rlabe314.pdf>

General Laboratory Health and Safety, CDC, 2001.

<http://www.cdc.gov/od/ohs/manual/mannav.htm>

3.7 ERGONOMIC HAZARDS

3.7.1 Handling Loads

Musculoskeletal injuries and back pain are serious problems in the health industry and represent a major cause of absenteeism.

Although lumbar injuries may occur as a result of a single event, they are usually a cumulative effect of many episodes of improper postures, movements, weights, and forces that cause progressive wear and tear over time.

Handling loads deals not only with lifting, transferring, and positioning of patients, but also with other tasks such as those of staff working in ambulances, doing computer work, providing support services, and working in areas such as radiology and physiotherapy.

In community services, load handling problems may derive from difficult working conditions and limited possibilities for altering the environment so as to minimize hazards.

Training and education of workers on lifting methods cannot by themselves solve the basic problems involved in the manual handling of loads. A broader, multidisciplinary focus is necessary. Employers and employees must collaborate to reduce hazards in load-handling tasks and prevent injuries and accidents.

This requires:

- A. The identification of hazards and dangers in the manual handling of loads should be based on a preventive and curative focus:
 - Preventive methods include safety inspections, monitoring of tasks, and the application of ergonomic principles in the design of equipment and installations.
 - Curative methods include research reports, reports of discomfort, use of a hazard registry to identify existing and potential problems and an event analysis for investigating and preventing accidents and incidents.
- B. The assessment of load handling tasks that present the highest risk of accidents should take into account the following factors:
 - how tasks are performed by observing activities - for example, assessing the nature of loads, heights, postures, actions, and movements involved in the work;
 - worksite design and layout and ergonomic principles;
 - the duration and frequency of load handling;
 - location of loads and distances moved;
 - loads and forces including assessment of patient size, extent of mental cooperation, and physical coordination;
 - properties of the loads and the equipment;
 - organization of the work and the work load;
 - environmental conditions (such as lighting, heat and humidity, noise, vibration, condition of floor surfaces);
 - skills and experience (knowledge of health and safety in the handling of loads and teaching ways to perform tasks that minimize accident risk);

- physical capacity of workers;
- work clothing (design of comfortable uniforms and anti-slip footwear);
- special requirements (for example, pregnancy or disability, gradual return to work, etc.); and
- maintenance and design of equipment and furniture.

C. Control options may include:

- design and redesign. Ideally, the entire facility and its equipment should be designed according to ergonomic and safety principles. Examples include the reorganization and redesign of jobs, tasks, and loads in terms of layout and, as far as possible, the elimination or reduction of the amount of manual load handling;
- ways of reduction of load handling;
- pre-purchase assessment of load-handling risks when considering new equipment or furniture; an expert in ergonomics may need to be consulted;
- provision of information on, and training in, safe load handling and lifting as part of job induction programs as well as continuing training programs for personnel;
- provision of information and education on accident prevention and principles of back care (this could be included in a health promotion program); and
- design of protective clothing that allows workers to restructure load handling tasks in a simple and safe manner. Safety footwear should be comfortable, provide good support, and have anti-slip soles.

D. Control methods must be evaluated to verify their functioning.

- The moment hazards are identified is the ideal moment to design an evaluation of the impact of actions undertaken to minimize the detected hazards.
- The evaluation and the methods that can be used to evaluate control methods are not presented in detail in this document.

3.7.2 Treatment of Injuries from Load Handling

The policy for treating load handling injuries should include a reporting system and early management of lumbar pain and the accidents that cause or trigger them. Appropriate access of workers to medical or rehabilitation services will facilitate the proper

management of recovery. The policy also should cover follow-up and monitoring of the worker once he or she has returned to work.

3.7.3 Occupational Overuse Syndrome (OOS)

“Occupational overuse syndrome” is a term that incorporates a range of conditions including injuries characterized by the ensuing discomfort or persistent pain in muscles, tendons, nerves, soft tissues, and joints with evidence of clinical signs. Symptoms such as pain, discomfort, and muscular weakness may continue even after clinical signs have diminished. The common feature of all of these symptoms is that they are caused by excessive and prolonged muscular tension, forced movements, repetitive movements, and improper postures.

Occupational overuse syndrome can be divided into three broad groups: local inflammations, compression syndromes, and pain syndromes. There is a variety of problems associated with the syndrome that can be distinguished from pains and ailments that are part of normal life.

The development of occupational overuse syndrome may include other factors such as stress, difficult working conditions, and improper handling of loads.

Occupational overuse syndrome may affect persons in a wide variety of jobs in health care facilities, including:

- medical and dental professionals;
- housekeeping staff;
- kitchen and laundry staff;
- maintenance workers (for example, carpenters); and
- office and other personnel who use visual display units (VDUs).

The introduction of VDUs into the workplace has changed work tasks, organization, and environment. The health sector is no exception. While the shift to electronic workstations has increased work capacity and efficiency, it also has introduced health problems often caused by a lack of knowledge and understanding. Occupational overuse syndrome is a health problem that is often related to VDU.

Risk factors for occupational overuse syndrome should be treated as priorities since these symptoms develop over time and may cause serious disturbances to body functions. This syndrome may also lead to a tendency toward accidents that prevent a return to work for long periods. Hazard control includes:

- work organization and design: control of overload, task specification, established rest breaks;
- workplace and workstation design: layout should be based on ergonomic principles;
- equipment and task design that permits relaxed postures and movements; and
- education, training, and development of skills among personnel: the worker will be provided, from his or her induction, with knowledge of safe work practices, causes and early symptoms of occupational overuse syndrome, and ways to obtain assistance to solve the associated problems.

If a worker encounters a priority hazard that cannot be reasonably eliminated or isolated, the employer should take all practicable steps to minimize the hazard and monitor worker exposure.

An early reporting system should be established for the incidence of ailments, pains, and discomfort. Workers should be trained to use it and become able to tackle the problem quickly before symptoms become serious or chronic. Workers' access to medical services and appropriate assessment will benefit accurate diagnosis and appropriate rehabilitation.

Given the widespread nature of the symptoms and the difficulty of treatment of occupational overuse syndrome, the slogan "better prevent than cure" becomes particularly important.

FURTHER INFORMATION

(ENGLISH)

New Zealand OSH Publications

Approved Code of Practice for the Safe Use of Visual Display Units

Occupational Overuse Syndrome - Guidelines for Prevention and Management

Occupational Overuse Syndrome - Checklists for the Evaluation of Work

Occupational Overuse Syndrome – Treatment and Rehabilitation: A Practitioner's Guide

The Pocket Ergonomist (Keyboard/Clerical)

The Floppy Ergonomist - floppy disk and explanatory leaflet

The Ergonomic Resource Guide for Organizations in Health and Community Care: ERGO, HCHSA of Ontario, 2001

http://www.hchsa.on.ca/products/resrcdoc/lap_262.pdf

HCHSA - A Planning Guide for the Implementation of Client Mechanical Lifts

<http://www.hchsa.on.ca/products/resrcdoc/rlife349.pdf>

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<http://www.cdc.gov/od/ohs/manual/mannav.htm>

(SPANISH)

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<http://www.ergonomia.cl/bv.html>

3.8 MECHANICAL HAZARDS

3.8.1 Preventing Slips, Trips, and Falls

Slips, trips, and falls are the most common causes of accidents. They also are the most easily preventable. Identification of potential of slip, trip, or fall hazards is important in the prevention or reduction of the incidence of accidents in all work areas.

Many falls are the results of hazards that are permanent nature. These hazards are tolerated and ignored until an incident or accident draws attention to them. Notice how a simple walk in a hospital corridor may be a veritable challenge: corridors tend to get crowded with housekeeping carts, seats, wheelchairs, extra beds, stretchers, and groups of people.

Basic safety practices accomplished through order, cleanliness, and regular maintenance will eliminate a good deal of this risk. Preventative practices to consider include:

- regular inspection of floor surfaces for needed changes such as surface leveling or damage repair;

- regular inspection, and immediate correction, of any floor that is warped or uneven;
- immediate cleanup of spills;
- staff education on potential hazard and danger recognition (for example, preventing coffee or tea spills by lowering the fill level) and documenting the control measures;
- placement of signs that warn about spills or cleaning processes;
- design of effective drainage;
- assurance that all hallways and work areas (including bathrooms and kitchens) are unobstructed by unnecessary equipment and furniture;
- assurance that all hallways and stairs are always well lit;
- assuring power outlet safety in all areas, for example, in patient rooms, for computer equipment, and in hallways;
- provision and proper use of safe stepstools and ladders to reach high storage areas; and
- provision and use of appropriate footwear in work areas.

3.8.2 Vehicle Safety

Vehicles that are used in the normal course of work are considered part of the worksite.

If a facility employs workers who regularly drive on public roads from worksite to worksite, on patient visits, when transporting patients (in ambulances), or when carrying goods or equipment, management should take all possible steps to ensure the health and safety of these workers and those who may be affected by their activities.

Employers should ensure that all vehicles are regularly maintained and have a valid guarantee certifying that they are safe to be driven. Thus, all internal accessories and equipment such as those used to restrain wheelchairs, stretchers, gas canisters, etc. should be regularly checked and maintained.

Workers must have a valid driver's license and they should be given information, training, and supervision to ensure their safe driving.

Depending on the type of driving required, an employer may need to provide guidelines on safe procedures, information, and training in:

- safe loading and securing of goods;
- safe loading and securing of persons, for example, those in wheelchairs and stretchers;
- safe handling of loads;
- safe handling and transport of chemical substances, including gas canisters and bottles;
- safe handling and transport of medical supplies and samples;
- provision and safe use of fire extinguishers;
- first aid procedures;
- defensive driving and driver awareness training;
- use of safety belts and headrest adjustment;
- the consumption of tobacco, alcohol, and other drugs while driving; and
- the use of cellular phones in vehicles.

3.8.3 Vehicle Loading

Workers who drive as part of their regular normal duties require training in how to secure loads in order to prevent them from shifting during transport and how to balance these load for smooth steering and braking.

Vans, station wagons, and trucks used to transport equipment and other loads should be furnished with adequate safety barriers behind the front seats to protect the driver and passengers from being struck by objects that are flung forward in collisions or after sudden braking.

When possible, vehicles should be evaluated for hazards during loading or unloading, particularly when these operations occur many times during the shift as is the case for community nurses.

Vehicles intended for passengers with special requirements (ie., disabled passengers that require crutches, wheelchairs or other types of implements in order to move) should be furnished with special equipment.

FURTHER INFORMATION

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Transportation of Medical Supplies, Ministry of Health

Vehicle Standards (Passenger Service Vehicle Construction), LTSA

3.9 VIOLENCE IN THE WORKPLACE

In recent years, violence in the health sector has received increased attention. This is primarily due to the growing incidence of assaults and physical threats suffered by health care workers in their daily work. WHO estimates that one-quarter of all violence in the workplace occurs in the health sector. Violence should be viewed as a significant occupational hazard. This hazard is also responsible for many cases of high occupational stress level.

Violence and aggression in the workplace and the fear they generate may have far-reaching effects. Any form of violence may lower morale among workers, increase financial costs, and decrease productivity at a health care facility. Furthermore, victims carry psychological scars of emotional trauma.

The various manifestations of violence in the workplace include:

- using physical force to endanger or damage persons or their property;
- engaging in intimidation, coercive behavior, or fear-mongering; and
- engaging in verbal abuse and harassment including sexual, racial, and psychological harassment at work (mobbing).

Some aspects of violence, such as physical abuse, are obvious. However, the use of language is more difficult to quantify - abuse by words or gestures may be construed as offensive and distressing by some, but it may be a way to let off steam by others.

Violence in the workplace includes any incident where a worker is abused or threatened in circumstances directly related to the execution of his or her normal tasks. This type of behavior can be shown by patients, clients, visitors, members of the general public, or by fellow workers.

The WHO Program of Workplace Violence in the Health group has pinpointed situations that increase the risk of violence at workplace:

a) Organizations at increased risk are:

- located in urban, highly populated, and high crime areas;
- small and isolated;
- understaffed;
- under the strain of reform and downsizing;
- operating on insufficient resources, including inappropriate equipment;
- functioning in a culture that tolerates and accepts violence;
- working under a management style based on intimidation; and
- noted for poor communication and interpersonal relationships.

In this regard, attention also should be paid to abnormally high levels of absenteeism on grounds of sickness, high levels of staff turnover, and a history of violent events.

b) Potential perpetrators (consideration should be given to the fact that many perpetrators have themselves been victims of violence).

In general, a potential perpetrator's background may include:

- a history of violent behavior;
- a difficult childhood;
- problems of psychotropic substance abuse, especially problems with alcohol;

- serious mental illness, whose symptoms are not being adequately identified or controlled; and
- access to firearms or objects that can be used as weapons.

The following can be considered as warning signals:

- aggressive or hostile postures and attitudes;
- repeated manifestations of discontent, irritation, or frustration;
- alterations in tone of voice, pupil dilation, muscle tension, sweating; and
- the escalation of signs and a build-up of tense situations.

c) Potential victims (as with potential perpetrators, care should be given to avoid the use of labeling).

Professions (although all health sector professions are potentially at risk for workplace violence, the following seem to be at high risk) to particularly note:

- nursing and ambulance staff - extremely high risk;
- doctors, support and technical staff - at high risk; and
- all other allied professionals - at risk.

Real or perceived vulnerable populations:

- minorities;
- persons working in training or in admissions;
- workers in precarious jobs;
- young people; and
- women.

Experience/attitudes/appearance may include:

- a lack of experience;
- the display of unpleasant or irritating attitudes,

- the absence of coping skills, and
- the wearing uniforms or name tags.

3.9.1 Psychological Abuse (Harassment, Bullying, Mobbing)

Psychological abuse is a type of violence in the workplace inflicted by a person or a group of persons toward a worker in a systematic manner following a given pattern. Examples include attacks to a person's personal dignity, placing obstacles to hamper work performance, manipulating information, and perpetrating acts of inequality.

Mobbing in the workplace generates a great deal of occupational stress. This stress can trigger a wide spectrum of illnesses and has come to be a public health issue in most developed countries.

The following practices help reduce the incidence of mobbing at workplace:¹⁹

- Reduce the factors that motivate harassment: promote ethical values, justice and transparency towards employees; by example, management should promote a people-centered organizational culture instead of leadership based upon intimidation; show appreciation for staff members who have greater capability for interpersonal relationships and communication; include explicit rules in the staff manual about unacceptable persecutory or harassment behaviors (See the section “Psychosocial Risks” further on in this chapter).
- Increase awareness of those who deal in occupational health in health care establishments (occupational health and safety committees and units, supervisors, etc.) and further train them to manage mobbing.
- Adopt tools that, on the one hand, provide procedures to combat mobbing and, on the other, have a preventive effect. These include sessions with a trained facilitator; work agreements to combat mobbing; preparation of clear policies to abate the problem; establish an investigative system and registry; management of conflicts; rapid and discreet investigation of complaints; protection of the rights of the persons involved, etc.

3.9.2 Abuse and Aggression in the Workplace

Abuse and aggression are more frequent in certain types of activities such as:

- working in emergency services;
- being in contact with the public;
- working with valuable objects (money, storing of drugs, valuable equipment);
- working with persons under stress (those suffering pain, psychiatric disturbances or engaging in alcohol or drug abuse, etc.); and
- doing solitary work at isolated worksites.

The potential to have incidents that involve aggression is a significant risk. As for any other workplace risk, it is the responsibility of managers or administrators to take measures in order to protect workers from incidents involving violent behavior that may result in injuries, damage or health.

It also is the duty of health workers to ensure their safety at work and to be aware that their actions or omissions might cause harm to others.

Managing Risks Associated with Assaults and Aggression

Early intervention is the most effective means of dealing with violence in the workplace. The recommended approach involves eliminating opportunities for violent or threatening behaviors to occur. An occupational health and safety action plan to prevent violent acts should identify the potential for violence, evaluate violent incidents, and determine control measures during or after incidents of violence.

Workers must be involved in the preparation of the action plan.

A. Identification

Management should provide staff with information that will increase the understanding and awareness of violence and that will also bolster the motivation to report all incidents of violent behavior. A confidential reporting system should be put in place. Management should identify situations in which violent or aggressive behaviors by patients, suppliers, or clients, among others, may occur. For example:

- incidents of dissatisfaction of patients or their relatives with delays or deficiencies in the services;
- cases where the number of assigned staff is incompatible with the level of patient dependency;

- situations in which assistance is being provided to overstressed, annoyed, stress-laden, displeased or needy persons;
- dealing with disturbed persons (such as those suffering from mental or intellectual impairments or under influence of drugs or alcohol);
- working with persons in the community who have a history of violence;
- working with institutionalized clients who could have aggressive behavior toward other inpatients or staff;
- working in sites where drugs are administered or stored;
- working in isolation; and
- having insufficient security in the building and its surroundings.

Incident and accident reports should be evaluated to identify the nature and range of any violence as well as the areas at greatest risk. By grouping incidents that share similar features, patterns may be revealed that could help design preventative measures.

The registration form should include:

- where the incident occurred (including the physical environment);
- the date and hour of the incident;
- activity being performed at the time of the incident;
- victim details;
- relationship of the victim with the perpetrator;
- an account of what happened;
- witnesses;
- consequences;
- measures taken after the incident; and
- recommendations for preventing similar incidents in the future.

Reporting and investigative procedures also should be reviewed to assess their efficacy.

B. Control Measures

For All Workers

Every measure should be taken to control actual or potential incidents of violence. This means that the environment and the administrative systems may need to be redesigned in order to:

- promote a humane culture that favors a pleasant social atmosphere;
- facilitate a flow of information among staff members, work units, patients, and the public (this can be accomplished by conducting team meetings, issuing protocols and codes of conduct that explain the responsibilities and rights of the patient, friends, and family members, etc.);
- change the work system to reduce the likelihood of any violent behavior (for example, by improving the handling of cash money or drugs);
- issue clear guidelines of what to do in threatening situations;
- elaborate a list of persons with sufficient experience and training in handling violent incidents including staff available during weekends and night shifts;
- keep flexible staff levels to adjust to needs;
- reduce work pressures and waiting times;
- provide information, training and follow-up in the prevention and management of violence (this should be included in employment induction programs);
- issue clear-cut policies and procedures to be followed in cases of sexual harassment;
- provide effective security and communication systems through the use of premises surveillance, controlled access, alarm systems, adequate lighting, systematic maintenance and provision of personal locators for staff that must work in isolated areas;
- change the physical environment (isolate disturbing noise, paint walls with warm tones, eliminate foul smells); and
- monitor and evaluate the effectiveness of preventive measures, for example, arrangements should be put in place so that workers can provide feedback to evaluate the effectiveness of the changes made.

Large health care facilities may consider assembling a trained crisis intervention team to respond to emergencies and, when necessary, provide escort and transport services.

For Workers Who Work in Isolation

Measures that can reduce risks for persons who work in isolation, such as those that work alone in the community, include:

- providing training to detect signs of disturbance and to resolve conflicts;
- assessing risk situations and changes in client attitude and conditions;
- providing pertinent information to staff on the risk posed by the client;
- establishing two-person work teams;
- providing an adequate communication system, such as through the use of cellular phones and periodical reporting to headquarters; and
- providing special safety procedures for night work.

Interventions in Response to Violence

Measures taken in response to violent incidents should aim to minimize the repercussions of violence in the workplace and to ensure that such violence will not recur.

Measures should include:

- Implementation of an action plan that helps all workers cope with the emotional and operational aspects of the issue. This action plan should also help them to react to the situation as a collective social group.
- Implementation of the use of reporting and registration systems. Workers should be guided on how and when to notify an incident without fear of retaliation or criticism.

C. Assistance to Victims of Violence

In order to minimize the negative effects of a violent incident, an appropriate post-incident response system should be provided and organized. This sort of service to internal clients should include debriefing, counseling, and support to victims and their colleagues, especially if the latter were witnesses to the violence.

This type of program should provide, at a minimum:

- medical evaluation and treatment of injuries,
- help in completing medical and legal documents, and

- legal representation and guidance.

FOR FURTHER ORIENTATION

Specialized consultants

Police

Labor unions

Employee association

FURTHER INFORMATION

(ENGLISH)

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Workplace Violence in the Health Sector – State of Art, IST & NIOSH.
<http://www.icn.ch/SewWorkplace/WPViolenceSAP.pdf>

New Zealand OSH Publications

A Guide for Employers and Employees on Dealing with Violence at Work

Guidelines for the Safety of Personnel from the Threat of Armed Robbery

What Employees need to know about Violence at Work

USA:

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Framework Guidelines for Addressing Workplace Violence in the Health Sector (2002)

http://www.who.int/violence_injury_prevention/violence/interpersonal/en/WVguidelinesEN.pdf

Raising awareness of Psychological Harassment at Work; Protecting Workers's Health series no. 4 (2003)

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ACOSO MORAL: <http://www.mobbing.nu/index.htm>

Consejos para defenderse en caso de acoso laboral

<http://www.mobbing.nu/primerosconsejos-achp.htm>

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<http://www.prevencionintegral.com/Default.asp?http://www.prevencionintegral.com/Novedades/mobbing/conclusiones.htm>

3.10 PSYCHOSOCIAL HAZARDS

Violence, which is considered to be the greatest source of stress in the health sector, was presented in detail in the section “Violence in the Workplace” that appeared earlier in this chapter. This section deals with other psychosocial issues in the health sector.

These are highly important aspects, not only from the viewpoint of managing occupational health and safety, but also for the overall administration of costs, quality of services, and personnel. It is important to note that psychosocial risks among health workers are most often associated with burnout. This syndrome manifests itself in workers’ behavior along three dimensions that are highly detrimental to patients and the services in general: exhaustion, cynicism, and inefficacy.

3.10.1 Stress and Fatigue

Psychosocial stress (or, in this Manual, simply “stress”) can be defined as the psychophysiological mechanisms through which psychosocial risk factors affect an organism.

All workers are exposed to some source of pressure at work. Individuals react differently and have unique capabilities for coping with stressful situations. Many do not suffer any adverse effects from the exposure. However, prolonged exposure to intense pressure may have detrimental effects on health. Stressors in a person’s life and work may lead to anxiety when that person’s coping mechanisms overload due to conditions such as repeated exposure to stressors, high stressor intensity, or an individual’s susceptibility.

Occupational stress is a complex process that links and combines several aspects of workers’ everyday life such as working hours, job organization, physical environment, personal health, and private life pressures.

Factors that may contribute to stress in the health sector include:

- the intensity and duration of physical and mental loads - a state of “chronic emergency,” difficult work shifts, inflexible working hours, unpredictable working hours, prolonged working hours, or shifts without social interaction;
- emotional stress in caring for the ill;
- the worker’s personal or health problems (healthy and fit persons often cope better with physical and mental stress);

- organizational factors such as the lack of control over workload, poor work planning, inadequately trained personnel for client dependency, poor communication in the workplace, organizational changes that lead to job insecurity, etc ; and
- the immediate working environment - lighting, noise, work space, workstation design, etc.

Stress in workers may manifest in high absenteeism rates, high turnover, low productivity, high accident and illness rates, and poor concentration that leads to greater error rates and mood problems. Alcohol and drug dependency and depression also are more frequent among employees under stress.

Occupational stress theories once focused on the individual more than on the work. Today, however, it has become clear that a stress management program offered to workers will not control the causes of stress. Although such programs may be able to help, they will not remove the risk because they act upon the victim and not on the stress factor. Such programs may assist the victim but do not address the source of the stress with the aim of alleviating the hazard.

Consequently, today it is understood that an adequate management of occupational stress implies organizational changes including improved communication in the workplace and support for changes in staff such as physical training, relaxation, and adequate time management.

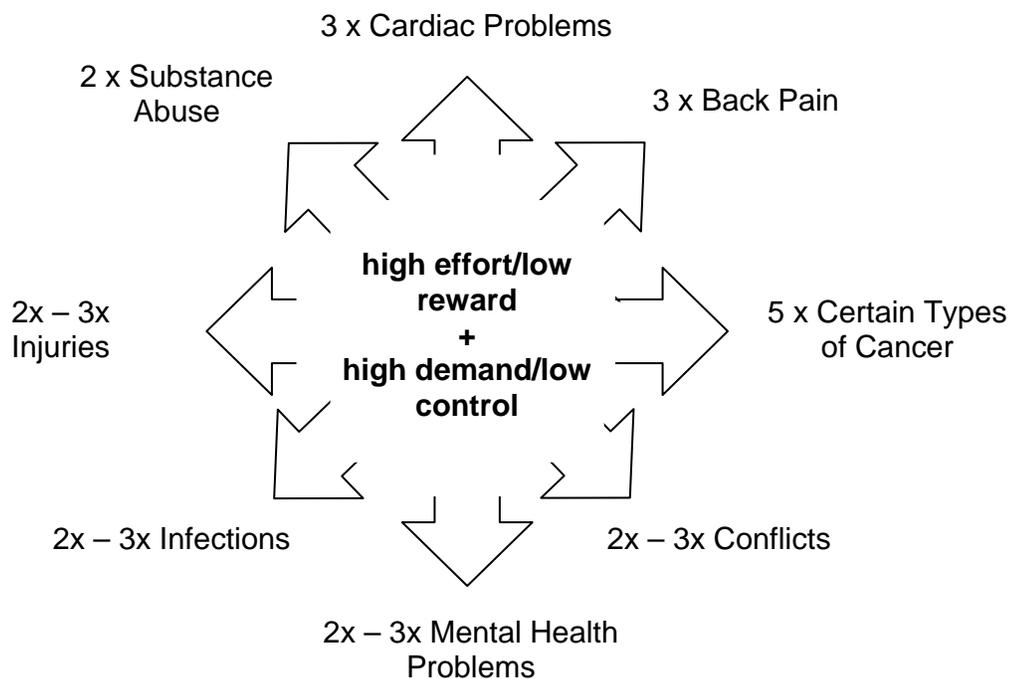
From a legal point of view, aspects related to personnel stress and fatigue may be handled in the same manner as other hazards or risks in the workplace. Managers or administrators should be accountable for taking feasible measures to prevent health problems caused by the way work has been organized at the health care facility. Under certain circumstances, the effects of stress and fatigue represent an important danger that may lead to serious legal consequences since persons under stress are more prone to commit errors and cause accidents.

3.10.2 Effort, Reward, Demands, and Control

There have been models constructed to explain how organizational factors can cause health problems among workers. The best known are Karasek and Theorell's model and the Siegrist model which study problems of two organizational anomalies, "high effort/low reward" and "high demand/low control," respectively.

The high effort/low reward model applies to organizations in which the worker considers the work rewards as insufficient in terms of both remuneration and incentives such as recognition of effort. High demand/low control organizations require high performance but give the worker no freedom to organize his or her own way to accomplish a task. Often, these two characteristics coexist in the same organization.

The following figure summarizes the results of studies conducted on the two models. These studies illustrate the strong influence of psychosocial factors on workers' health problems.



Example: Workers under prolonged conditions of high effort/low reward and high demand/low control have a 2 to 3 times higher probability of contracting infections in comparison to workers that do not suffer these conditions.

Adapted from the Minister of Public Works and Government Services Canada (20)

Recent studies have delved deeper into these matters, demonstrating the important synergistic effects of these organizational hazards when workers consider them as unjust and as signs of disrespect. According to these studies, two types of justice are involved: distributive (who receives what and when) and process-oriented (what processes are involved in decision-making).

3.10.3 Shift Work

Health care facilities provide continuous care to highly dependent patients in emergency circumstances. Such services require the constant mental alertness and concentration of health care employees and emergency staff.

Regardless of the pattern pursued, shift work is a significant stress factor to most workers and their families.

Most shift workers face serious difficulties in biological and social adjustments. Shifts cause disturbances in circadian rhythms, poor sleep patterns, and social isolation. Night work is particularly exhausting since the employee works during physiological rest hours and sleeps during daytime thereby making his or her sleep less restorative than that of those who sleep during the night.

Fatigue is a particular occupational hazard for those who work in shifts.

Services that continually ask employees to work overtime, to be on call for longer than 24-hour periods, or to work irregular shifts without adequate rest use work practices that represent a health and safety risk and as such need to be regulated.

FURTHER INFORMATION

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El estrés en el trabajo, NIOSH. <http://www.cdc.gov/spanish/niosh/docs/99-101sp.html>

Notas Técnicas de Prevención (NTP) sobre diferentes factores de riesgo: carga mental en hospitales NTP 275. http://www.mtas.es/insht/information/Ind_temntp.htm

3.10.4 Substance Abuse

Depending on the case, use of drugs and alcohol can be considered as a factor that contributes to stress or as a mistaken means to cope with stress.

Substance abuse may be associated with a significant rise in the incidence of injuries as well as with a drop in productivity and an increase in illnesses and absenteeism. Not only will the risk of accidents increase in the one abusing substances, but the abuse also may put coworkers at risk. The employer is confronted with late arrival at work and absenteeism, loss of time from accidents and inefficiency, and damage to installations, equipment, and other property.

The use of prescribed medications should not be overlooked when considering substance or alcohol use in the workplace. However, management of these medications may require different strategies. Strategies for substance abuse in the workplace should be integrated into the overall occupational health and safety strategy and should include identification and management of the hazards and risks.

Drug and alcohol consumption in the workplace can be dealt with by developing a clear policy for consumption, rehabilitation, and counseling. Prevention also should play a role in management's drug and alcohol policy, particularly through the Employee Assistance Program.

When a supervisor believes that work performance is deteriorating because of substance abuse, he or she can take measures to protect the health and security of the person who may be suffering from the effects of substance abuse as well as the rest of the workers. If it is concluded that the deficient performance of the worker increases the risk to

him/herself or to his/her coworkers, the employer has no other option but to remove the risk.

3.10.5 Recommendations

- a) It is recommended that the situation be monitored, stress hazards be systematically identified, significant damages evaluated, and effective control methods determined. Working situations vary among and within health care facilities which implies a diverse nature in the stress factors.
- b) A confidential notification system of signs and symptoms of stress and fatigue, administered by the health care facility's Occupational Health and Safety Unit, may function as:
 - a database of factors in the organization that generate unnecessary stress among the staff that will be used in the design and evaluation of interventions; and
 - a portal for medical attention targeted at stress treatment of workers through the Employee Assistant Program (the Occupational Health and Safety Unit and the Employee Assistance Program were described in Module 2).
- c) Because an accumulation of factors are involved in generating stress, it is difficult to determine whether an employee's work is actually affected by personal problems. Consequently, it is important to implement a system that offers employees the opportunity to receive (through the Employee Assistance Program) professional help for any personal problem.

FOR FURTHER GUIDANCE

Health Centers

Doctors

Ministers of Health

Labor unions

Employee associations



MODULE FOUR:

General Conditions and Safety of the Establishments

4.1 WARDROBE ACCOMMODATIONS

If staff must wear special work clothing, separate changing rooms for women and men must be provided complete with wardrobes or lockers where employees can store personal items and other possessions not needed during working hours. These premises should be well lit and ventilated.

Some health care facilities may need to provide separate accommodations to avoid contaminating personal clothing with work clothing such as soiled protective overalls. Double lockers are usually the solution.

When the work is being done outdoors or in damp or humid conditions, necessary measures should be taken in order to dry the clothing.

Changing rooms, spaces for hanging coats, and locker placement should comply with certain standards in accordance with the permanence of the job. Details are provided below.

All wardrobes should be clean and well maintained. These rooms should not be used to store the facility's materials or goods or anything that does not belong to the worker.

In less complex facilities where employees do not need to change their clothing, a secure space may be designated to be used for storing personal belongings.

FURTHER INFORMATION

(ENGLISH)

Standards of New Zealand:

NZS 1187: 1969 Standard Specifications for Clothes Lockers (amended 1976)

New Zealand OSH Publications:

Planning the Workplace

Other Publications:

Safeguard Buyers' Guide to Workplace Safety and Health Products and Services

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<http://www.mte.gov.br/Temas/SegSau/Conteudo/941.pdf>

4.2 AIR CONDITIONING SYSTEMS

In all workplaces where air conditioning systems or similar units or devices are used to control or maintain temperature or overall atmospheric conditions, management should ensure that these systems are regularly inspected, tested, and maintained to prevent them from contaminating ambient air or drinking water.

“Sick building syndrome” is a generic term that encompasses several symptoms such as irritation of eyes, nose, and throat; skin rashes; mental fatigue; headaches; and respiratory infection in persons working indoors in inadequately designed or managed environments.

Diseases such as Legionnaire’s Disease (a severe type of pneumonia caused by the bacteria *Legionella pneumophila*) may be triggered by deficient or poorly designed and maintained ventilation systems. Diseases such as this are one of the reasons for requiring air conditioning systems to comply with performance standards for overall ventilation and workplace atmospheric conditions.

Also see the sections “Atmospheric Conditions in the Workplace” and “Overall Ventilation in the Workplace” in this chapter.

FURTHER INFORMATION

Standards:

AS 1668: The Use of Mechanical Ventilation and Air Conditioning in Buildings

Part 2: 1991 Mechanical Ventilation for Acceptable Indoor Air Quality

NZS 4302: Code of Practice for the Control of Hygiene in Air and Water Systems in Buildings

NZS 4303: 1990 Ventilation for Acceptable Indoor Air Quality

New Zealand OSH Publications:

Guidelines for the Management of Work in Extremes of Temperature

Planning the Workplace

Workplace Exposure Standards 1994

Other Publications:

Industrial Ventilation Manual, American Conference of Government Industrial Hygienists

Safeguard Buyers' Guide to Workplace Safety and Health Products and Services

Clearing the Air - A Health and Safety Guide to Clean Air in Offices. New Zealand Council of Trade Unions.

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American Institute of Architects (1996-1997) "Guidelines for Design and Construction of Hospital and Health Care Facilities".

<http://www.tsi.com/hvac/tech/hosguide.htm>

4.3 ATMOSPHERIC CONDITIONS IN THE WORKPLACE

Comfortable atmospheric conditions in the workplace are essential for the health and well-being of workers. Taking into consideration the activities and processes that occur within the health care facility, an effective control of atmospheric conditions should be implemented in all workplaces to keep these conditions within reasonably comfortable parameters.

Several environmental factors determine the atmospheric conditions in each workplace. These should be taken into consideration when deciding on which control measures to implement. Factors include the temperature, humidity, air velocity, degree of radiant heat, and the amount of available fresh air in the worksite. The workers' amount of physical activity also needs to be considered.

When worksites heat up, it is extremely important to not introduce fumes that can contaminate or cause damage. It is essential to ensure that the heating systems do not represent an ignition source for any process or activity conducted nearby.

To the extent possible, factors should be controlled at the source. If this cannot be done, other options to control microenvironments should be adopted such as creating enclosures or distributing protective clothing. In addition, work practices should be

organized to minimize worker exposure to extreme heat, cold, humidity, or other adverse atmospheric conditions.

FURTHER INFORMATION

Standards:

AS 1668: The Use of Mechanical Ventilation and Air Conditioning in Buildings

Part 2: 1991 Mechanical Ventilation for Acceptable Indoor Air Quality

NZS 4302: 1987 Code of Practice for the Control of Hygiene in Air and Water Systems in Buildings

NZS 4303: 1990 Ventilation for Acceptable Indoor Air Quality

New Zealand OSH Publications:

Guidelines for the Management of Work in Extremes of Temperature

Planning the Workplace

Workplace Air Quality and Environmental Conditions

Workplace Exposure Standards 1994

Other Publications:

Industrial Ventilation Manual, American Conference of Government Industrial Hygienists

Safeguard Buyers' Guide to Workplace Safety and Health Products and Services

Clearing the Air - A Health and Safety Guide to Clean Air in Offices. New Zealand Council of Trade Unions

NIOSH: Recommended Guidelines for Controlling Noninfectious Health Hazards in Hospitals, 2002.

<http://www.cdc.gov/niosh/hcwold5c.html>

4.4 COMMON AND RECREATIONAL FACILITIES

A single building may contain several workplaces. Thus, the outpatient clinic area may also contain clinical laboratories, diagnostic imaging centers, appointment services, and other areas. Facilities that provide various health services may therefore have shared

amenities and sanitary installations (for example, lavatories and hand washing or drinking water installations) that are designed to meet the needs of all persons in the facility.

These installations should be conveniently located at reasonable distances from the work area. The convenient and free access to these installations should be ensured at all times as should the availability, maintenance and cleaning of these installations.

In general, shared installations should not be located in private residential houses as this would restrict access to them.

FURTHER INFORMATION

New Zealand OSH Publications:

Planning the Workplace

4.5 DRINKING WATER

A sufficient supply of free and cool drinking water must be provided. Water should be accessible to all workers. The establishment should make the necessary provisions to facilitate access to disabled workers.

With the exception of the water being available in fountains or reservoirs where workers can drink conveniently, adequate cups or vessels should be available at all supply points, as well as installations for cleaning them.

Drinking water outlets should not be located inside washrooms.

Any appliance for cooling drinking water should be regularly checked, examined, and maintained to prevent contamination of the water.

When unsafe water is provided for industrial processes or fire protection, all precautions should be taken to prevent this water from being used for human consumption.

Every precaution should be taken to ensure that drinking water supplies are not contaminated by any process or activity at the workplace.

FURTHER INFORMATION

Water Supplies Protection Regulation

Standards:

Ministry of Health: Drinking Water Standards for New Zealand, 1995

AS 3500: National Plumbing and Drainage Code

AS 3500.1: 1992 Water Supply

AS 3500.4: 1994 Hot Water Supply Systems

Other Publications:

Safeguard Buyers' Guide to Workplace Safety and Health Products and Services

4.6 SEATING

Seating should be provided when workers can conveniently and practically perform their tasks while sitting. Seats also should be provided for workers whose must work standing up so that they can rest.

Ergonomic principles should be followed in selecting seats. Factors such as height, weight, adjustability, structure, and stability should be considered in relation to the task or situation that these seats will be used in.

FURTHER INFORMATION

Standards:

BS 3044: 1990 Guide to Ergonomic Principles in the Design and Selection of Office Furniture

New Zealand OSH Publications:

Approved Code of Practice for the Safe Use of Visual Display Units

Ergonomic Evaluation of Office Chairs

Planning the Workplace

Other Publications:

Safeguard Buyers' Guide to Safety and Health Products and Services

Seating for Office Workers (Department of Health 1989)

Video: Sitting on the Job

4.7 REST FACILITIES

When seven or more persons work in the same space, such as in a particular hospital service, a suitable rest area should be provided for any worker needing to rest. Furniture such as a couch or bed is needed in the rest area.

The rest area should be secluded, well ventilated, and free from distractions such as noise, movement, or process-originated smells or fumes. A first aid room may be the most appropriate site.

If such an area is not readily available, alternative arrangements such as sending or taking the worker home may be appropriate.

FURTHER INFORMATION

New Zealand OSH Publications:

Planning the Workplace

4.8 FIRST AID

Management should provide and maintain health care services, first aid services (including rooms) and the associated devices. A first aid kit or cabinet should be located near washing installations with access to hot and cold water, soap, and clean towels. The first aid kit or cabinet should be kept stocked with first aid equipment and supplies appropriate for the kind of work performed and the number of workers employed.

The kit or cabinet should be clearly identifiable, kept clean and in good order, and regularly replenished. First aid supplies should be available at all times. If more than five persons are employed, someone should be appointed to be in charge of the first aid installations.

Formal first aid training should be encouraged. If more than 50 persons are employed, a registered nurse is required on the premises.

Provisions should be in place so that first aid can be offered to anyone who becomes injured or ill at work.

Emergency procedures should be clearly defined and regularly practiced.

Those responsible for providing first-aid should be aware of potential hazards such as acquiring hepatitis and human immunodeficiency virus (HIV). These persons should be aware of the precautions necessary to protect themselves when delivering first aid as well as how to practice the safe cleanup of bodily fluids and soiled surfaces.

If risks in the workplace require installations such as showers, hose attachments, or emergency eyewash fountains, these should be accessible at all times and placed near the potential hazard.

FURTHER INFORMATION

New Zealand OSH Publications:

Guidance Notes on Providing First Aid Training

Planning the Workplace

Practical Guidelines for the Safe Use of Organic Solvents

Safety at Work - What Every Employee Should Know

The Safe Occupational Use of Glutaraldehyde in the Health Industries

Other Publications:

Safeguard Buyers' Guide to Workplace Safety and Health Products and Services

Order of St John Ambulance Association

The New Zealand Red Cross Society (Inc.)

4.9 LIGHTING

Lighting should ensure a uniform distribution of light over the work area to reduce visual fatigue and contribute to the health and safety of everyone in the workplace.

To determine whether sufficient lighting is provided, an international standard should be used in countries where regulations do not exist. Measurements and light value readings should be conducted during both day and night in order to determine whether the lighting provided is sufficient and suitable.

Lighting should cover the entire workplace including rooms, hallways, stairs, ramps, ladders and gangways. These areas all should be lit automatically when persons pass or use them. Passing persons need not be employees necessarily and may include other persons on the premises.

In areas of precision work or in areas where special processes or machinery are used such as in surgery or dentistry installations, stronger lighting will be required. Localized lighting may also be needed.

All exits, not just regular exits, should be lit or be capable of being lit. Where and when necessary, adequate emergency lighting should be provided.

Open-air areas should be sufficiently lit for work, access, security, and safety during dark hours. An external boundary area used only occasionally for work does not need continuous lighting. However, this area should be capable of being lit when work is in progress.

The phrase “capable of being lit” implies that electric switches are located so that light is conveniently and immediately available. These switches should be readily and easily identifiable.

In deciding what lighting is suitable, consideration should be given not only to the amount of light itself, but also to surrounding brightness, wall color, and distribution of light and glare. Light colored walls add brightness, darker colors reduce reflection.

Artificial light should be shaded in order to control glare and should be directed where needed. Where and when necessary, material should be applied to cover windows and overhead lights should be installed. Blinds, shades or curtains should be used to reduce heat or glare. Any special conditions and other applicable regulations and codes should be considered. The most common are special fittings and wiring standards applied to hazardous locations such as spray booths, garage pits, dangerous goods workshops, and wet work areas.

Under certain lighting conditions (flickering fluorescent tubes), revolving wheels and high-speed reciprocating parts may appear to be turning backwards, turning slower than is the case, or be stationary. This optical illusion is called the stroboscopic effect. The hazards that this optical illusion presents to maintenance personnel, machine operators, and bypassers are obvious. The stroboscopic effect is most troublesome and noticeable when using fluorescent tubes. However, this effect can also be observed when using filament lamps.

FURTHER INFORMATION

Standards:

AS 2383.1: 1991 Electrical Equipment for Explosive Atmospheres (amended 1992, 1993)

NZS 380: 1968 Specifications for Flameproof Electric Lighting Fittings

NZS 6703: 1984 Code of Practice for Interior Lighting Design

Tables in NZS 6703: 1984 (ie. pages 36-54) give details of measurements, the type of preferred lighting in various circumstances, and minimum lighting values.

NZS 6742: 1971 Code of Practice for Emergency Lighting in Buildings

Building Act 1991 (approved Building Code document G7 Natural light and G8 Artificial light)

New Zealand OSH Publications:

Approved Code of Practice for the Safe Use of Visual Display Units

Dust Explosions in Factories

Planning the Workplace

Other Publications:

Cuttle, C. Lighting for Good Visual Conditions in Workplaces. ACC, 1980.

Safeguard Buyers' Guide to Workplace Health and Safety Products and Services

Graham, G. (ed.) You and Your Sight. ACC, 1979.

4.10 INSTALLATION MAINTENNACE

All managers and administrators of a health care facility should take every possible step to ensure that installations are kept clean and hygienic, that they are suitably adapted for use, and that they perform to the functional standards intended for their purpose.

FURTHER INFORMATION

New Zealand OSH Health and Safety Inspectors

Suppliers' and Manufacturers' Instructions

4.11 MEALS IN THE WORKPLACE

In health care establishments, a dining room, canteen or some other such installation is usually required for personnel so that they can eat their meals at work. Such canteen or other installation is not required when workers can conveniently eat their meals at home.

Any canteen or other installation provided for meals should be located in a separate area designated for that purpose and furnished with tables, seats, and an adequate means for heating water.

Canteens should be well ventilated and equipped with a washbasin and running hot and cold water for washing hands. A refrigerator is desirable.

All installations provided should be properly maintained and cleaned. These installations should not be used to store materials or goods.

A means of heating food should be provided especially in situations where extended working hours are the norm and particularly when work is done in shifts. A closet for dishes, utensils, and food that protects them from dust and pests is required. A garbage can with lid is also a must.

The employer should ensure that no food is consumed in spaces contaminated with harmful materials, processes, or other contaminants.

It is necessary to isolate any space that contains sanitary installations such as lavatories, showers, or cleaning areas.

FURTHER INFORMATION

Food Hygiene Regulations

Noxious Substances Regulations

New Zealand OSH Publications:

Planning the Workplace

4.12 GENERAL VENTILATION IN THE WORKPLACE

All work areas, including those areas partially open to the outdoors where ventilation can be controlled, should be ventilated by natural or mechanical means that provide a constant and sufficient supply of fresh air for the workers.

Supplying fresh air and removing hazardous or uncomfortable contaminants from the air are the two goals of the overall ventilation system in the workplace. Being able to effectively control ventilation is extremely important in managing atmospheric conditions in the workplace.

As a rule, the need for supplying fresh air is less than that for removing contaminants. This implies that certain work areas, such as those frequented by persons with respiratory infections (tuberculosis carriers, etc) or where hazardous chemicals are handled (operating rooms, for example), must be fitted with special ventilation systems. Care should be given to fresh air consumption by combustive heating systems such as those run by gas.

Wherever possible, windows should be opened to allow cross-ventilation. As a guideline, when the area relies on natural ventilation, windows should represent 10% of the floor

area and half of these windows should be able to be opened. Doors are not, in and of themselves, an appropriate means of ventilation.

FURTHER INFORMATION

Standards:

AS 1668: The Use of Mechanical Ventilation and Air Conditioning in Buildings

Part 2: 1991. Mechanical Ventilation for Acceptable Indoor Air Quality

NZS 4302: 1987 Code of Practice for the Control of Hygiene in Air and Water Systems in Buildings (amended 1991)

NZS 4303: 1990 Ventilation for Acceptable Indoor Air Quality

NZS 5261: 1990 Code of Practice for the Installation of Gas Burning Appliances and Equipment (Amend 1, 1993)

New Zealand OSH Publications:

Guidelines for the Management of Work in Extremes of Temperature

Planning the Workplace

Workplace Air Quality and Environmental Conditions

Workplace Exposure Standards 1994

Other Publications:

Industrial Ventilation Manual, American Conference of Government Industrial Hygienists

Clearing the Air - A Health and Safety Guide to Clean Air in Offices. New Zealand Council of Trade Unions

Safeguard Buyers' Guide to Workplace Safety and Health Products and Services

4.13 REMOVAL OF VAPORS, FUMES, DUST, AND OTHER CONTAMINANTS

Health workers should be protected from inhaling any type of contaminant in the workplace. Dust, fumes, vapors, and other impurities generated by any work process must be controlled or removed at the source.

Control measures may include dilution, ventilation, filtering, mechanical extraction systems, or a combination of these.

Mechanical extraction appliances should prevent contamination from any other working room or space.

When designing extraction systems, contaminants must flow far from the area where workers breathe, rather than flowing through it.

While deciding which control method is the appropriate one to implement, it is important to consider the relative toxicity of the contaminant as well as other characteristics such as flammability and corrosive properties.

If eliminating contaminants or isolating workers from contamination is impractical, hazards should be minimized. Minimization requires the following:

- monitoring workers' exposure;
- providing adequate protective clothing and equipment and ensuring that they are used;
- monitoring workers' health (with previous informed consent by workers) in relation to the hazard; and
- undertaking any other practical means to minimize the effects of hazards to workers.

Aspects related to specific contaminants, including the parameters for ventilation as a means of control, are found in several legislations. These legislations include regulations on processes that involve asbestos, abrasive puliment, spray paint, electrosilver and lead.

FURTHER INFORMATION

Asbestos Regulations

Noxious Substances Regulations

Standards:

AS 1668: The Use of Mechanical Ventilation and Air Conditioning in Buildings

Part 2: 1991 Mechanical Ventilation for Acceptable Indoor Air Quality

NZS 4302: Code of Practice for the Control of Hygiene in Air and Water Systems in Buildings

NZS 4303: 1990 Ventilation for Acceptable Indoor Air Quality

NZS 6101: Classification of Hazardous Areas

Part 1: 1988 Flammable Gas and Vapor Atmospheres

Part 2: 1990 Combustible Dusts

Part 3: 1991 Specific Occupancies (Flammable Gas and Vapor Atmospheres)

NZS 7203: 1992 Safety in Laboratories - Fume Cupboards (Amendment 1, 1992)

Atmospheric Conditions in the Workplace

Glutaraldehyde in Health Industries

Guidelines for the Safe Use of Organic Solvents

Safety at Work - What Every Employee Should Know

Welding Safety

Workplace Air Quality and Environmental Conditions

Workplace Exposure Standards 1994

Other Publications:

Industrial Ventilation Manual, American Conference of Government Industrial Hygienists

NZECP The Safety of Electricity in a Hazardous Area

Safeguard Buyers' Guide to Safety and Health Products and Services

4.14 WASHROOMS AND BATHROOMS

Separate adequate and sufficient lavatory installations should be available for women and men who work or are at the health care facility.

When the establishment houses different types of services in the same facility, management should provide sufficient lavatory installations on the same scale as if the facility had one single employer. Minimum recommendations are:

- One water closet for up to 15 women workers, 2 for a maximum of 20, and 1 for each additional 20 women workers thereafter;
- One water closet for up to 20 men workers, 2 for a maximum of 30, and 1 for each additional 30 workers thereafter;

- One urinal for 15 male workers, 2 for a maximum of 30, and 1 for each additional 30 workers thereon.

Toilets should be constructed and located so as to ensure privacy. Access should not be through changing rooms for the opposite sex. Installations should be easily accessible, well lit and ventilated as well as sheltered from the weather. If they are sited outside of the building, there should be well lit and, if possible, covered access to these installations.

Water closets should not open directly to workrooms, dining areas, or any other rooms where food is prepared. Installations for washing and drying hands with hot and cold water are required as are soap and clean towels or other means of effectively drying the hands.

Appropriate materials for construction may include waterproof materials and floors that can be easily cleaned to maintain hygiene. Toilet paper and a means to hang clothes should be provided. Adequate disposal of hygienic pads are necessary for women.

Unisex installations may be used if users are family members and when the number of workers is usually less than 15. Such installations should be completely enclosed to ensure privacy, capable of being securely and efficiently locked, and furnished with disposal installations for hygienic pads. Urinals are not necessary.

Lavatories also should be provided for the disabled. These installations can be used by persons with or without disabilities and should provide a sufficient quantity of conveniences for all users. When installations are to be used exclusively by the disabled, there needs to be 1 installation for every 9 users.

As a rule, when management tries to determine whether installations for workers are sufficient, installations for the general public need not be considered.

FURTHER INFORMATION

Standards:

NZS 2038: 1966 Stainless Steel Urinals and Flushing Apparatus

New Zealand OSH Publications:

Planning the Workplace

NZS 3331: 1972 Specification for Quality of Vitreous China Sanitary Appliances

NZS 4121: 1985 Code of Practice for Design for Access and Use of Buildings and Facilities by Disabled Persons

NZS 4616: 1990 Washbasins

4.15 HANDWASHING INSTALLATIONS

Patient-care areas should have adequate hand washing installations or at least have access to a nearby sink. Installations should provide everything necessary to wash hands: cold water (and hot water when the establishment is in a cold climate zone), soap, and clean towels or other means of effective drying.

4.16 CONTAINERS FOR THE SAFE DISPOSAL OF USED NEEDLES AND SYRINGES

Any establishment that provides medical care to patients must have sturdy waste containers for disposing of used needles and syringes. To prevent accidents, containers should be closed before they are completely filled.

4.17 WASHING INSTALLATIONS

Management should install adequate, comfortable, and accessible washing installations for all workers with provisions for the disabled. Installations should be separate from other spaces used for any other process or activity.

All installations, devices, and areas provided for washing should be properly maintained and cleaned. These areas should not be used for the storing of materials or goods.

The installations should provide cold and hot water, non-irritating and convenient soap or other cleansing agent, nailbrushes, and suitable amenities for drying hands and face. Hot water should be regulated and kept at a temperature that prevents thermal injuries or burns.

Necessary precautions should be taken to ensure that hand drying installations do not spread disease. To prevent this, disposable paper towels, cloth-towel rolls, or electrical hot air dryers may be used. Workers should not share towels.

If workers need to shower during the workday, showers should be installed with running cold and hot water, soap, and cloth towels that are laundered and changed at reasonable intervals necessary to maintain a clean supply.

Showers also are needed for workers who become exposed to toxic, infectious, or irritating substances as well as for those working in very hot environments such as with boilers. Transport of these contaminants to private homes should be avoided.

One shower should be provided for every 7 workers ending their shift at any given time. Showers should have suitable doors or curtains so that privacy is ensured. Room for

drying and changing is needed as are slip resistant floors. Doors leading to the showers should have clear signs indicating the gender the installations are intended for.

FURTHER INFORMATION

New Zealand Standards:

AS 3588: 1989 Shower Bases and Shower Modules

NZS 2038: 1966 Stainless Steel Urinals and Flushing Apparatus

NZS 3331: 1972 Specification for Quality of Vitreous China Sanitary Appliances

NZS 4121: 1985 Code of Practice for Design for Access and Use of Buildings and Facilities by Disabled Persons

NZS 4616: 1990 Washbasins

New Zealand OSH Publications:

Planning the Workplace

4.18 FLOOR DRAINAGE

Wherever floors may get sufficiently wet to warrant draining of the water, effective drainage should be provided.

If in-floor drainage lines or drainage pipes are used, they should be covered in such a way that they can be accessed easily. Floors can be graded to facilitate drainage.

4.19 FIRE PRECAUTIONS

Management must ensure that the facility and all its work areas comply with fire safety requirements. Requirements include the number, type, and location of fire extinguishing devices, alarms, and evacuation systems and installations.

All effective fire control procedures and methods must be used to minimize the risk and consequence of fires and to ensure the safety of all persons in the vicinity. Boiler rooms, kitchen installations, laboratories, transformer rooms, and medical installations that have a high risk of fire should be situated in separate, fire-resistant localities.

Special precautions should be taken in worksites where processes or materials are susceptible to extremely rapid burning, toxic fume emission, or explosions in the event of a fire.

Precautions may include the display of visible warnings such as signs prohibiting smoking or forbidding the bringing of open flames or sources of ignition into the area.

The employer should ensure that workers are adequately trained in the use and operation of fire extinguishing devices provided at the workplace. All equipment, devices, and warning signs should be regularly checked and maintained.

Fire exits should be accessible and free at all times. These exits should be clearly marked and able to be opened from the inside.

FURTHER INFORMATION

Standards:

American Standard NFPA 12 (National Fire Protection Association)

AS 1668. The use of Mechanical Ventilation and Air Conditioning in Buildings

Gestal Otero, Juan Jesus. Riesgos del trabajo del personal sanitario. Editorial. Madrid, España.

4.20 SAFE ENTRY AND EXIT

Safe means of entry and exit should be provided throughout the workplace. All access and exit routes should be free of obstructive material and properly maintained. Safe access should allow all persons, including the disabled, to move through the entire establishment easily and safely and while performing their regular tasks. Marked aisles and hallways facilitate the identification of access routes.

In case of emergency, safe and rapid exits out of the building must be provided. Appropriate access to the establishment's service and maintenance areas, machinery, and buildings also should also be provided.

Floors should be level, obstacle-free, and slip-resistant. All doors and other means of entry and exit in the worksites should be kept unlocked and free from any obstacles while there are workers present. If the doors must be locked for security reasons, they should be able to be opened from the inside without a key to ensure a quick exit at any time.

Refrigerator or freezer rooms, sentry boxes and similar confined spaces should have effective means of safe entry and, especially, exit.

When necessary, steps, stairs and ramps should be furnished with handrails and other means to avoid slipping. Bars and fences should enclose floor openings and wells and adequate signs should warn about these potential hazards. Mezzanines also require netting or fencing, handrails and foot rails.

Doorways, hatchways, and openings used for hoisting or moving goods or materials up and down in the workplace should have secure netting and handholds.

Basements over 100m² in area require at least two safe accesses far away from each other.

Skylights and low windows in multistory buildings should be glazed with unbreakable material or fitted with guardrails to prevent falls.

In case of a likelihood of a person walking against or hitting the glazing, protective barriers should be installed. Clear glazing should be marked with signs for easy identification and warning and all doors should be appropriately and easily identifiable.

FURTHER INFORMATION

Standards:

AS/NZS 1657: 1992 Fixed Platforms, Walkways, Stairways, and Ladders - Design, Construction and Installation

EN115: 1983 Safety rules for the Construction and Installation of Escalators and Passenger Conveyors

NZS 3609: 1978 Specification for Timber Ladders

NZS 4121: 1985 Code of Practice for Design for Access and Use of Buildings and Facilities by Disabled Persons

NZS 4223 Glazing Code (3 parts)

NZS 5235 Code of Practice for Safety in Mechanical Refrigeration (2 parts)

New Zealand OSH Publications:

Approved Code of Practice for Power-operated Elevated Work Platforms

Planning the Workplace

Safe Access

Safety in Confined Spaces

4.21 HALLWAY SIGNS, COLOR CODING, AND SIGNALING

Appropriate warning signs should be provided in areas where hazards do not have readily apparent signs. These signs should be positioned so as to ensure visibility to all those who work in, or come into, the area. Hazards that require such precautions include:

- biological hazards (biosecurity),
- chemical hazards,
- risks to the eyes,
- the hazard of falling objects,
- hazards to the feet,
- hazards caused by hot process,
- ionizing hazards,
- machinery hazards,
- noise hazards,
- radiation hazards,
- refrigeration hazards, and
- traffic hazards.

Additional signs may be used to indicate designated areas and exit accesses provided for, for example, disabled persons.

The provision of signals in itself is not a means for hazard control but rather a component of a control system.

Color coding may be used to indicate hazardous and nonhazardous ducts and pipelines, special areas, equipment, first aid and fire extinguishing installations, traffic areas, process areas, storage areas, including specific colors for containers, drums, etc.

Signs in hallways may be used to show driveways, access ways, walkways, storage areas, fire extinguishing devices, etc.

FURTHER INFORMATION

Standards:

NZS 4121: Disabled Persons, For Access to Buildings

NZS 5807: Code of Practice for Industrial Identification by Color, Wording or Other Coding

NZS 5807C Poster

NZS 5842: Water Safety Signs

NZS/AS 1319: Safety Signs for the Occupational Environment

New Zealand OSH Publications:

Safe Stacking and Storage

Guidelines for Safety at Work - What Every Employee Should Know

4.22 RESTRICTING EMPLOYMENT OF YOUNG PERSONS

a) Hazardous Work

No employer should hire persons younger than 16 years of age at health care facilities if such work is likely to cause damages to the health and safety of children and young persons (R190: Worst Forms of Child Labour Recommendation, ILO 1999).

Persons under 16 years of age may visit health care facilities under the direct supervision of an adult or in a guided tour with prior permission of the person responsible for the operation.

b) Night Work

The employer should take all necessary steps to ensure that no person under 16 years of age will work between 10 p.m. and 6 a.m. except when employment conditions have been approved in accordance with a code of practice relating to the particular type of work or the particular job description (C79: Night Work of Young Persons (Non-Industrial Occupations) Convention, ILO 1946).

4.23 PROTECTIVE CLOTHING AND EQUIPMENT

Management should provide all workers involved in any process or activity associated with risk of accident or other adverse health effect with protective equipment and clothing necessary for the reasonable protection against these risks and dangers at health care facilities.

All protective equipment and clothing should comply with relevant standards to ensure that they provide the protection they are intended for (see below). Personal protective clothing or items should be considered as the last option when engineering and administrative controls cannot completely eliminate or isolate the hazard at its source. “Protective clothing” refers to clothing that provides protection to its wearer against one, or several, of the following hazards:

- liquids, gases, vapors, dusts, powders, toxins and other similarly dangerous elements;
- Bodily fluids of patients or air that may be contaminated with hazardous microorganisms (gloves, masks, respirators, etc. are examples of protective clothing against these hazards);
- hazardous radiation (both ionizing and nonionizing);
- extreme temperatures outside the normal ambient range;
- impacts, vibrations, abrasions, cuts, etc.;
- poor visibility;
- falls or slips; and
- electrical hazards.

Workers should be trained in the use and maintenance of any protective clothing and equipment that they need to use.

Regular checks, maintenance and replacement of defective clothing are necessary. Adequate storage of the protective clothing will help ensure hygiene and ready accessibility. Protective clothing and equipment of a personal nature, such as hearing protection or footwear, need be provided on an individual basis.

Purchases should consider individual needs. Thus, the bulk purchase of a model hearing protection device does not ensure effective protection for all.

The effectiveness of protective clothing and equipment should be regularly assessed by monitoring the health and safety of the workers in relation to the hazard.

Supervisors should make sure that workers use protective clothing and personal protection as often as the circumstances they are provided for arise.

Tool 15 in the last section of this Manual provides an unfinished table on personal protectors and the task it is intended for.

When there are authorized visitors in the workplace and the conditions require a particular use of protective clothing or equipment, management is responsible for making the protective clothing or equipment available to the visitors by the same standards that are applied to the workers. This would be the case for family members who enter intensive care rooms or other spaces of high complexity, restricted access, and tight safety control.

FURTHER INFORMATION

Standards:

AS 2865: 1995 Safe Working in a Confined Space

AS/NZS 1715: 1994 Selection, Use and Maintenance of Respiratory Protective Devices

AS/NZS 1716: 1994 Respiratory Protective Devices

AS/NZS 1337: 1992 Eye Protectors for Industrial Applications

NZS 2264: 1970 and 5806: 1980 Specifications for Industrial Safety Helmets

NZS 5845: 1989 Specifications for Industrial Safety Footwear

NZS 5811: 1981 Industrial Safety Belts and Harnesses

NZS 5812: 1982 Industrial Protective Gloves

NZS 5827: 1988 Industrial Overalls

NZS 5839: 1986 High Visibility Garments and Accessories

New Zealand OSH Publications:

A Guide to Respirators and Breathing Apparatus

Safety in Confined Spaces

List of Graded Hearing Protectors, October 1996

Manual Handling Guidelines for the Workplace

Safety at Work - What Every Employee Should Know

Safety with Corrosive Chemicals

Other Publications:

Safeguard Buyers' Guide to Workplace Health and Safety Products and Services

4.24 RESPONSIBILITIES OF DESIGNERS, MANUFACTURERS, SUPPLIERS, AND SELLERS OF HEALTH INSTALLATIONS AND EQUIPMENT

Health installation and equipment designers must take all necessary steps to ensure that designed equipment will be used exclusively at the workplace in a way that will not cause harm to anybody during its manufacture, use, or maintenance. The design process should incorporate ergonomic principles in planning of the placement of power controls.

When commissioning the manufacture of an installation or an equipment, the manufacturer should receive all necessary information about its intended use in order to determine its design, installation, and how it must be used, adjusted, maintained, repaired, dismantled, etc.

Manufacturers should ensure that the installations and equipment whose design was approved and that were subsequently manufactured are used for the purpose they were designed to and that their installation, use, adjustment, repair, cleaning, or dismantling causes no harm to anyone.

Manufacturers, suppliers, and vendors of equipment and machinery should provide to all buyers or contractors clear and understandable information on the use for which it was designed, manufactured, and tested, as well as information about its correct installation, use, adjustment, repair, cleaning, and dismantling.

4.25 RESPONSIBILITIES OF DESIGNERS, MANUFACTURERS, SUPPLIERS AND SELLERS OF PROTECTIVE CLOTHING AND EQUIPMENT

Designers of protective clothing and equipment must take all necessary steps to ensure that the design incorporates ergonomic principles and that, once manufactured and adequately utilized for the purpose it was designed for according to designer instructions, the garment or the equipment will provide adequate protection against the hazards it is intended to protect against.

The manufacturer should receive complete information on the use, adjustment, cleaning, maintenance, repair, and dismantling of the protective clothing or equipment according to the designer's instructions.

Manufacturers should ensure that any supplier or seller of protective clothing or equipment receives sufficient, clear, and understandable information about the clothing's or equipment's intended use as well as details about its installation, use, adjustment, cleaning, maintenance, repair, dismantling, and about any other relevant information.

Suppliers and sellers should ensure that any buyer or contractor of protective clothing or equipment receives sufficient, clear, and understandable information about the clothing's or equipment's intended use as well as the details of its installation, use, adjustment, cleaning, maintenance, repair, dismantling, and about any other relevant information.

Manufacturers, suppliers and sellers should ensure that protective clothing or equipment has been designed, manufactured, and tested for the intended use, installation, adjustment, repair, cleaning, and dismantling. They should also ensure that, in accordance with the designer's instructions, the clothing or equipment will provide adequate protection against the hazard which it is intended to shield against.

Manufacturers, supplier, and sellers of protective clothing and equipment should ensure that, whenever possible and practical, clothing and equipment are furnished with sufficient printed information about their intended uses. Similarly, they should provide information, in accordance with designer's instructions, about the correct installation, use, adjustment, repair, cleaning and dismantling of their products.

FURTHER INFORMATION

New Zealand OSH Publications:

OSH Handbook for Health and Safety Inspectors



**Tools for Workers'
Health and Safety
Programs**

Tools for Workers' Health and Safety Programs

This section of the Manual presents practical instruments that may assist in the creation and continued improvement of occupational health and safety programs for health care workers.

- **Tool 1** presents a sample occupational health and safety policy for a health care facility; it could be used to help elaborate a document applicable at the local level.
- **Tool 2** presents ILO's Convention 161 (C161, 1985).
- **Tool 3** presents ILO's Recommendation 171 (R171, 1985) which deals with the implementation of an Occupational Health and Safety Unit in a health care facility.
- **Tool 4** is an inventory of the procedures that should be followed when establishing a Health and Safety Committee in a health care facility.
- **Tool 5** provides a model that can help define the terms of reference of an Occupational Health and Safety Committee.
- **Tool 6** offers orientation to the members of an Occupational Health and Safety Committee for optimizing its functioning.
- **Tool 7** is a checklist to be used when evaluating the level of operations of an Occupational Health and Safety Committee. This tool could be used to support decisions made to strengthen said committee.
- **Tool 8** (Checklist for Administrative Procedures of a Functioning Occupational Health and Safety Committee) may support directors and administrators in the assessment of whether the Occupational Health and Safety Committee has enough support to attain an adequate performance level.
- **Tool 9** presents a checklist of occupational health and safety issues that may already exist in the health care facility and that should be considered when planning a system for managing occupational health and safety.
- **Tools 10, 11, and 12** (List of Occupational Health and Safety Hazards by Location, Checklist of Overall Safety and Hygiene Conditions, and Checklist of Hazards for Workers Involved in Direct Patient Care) focus on bolstering the risk identification process. It should be noted that these lists are complementary and are not complete or exact in and by themselves. Given the diversity of possible scenarios, it is recommended that these tools be adapted to local conditions before using them.
- **Tool 13** complements the guidelines presented in item 2.7.11.d for those who wish to develop hazard maps based on data obtained through hazard identification lists.

- **Tool 14** (Risk Assessment Work Sheet) can be applied to each of the identified risks to help establish priorities in hazard control programs. This tool should be applied after completing the identification of hazards and their graphic representation.
- **Tool 15** provides a table of recommended personal protective equipment for a health care worker's tasks. A similar table should be placed in a visibly strategic location. This table is not exhaustive; each health care facility should revise and adapt this tool before applying it.
- **Tool 16** presents a sample occupational medical record to facilitate the work of the Occupational Health and Safety Unit in terms of the Employee Assistance Program.
- **Tool 17** addresses hazard control. This tool is a guide to the best practices for controlling infections while administering injections.
- **Tool 18** presents a registration form for cuts and punctures (EPINET form) to facilitate the implementation of a surveillance system for preventing infections caused by bloodborne microorganisms and for establishing preventive care to exposed workers.
- **Tool 19** presents sample worker questionnaire. It addresses health and lifestyles and may assist in planning health promotion programs for health care workers.
- **Tools 20** (Analysis of Statistical Data of Occupational Illnesses and Injuries) and **21** (Sample Statistical Summary of Occupational Accidents and Illnesses) offer suggestions for collecting, analyzing, and using information about work-related accidents and diseases.

TOOL 1**Institutional Policy for Occupational Health and Safety****WORKERS' HEALTH AND SAFETY PROGRAM POLICY & PROCEDURE**

*Adapted with authorization of Prof. George Delclos, University of Texas, School of Medicine

MANUAL: POLICY NO: HR400
 SECTION: Human Resources PROC. No: HR400
 TITLE: EMPLOYEE HEALTH POLICY. DATE: 04/18/89
 RESP: OHS Unity DATE: 07/11/00
 DISTRIBUTION: All Entities

POLICY STATEMENT

It is a policy of the Santa Ifigenia Specialty Clinic that services provided by the Occupational Health and Safety Program shall include, but not be limited to, performing pre-placement and periodic health assessments, administering first aid, vaccinating for certain diseases, providing health education and counseling, maintaining employee injury and health records, promoting wellness, evaluating and managing on-the-job injuries, and processing and managing employees' leaves of absence and long-term disability.

PROCEDURE

1.00 Procedure

1.10 A prospective employee will have a pre-placement health assessment coordinated by the Occupational Health and Safety Unit – OHSU (see HR Policy 401 Pre-Placement Health Assessment).

1.20 Minor injuries will be treated by the Occupational Health and Safety Unit — OHSU— nurse. Injuries that require a physician's care will be treated by the Medical Director of the OHSU, a licensed Medical Doctor or the St. Luke Emergency Centre's physician or other physician as indicated.

1.30 Employee Health records are maintained in confidence unless information would directly affect an individual's job performance, their health and well-being, or that of other employees, patients, and visitors.

1.40 Employee injury records will be maintained in accordance with Worker's Compensation laws.

1.50 All vaccinations and immunizations are voluntary. An employee's refusal to receive the recommended vaccine or immunization will be

documented by the Employee Assistance Program nurse on their health record.

1.60 An employee exposed to a potentially infectious agent will be evaluated and receive treatment when indicated according to St. Luke Hospital's policy (see HR 402 Illness in the Workplace).

1.70 An employee who becomes ill while on duty may be seen in the Occupational Health and Safety Unit – OHSU for assessment, counseling, and referral, if required.

1.80 Periodic health assessments are conducted by the Occupational Health and Safety Unit – OHSU to promote wellness and healthy life-styles.

1.90 The Occupational Health and Safety Unit is open Monday through Friday from 7:30 AM to 4:30 PM and is staffed by Registered Nurses who are available each day during business hours. A Registered Nurse is also available by pager after business hours through the Hospital page operator.

President

Chief Executive Officer

SAINT IFIGENIA CLINIC OF SPECIALITIES

Examination dates:

Med Exec Comm. 31/05/89
 Med Exec Comm. 11/13/90
 Med Exec Comm. 12/05/90
 Risk Mgmt Comm. 04/19/94
 Executive Council 01/07/98

Review Dates: Revision/Approval Dates:

Infection Control Comm. 03/13/89
 Infection Control Comm. 06/05/91
 Infection Control Comm. 03/07/92
 Infection Control Comm. 04/28/92
 Pol & Proc Comm. 12/16/93
 Executive Council 01/19/94
 Pol & Proc Comm. 12/15/97
 Med Exec Comm. 07/11/00

TOOL 2

ILO Convention 161: Occupational Health Services Convention, 1985

Convention concerning Occupational Health Services

Convention:C161

Place: Geneva

Date of adoption:25:06:1985

Subject classification: Occupational Health Services

Subject: **Occupational Safety and Health**

Status: Up-to-date instrument This Convention was adopted after 1985 and is considered up to date.

The General Conference of the International Labor Organization,

Having been convened at Geneva by the Governing Body of the International Labor Office, and having met in its Seventy-first Session on 7 June 1985, and

Noting that the protection of the worker against sickness, disease and injury arising out of his employment is one of the tasks assigned to the International Labor Organization under its Constitution,

Noting the relevant international labor Conventions and Recommendations, and in particular the Protection of Workers' Health Recommendation, 1953, the Occupational Health Services Recommendation, 1959, the Workers' Representatives Convention, 1971, and the Occupational Safety and Health Convention and Recommendation, 1981, which establish the principles of national policy and action at the national level,

Having decided upon the adoption of certain proposals with regard to occupational health services, which is the fourth item on the agenda of the session, and

Having determined that these proposals shall take the form of an international Convention;

adopts this twenty-sixth day of June of the year one thousand nine hundred and eighty-five the following Convention, which may be cited as the Occupational Health Services Convention, 1985:

PART I. PRINCIPLES OF A NATIONAL POLICY

Article 1

For the purpose of this Convention-

(a) the term *occupational health services* means services entrusted with essentially preventive functions and responsible for advising the employer, the workers and their representatives in the undertaking on-

(i) the requirements for establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work;

(ii) the adaptation of work to the capabilities of workers in the light of their state of physical and mental health;

(b) the term *workers' representatives in the undertaking* means persons who are recognized as such under national law or practice.

Article 2

In the light of national conditions and practice and in consultation with the most representative organizations of employers and workers, where they exist, each Member shall formulate, implement and periodically review a coherent national policy on occupational health services.

Article 3

1. Each Member undertakes to develop progressively occupational health services for all workers, including those in the public sector and the members of production co-operatives, in all branches of economic activity and all undertakings. The provision made should be adequate and appropriate to the specific risks of the undertakings.

2. If occupational health services cannot be immediately established for all undertakings, each Member concerned shall draw up plans for the establishment of such services in consultation with the most representative organizations of employers and workers, where they exist.

3. Each Member concerned shall indicate, in the first report on the application of the Convention submitted under article 22 of the Constitution of the International Labor Organization, the plans drawn up pursuant to paragraph 2 of this Article, and indicate in subsequent reports any progress in their application.

Article 4

The competent authority shall consult the most representative organizations of employers and workers, where they exist, on the measures to be taken to give effect to the provisions of this Convention.

PART II. FUNCTIONS

Article 5

Without prejudice to the responsibility of each employer for the health and safety of the workers in his employment, and with due regard to the necessity for the workers to participate in matters of occupational health and safety, occupational health services shall

have such of the following functions as are adequate and appropriate to the occupational risks of the undertaking:

- (a) identification and assessment of the risks from health hazards in the workplace;
- (b) surveillance of the factors in the working environment and working practices which may affect workers' health, including sanitary installations, canteens and housing where these facilities are provided by the employer;
- (c) advice on planning and organization of work, including the design of workplaces, on the choice, maintenance and condition of machinery and other equipment and on substances used in work;
- (d) participation in the development of programs for the improvement of working practices as well as testing and evaluation of health aspects of new equipment;
- (e) advice on occupational health, safety and hygiene and on ergonomics and individual and collective protective equipment;
- (f) surveillance of workers' health in relation to work;
- (g) promoting the adaptation of work to the worker;
- (h) contribution to measures of vocational rehabilitation;
- (i) collaboration in providing information, training and education in the fields of occupational health and hygiene and ergonomics;
- (j) organizing of first aid and emergency treatment;
- (k) participation in analysis of occupational accidents and occupational diseases.

PART III. ORGANIZATION

Article 6

Provision shall be made for the establishment of occupational health services-

- (a) by laws or regulations; or
- (b) by collective agreements or as otherwise agreed upon by the employers and workers concerned; or
- (c) in any other manner approved by the competent authority after consultation with the representative organizations of employers and workers concerned.

Article 7

1. Occupational health services may be organized as a service for a single undertaking or as a service common to a number of undertakings, as appropriate.
2. In accordance with national conditions and practice, occupational health services may be organized by-
 - (a) the undertakings or groups of undertakings concerned;
 - (b) public authorities or official services;
 - (c) social security institutions;
 - (d) any other bodies authorized by the competent authority;
 - (e) a combination of any of the above.

Article 8

The employer, the workers and their representatives, where they exist, shall cooperate and participate in the implementation of the organizational and other measures relating to occupational health services on an equitable basis.

PART IV. CONDITIONS OF OPERATION**Article 9**

1. In accordance with national law and practice, occupational health services should be multidisciplinary. The composition of the personnel shall be determined by the nature of the duties to be performed.
2. Occupational health services shall carry out their functions in co-operation with the other services in the undertaking.
3. Measures shall be taken, in accordance with national law and practice, to ensure adequate co-operation and co-ordination between occupational health services and, as appropriate, other bodies concerned with the provision of health services.

Article 10

The personnel providing occupational health services shall enjoy full professional independence from employers, workers, and their representatives, where they exist, in relation to the functions listed in Article 5.

Article 11

The competent authority shall determine the qualifications required for the personnel providing occupational health services, according to the nature of the duties to be performed and in accordance with national law and practice.

Article 12

The surveillance of workers' health in relation to work shall involve no loss of earnings for them, shall be free of charge and shall take place as far as possible during working hours.

Article 13

All workers shall be informed of health hazards involved in their work.

Article 14

Occupational health services shall be informed by the employer and workers of any known factors and any suspected factors in the working environment which may affect the workers' health.

Article 15

Occupational health services shall be informed of occurrences of ill health amongst workers and absence from work for health reasons, in order to be able to identify whether there is any relation between the reasons for ill health or absence and any health hazards which may be present at the workplace. Personnel providing occupational health services shall not be required by the employer to verify the reasons for absence from work.

PART V. GENERAL PROVISIONS

Article 16

National laws or regulations shall designate the authority or authorities responsible both for supervising the operation of and for advising occupational health services once they have been established.

Article 17

The formal ratifications of this Convention shall be communicated to the Director-General of the International Labor Office for registration.

Article 18

1. This Convention shall be binding only upon those Members of the International Labor Organization whose ratifications have been registered with the Director-General.

2. It shall come into force twelve months after the date on which the ratifications of two Members have been registered with the Director-General.

3. Thereafter, this Convention shall come into force for any Member twelve months after the date on which its ratification has been registered.

Article 19

1. A Member which has ratified this Convention may denounce it after the expiration of ten years from the date on which the Convention first comes into force, by an act communicated to the Director-General of the International Labor Office for registration. Such denunciation shall not take effect until one year after the date on which it is registered.

2. Each Member which has ratified this Convention and which does not, within the year following the expiration of the period of ten years mentioned in the preceding paragraph, exercise the right of denunciation provided for in this Article, will be bound for another period of ten years and, thereafter, may denounce this Convention at the expiration of each period of ten years under the terms provided for in this Article.

Article 20

1. The Director-General of the International Labor Office shall notify all Members of the International Labor Organization of the registration of all ratifications and denunciations communicated to him by the Members of the Organization.

2. When notifying the Members of the Organization of the registration of the second ratification communicated to him, the Director-General shall draw the attention of the Members of the Organization to the date upon which the Convention will come into force.

Article 21

The Director-General of the International Labor Office shall communicate to the Secretary-General of the United Nations for registration in accordance with Article 102 of the Charter of the United Nations full particulars of all ratifications and acts of denunciation registered by him in accordance with the provisions of the preceding Articles.

Article 22

At such times as it may consider necessary the Governing Body of the International Labor Office shall present to the General Conference a report on the working of this

Convention and shall examine the desirability of placing on the agenda of the Conference the question of its revision in whole or in part.

Article 23

1. Should the Conference adopt a new Convention revising this Convention in whole or in part, then, unless the new Convention otherwise provides-

(a) the ratification by a Member of the new revising Convention shall ipso jure involve the immediate denunciation of this Convention, notwithstanding the provisions of Article 19 above, if and when the new revising Convention shall have come into force;

(b) as from the date when the new revising Convention comes into force this Convention shall cease to be open to ratification by the Members.

2. This Convention shall in any case remain in force in its actual form and content for those Members which have ratified it but have not ratified the revising Convention.

Article 24

The English and French versions of the text of this Convention are equally authoritative.

TOOL 3

R 171: Recommendation Concerning Occupational Health Services, 1985

Description:(Recommendation)

Place: Geneva

Date of adoption:26:06:1985

The General Conference of the International Labor Organization:

Having been convened at Geneva by the Governing Body of the International Labor Office, and having met in its Seventy-first Session on 7 June 1985, and

Noting that the protection of the worker against sickness, disease and injury arising out of his employment is one of the tasks assigned to the International Labor Organization under its Constitution,

Noting the relevant international labor Conventions and Recommendations, and in particular the Protection of Workers' Health Recommendation, 1953, the Occupational Health Services Recommendation, 1959, the Workers' Representatives Convention, 1971, and the Occupational Safety and Health Convention and Recommendation, 1981, which establish the principles of national policy and action at the national level, and the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy adopted by the Governing Body of the International Labor Office,

Having decided upon the adoption of certain proposals with regard to occupational health services, which is the fourth item on the agenda of the session, and

Having determined that proposals shall take the form of a Recommendation supplementing the Occupational Health Services Convention, 1985:

adopts this twenty-sixth day of June of the year one thousand nine hundred and eighty-five, the following Recommendation, which may be cited as the Occupational Health Services Recommendation, 1985:

I. Principles of National Policy

1. Each Member should, in the light of national conditions and practice and in consultation with the most representative organizations of employers and workers, where they exist, formulate, implement and periodically review a coherent national policy on occupational health services, which should include general principles governing their functions, organization and operation.

2.

(1) Each Member should develop progressively occupational health services for all workers, including those in the public sector and the members of production co-operatives, in all branches of economic activity and all undertakings. The provision made should be adequate and appropriate to the specific health risks of the undertakings.

(2) Provision should also be made for such measures as may be necessary and reasonably practicable to make available to self-employed persons protection analogous to that provided for in the Occupational Health Services Convention, 1985, and in this Recommendation.

II. Functions

3. The role of occupational health services should be essentially preventive.

4. Occupational health services should establish a program of activity adapted to the undertaking or undertakings they serve, taking into account in particular the occupational hazards in the working environment as well as the problems specific to the branches of economic activity concerned.

A. Surveillance of the Working Environment

5.

(1) The surveillance of the working environment should include-

(a) identification and evaluation of the environmental factors which may affect the workers' health;

(b) assessment of conditions of occupational hygiene and factors in the organization of work which may give rise to risks for the health of workers;

(c) assessment of collective and personal protective equipment;

(d) assessment where appropriate of exposure of workers to hazardous agents by valid and generally accepted monitoring methods;

(e) assessment of control systems designed to eliminate or reduce exposure.

(2) Such surveillance should be carried out in liaison with the other technical services of the undertaking and in co-operation with the workers concerned and their representatives in the undertaking or the safety and health committee, where they exist.

6.

(1) In accordance with national law and practice, data resulting from the surveillance of the working environment should be recorded in an appropriate manner and be available to the employer, the workers and their representatives in the undertaking concerned or the safety and health committee, where they exist.

(2) These data should be used on a confidential basis and solely to provide guidance and advice on measures to improve the working environment and the health and safety of workers.

(3) The competent authority should have access to these data. They may only be communicated by the occupational health service to others with the agreement of the employer and the workers or their representatives in the undertaking or the safety and health committee, where they exist.

7. The surveillance of the working environment should entail such visits by the personnel providing occupational health services as may be necessary to examine the factors in the working environment which may affect the workers' health, the environmental health conditions at the workplace and the working conditions.

8. Occupational health services should:

(a) carry out monitoring of workers' exposure to special health hazards, when necessary;

(b) supervise sanitary installations and other facilities for the workers, such as drinking water, canteens and living accommodation, when provided by the employer;

(c) advise on the possible impact on the workers' health of the use of technologies;

(d) participate in and advise on the selection of the equipment necessary for the personal protection of the workers against occupational hazards;

(e) collaborate in job analysis and in the study of organization and methods of work with a view to securing a better adaptation of work to the workers;

(f) participate in the analysis of occupational accidents and occupational diseases and in accident prevention programs.

9. Personnel providing occupational health services should, after informing the employer, workers and their representatives, where appropriate:

(a) have free access to all workplaces and to the installations the undertaking provides for the workers;

(b) have access to information concerning the processes, performance standards, products, materials and substances used or whose use is envisaged, subject to their

preserving the confidentiality of any secret information they may learn which does not affect the health of workers;

(c) be able to take for the purpose of analysis samples of products, materials and substances used or handled.

10. Occupational health services should be consulted concerning proposed modifications in the work processes or in the conditions of work liable to have an effect on the health or safety of workers.

B. Surveillance of the Workers' Health

11.

(1) Surveillance of the workers' health should include, in the cases and under the conditions specified by the competent authority, all assessments necessary to protect the health of the workers, which may include-

(a) health assessment of workers before their assignment to specific tasks which may involve a danger to their health or that of others;

(b) health assessment at periodic intervals during employment which involves exposure to a particular hazard to health;

(c) health assessment on resumption of work after a prolonged absence for health reasons for the purpose of determining its possible occupational causes, of recommending appropriate action to protect the workers and of determining the worker's suitability for the job and needs for reassignment and rehabilitation;

(d) health assessment on and after the termination of assignments involving hazards which might cause or contribute to future health impairment.

(2) Provisions should be adopted to protect the privacy of the workers and to ensure that health surveillance is not used for discriminatory purposes or in any other manner prejudicial to their interests.

12.

(1) In the case of exposure of workers to specific occupational hazards, in addition to the health assessments provided for in Paragraph 11 of this Recommendation, the surveillance of the workers' health should include, where appropriate, any examinations and investigations which may be necessary to detect exposure levels and early biological effects and responses.

(2) When a valid and generally accepted method of biological monitoring of the workers' health for the early detection of the effects on health of exposure to specific occupational

hazards exists, it may be used to identify workers who need a detailed medical examination, subject to the individual worker's consent.

13. Occupational health services should be informed of occurrences of ill health amongst workers and absences from work for health reasons, in order to be able to identify whether there is any relation between the reasons for ill health or absence and any health hazards which may be present at the workplace. Personnel providing occupational health services should not be required by the employer to verify the reasons for absence from work.

14.

(1) Occupational health services should record data on workers' health in personal confidential health files. These files should also contain information on jobs held by the workers, on exposure to occupational hazards involved in their work, and on the results of any assessments of workers' exposure to these hazards.

(2) The personnel providing occupational health services should have access to personal health files only to the extent that the information contained in the files is relevant to the performance of their duties. Where the files contain personal information covered by medical confidentiality this access should be restricted to medical personnel.

(3) Personal data relating to health assessments may be communicated to others only with the informed consent of the worker concerned.

15. The conditions under which, and time during which, personal health files should be kept, the conditions under which they may be communicated or transferred and the measures necessary to keep them confidential, in particular when the information they contain is placed on computer, should be prescribed by national laws or regulations or by the competent authority or, in accordance with national practice, governed by recognized ethical guide-lines.

16.

(1) On completing a prescribed medical examination for the purpose of determining fitness for work involving exposure to a particular hazard, the physician who has carried out the examination should communicate his conclusions in writing to both the worker and the employer.

(2) These conclusions should contain no information of a medical nature; they might, as appropriate, indicate fitness for the proposed assignment or specify the kinds of jobs and the conditions of work which are medically contra-indicated, either temporarily or permanently.

17. Where the continued employment of a worker in a particular job is contra-indicated for health reasons, the occupational health service should collaborate in efforts to find alternative employment for him in the undertaking, or another appropriate solution.

18. Where an occupational disease has been detected through the surveillance of the worker's health, it should be notified to the competent authority in accordance with national law and practice. The employer, workers and workers' representatives should be informed that this notification has been carried out.

C. Information, Education, Training, Advice

19. Occupational health services should participate in designing and implementing programs of information, education and training on health and hygiene in relation to work for the personnel of the undertaking.

20. Occupational health services should participate in the training and regular retraining of first-aid personnel and in the progressive and continuing training of all workers in the undertaking who contribute to occupational safety and health.

21. With a view to promoting the adaptation of work to the workers and improving the working conditions and environment, occupational health services should act as advisers on occupational health and hygiene and ergonomics to the employer, the workers and their representatives in the undertaking and the safety and health committee, where they exist, and should collaborate with bodies already operating as advisers in this field.

22.

(1) Each worker should be informed in an adequate and appropriate manner of the health hazards involved in his work, of the results of the health examinations he has undergone and of the assessment of his health.

(2) Each worker should have the right to have corrected any data which are erroneous or which might lead to error.

(3) In addition, occupational health services should provide workers with personal advice concerning their health in relation to their work.

D. First Aid, Treatment and Health Programs

23. Taking into account national law and practice, occupational health services in undertakings should provide first-aid and emergency treatment in cases of accident or indisposition of workers at the workplace and should collaborate in the organization of first aid.

24. Taking into account the organization of preventive medicine at the national level, occupational health services might, where possible and appropriate-

- (a) carry out immunizations' in respect of biological hazards in the working environment;
- (b) take part in campaigns for the protection of health;
- (c) collaborate with the health authorities within the framework of public health programs.

25. Taking into account national law and practice and after consultation with the most representative organizations of employers and workers, where they exist, the competent authority should, where necessary, authorize occupational health services, in agreement with all concerned, including the worker and his own doctor or a primary health care service, where applicable, to undertake or to participate in one or more of the following functions:

- (a) treatment of workers who have not stopped work or who have resumed work after an absence;
- (b) treatment of the victims of occupational accidents;
- (c) treatment of occupational diseases and of health impairment aggravated by work;
- (d) medical aspects of vocational re-education and rehabilitation.

26. Taking into account national law and practice concerning the organization of health care, and distance from clinics, occupational health services might engage in other health activities, including curative medical care for workers and their families, as authorized by the competent authority in consultation with the most representative organizations of employers and workers, where they exist.

27. Occupational health services should co-operate with the other services concerned in the establishment of emergency plans for action in the case of major accidents.

E. Other Functions

28. Occupational health services should analyze the results of the surveillance of the workers' health and of the working environment, as well as the results of biological monitoring and of personal monitoring of workers' exposure to occupational hazards, where they exist, with a view to assessing possible connections between exposure to occupational hazards and health impairment and to proposing measures for improving the working conditions and environment.

29. Occupational health services should draw up plans and reports at appropriate intervals concerning their activities and health conditions in the undertaking. These plans and reports should be made available to the employer and the workers' representatives in the undertaking or the safety and health committee, where they exist, and be available to the competent authority.

30.

(1) Occupational health services, in consultation with the employers' and the workers' representatives, should contribute to research, within the limits of their resources, by participating in studies or inquiries in the undertaking or in the relevant branch of economic activity, for example, with a view to collecting data for epidemiological purposes and orienting their activities.

(2) The results of the measurements carried out in the working environment and of the assessments of the workers' health may be used for research purposes, subject to the provisions of Paragraphs 6(3), 11(2) and 14(3) of this Recommendation.

31. Occupational health services should participate with other services in the undertaking, as appropriate, in measures to prevent its activities from having an adverse effect on the general environment.

III. Organization

32. Occupational health services should, as far as possible, be located within or near the place of employment, or should be organized in such a way as to ensure that their functions are carried out at the place of employment.

33.

(1) The employer, the workers and their representatives, where they exist, should cooperate and participate in the implementation of the organizational and other measures relating to occupational health services on an equitable basis.

(2) In conformity with national conditions and practice, employers and workers or their representatives in the undertaking or the safety and health committee, where they exist, should participate in decisions affecting the organization and operation of these services, including those relating to the employment of personnel and the planning of the service's programs.

34.

(1) Occupational health services may be organized as a service within a single undertaking or as a service common to a number of undertakings, as appropriate.

(2) In accordance with national conditions and practice, occupational health services may be organized by -

(a) the undertakings or groups of undertakings concerned;

(b) the public authorities or official services;

- (c) social security institutions;
- (d) any other bodies authorized by the competent authority;
- (e) a combination of any of the above.

(3) The competent authority should determine the circumstances in which, in the absence of an occupational health service, appropriate existing services may, as an interim measure, be recognized as authorized bodies in accordance with subparagraph 2(d) of this Paragraph.

35. In situations where the competent authority, after consulting the representative organizations of employers and workers concerned, where they exist, has determined that the establishment of an occupational health service, or access to such a service, is impracticable, undertakings should, as an interim measure, make arrangements, after consulting the workers' representatives in the undertaking or the safety and health committee, where they exist, with a local medical service for carrying out the health examinations prescribed by national laws or regulations, providing surveillance of the environmental health conditions in the undertaking and ensuring that first-aid and emergency treatment are properly organized.

IV Conditions of Operation

36.

(1) In accordance with national law and practice, occupational health services should be made up of multidisciplinary teams whose composition should be determined by the nature of the duties to be performed.

(2) Occupational health services should have sufficient technical personnel with specialized training and experience in such fields as occupational medicine, occupational hygiene, ergonomics, occupational health nursing and other relevant fields. They should, as far as possible, keep themselves up to date with progress in the scientific and technical knowledge necessary to perform their duties and should be given the opportunity to do so without loss of earnings.

(3) The occupational health services should, in addition, have the necessary administrative personnel for their operation.

37.

(1) The professional independence of the personnel providing occupational health services should be safeguarded. In accordance with national law and practice, this might be done through laws or regulations and appropriate consultations between the employer, the workers, and their representatives and the safety and health committees, where they exist.

(2) The competent authority should, where appropriate and in accordance with national law and practice, specify the conditions for the engagement and termination of employment of the personnel of occupational health services in consultation with the representative organizations of employers and workers concerned.

38. Each person who works in an occupational health service should be required to observe professional secrecy as regards both medical and technical information which may come to his knowledge in connection with his functions and the activities of the service, subject to such exceptions as may be provided for by national laws or regulations.

39.

(1) The competent authority may prescribe standards for the premises and equipment necessary for occupational health services to exercise their functions.

(2) Occupational health services should have access to appropriate facilities for carrying out the analyses and tests necessary for surveillance of the workers' health and of the working environment.

40.

(1) Within the framework of a multidisciplinary approach, occupational health services should collaborate with-

(a) those services which are concerned with the safety of workers in the undertaking;

(b) the various production units, or departments, in order to help them in formulating and implementing relevant preventive programs;

(c) the personnel department and other departments concerned;

(d) the workers' representatives in the undertaking, workers' safety representatives and the safety and health committee, where they exist.

(2) Occupational health services and occupational safety services might be organized together, where appropriate.

41. Occupational health services should also, where necessary, have contacts with external services and bodies dealing with questions of health, hygiene, safety, vocational rehabilitation, retraining and reassignment, working conditions and the welfare of workers, as well as with inspection services and with the national body which has been designated to take part in the International Occupational Safety and Health Hazard Alert System set up within the framework of the International Labor Organization.

42. The person in charge of an occupational health service should be able, in accordance with the provisions of Paragraph 38, to consult the competent authority, after informing the employer and the workers' representatives in the undertaking or the safety and health committee, where they exist, on the implementation of occupational safety and health standards in the undertaking.

43. The occupational health services of a national or multinational enterprise with more than one establishment should provide the highest standard of services, without discrimination, to the workers in all its establishments, regardless of the place or country in which they are situated.

V. General Provisions

44.

(1) Within the framework of their responsibility for their employees' health and safety, employers should take all necessary measures to facilitate the execution of the duties of occupational health services.

(2) Workers and their organizations should provide support to the occupational health services in the execution of their duties.

45. The occupational health-related facilities provided by the occupational health services should not involve any expense to the worker.

46. In cases where occupational health services are established and their functions specified by national laws or regulations, the manner of financing these services should also be so determined.

47. For the purpose of this Recommendation the term *workers' representatives in the undertaking* means persons who are recognized as such under national law or practice.

48. This Recommendation, which supplements the Occupational Health Services Convention, 1985, supersedes the Occupational Health Services Recommendation, 1959.

TOOL 4

Checklist: How to Set Up an Occupational Health and Safety Committee

From the workbook "Joint Occupational Health & Safety Committee". Education and Development Section Prevention Division Workers' Compensation Board of British Columbia, 2000.

Employer Checklist

How to Set Up A Joint Health and Safety Committee

This checklist identifies the steps employers should follow to set up a compliant committee.

Activity	Completion Date	Assigned To	Check When Done
Draft Committee Terms of Reference Terms of Reference should include information on: <ul style="list-style-type: none"> <input type="checkbox"/> Name of health and safety committee <input type="checkbox"/> Constituency <input type="checkbox"/> Statement of committee purpose <input type="checkbox"/> Duties and functions <input type="checkbox"/> Records <input type="checkbox"/> Meetings <input type="checkbox"/> Agendas and Meeting Reports <input type="checkbox"/> Composition <input type="checkbox"/> Co-chairs <input type="checkbox"/> Terms of Office <input type="checkbox"/> Assistance in Resolving Disagreements <input type="checkbox"/> Amendments <i>See Example Terms of Reference</i>			<input type="checkbox"/>
Determine Number of Committee Members <ul style="list-style-type: none"> <input type="checkbox"/> at least 50% of members must be worker representatives Factors to consider include: <ul style="list-style-type: none"> <input type="checkbox"/> efficiency <input type="checkbox"/> number of employees <input type="checkbox"/> degree of hazard in the workplace <input type="checkbox"/> number of places of employment <input type="checkbox"/> number of unions or worker groups <input type="checkbox"/> need to represent different shifts/departments 			<input type="checkbox"/>
Select Worker Representatives and Alternates <ul style="list-style-type: none"> <input type="checkbox"/> select from workers who do not exercise managerial functions <input type="checkbox"/> union workers: select according to union(s) established procedures <input type="checkbox"/> non-union workers: elect by secret ballot <input type="checkbox"/> determine number of union and non-union worker representatives in equitable proportion to their relative numbers and health and safety risks 			<input type="checkbox"/>
Select Employer Representatives and Alternates <ul style="list-style-type: none"> <input type="checkbox"/> select from among persons who exercise managerial functions <input type="checkbox"/> for an effective committee, employer representatives should have authority to take immediate action on committee recommendations 			<input type="checkbox"/>
Post the names and work locations of Joint Health & Safety Committee members and alternates			<input type="checkbox"/>
Set First Monthly Meeting Date and Agenda First meeting activities should include: <ul style="list-style-type: none"> <input type="checkbox"/> 1 co-chair selected by worker representatives <input type="checkbox"/> 1 co-chair selected by employer representatives <input type="checkbox"/> Review draft Terms of Reference <input type="checkbox"/> Review sample meeting agenda and meeting report 			<input type="checkbox"/>

TOOL 5

Example: Terms of Reference for an Occupational Health and Safety Committee

From the workbook "Joint Occupational Health & Safety Committee". Education and Development Section Prevention Division Workers' Compensation Board of British Columbia, 2000.

Example Joint Health and Safety Committee Terms of Reference

1. **Name of health and safety committee**
(A name is reference for identification where there are other committees in the organization.)
The committee shall be known as the Head Office Joint Health and Safety Committee.
2. **Constituency**
(Identify the parts of the operation or the group or groups of workers represented by the committee.) For example:

Employer Representative #1	Purchasing Department; Shipping/Receiving Department
Employer Representative #2	Parking Lot; Executive Offices
Worker Representative #1	Reception Works Yard
Worker Representative #2	Warehouse Security Department

3. **Purpose of the Committee**
It is a joint committee made up of worker and employer representatives consulting in a cooperative spirit to identify and resolve safety and health problems in support of a planned occupational safety and health program in the place of employment.
4. **Duties and Functions of the Committee**
 - (a) Identify situations that may be unhealthy or unsafe for workers and advise on effective systems for responding to those situations.
 - (b) Consider and expeditiously deal with complaints relating to the occupational health and safety of workers.
 - (c) Consult with workers and the employer on issues related to occupational health and safety and occupational environment.
 - (d) Make recommendations to the employer and the workers for the improvement of the occupational health and safety of workers and compliance with the regulations, and monitor their effectiveness.
 - (e) Make recommendations to the employer on educational programs promoting the health and safety of workers and compliance with the Regulation, and monitor their effectiveness.
 - (f) Advise the employer on programs and policies required under the Regulation for the workplace and monitor their effectiveness.
 - (g) Advise the employer on proposed changes to the workplace or the work processes that may affect the health or safety of workers.
 - (h) Ensure that incident investigations and regular inspections are carried out as required by the Regulation.

- (i) Participate in inspections, investigations and inquiries as provided by the Regulation.
 - (j) When necessary, request information from the employer about:
 - (i) Known or reasonably foreseeable health or safety hazards to which workers at the workplace are likely to be exposed.
 - (ii) Health and safety experience and work practices and standards in similar or other industries of which the employer has knowledge.
 - (k) Carry out any other duties and functions prescribed by the Regulation.
5. **Records**
 The committee will keep accurate records of all matters that come before it. The committee will maintain copies of its minutes for a period of at least 2 years from the date of the joint health and safety committee meeting to which they relate. (Note first aid records should be kept for at least 10 years; education and training related records should be kept for at least 3 years after the training session.)
6. **Meetings**
- (a) The committee will meet monthly on the (_____) working day of each month.
 - (b) Special meetings, if required, will be held at the call of the co-chairs.
 - (c) A quorum shall consist of a majority of members (_____).
 - (d) The committee will add procedures it considers necessary for the meetings.
7. **Agendas and Meeting Reports**
- (a) An agenda will be prepared by the co-chairs and distributed to members prior to the meeting.
 - (b) A report of the meeting will be prepared as soon as possible after the meeting and will be made available to the employer, Joint Health and Safety Committee members, workers and the Workers' Compensation Board.
 - (c) A copy of the report of each meeting will be posted promptly, in a place readily accessible to employees for whom this committee is responsible.
8. **Composition of the Committee**
- (a) The committee shall consist of _____ members.
 - (b) One worker representative will be elected from each of the following areas or unions (list areas or unions).
 - (c) One employer representative will be appointed from each of the following areas (list areas).

9. Co-chairs

- (a) The committee will elect co-chairs from its membership.
- (b) The worker representatives shall select a co-chair.
- (c) The employer representatives shall select a co-chair.
- (d) The co-chairs shall:
 - (i) Control the meetings
 - (ii) Ensure the maintenance of an unbiased viewpoint
 - (iii) Arrange the agendas
 - (iv) Review previous meeting reports and material prior to the meetings
 - (v) Arrange for the meeting place
 - (vi) Notify members of meetings
 - (vii) Prepare meeting agendas
 - (viii) Prepare meeting reports
 - (ix) Forward a copy of meeting reports to the employer for distribution
 - (x) Prepare recommendation(s) and forward to the employer for a response
 - (xi) Prepare all correspondence

10. Terms of Office

- (a) Committee members will sit on the committee for _____ years. (Note committees are more effective if terms of office overlap for committee members. This allows a mix of new and experienced committee members on the committee, even after elections).
- (b) If a member of the committee chosen by the workers is unable to complete the term of office, the workers will choose another member.
- (c) If a member of the committee appointed by the employer is unable to complete the term of office, the employer will appoint another member.
- (d) All members will arrange to have an alternate member to attend meetings in their place, when they are unavailable to attend.

11. Recommendations to the Employer will Meet These Guidelines:

- (a) Directly related to health and safety.
- (b) Doable (reasonably capable of being done).
- (c) Complete (employer will not need more information to make a decision).

12. Assistance in resolving disagreements within committee

If the joint health and safety committee is unable to reach agreement on a matter relating to the health or safety of workers at the workplace, a co-chair of the committee may report this to the Workers' Compensation Board, which may investigate and attempt to resolve the matter.

13. Amendments

These terms of reference may be amended by vote of the committee members.

TOOL 6.**Orientation Guide for the Occupational Health and Safety Committee Members**

Source: Health and Safety Manual, Service Employees' International Union, AFL/CIO, Washington, DC, 1987.

Guidelines for Occupational Health and Safety Committee Members

Do's	Don'ts
<ul style="list-style-type: none"> • Keep the discussion centered on the issue involved. • Keep personalities from becoming involved. • Hold all meetings as scheduled. Cancel meetings only in an emergency. • Be prompt in attending meetings. • Submit the agenda in advance to allow all parties sufficient time to investigate problems. • In submitting the agenda, identify all items to be discussed. • Maintain an agreed-to procedure on recording and drafting the minutes, as well as methods of distribution. • Maintain accurate minutes on subjects discussed at the previous meetings that have been "completed" or "resolved" as well as those items still "open". • Be sure the committee concept is explained to and understood by employees and supervisors. 	<ul style="list-style-type: none"> • Don't start the first meeting with extremely difficult issues. Get accustomed to this problem-solving technique by dealing with relatively minor problems first. • Don't allow the meetings to become "gripe" sessions. • Don't deal in generalities. Be specific about the problem and its suggested correction. • Don't anticipate that you know the answer to a question before it has been discussed. Ask questions to get the facts. • Don't treat any issue on the agenda as unimportant. Each item deserves thorough investigation and discussion. • Don't delay in communicating solutions developed for serious problems or the outcome of issues discussed. • Don't start scheduled meetings late or allow them to drag on beyond the allotted time. This has often brought failure. • Don't look for immediate results.

TOOL 7

Checklist for Assessing the Operational Level of an Occupational Health and Safety Committee

From the workbook "Joint Occupational Health & Safety Committee". Education and Development Section Prevention Division Workers' Compensation Board of British Columbia. 2000..

Joint H & S Committee Self-Assessment Checklist (4 pages)

Committee Name: _____ Location: _____

Completed By: _____ Date: _____

The Joint Health and Safety Committee can conduct a self-assessment to see if the committee is set up and functioning as required (e.g. as part of an annual OH&S program review). The self-assessment process is made up of three parts:

- **Self-Assessment Checklist** – identify items that make the committee compliant and effective
- **Action Plan** – identify items that need attention
- **(Optional) Scoring Sheet** – measure and compare the committee's performance over time

Self-Assessment Checklist - Directions

- Answer each statement by checking yes or no.

Item	Status
Terms of Reference	
1. Committee has written Terms of Reference that establish the committee's rules of procedure. Terms of Reference should include information on: <input type="checkbox"/> Name of health and safety committee <input type="checkbox"/> Constituency <input type="checkbox"/> Statement of committee purpose <input type="checkbox"/> Duties and functions <input type="checkbox"/> Records <input type="checkbox"/> Meetings <input type="checkbox"/> Agendas and Meeting Reports <input type="checkbox"/> Composition <input type="checkbox"/> Co-chairs <input type="checkbox"/> Terms of Office <input type="checkbox"/> Assistance In Resolving Disagreements <input type="checkbox"/> Amendments	<input type="checkbox"/> Yes <input type="checkbox"/> No
Membership	
2. There are a minimum of 4 members, worker and employer representatives from and representing the workplace.	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. At least 50% of members are worker representatives.	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Worker representatives have selected 1 co-chair.	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Employer representatives have selected 1 co-chair.	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Names and work locations of committee members and alternates are posted.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Duties and Functions	
7. Identify unhealthy or unsafe workplace situations and advise on effective systems for responding to those situations.	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Consider and quickly deal with complaints relating to the health and safety of workers.	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Consult with workers and employer on issues related to OH&S and work environment.	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Advise employer on workplace programs and policies required under the OH&S Regulation and monitor their effectiveness.	<input type="checkbox"/> Yes <input type="checkbox"/> No
11. Advise employer on proposed changes to the workplace or work processes that may affect the health or safety of workers.	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Make recommendations to the employer on educational programs promoting health and safety of workers and compliance with the OH&S Regulation, and monitor program(s) effectiveness.	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Ensure accident investigations and regular inspections are carried out as required.	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. Assign representatives to participate in inspections as required.	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. Assign representatives to participate in accident investigations as required.	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Assign representatives to participate in inquiries as required.	<input type="checkbox"/> Yes <input type="checkbox"/> No

 Joint H & S Committee Self-Assessment Checklist (4 pages)

(Optional) Scoring Sheet - Directions

- Fill out the Self-Assessment Checklist.
- For every 'Yes', give the assigned score listed in column A.
- For every 'No', give a score of zero (0) in column B.
- Add up the total of column A and B. This will give you an Initial Score for your committee's performance.
- After completing the Action Plan for column B items, give the improved score listed in Column C.
- Take the best score of A or C for each item, and list it in Column D.
- Add up the total of Column D. This will give you a Score After Action Plan for your committee's performance.

Item	A. Yes		B. No		C. Corrected using Action Plan		D. Score <u>after</u> using the Action Plan (best score from <u>A</u> or <u>C</u>).
	Score		Score		Score		
1.	3		0		3		
2.	3		0		3		
3.	3		0		3		
4.	3		0		3		
5.	3		0		3		
6.	3		0		3		
7.	3		0		3		
8.	3		0		3		
9.	3		0		3		
10.	3		0		3		
11.	3		0		3		
12.	3		0		3		
13.	3		0		3		
14.	3		0		3		
15.	3		0		3		
16.	3		0		3		

Continued on next page

Joint H & S Committee Self-Assessment Checklist (4 pages)

Item	A. Yes		B. No		C. Corrected using Action Plan		D. Score <u>after</u> using the Action Plan (best score from A or C).
	Score		Score		Score		
17.	4		0		4		
18.	4		0		4		
19.	4		0		4		
20.	4		0		4		
21.	4		0		4		
22.	4		0		4		
23.	4		0		4		
24.	4		0		4		
25.	4		0		4		
26.	4		0		4		
27.	3		0		3		
28.	3		0		3		
29.	3		0		3		
30.	3		0		3		

Total A:

Total B:

Initial Score
(Total A + B):

Score After
Action Plan
(Total D):

Score	Performance*
Less than 35	Immediate action should be taken. An effective Joint Health and Safety Committee is not in place.
35 to 59	Some safety and health activities exist but better planning and organization is required.
60 to 84	Joint Health and Safety Committee is active and underway but needs fine tuning.
85	Joint Health and Safety Committee meets recommended minimum compliance level.
86 to 100	Joint Health and Safety Committee exceeds minimum compliance level.

**Note performance scores are only a guideline. Other factors to consider include health and safety performance in the workplace, compliance with Workers Compensation Amendment Act and OHS&S Regulation, degree of hazard associated with violations, etc.*

TOOL 8

Checklist of Administrative Procedures of a Functioning Occupational Health and Safety Committee

Appendix No. 10 Sample Employer Checklist #2: How to Maintain A Joint Health and Safety Committee

This checklist identifies the activities employers need to do to maintain a compliant committee. These activities need to be built into the employer's ongoing business activities.

Activity	Completion Date	Assigned To	Check When Done
Committee Business <ul style="list-style-type: none"> <input type="checkbox"/> Provide committee members time away from regular work (deemed paid time) for committee meetings and any other time required to prepare for committee meetings and fulfill committee functions. <input type="checkbox"/> Provide the committee with the equipment, premises and clerical personnel necessary to carry out its duties and functions. <input type="checkbox"/> It is desirable for the employer to provide typing and clerical services, and is also acceptable for the employer to provide a recording secretary who would not necessarily be considered a committee member. 			<input type="checkbox"/>
Committee Recommendations <ul style="list-style-type: none"> <input type="checkbox"/> Respond to committee in writing within 21 calendar days of receiving written recommendation(s) indicating acceptance or reasons for not accepting recommendation(s). <input type="checkbox"/> Provide a written explanation for any delay if it is not reasonably possible to provide a response before the end of 21 calendar days. 			<input type="checkbox"/>
Committee Monthly Meeting Reports <ul style="list-style-type: none"> <input type="checkbox"/> Send a copy of the committee monthly meeting reports to the worker union(s) on request. <input type="checkbox"/> Retain a copy of committee monthly meeting reports for at least 2 years from the date of the meeting. <input type="checkbox"/> Ensure retained monthly meeting reports are readily accessible to committee members, workers, and Workers' Compensation Board. <input type="checkbox"/> Post the reports of the 3 most recent meetings. 			<input type="checkbox"/>
Educational Leave <ul style="list-style-type: none"> <input type="checkbox"/> Provide each committee member annual paid educational leave of 8 hours per year, including course costs and reasonable costs to attend occupational health and safety training courses conducted by or approved by WCB*. 			<input type="checkbox"/>
Health and Safety Information <ul style="list-style-type: none"> <input type="checkbox"/> Advise the committee of any planned introduction of new equipment, new operating procedures or new chemicals or other substances or materials. <input type="checkbox"/> Provide committee, on request, with information about known or reasonably foreseeable health or safety hazards that workers at the workplace may be exposed to. <input type="checkbox"/> Provide committee, on request, with information about health and safety experience, work practices, and standards in similar or other industries of which the employer has knowledge. 			<input type="checkbox"/>

*For details on becoming a WorkSafe Partner or to obtain a complete list of approved courses and trainers, visit the WCB website (www.worksafebc.com) or call the Prevention Information Line at 604-276-3100 or 1-888-621-7233.

TOOL 9**Checklist of Existing Occupational Health and Safety Mechanisms**

Courtesy of Prof. Roberto Castro-Córdoba, University of Costa Rica

Health Care Institution _____ **Date** _____

EVALUATION OF THE HEALTH CARE FACILITY'S OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM	YES	NO	Not Applicable
DEFINITION AND DISSEMINATION OF THE OHS POLICY			
Is there a written OHS policy at the health care facility?			
Was the policy disseminated to:			
a) Directors and area managers?			
b) Department managers and professionals?			
c) Supervisors and team leaders?			
d) Workers?			
MANAGEMENT'S COMMITMENT			
Is there any written document where management's role and responsibilities regarding occupational health and safety is established for every administrative level?			
Do these responsibilities involve:			
a) Directors and area managers?			
b) Department managers and professionals?			
c) Supervisors and team leaders?			
d) Workers?			
Is the search for ongoing improvements considered part of this commitment?			
Is occupational health and safety taken into account when purchasing decisions are made?			
Is management's attitude towards OHS proactive?			
MANAGEMENT'S PARTICIPATION IN PROMOTING OHS			
Have department or area managers promoted annual meetings to evaluate OHS accomplishments and define main objectives?			
Does senior management participate in these annual meetings?			
During the year, has the health care facility's management promoted several OHS meetings with participation of senior level management, area managers, supervisors and team leaders?			
Have those meetings produced written resolutions and measures that have been adopted?			
Have those adopted measures improved the health care facility's OHS management?			
During the last two years, have preventive actions been carried-out?			
ORGANIZATION OF THE OHS SYSTEM			
MEDICAL SERVICES			
Is there a health care unit for the health care facility's workers (OHSU)?			
Is this OHSU registered with the national health system?			
Does the OHSU's physician have specialization in occupational health or occupational medicine?			
Please describe the physician's background			
Has the physician taken any training on OHS during the past year?			
Does the OHSU have a secretary?			
Does the OHSU participate in the health care facility's occupational health and safety activities? (Occupational health and Safety Committee, Work Groups, other committees)			
Does the OHSU have nurses?			
Is there any other support personnel? What kind?			

EVALUATION OF THE HEALTH CARE FACILITY'S OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM	YES	NO	Not Applicable
Does the OHSU develop activities to prevent occupational diseases?			
Does the OHSU develop activities to prevent other diseases (diabetes, hypertension, etc.)?			
Does the OHSU develop activities to prevent occupational accidents?			
OCCUPATIONAL HEALTH AND SAFETY COMMITTEE (OHSC)			
Was an occupational health and safety committee (OHSC) established?			
Was a meeting of the OHSC held last month?			
OHSC meetings periodicity (mark only one): a) Some meetings over a one year period b) Monthly meetings			
Does the OHSC keep a record of meeting proceedings?			
Are workers' representatives in the OHSC chosen by the workers?			
Is the OHSC registered with the appropriate national entities such as Ministry or Secretary of health, work, etc.?			
Does the OHSC have specific attributions in the OHS Program?			
COORDINATION OF OTHER COMMITTEES WITH THE OHSC (please mark NOT APPLICABLE if the health care service does not have a committee)			
Hospital Infections Control Committee?			
Fire Control Committee?			
Emergency and Disaster Control Committee?			
Hospital Waste Control Committee?			
Other?			
OCCUPATIONAL HEALTH PROFESSIONAL			
Is there a person responsible for handling occupational health issues (hygiene, safety, and risk prevention)?			
The appointee's academic degree is: a) technician b) technician with high-school degree or further specialization c) licensed professional d) licensed professional with master's degree or further specialization			
How much time does the professional devote to the OHS: a) Some hours per week b) Half time c) Full time			
Has the professional received specific OHS training outside the company at least once over the last three years?			
Does the professional have the tools to study the environment and work conditions and to analyze the job posts?			
Does management request this professional's approval when purchasing products, equipment, etc.?			
Does the professional supervise new installation projects, construction, etc.?			
Does the professional participate in OHSC program activities?			
Does this professional interact with the facility's doctor?			
Does this professional contribute with research on new work processes?			

EVALUATION OF THE HEALTH CARE FACILITY'S OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM	YES	NO	Not Applicable
OHS PROCEDURES			
INFORMATION			
Is there an active system to inform workers about: a. risks? b. work method changes? c. job post manuals?			
Is there a written means to disseminate information to the workers?			
Has management established a schedule of informational meetings for: a. directors and area managers? b. department managers and professionals? c. supervisors and team leaders? d. workers in general?			
Is written information on risk prevention provided to new and relocated workers at the beginning of the new duties?			
TRAINING			
Is an education period provided to the worker upon entry to the company or upon a job change? (orientation courses)			
Are there procedure manuals or instruction books for training?			
If an education plan exists, the plan is:			
The same for all workers			
Job specific			
Is there a person who is responsible for workers' education?			
Has an assessment of education necessities been carried out?			
Has senior management participated in the educational activities aimed at improving OHS management?			
Is first-aid training provided for workers?			
Is fire-prevention and fire-extinction training for workers provided?			
Is training of workers on occupational health and safety provided?			
Are training activities part of the overall education and training plan?			
Do educational activities target a) some workers? b) most workers? c) all workers?			
Is there any training aimed at improving workers aptitudes in their respective jobs?			
Does the company provide opportunities for workers receive outside education (educational leave, scholarships, etc.)?			
ACCIDENT STATISTICS			
Is there a system for notifying and recording accidents?			
Does the accident notification and registration system classify accidents by job areas?			
Is a statistical analysis conducted on accident frequency and severity?			
Are accidents classified by: a) Type of accident? b) Substance or equipment involved? c) Type of injury? d) Cause of accident?			
Are accident statistics carried out to analyze risk factors?			
Results reflecting the likelihood of accidents are disseminated to: a) directors and area managers b) department managers and professionals c) supervisors and team leaders d) workers in general			
Based on statistical results, was an action plan prepared to reduce: a) accidents in general? b) specific accidents?			
Are accidents reported to the responsible entity for Occupational Injuries Registry?			
Are accidents that do not require workers' compensation reported?			

EVALUATION OF THE HEALTH CARE FACILITY'S OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM	YES	NO	Not Applicable
ACCIDENT INVESTIGATION			
Are occupational accidents investigated?			
Is an investigation procedure in place?			
Does this procedure aim:			
a) To analyze the causes of the accident?			
b) To explore activities to that can correct such accidents?			
Who conducts the investigation?			
Does the OHS technician participate in the investigation?			
Are the conclusions of the accident investigation used to correct poor work conditions?			
Is supervision maintained over compliance with corrective activities?			
What is the compliance level of the recommended corrective actions:			
a) High			
b) Medium			
c) Low			
The investigation findings are reported to:			
a) Management			
b) Directors and chiefs of departments			
c) Area chiefs			
d) Supervisors, team leaders, or heads of affected sections			
e) Workers of the area affected			
f) The Occupational Health and Safety Committee			
SAFETY INSPECTIONS			
Are safety and hygiene inspections carried out periodically?			
Degree of inspection:			
a) Most areas or sections			
b) Many areas or sections			
c) Some areas only			
Is an inspection form utilized? (Please request a copy of it)			
Is this form a verification of a compliance checklist?			
Does the form contain a section for analyzing and evaluating risk factors?			
Does the form contain recommendations about control measures?			
Are there checklists organized by job posts, equipment, infrastructures, and work methods?			
The inspection is carried-out by:			
a) The occupational hygiene and safety technician,			
b) Other technical personnel,			
c) The Occupational Health and Safety Committee.			
Does inspection lead to the commitment to correct poor work conditions?			
Is compliance with the corrective measures verified?			
Level of compliance is:			
a) High			
b) Medium			
c) Low			
The investigation results are reported to:			
a) Senior management			
b) Directors and department chiefs			
c) Area chiefs			
d) Supervisors, team leaders, or section teams			
e) Workers in affected areas			
f) The Occupational Health and Safety Committee			
CONTROL OF HEALTH RISKS			
Is there a periodic hygiene control program (covering noise, vibrations, etc.) in place?			
Are there available tools for measuring risk factors? please indicate what they are:			
Is toxicological information sought for the products in use?			
Are Material Safety Data Sheets (MSDS) available to all workers that use the products?			
Is management aware of the health and safety regulations concerned?			

EVALUATION OF THE HEALTH CARE FACILITY'S OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM	YES	NO	Not Applicable
The standards of health and safety are met: a) Completely b) Partially			
Are pre-hiring medical examinations conducted?			
Are periodic medical assessments carried-out?			
Are preventive measures mainly aimed at controlling risk factors rather than at personal protection?			
Is there periodic control on the implementation of the preventive and corrective measures?			
PERSONAL PROTECTION			
Is the compulsory use of personal protection equipment clearly established?			
Is there an adequate control over personal protective equipment purchases?			
Is there an adequate control over personal protective equipment use?			
Are workers trained to use protective equipment?			
Is the selection of equipment done with workers' participation?			
WORK PROCEDURES AND REGULATIONS			
Is the health care facility aware of the country's legislation on occupational health for the health care sector?			
Is a copy of the legislation available?			
Are health and safety standards and procedures strictly met by workers?			
Do the safety standards contain: a) General prevention measures? b) Measures for specific jobs? c) Safe work procedures?			
Do workers participate in preparing standards?			
Is the Occupational Health and Safety Committee consulted before preparing standards?			
Are the safety standards reviewed periodically?			
Do personnel understand the standards?			
Are standards available for all workers?			
Are the standards made known to visitors and suppliers?			

Person responsible for this evaluation _____

Signature _____ **Date:** _____

TOOL 10

Checklist of Health and Safety Hazards by Location

Adapted from *HSAA Occupational Health & Safety Manual*. Health Sciences Association of Alberta. Canada. <http://www.hsaa.ca/publications/ohs.pdf>

Although not an exhaustive list of all the potential work areas and hazards, the following checklist highlights some of the more common hazards in these specifically identified areas:

LOCATION	HEALTH CARE WORKERS' HEALTH AND SAFETY HAZARDS
1. Community Care	<ul style="list-style-type: none"> • Aggression/violence • Bending, lifting, carrying • Cuts, burns, abrasions, dermatitis • Infectious diseases • Musculoskeletal injury • Slips, trips, falls • Stress • Temperature • Traffic hazards
2-Emergency Room	<ul style="list-style-type: none"> • Aggression/violence • Biomedical waste • Bending, lifting, carrying • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Ionizing radiation • Musculoskeletal injury • Noise • Reproductive hazards • Slips, trips, falls • Stress
3-Central Supply	<ul style="list-style-type: none"> • Bending, lifting, carrying • Biomedical waste • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Musculoskeletal injury • Slips, trips, fall
4-Laboratories	<ul style="list-style-type: none"> • Aggression/violence • Biomedical waste • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Ionizing radiation • Lighting • Office ergonomics • Musculoskeletal injury • Reproductive hazards • Slips, trips, falls • Stress • Temperature

LOCATION	HEALTH CARE WORKERS' HEALTH AND SAFETY HAZARDS
5-Maintenance and Engineering	<ul style="list-style-type: none"> • Bending, lifting, carrying • Carcinogens • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Lighting • Musculoskeletal injury • Noise • Office ergonomics • Reproductive hazards • Slips, trips, falls
6-Dental Services	<ul style="list-style-type: none"> • Aggression/violence • Biomedical waste • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Ionizing radiation • Lighting • Musculoskeletal injury • Reproductive hazards • Slips, trips, falls • Stress
7-Housekeeping	<ul style="list-style-type: none"> • Bending, lifting, carrying • Biomedical waste • Chemical hazards (pesticides, chemicals) • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Lighting • Musculoskeletal injury • Reproductive hazards • Slips, trips, falls • Stress • Temperature
8 – Food Services	<ul style="list-style-type: none"> • Bending, lifting, carrying • Chemical hazards (pesticides) • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Noise • Musculoskeletal injury • Reproductive hazards • Slips, trips, falls • Stress • Temperature

LOCATION	HEALTH WORKERS' HEALTH AND SAFETY HAZARDS
9-Patient Care Areas (Nursing Units, Rehabilitation)	<ul style="list-style-type: none"> • Aggression/violence • Bending, lifting, carrying • Biomedical waste • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Ionizing radiation • Lighting • Musculoskeletal injury • Noise • Office ergonomics • Slips, trips, falls • Stress
10-Ambulance	<ul style="list-style-type: none"> • Aggression/violence • Bending, lifting, carrying • Chemical hazards • Infectious diseases • Musculoskeletal injury • Slips, trips, falls • Stress • Temperature • Traffic hazards
11-Operating Room	<ul style="list-style-type: none"> • Bending, lifting, carrying • Biomedical waste • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Ionizing radiation • Musculoskeletal injury • Reproductive hazards • Slips, trips, falls • Stress
12-Office Work	<ul style="list-style-type: none"> • Bending, lifting, carrying • Chemicals • Indoor air quality • Lighting • Musculoskeletal injury • Noise • Office ergonomics • Slips, trips, falls • Stress • Temperature • Video display terminals

LOCATION	HEALTH WORKERS' HEALTH AND SAFETY HAZARDS
13.Radiology/Diagnostic Imaging	<ul style="list-style-type: none"> • Aggression/violence • Bending, lifting, carrying • Indoor air quality • Infectious diseases • Ionizing radiation • Lighting • Musculoskeletal injury • Reproductive hazards • Slips, trips, falls • Stress
14-Continuing Care	<ul style="list-style-type: none"> • Aggression/violence • Bending, lifting, carrying • Biomedical waste • Chemical hazards • Cuts, burns, abrasion, dermatitis • Indoor air quality • Infectious diseases • Lighting • Musculoskeletal injury • Noise • Office ergonomics • Slips, trips, falls • Stress
15-Pharmacy	<ul style="list-style-type: none"> • Aggression/violence • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Ionizing radiation • Lighting • Musculoskeletal injury • Office ergonomics • Reproductive hazards • Slips, trips, falls • Stress
16-Laundry	<ul style="list-style-type: none"> • Bending, lifting, carrying • Biomedical waste • Chemical hazards • Cuts, burns, abrasions, dermatitis • Indoor air quality • Infectious diseases • Lighting • Musculoskeletal injury • Noise • Slips, trips, falls • Stress • Temperature

Tool 11

Checklist: General Hygiene and Safety Conditions

Adapted with the authorization of Prof. Roberto Castro, University of Costa Rica.

Name of the Health Facility: _____

Examined Sector: _____

INSTRUCTIONS: mark the corresponding column

TRUE: The statement corresponds to the workplace circumstances

FALSE: Incorrect statement

NON-APPLICABLE: The statement is not applicable

I. WORKPLACES		True	False	Non-applicable
1.1	The work sites are adequate for the tasks that are carried out			
1.2	Meet the minimum requirements of surface and location			
1.3	Present overall order and cleanliness			
1.4	There is a schedule for cleaning the work area			
1.5	The number of trash cans is adequate for the facilities' needs			
1.6	Trash cans are adequately distributed			
1.7	The floor is kept free of objects at all times			
1.8	The floor is not slippery			
1.9	The floors have a drainage system with grills, strainers, or any other safe and dependable means that allows for general maintenance and prevents the pooling of liquids			
1.10	The material utilized in the workplace is continually classified (both necessary and unnecessary)			
1.11	Objects are properly stacked			
1.12	The aisles, work areas and storage areas are adequate and properly designated			
1.13	There is sufficient space between machines and facilities			
1.14	The floor is defined with yellow bands 10 to 15 cm wide			
1.15	Work surfaces are even			
1.16	If outside areas have ditches, wells, apertures, or unevenness, they have protections, signaling, or safety and hygiene notifications			
1.17	Fixed and portable ladders and platforms meet the minimum requirements of design and construction			
1.18	Step ladders are properly used			
1.19	Platforms are constructed with adequate materials and have rails and plinths			
1.20	Openings in the floors have rails			
1.21	There is a minimum height of 2.5 m from floor to ceiling			
1.22	There is a minimum free surface of 2 m ² for each worker			
1.23	Ceilings and walls have safety characteristics to withstand natural phenomenon (meteorological and seismic)			
1.24	Materials used for ceilings and walls are water proof, non-toxic and resistant			
1.25	Ceilings and walls have coating or thermal insulation that diminishes heat transfer			
1.26	Ceilings and walls are glare free			
1.27	Pale colors are utilized on the walls to avoid disturbing workers' behavior			

II. SERVICES AND AUXILIARY INSTALLATIONS		True	False	Non-applicable
2.1	Fresh potable water is provided in quantities sufficient for consumption by the workers			
2.2	There are appropriate dressing rooms in sufficient quantity			
2.3	The dressing rooms are kept clean, washed, and disinfected			
2.4	The dressing rooms have proper illumination			
2.5	The dressing rooms floors are non-slippery			
2.6	There is enough space in the dressing rooms according to the number of users.			
2.7	Adequate toilet facilities are provided (lavatories, urinals, showers and sinks) in sufficient quantity and are accessible to the workers			
2.8	One toilet is available per every 20 male workers and 1 per every 15 female workers			
2.9	The floors and walls are continuous, smooth, and waterproof and made from materials that permit washing with disinfectants			
2.10	The toilets are cleaned at least once a day			
2.11	The toilets have adequate lighting and ventilation			
2.12	Dressing rooms and toilet facilities are available separated for each sex			
2.13	Dining rooms and adequate facilities for eating and resting are available			
2.14	An emergency first aid kit is available			
2.15	A nursing room or first aid room is available			
2.16	A system for emergency lighting is available			
III. FIRE PREVENTION AND EXTINCTION		True	False	Non-applicable
3.1	Sites with fire hazards are isolated from the rest of the workplace			
3.2	Sites where combustible substances are used are built with fire resistant material			
3.3	Combustible waste is disposed of in closed, fire-proof and marked containers			
3.4	Fire detection systems are available			
3.5	Fire extinction systems are available			
3.6	Extinguishers comply with established standards			
3.7	The quantity of extinguishers is sufficient in regard to the risk in the company			
3.8	Personnel is trained to use the fire extinction equipment			
3.9	Fire extinction equipment is located and appropriately distributed with regard to the source of risks			
3.10	Fire extinction equipment is visibly located and appropriately marked			
3.11	Fire extinction equipment is free from obstacles in such a way that free access to them is permitted			
3.12	When fire extinction equipment is used it is immediately reconditioned or replaced (whatever is appropriate)			
3.13	There is an external entity or a health facility's worker in charge of carrying out the inspection of the health care facility's extinguishers			
3.14	The person in charge is properly trained to carry out this task			
3.15	Inspection is carried out monthly			
3.16	Handling instructions for the extinguishers are legible and visible			
3.17	A written registry of extinguisher inspections is kept			
3.18	There are water intakes for the fire department			
3.19	Extinguishers are properly loaded, compressed, and free from dirt			
3.20	There are labels indicating prevention and danger of fire			
IV. ELECTRIC SYSTEMS		True	False	Non-applicable
4.1	Adequate maintenance is performed to avoid overheating the machines			
4.2	Motors and electric equipment are grounded			
4.3	The electric system is in optimal condition in order to avoid short circuits			

4.4	The electric installations are in good condition, including distribution boxes			
4.5	There are no temporary or unforeseen installations in the health care facility			
4.6	Outlets, fuse boxes and cable unions are in good condition			
4.7	The motors, electric boards, and boxes of switches are free from dirt			
4.8	Electric system boxes are not left uncovered			
4.9	Cables in contact with flammable materials are duly covered			
4.10	There are spark-proof lamps available			
4.11	Review periods for the electrical system are defined			
4.12	Electrical lines are fully protected and isolated			
4.13	Electrical lines are placed as far away as possible from personnel contact			
4.14	Cells or compartments where transformers, switches and distribution boxes are installed are properly prepared and protected to avoid every dangerous contact			
4.15	The necessary steps are taken when revisions or repairs to the system are carried out (electricity is disconnected, and it is ensured that no one connects it)			
4.16	All the plugs are grounded			
4.17	All the switches utilized are of closed type and are risk proof			
V. SIGNALING		True	False	Non-applicable
5.1	Notification signs are placed on out-of-order (repairing and maintenance) machinery and equipment			
5.2	The emergency doors and exits are marked where required			
5.3	Pipes, containers, and tanks with hazardous substances have adequate labels			
5.4	There are signs and/or other notices restricting the access of external personnel to specific dangerous areas of work			
5.5	There are signs by which the risks present in the work areas are indicated			
5.6	The special installations and auxiliary services (extinguishers, emergency showers, etc.) are indicated by labels or other signs			
5.7	The signs are located in places that are easily visible from different points of the workplace			
VI. EMERGENCY EXITS		True	False	Non-applicable
6.1	There are duly identified emergency exits			
6.2	The quantity of emergency exits is adequate			
6.3	They have adequate lighting			
6.4	They open and rotate easily towards the outside			
6.5	The emergency exits are free from obstacles			
6.6	The emergency exits are sufficiently wide to permit evacuation			
6.7	There are emergency stairs			
VII. MACHINERY AND EQUIPMENT		True	False	Non-applicable
7.1	Are adequately designed and constructed in order to avoid lateral and backwards overturning			
7.2	The equipment and machines receive periodic preventative maintenance			
7.3	Operators of machines and equipment are trained			
7.4	There are available standards for operating the machines and equipment and to prevent over turnings.			
7.5	Machines and equipment have cabins and safety entrances adequately designed and constructed			
7.6	Machines and equipment are provided with rails to go up and down			
7.7	The cabins are designed and constructed to be comfortable and to protect the worker against dust and noise			
7.8	The equipment and machinery have seats designed such that they can be adjusted in accordance with the anthropometric characteristics of the operator and in order to alleviate vibrations			
7.9	The front of the tractor is ballasted when the equipment is heavy			
7.10	Moving parts and implements have adequate protection guards			

7.11	Equipment platforms have access stairs and adequate railing			
7.12	Machines and equipment have signs or indicators			
7.13	The signs and indicators provide clear information safely and quickly			
7.14	The machines and equipment have controls			
7.15	The controls are designed and prepared compatible with the characteristics of the body part with which they are operated			
7.16	The functions of the controls are easily identifiable			
7.17	The controls are designed to prevent accidental operations			
VIII. HAND TOOLS		True	False	Non-applicable
8.1	The right tools are selected according to the task in which they are going to be used			
8.2	The conditions of the tools are adequate, so they do not represent danger for the user			
8.3	Tools are subject to review and periodic control, as part of their maintenance program.			
8.4	Tools are stored in places especially designed to safely keep them			
8.5	Means or special safety instruments are employed to safely transport the tools			
8.6	Adequate procedures are used for the transportation and use of the tools			
IX. MACHINERY		True	False	Non-applicable
9.1	The methods of prevention and protection are considered when machinery is designed and installed			
9.2	Sharp objects and energy conductive elements are duly protected with guards and protection devices designed and constructed according to national standards			
9.3	Machines and equipment are anchored to the floors and facilities in such a way that vibrations are alleviated			
9.4	There is a program for preventive maintenance of the machines			
9.5	Systems of signaling are available in those machines that involve dangers			
X. STORAGE, MANIPULATION, AND TRANSPORTATION OF MATERIALS		True	False	Non-applicable
10.1	The storage place of the materials and tools is firm as are the foundations			
10.2	Corridors are free from objects			
10.3	Exits are free from obstacles or stacked materials			
10.4	Free space is left at the floor level in order to promote ventilation, cleaning and control of rodents			
10.5	There are specific places for storage of materials			
10.6	All the materials utilized are documented			
10.7	The chemical substances are classified according to their degree of danger			
10.8	All the containers with chemical substances are clearly identified and labeled			
10.9	Labels provide all the information related to the material's use, risks, relevant first aid, etc			
10.10	When transfers of products are made, the new containers are labeled			
10.11	Containers and packages are adequate for loading and unloading, manipulation, transportation, and storage			
10.12	Storage sites for chemical substances are adequate			
10.13	Hazardous chemical substances are stored in adequate places			
10.14	Storage places are well ventilated and have systems of fire detection and control			
10.15	Sites have contention systems in cases of spills			
10.16	Sites are provided with signaling systems to warn about hazards and prohibitions			
10.17	Safety procedures and instructions for the preparation and mixture of the chemical substances are followed			
10.18	The protective clothing and the equipment are adequate for using and manipulating chemical substances			
10.19	The standards relative to hazardous substance transportation are complied with			
10.20	Personnel is properly trained for the manipulation and transportation of hazardous substances			
10.21	All the necessary precautions for the manipulation and transportation of the materials are taken			

XI. CHEMICAL RISKS		True	False	Non-applicable
11.1	Hazardous chemical substances are not handled or used			
11.2	The risks related to such substances have been identified			
11.3	The concentration levels of such substances in the environment are periodically evaluated			
11.4	Technical procedures are applied to control polluting agents in the source, in the environment and in the receptor			
11.5	Work environment is completely free from health hazards to workers through inhalation, skin contact or intake of the chemical substances			
11.6	Risks of the chemical substances are reported to the workers			
11.7	Equipment and personal protective clothing are provided to workers whenever this is required			
11.8	Equipment and personal protective clothing are adequate			
XII. NOISE AND VIBRATION		True	False	Non-applicable
12.1	Machines and tools that generate noise and vibrations are not utilized			
12.2	Causes of noise and vibration are identified			
12.3	Noise levels to which the workers are exposed are measured periodically			
12.4	Technical procedures of noise control in the source, in the environment, and in the receptor are applied			
12.5	Adequate auditory protection equipment is provided			
12.6	Cases of irritability, headache, insomnia, etc. attributed to the facility's level of noise and vibration occur			
12.7	Techniques for vibration control are utilized on floors and work platforms			
12.8	Special accessories for controlling exposure to tools vibration are employed			
XIII. THERMAL ENVIRONMENTS		True	False	Non-applicable
13.1	There are no external radiant sources of heat			
13.2	There are no internal radiant and convective sources of heat			
13.3	Means of heat control in the source (localized extraction, isolation, etc) are available			
13.4	There are general ventilation systems for heat convective sources control			
13.5	Exposure to thermal environments is periodically evaluated			
13.6	Equipment and clothing for protection against the heat are utilized			
13.7	Protective clothing against the cold are utilized			
13.8	The times of exposure and rest in the thermal environments are regulated			
13.9	Methods and physical workload are studied			
XIV. BIOLOGICAL RISKS		True	False	Non-applicable
14.1	No work with human beings, animals and vegetables that pose a biohazard for the workers is performed in this health care facility			
14.2	Products that can create biological contamination are not handled			
14.3	Work is not conducted in places with overcrowding or organic dirt or among people or sites with precarious hygiene			
14.4	The workplace is free from the presence of biological and mechanical vectors			
14.5	There is control of the biohazards			
14.6	Adequate personal protective equipment is available			
XV. ILLUMINATION AND VENTILATION		True	False	Non-applicable
15.1	The activities carried out do not require any artificial lighting			
15.2	Great visual acuity is not required to develop the work			
15.3	There is sufficient light to perform the tasks			
15.4	Illumination levels are measured			

15.5	The work environment is free from any type of reflection by shiny surfaces			
15.6	The light tone is comfortable for vision			
15.7	A program for lighting maintenance is set			
15.8	The color and contrast system is adequate			
15.9	Adequate ventilation is provided			
15.10	There are no sources of heat or elements that influence the environment, temperature and moisture			
XVI. RADIATION		True	False	Non-applicable
16.1	Workers are not exposed to ionizing radiation, infrared radiation, ultraviolet, microwaves, radiofrequencies, etc			
16.2	Adequate radiation control methods are used			
16.3	Workers utilize equipment and personal protective clothing			
16.4	Workers have knowledge of the risks of the exposure to radiation			
XVII. WASTE		True	False	Non-applicable
17.1	Solid and liquid waste are not generated by the work processes (please investigate chemical, radioactive, biologic wastes, etc)			
17.2	Generated waste is controlled without affecting the environment (water, soil and air)			
17.3	Workers utilize protective equipment when handling the waste			
17.4	Workers understand the risks of health care facility wastes			
17.5	Disposal containers for used needles and sharp objects made with hard material and properly utilized, are provided in sufficient number			
XVIII. ERGONOMICS		True	False	Non-applicable
18.1	Products, pieces, and tools are kept at a distance that permits being easily reached			
18.2	Load handling is adapted to the worker's height			
18.3	Tables and inclined shelves that permit performing tasks with less effort are provided			
18.4	Manual tasks are performed in accordance with the workers' height (elbow height)			
18.5	Studies aiming to minimize the required effort for the tasks performed have been conducted			
18.6	Studies have been conducted to seek the correct position for each task			
18.7	Studies have been conducted to reduce repetitive			
18.8	Studies have been conducted to help minimize fatigue			
18.9	Studies have been conducted to minimize direct pressure (palm of the hand, thighs and forearms)			
18.10	Adjustable chairs and work tables in accordance with the size of the worker are available			
18.11	Tasks that require the worker to maintain the same position are not carried out			
18.12	Enough room for each object and easy access to everything needed is available			
18.13	A comfortable environment in the facility (clean, well-lit and ventilated) is provided			
18.14	Deficiencies of light and shades that conceal details of their work do not occur			
18.15	Poor contrasts between the work station and the background does not occur			
XIX. PERSONAL PROTECTION		True	False	Non-applicable
19.1	Protective equipment for the head is utilized			
19.2	The helmets utilized are resistant to impact			
19.3	The helmets utilized are fire resistant			
19.4	The helmets utilized are light-weight			
19.5	The helmets utilized when working with high-voltage equipment have electrical isolation			
19.6	The helmets utilized are resistant to aggressive chemical spills			
19.7	The helmets are comfortable			
19.8	The helmets utilized do not interfere with work activities			
19.9	Visitors utilize the protective equipment for the head wherever it is needed			
19.10	Noise protection equipment is utilized in those areas where intensity higher than the 85dB(A) is reached (plants and offices)			

19.11	Visitors utilize the auditory protection equipment wherever necessary			
19.12	Noise protection equipment is comfortable			
19.13	The equipment does not induce adverse effects on the skin or on the ear			
19.14	The protective equipment adequately attenuates the noise			
19.15	The useful time life of noise protection equipment is established			
19.16	The status of noise protection equipment is periodically reviewed			
19.17	Protective equipment for the eyes against the projection of particles is utilized			
19.18	Protection equipment for the eyes is utilized in the operations where toxic substances are handled			
19.19	The protective glasses are impact resistant			
19.20	Safety goggles have plastic lenses to prevent eye scratches due to particles frequently released in some operations			
19.21	Glasses with filters are utilized in welding operations to protect against brightness and radiant energy			
19.22	The welding area, personnel visiting the plants are instructed not to observe the spark or the brightness of the welding operations			
19.23	Face protective equipment is utilized when required			
19.24	The status of the protective masks is reviewed periodically			
19.25	The person in charge of carrying out the revisions of the equipment is defined			
19.26	The useful time life of the face protection equipment is defined.			
19.27	Masks are utilized in operations with sources of odors			
19.28	Special masks are utilized in paint operations			
19.29	The useful time life of the masks' carbon is defined			
19.30	Replacement of carbon is adequate			
19.31	Aprons are utilized in the operations that require it			
19.32	The aprons are adequate to the operations in which are utilized			
19.33	The aprons are comfortable			
19.34	Gloves are utilized in the activities that require them			
19.35	Gloves types are adequate to the activities carried out			
19.36	The size of the glove fits the worker who utilizes it			
XX. GAS CYLINDERS		True	False	Non-applicable
20.1	The cylinders are kept separated from the area where welding and cut operations are carried out			
20.2	Are not placed indoors			
20.3	Placing cylinders in locations where they can be exposed to mobile equipment, substances, etc. is avoided			
20.4	Are safely and well placed in order to avoid displacement			
20.5	Are visibly labeled			
20.6	The equipment is utilized with hands free from grease or oils			
20.7	When carrying out welding jobs, an extinguisher is kept close in case of fire			
20.8	Are transported by wheelbarrows and are not dragged			
20.9	When the cylinders are moved, the protective cover of the valve is in place and closed			
20.10	The cylinders are raised appropriately (not through the valves and covers)			
20.11	Valves are checked and are in good condition			
20.12	The person in charge of reviewing the cylinders is defined			
XXI. ELECTRIC WELDING		True	False	Non-applicable
21.1	The floor is clean and free from oil, grease or paint and from any other combustible material			
21.2	It is ensured that the work area is not wet or moist			
21.3	The work area is inspected at the end of the day			
21.4	The energy feed is turned off before any maintenance is carried out on the machine			
21.5	The use of gas or inflammable liquid plumbing to ground the equipment is avoided			
21.6	To ground the equipment, electrical wiring is used			

21.7	Power that surpasses the capacity of the wire is not used			
21.8	There are no welding tubes with compressed gas			

RESULTS

- In general, anything that corresponds to the column “**false**” (incorrect phrases) **should be considered a potential hazard. Attention should be given to determine whether it represents a significant risk.**
- In general, the statements that fall in the “**true**” or “**non-applicable**” columns represent the **absence of the hazard or an adequately controlled risk.**

TOOL 12

Checklist of Health Hazards for Workers in Patient Care Area

Reproduced with the authorization of Prof. Sarah Felknor, University of Texas School of Public Health, EUA

Please mark YES or NO, or write your answer in the space provided. Any additional question you might have should be written in the space provided at the end of the Checklist.

BACK AND OTHER MUSCULOSKELETAL INJURIES

- | | | | |
|---|------------|-----------|--|
| 1. How many direct care workers have suffered back or other musculoskeletal injuries over the last year period? | _____ | | |
| 2. Do the injured workers receive simple tasks or half time work? | Yes | No | |
| 3. Do the workers utilize mechanical lifting or assistance of colleagues whenever they have to raise patients? | Yes | No | |
| 4. Are the mechanical lifting equipment in good condition? | Yes | No | |
| 5. Are slings available to help the lifting process? | Yes | No | |

STRESS (Tension)

- | | | | |
|---|------------|-----------|-------|
| 1. Do the patient care personnel work in shifts? | Yes | No | |
| How often does the shift change? | | | _____ |
| How long are the shifts? | | | _____ |
| 2. Are there enough personnel per unit? | Yes | No | |
| 3. Does the unit have serious problems of high turnover of personnel? | Yes | No | |
| How many workers resigned or were transferred over the last year? | | | _____ |
| 4. Are the workers pressured to work overtime? | Yes | No | |
| If so, how often do they work overtime? | | | _____ |
| 5. How many workers have left their work in this Unit due to stress or to mental health problems over the last year period? | | | _____ |
| Has any worker initiated a compensation claim due to stress? | Yes | No | |
| 6. Are there other sources of stress such as harassment or lack of authority to carry out the job? | Yes | No | |

Describe : _____

CHEMICAL RISKS

- | | | |
|---|------------|-----------|
| 1. Did the patient care personnel receive training on chemical risks? | Yes | No |
| Are the material safety data sheets (MSDT) available? | Yes | No |

A) Chemotherapeutic Agents

- | | | |
|---|------------|-----------|
| 1. Are the chemotherapeutic agents prepared in a biological safety hood? | Yes | No |
| 2. Are the chemotherapeutic drugs administered to the patients only by trained workers? | Yes | No |
| 3. Do the workers use the appropriate gloves when handling chemotherapeutic drugs? (gloves of different materials are necessary for each drug) | Yes | No |
| Are the gloves and gowns disposed as toxic waste? | Yes | No |
| 4. Are there puncture proof boxes for needle disposal appropriately placed near all areas where cytotoxic drugs are prepared and administered? | Yes | No |
| 5. Was information on chemotherapeutic drug toxicity for the reproductive system provided to the workers planning to have children and were they offered alternative work positions without loss of wage and seniority? | Yes | No |

B) Formaldehyde and Glutaraldehyde

Please name the workers who could be more exposed to Formaldehyde and Glutaraldehyde

- | | | |
|---|------------|-----------|
| 2. Has the exposure to any of these agents induced irritation in the eyes, nose, throat, or other symptoms? | Yes | No |
| 3. Has the employer measured formaldehyde levels in the air that the employees breath? | Yes | No |
| 4. Has the employer considered replacing formaldehyde with other less hazardous substances? | Yes | No |
| 5. Is Glutaraldehyde utilized only in areas with good ventilation? | Yes | No |
| Are Glutaraldehyde containers covered at all times? | Yes | No |

C. Anesthetic Gases

Please name the workers who could be exposed to anesthetic gases

- | | | |
|--|------------|-----------|
| 2. Is the ventilation of the areas where anesthetic gases are utilized adequate? | Yes | No |
| 3. Was a gas expulsion system installed to recover anesthetic gases? | Yes | No |
| 4. Is the level of anesthetic gas regularly monitored? | Yes | No |

- | | | |
|--|------------|-----------|
| 5. Are the gas expulsion system and the anesthesia system inspected regularly in order to prevent leaks? | Yes | No |
| 6. Are there warning signs placed in sites where anesthetic gases are used? | Yes | No |
| 7. Do the employees who work with anesthetic gases receive free examinations? | Yes | No |

D. Ribavirin Aerosols

Please name the workers who could be exposed to Rivabirin Aerosols?

- | | | |
|--|------------|-----------|
| 2. Is ribavirin administered through an oxygen camera? | Yes | No |
| 3. Which engineering controls (for example, use of intubation) have been set up to reduce exposure levels of staff members? | Yes | No |
| 4. Did the workers planning to have children receive information on chemotherapy drugs toxicity for the reproductive system and were they offered alternative work positions without loss of wage and seniority? | Yes | No |

RADIATION RISKS

A. Ionized Radiation

Please name the workers who could be exposed to ionized radiation?

- | | | |
|--|------------|-----------|
| 2. Were prohibited areas established surrounding the radiation sources whenever necessary? | Yes | No |
| 3. Are warning signs placed close to radiation sources wherever necessary? | Yes | No |
| 4. Is the radiation therapy equipment regularly inspected? | Yes | No |
| 5. Are protective barriers such as cloths and screens (shield, protective wall) used? | Yes | No |
| 6. Do the workers use radiation detector plates? | Yes | No |
| 7. Do the workers identify all patients with implants, inks, or radioactive drugs? | Yes | No |
| 8. What precautions are taken when portable X-ray equipment is utilized in the nursing units? | | |
| <hr/> | | |
| 9. Is radioactive material adequately stored and eliminated? | Yes | No |
| 10. Do the workers who have been exposed to radiation receive medical examinations and copies of their exposure records? | Yes | No |
| 11. Is training provided to the workers exposed to ionizing radiation? | Yes | No |

B. Laser

Please name the workers who could be exposed to lasers

- | | | |
|---|------------|-----------|
| 2. Are protective glasses provided to these workers? | Yes | No |
| 3. Is care taken to avoid the rays from falling upon reflective surfaces? | Yes | No |

INFECTION CONTROL**A. HIV and Hepatitis B Virus**

Please name the workers who could be exposed to HIV or Hepatitis B

Has the patient care personnel received training on prevention of infectious diseases transmitted through blood, especially HIV/AIDS and Hepatitis B?	Yes	No
---	------------	-----------

Did the healthcare facility implement a written infection control program?	Yes	No
--	------------	-----------

Does the healthcare facility provide vaccine against Hepatitis B without any cost to the workers?	Yes	No
---	------------	-----------

Are there puncture proof boxes for needles disposal appropriately placed near all areas where medical procedures are performed?	Yes	No
---	------------	-----------

How often are the patient care personnel wounded with needles or other sharp objects?

Is there a clear procedure concerning workers who have suffered needle injuries? (orientation, medical examinations, vaccination etc?)	Yes	No
--	------------	-----------

Are the workers exposed to blood and other corporal fluids provided with gowns, gloves, eye protection and other equipment?	Yes	No
---	------------	-----------

Are the protective clothing and equipment available in several sizes?	Yes	No
---	------------	-----------

Do the workers avoid replacing needles covers?	Yes	No
--	------------	-----------

If the needles are covered again, what is the reason?		
---	--	--

Do the workers use mouth protectors or resuscitation bags when performing Cardio Pulmonary Resuscitation (CPR)?	Yes	No
---	------------	-----------

Are all of the CDC's Universal Precautions followed?	Yes	No
--	------------	-----------

B. Cytomegalovirus

Please identify all workers who could be exposed to Cytomegalovirus

Are hygiene practices promoted and are the workers provided with Personal Protection Equipment to protect against exposure to material potentially contaminated with Cytomegalovirus? **Yes** **No**

C. Tuberculosis

Please name the workers who could be exposed to tuberculosis?

Do the workers receive free annual tuberculosis test? **Yes** **No**

Do the patients regularly receive the tuberculosis test? **Yes** **No**

Are the workers provided with masks to be used when patients who might have tuberculosis are coughing? **Yes** **No**

D. Herpes (zoster, simplex, herpetic whitlow)

Please name the workers who could be exposed to Herpes?

Are these workers provided with gloves and oriented to avoid direct contact with herpetic inflammations and the secretions of infected patients? **Yes** **No**

E. Scabies

Please identify the workers who could be exposed to Scabies

Are these workers provided with gloves and training to follow hygienic practices when working with patients who might have scabies? **Yes** **No**

OTHER RISKS

Are procedures to control violent or aggressive patients in place? **Yes** **No**

Are there other safety risks for patient care personnel such as electric, fire, risks of stumbles and falls, (PLEASE SEE TOOL 11), natural catastrophes (flood, earthquake, etc), etc? **Yes** **No**

Describe

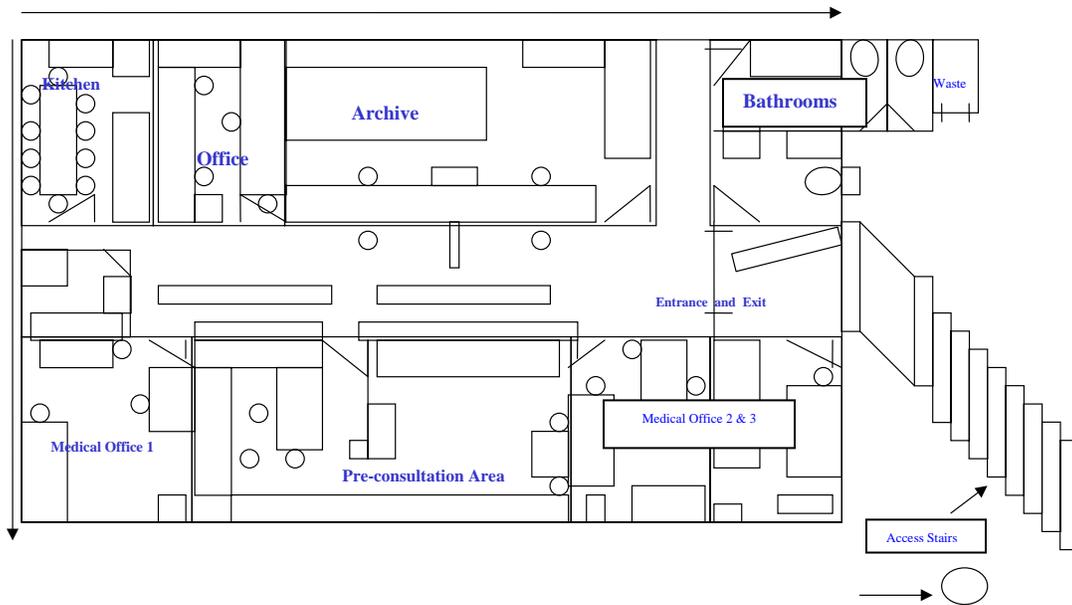
Additional Questions

TOOL 13 Hazard Map

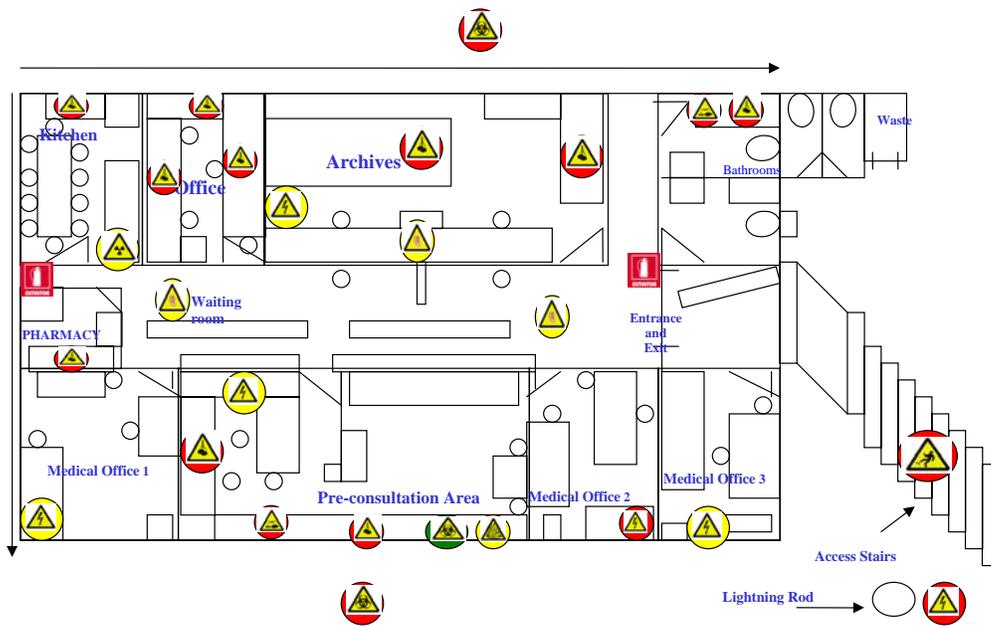
EXAMPLE

Workplace Outline

11.90 M



Hazard Map



II – HAZARD SIGNS

a) HAZARD COLORS

COLOR	MEANING IN THE MAP
 RED	HAZARD PRESENT
 YELLOW	HAZARD CONTROL UNDER WAY
 GREEN	HAZARD UNDER CONTROL

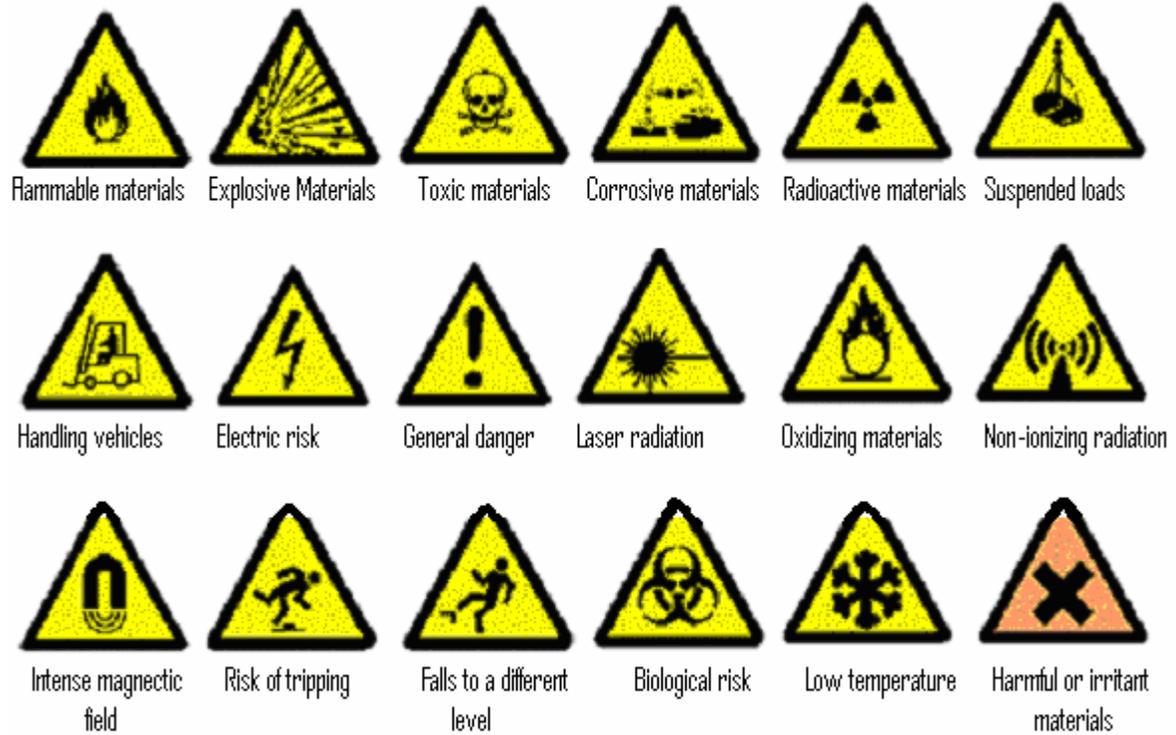
b) SHAPES

SHAPE	UNIVERSAL MEANING	MEANING IN THE MAP
	Information	
	Precaution	⇐ Risk
	Prohibition	
	Obligation	

c) PICTOGRAMS

Note: These are only some of the available pictograms.

C1) Warnings



c2) Information



c3) Obligatory Requirements



c4) Prohibition

No entrance for
unauthorized
persons



Non-drinking water



No handling
vehicles



Do not touch

Signal Composition:

Risk	Examples	Status	Symbol
Chemical	Appropriate site to store chemical products is not provided. Containers are not labeled. Personnel without training. Inadequate disposal of chemical waste.	Active	
	Program for labeling and managing chemical waste is being implemented.	Control being implemented	
	Cleaning products are adequately stored. Containers are labeled. Personnel knows characteristics of the substances Adequate disposal of chemical waste	Controlled	

TOOL 14

Hazard Assessment Worksheet

From HSAA *Occupational Health & Safety Manual*. Health Sciences Association of Alberta. Canada.

A - Severity

What is the worst injury that could result from this hazard?

6 FATALITIES, PARA/QUADRIPLEGIA, BLINDNESS

5 PERMANENT DISABILITIES, AMPUTATION, MUTILATION

4 FRACTURES, DISLOCATION, LACERATIONS REQUIRING SUTURES

3 MEDICAL TREATMENT, INJURY, SEVERE SPRAINS/STRAINS, SECOND AND THIRD DEGREE BURNS

2 REPEATED FIRST AID TREATMENTS, DEEP ABRASIONS, FIRST DEGREE BURNS

1 MINOR FIRST AID, SCRATCHES, BRUISING, PARTICLE IN THE EYE, SLIGHT ABRASIONS, SMALL FIRST DEGREE BURN

0 NO INJURY

B - Frequency

How often are people exposed to the hazard under assessment?

5 SEVERAL EMPLOYEES, SEVERAL TIMES A SHIFT

4 SEVERAL EMPLOYEES, ONCE PER SHIFT

3 TWO OR THREE TIMES A WEEK

2 ONCE PER MONTH

1 ONCE OR TWICE A YEAR

0 NEVER

C - Probability

How likely is it that these circumstances can and will lead to an accident?

5 CERTAINTY

4 SIGNIFICANT CHANCE

3 POSSIBLE

2 POSSIBLE BUT UNLIKELY

1 EXTREMELY UNLIKELY

Instructions:

Add up the score for each in terms of Severity, Frequency and Probability:

11-16 A serious hazard for which corrective action must be taken without delay.

6-10 A moderate hazard requiring remedial action as soon as possible. Warnings, personal protective equipment and notices may serve as acceptable interim measures.

1-5 A minor hazard with an acceptable level of risk and for which there is little justification for control.

Example: - The hazard is a cable across the floor in a laboratory.

- Severity: 3 points as sprains or fractures are a likely worst injury
- Frequency: 5 points as there are many people accessing the area
- Probability: 2 points as it is possible, but unlikely

A moderate to serious hazard and remedial action should be straight forward.

TOOL 15

Recommended Task-specific Personal Protective Equipment

Page 1 of 2 Courtesy of Dr. Sarah Felknor, School of Public Health, University of Texas

RECOMMENDED PERSONAL PROTECTION EQUIPMENT (PPE)

TASK	GLOVES			EYES PROTECTION			PROTECTIVE CLOTHES			RESPIRATORY PROTECTION
	Latex/ Non Latex ¹	Nitrilo	Butile (extra strength)	Criogenic Gloves	Protective Glasses/ Goggles	Masks	Goggles and Protective Masks	Gown	Anti humidity Gown	
Preparing Chemotherapeutic drugs	X				X	X	X			
Handling criogenic material and liquid nitrogen				X					X	
Working with Laser					X					
Collecting blood from patients	X				X			X		
Dealing with Tb patients or suspicious										X
Working with grinding machine					X	X	X			
Dealing with spillage		X			X					X

¹ Ensure that gloves without latex are available for the workers who have allergy to the latex

² Provide aprons resistant to chemicals for the work with caustic solutions and in order to spill formalin

TASK	GLOVES				EYES PROTECTION			PROTECTIVE CLOTHES			RESPIRATORY PROTECTION
	Latex/ Non Latex ³	Nitrilo	Butilo (extra strong lt)	Criogenic Gloves	Protective Glasses/ Goggles	Masks	Goggles and Protective Masks	Gown	Anti humidity Gown	Anti chemicals Gowns ⁴ / Aprons	Respirator
Working with liquid material in open vessels	X				X	X		X			
Disinfecting with Glutaraldehide		X			X				X		
Filling / Emptying sample vessels with formalin		X			X		X			X	
Manipulating Formalin Samples		X			X		X	X			
Diluting concentrated acids			X		X			X			
Washing medical instruments	X				X	X			X		
Administramdo drogas de Quimioterapia	X										

³ Ensure that gloves without latex are available for the workers who have allergy to the latex

⁴ Provide aprons resistant to chemicals for the work with caustic solutions and in order to spill formalin

TOOL 16**Occupational Medical Record**

Reproduced by permission of Prof. Roberto Castro Córdoba, University of Costa Rica

EMPLOYEE IDENTIFICATION DATA

SURNAME _____ FIRST NAME _____
 SEX _____ DATE OF BIRTH _____ AGE _____
 IDENTIFICATION NUMBER _____ MARITAL STATUS _____ OCCUPATION _____
 TYPE OF CONTRACT _____ ACADEMIC LEVEL _____
 OFFICE TELEPHONE _____ HOME TELEPHONE _____ E-MAIL _____
 P.O. BOX _____ OCCUPATION OF SPOUSE _____
 OTHER JOBS (YES) _____ (NO) _____ SPECIFY _____

EMPLOYER/COMPANY IDENTIFICATION DATA

NAME OR IDENTIFICATION _____
 COMPANY CODE _____ NUMBER OF EMPLOYEES _____
 PRINCIPAL LINE OF ACTIVITY _____
 CORRESPONDENCE ADDRESS _____
 PHYSICAL ADDRESS _____

OCCUPATIONAL HISTORY OF EMPLOYEE

CHRONOLOGICAL JOB HISTORY _____
 EMPLOYERS AND LINES OF WORK _____

 RISK FACTORS AND PERIODS OF EXPOSURE _____

 UNEMPLOYMENT PERIODS _____

CLINICAL AND OCCUPATIONAL HISTORY: SHEET 2

CURRENT EMPLOYMENT

DATE OF EMPLOYMENT: _____

CURRENT OCCUPATION _____

WORK HOURS: FROM _____ TO _____

BREAKS _____

WHERE LUNCH IS TAKEN _____ BRINGS OWN FOOD YES _____ NO _____

DETAILED TASK DESCRIPTIONS _____

RISK FACTORS AND EXPOSURE TIMES _____

RISK ASSESSMENT RESULTS _____

AVAILABLE PREVENTIVE MEASURES TAKEN _____

AVAILABLE PERSONAL PROTECTIVE EQUIPMENT _____

OTHER OCCUPATIONAL OR RECREATIONAL ACTIVITIES WITH SAME OR SIMILAR RISK FACTORS _____

SPECIFIC PROTOCOL _____

PREVIOUS OCCUPATIONAL ACCIDENTS: YES _____ NO _____

TREATMENT RECEIVED _____

REHABILITATION _____

COMPENSATION RECEIVED: YES _____ NO _____ DISABILITY PERCENTAGE _____

WORK-RELATED DISEASES YES _____ NO _____

WEEKDAY OF FIRST SYMPTOMS _____

OTHER EMPLOYEES WITH WORK-RELATED DISEASES: YES _____ NO _____

SPECIFY _____

CASE HISTORY

CLINICAL HISTORY OF FAMILY _____

PERSONAL CLINICAL HISTORY _____

(WOMEN: MENARCHE, MENOPAUSE, MENSTRUATION) _____

VACCINATIONS _____

SENSITIZATIONS _____

LIFESTYLES _____

TOBACCO SMOKING _____ AMOUNT _____ YEARS _____

DATE YOU STOPPED SMOKING _____

ALCOHOL _____ WINE _____ BEER _____ DISTILLED _____ OTHER _____

DIET _____

PHYSICAL ACTIVITY _____

MEDICINES _____

CLINICAL AND OCCUPATIONAL HISTORY: SHEET 3

EXAMINATION		RESPIRATION RATE	HEART RATE.....
BODY BUILD		HEIGHT	BLOOD PRESSURE /
WEIGHT		BMI	
EVALUATION OF HEAD AND NECK			
Eyes	<ul style="list-style-type: none"> • Eyelids • Conjunctiva • Cornea • Mucosa 	Ears	<ul style="list-style-type: none"> • Auricle • External ducts • Drums
Nose	<ul style="list-style-type: none"> • Permeability 	Buccal-pharyngeal cavity	<ul style="list-style-type: none"> • Teeth • Lips • Buccal mucosa • Tongue • Gums • Pharynx • Voice
EVALUATION OF THORAX			
<ul style="list-style-type: none"> • CONFIGURATION • PULMONARY EXAMINATION: AUSCULTATION 		<ul style="list-style-type: none"> • RESPIRATION RATE • HEART RATE 	
ABDOMINAL EVALUATION			
<ul style="list-style-type: none"> • CONFIGURATION • ORGAN ENLARGEMENTS • MASSES • PAINFUL SITES • HERNIAS • OTHER 			
EVALUATION OF LOCOMOTOR SYSTEM			
UPPER EXTREM.:	UPPER ARM		
	LOWER ARM		
	HAND		
LOWER EXTREM.:	THIGH		
	LEG		
	FOOT		
SPINE			
DERMATOLOGICAL EVALUATION			
<ul style="list-style-type: none"> • ECZEMAS • MYCOSES • URTICARIAS • OTHERS 			

CLINICAL AND OCCUPATIONAL HISTORY: SHEET 4

EVALUATION OF THE NERVOUS SYSTEM

- ABNORMAL MOTOR FINDINGS
- ABNORMAL SENSORY FINDINGS
- ABNORMAL GAIT
- EQUILIBRIUM DISTURBANCE
- LATERAL ASYMMETRY
- SPATIOTEMPORAL ORIENTATION

EVALUATION OF THE NERVOUS SYSTEM**BLOOD ANALYSIS**

- COMPLETE HEMATOGRAM
- LEUKOCYTE COUNT AND DIFFERENTIAL
- PLATELETS
- SEDIMENTATION RATE
- BIOCHEMICAL PROFILE

URINALYSIS

- DENSITY
- pH
- ABNORMAL FINDINGS
- SEDIMENT

CLINICAL AND OCCUPATIONAL HISTORY: SHEET 5

VISION							
	RIGHT	LEFT	BINOCULAR	CORRECTION	COLORS		
DISTANT							
NEAR							
Yes Normal No							
LUNG FUNCTION TEST							
FVC			RESTRICTIVE				
FEV1			OBSTRUCTIVE				
TIFFENAU			MIXED				
			NORMAL				
GRADE OF INSUFFICIENCY							
AUDIOMETRY							
	P500	P1000	P2000	P3000	P4000	P6000	P8000
RIGHT							
LEFT							
Yes Normal No							
RADIOGRAPHY							
TYPE AND POSITION DIAGNOSIS COMMENTS							
ECG							
RESULT							
ECHOCARDIOGRAM RESULT							
HOLTER IA			HOLTER ECG				
EXERCISE ECG							
ABDOMINAL-PELVIC ULTRASOUND RESULT							
GENERAL OBSERVATIONS							
TYPE OF EVALUATION PERIODICAL WORK CAPACITY HAZARD RELATION							
DATE	NAME OF PHYSICIAN				SIGNATURE		

TOOL 17

Infection Control Practices in the Application of Injections

WHO, Department of Blood Safety and Clinical Technology

APPENDIX A: BEST INFECTION CONTROL PRACTICES FOR SKIN-PIERCING INTRADERMAL, SUBCUTANEOUS AND INTRAMUSCULAR NEEDLE INJECTIONS

*A safe injection does not harm the recipient,
does not expose the provider to any avoidable risk,
and does not result in any waste that is dangerous for other people*

Eliminating unnecessary injections is the highest priority to prevent injection-associated infections. When injections are medically indicated, they should be administered safely. These best practices are measures that have been determined through scientific evidence or expert consensus to protect patients, providers and communities most effectively.

USE STERILE INJECTION EQUIPMENT

A-1) Use a sterile syringe and needle for each injection, and to reconstitute each unit of medication.



A-2) Ideally, use a new, single use disposable syringe and needle.



A-3) Inspect packaging for breaches in barrier integrity. Discard a needle or syringe if the package has been punctured, torn or damaged by exposure to moisture.



A-4) If single use syringes and needles are unavailable, use equipment designed for steam sterilization. Sterilize equipment according to WHO recommendations and document the quality of the sterilization process using Time, Steam, Temperature (TST) spot indicators.



PREVENT CONTAMINATION OF INJECTION EQUIPMENT AND MEDICATION

B-1) Prepare each injection in a clean designated area, where blood or body fluid contamination is unlikely.



B-2) Use single-dose vials rather than multi-dose vials.



B-3) If multi-dose vials must be used, always pierce the septum with a sterile needle. Avoid leaving a needle in place in the stopper of the vial.



B-4) Select pop-open ampoules rather than ampoules that require use of a metal file to open.



B-5) If using an ampoule that requires a metal file to open, protect fingers with a clean barrier (e.g., small gauze pad) when opening the ampoule.



B-6) Inspect for and discard medications with visible contamination or breaches of integrity (e.g., cracks, leaks).



B-7) Follow product-specific recommendations for use, storage and handling.



B-8) Discard a needle that has touched any non-sterile surface



PREVENT NEEDLE-STICK INJURIES TO THE PROVIDER

C-1) Anticipate and take measures to prevent sudden patient movement during and after injection.



C-2) Avoid recapping and other hand manipulations of needles. If recapping is necessary, use a single-handed scoop technique.



C-3) Collect used syringes and needles at the point of use in an enclosed sharps container that is puncture- and leak-proof and that is sealed before completely full.



PREVENT ACCESS TO USED NEEDLES

D-1) Seal sharps containers for transport to a secure area in preparation for disposal. After closing and sealing sharps containers, do not open, empty, re-use, or sell them.



D-2) Manage sharps waste in an efficient, safe and environment-friendly way to protect people from voluntary and accidental exposure to used injection equipment.



OTHER PRACTICE ISSUES

E-1) Engineered technology. Whenever possible, use devices designed to prevent needle-stick injury that have been shown to be effective for patients and providers. Auto-disable (AD) syringes are increasingly available to prevent re-use of injection equipment in selected settings, including immunization services.

E-2) Provider's hand hygiene and skin integrity. Perform hand hygiene (i.e., wash or disinfect hands) before preparing injection material and



giving injections. The need for hand hygiene between each injection will vary based on the setting and whether there was contact with soil, blood or body fluids. Avoid giving injections if skin integrity is compromised by local infection or other skin condition (e.g., weeping dermatitis). Cover any small cuts.



E-3) Gloves. Gloves are not needed for injections. Single use gloves may be indicated if excessive bleeding is anticipated.

E-4) Swabbing of vial tops or ampoules. Swabbing of clean vial tops or ampoules with an antiseptic or disinfectant is unnecessary. If swabbing with an antiseptic is selected for use, use a clean, single use swab and maintain product specific recommended contact time. Do not use cotton balls stored wet in a multi-use container.



E-5) Skin preparation before injection. Wash skin that is visibly soiled or dirty. Swabbing of the clean skin before giving an injection is unnecessary. If swabbing with an antiseptic is selected for use, use a clean, single use swab and maintain product specific recommended contact time. Do not use cotton balls stored wet in a multi-use container.



TOOL 18

EPINet Notification Form for Cuts and Injuries from Needles

Reproduced with permission of Prof. Janine Jagger – University of Virginia, USA

Needlestick & Sharp Object Injury Report

Last Name: _____ First Name: _____

Injury ID: (for office use only) S _____ Facility ID: (for office use only) _____ Completed By: _____

1) Date of Injury: 2) Time of Injury:

3) Department where Incident Occurred: _____

4) Home Department: _____

5) What is the Job Category of the Injured Worker? (check one box only)

- | | |
|--|--|
| <input type="checkbox"/> 1 Doctor (attending/staff); specify specialty _____ | <input type="checkbox"/> 10 Clinical Laboratory Worker |
| <input type="checkbox"/> 2 Doctor (intern/resident/fellow) specify specialty _____ | <input type="checkbox"/> 11 Technologist (non-lab) |
| <input type="checkbox"/> 3 Medical Student | <input type="checkbox"/> 12 Dentist |
| <input type="checkbox"/> 4 Nurse: specify <input type="checkbox"/> 1 RN | <input type="checkbox"/> 13 Dental Hygienist |
| <input type="checkbox"/> 5 Nursing Student <input type="checkbox"/> 2 LPN | <input type="checkbox"/> 14 Housekeeper |
| <input type="checkbox"/> 18 CNA/HHA <input type="checkbox"/> 3 NP | <input type="checkbox"/> 19 Laundry Worker |
| <input type="checkbox"/> 6 Respiratory Therapist <input type="checkbox"/> 4 CRNA | <input type="checkbox"/> 20 Security |
| <input type="checkbox"/> 7 Surgery Attendant <input type="checkbox"/> 5 Midwife | <input type="checkbox"/> 16 Paramedic |
| <input type="checkbox"/> 8 Other Attendant | <input type="checkbox"/> 17 Other Student |
| <input type="checkbox"/> 9 Phlebotomist/Venipuncture/IV Team | <input type="checkbox"/> 15 Other, describe: _____ |

6) Where Did the Injury Occur? (check one box only)

- | | |
|---|--|
| <input type="checkbox"/> 1 Patient Room | <input type="checkbox"/> 9 Dialysis Facility (hemodialysis and peritoneal dialysis) |
| <input type="checkbox"/> 2 Outside Patient Room (hallway, nurses station, etc.) | <input type="checkbox"/> 10 Procedure Room (x-ray, EKG, etc) |
| <input type="checkbox"/> 3 Emergency Department | <input type="checkbox"/> 11 Clinical Laboratories |
| <input type="checkbox"/> 4 Intensive/Critical Care unit: specify type: _____ | <input type="checkbox"/> 12 Autopsy/Pathology |
| <input type="checkbox"/> 5 Operating Room/Recovery | <input type="checkbox"/> 13 Service/Utility (laundry, central supply, loading dock, etc) |
| <input type="checkbox"/> 6 Outpatient Clinic/Office | <input type="checkbox"/> 16 Labor and Delivery Room |
| <input type="checkbox"/> 7 Blood Bank | <input type="checkbox"/> 17 Home-care |
| <input type="checkbox"/> 8 Venipuncture Center | <input type="checkbox"/> 14 Other, describe: _____ |

7) Was the Source Patient Identifiable? (check one box only)

- 1 Yes 2 No 3 Unknown 4 Not Applicable

8) Was the Injured Worker the Original User of the Sharp Item? (check one box only)

- 1 Yes 2 No 3 Unknown 4 Not Applicable

9) The Sharp Item was: (check one box only)

- | | | |
|--|--------------------------------|--------------------------------|
| <input type="checkbox"/> 1 Contaminated (known exposure to patient or contaminated equipment) | was there blood on the device? | <input type="checkbox"/> 1 Yes |
| <input type="checkbox"/> 2 Uncontaminated (no known exposure to patient or contaminated equipment) | | <input type="checkbox"/> 2 No |
| <input type="checkbox"/> 3 Unknown | | |

10) For What Purpose was the Sharp Item Originally Used? (check one box only)

- | | |
|--|---|
| <input type="checkbox"/> 1 Unknown/Not Applicable | <input type="checkbox"/> 16 To Place an Arterial /Central Line |
| <input type="checkbox"/> 2 Injection, Intra-muscular/Subcutaneous, or Other Injection through the Skin (syringe) | <input type="checkbox"/> 9 To Obtain a Body Fluid or Tissue Sample (urine/CSF/amniotic fluid/other fluid, biopsy) |
| <input type="checkbox"/> 3 Heparin or Saline Flush (syringe) | <input type="checkbox"/> 10 Finger stick/Heel Stick |
| <input type="checkbox"/> 4 Other Injection into (or aspiration from) IV injection site or IV Port (syringe) | <input type="checkbox"/> 11 Suturing |
| <input type="checkbox"/> 5 To Connect IV line (intermittent IV/piggyback/IV infusion/other IV line connection) | <input type="checkbox"/> 12 Cutting |
| <input type="checkbox"/> 6 To Start IV or Set up Heparin Lock (IV catheter or winged set-type needle) | <input type="checkbox"/> 17 Drilling |
| <input type="checkbox"/> 7 To Draw Venous Blood Sample | <input type="checkbox"/> 13 Electrocautery |
| <input type="checkbox"/> 8 To Draw Arterial Blood Sample | <input type="checkbox"/> 14 To Contain a Specimen or Pharmaceutical (glass item) |
| | <input type="checkbox"/> 15 Other; Describe _____ |
- if used to draw blood was it? Direct stick? Draw from a Line?

11) Did the Injury Occur? (check one box only)

- | | |
|--|--|
| <input type="checkbox"/> 1 Before Use of Item (item broke/slipped, assembling device, etc.) | <input type="checkbox"/> 16 Device Left on Floor, Table, Bed or Other Inappropriate Place |
| <input type="checkbox"/> 2 During Use of Item (item slipped, patient jarred item, etc) | <input type="checkbox"/> 8 Other After Use-Before Disposal (in transit to trash, cleaning, sorting, etc.) |
| <input type="checkbox"/> 15 Restraining patient | <input type="checkbox"/> 9 From Item Left On or Near Disposal Container |
| <input type="checkbox"/> 3 Between Steps of a Multi-step Procedure (between incremental injections, passing instruments, etc.) | <input type="checkbox"/> 10 While putting Item into Disposal Container |
| <input type="checkbox"/> 4 Disassembling Device or Equipment | <input type="checkbox"/> 11 After Disposal, Stuck by Item Protruding from Opening of Disposal Container |
| <input type="checkbox"/> 5 In Preparation for Reuse of Reusable Instrument (sorting, disinfecting, sterilizing, etc.) | <input type="checkbox"/> 12 Item Pierced Side of Disposal Container |
| <input type="checkbox"/> 6 While Recapping Used Needle | <input type="checkbox"/> 13 After Disposal, Item Protruded from Trash Bag or Inappropriate Waste Container |
| <input type="checkbox"/> 7 Withdrawing a Needle from Rubber or Other Resistant Material (rubber stopper, IV port, etc.) | <input type="checkbox"/> 14 Other; Describe: _____ |



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- 12) What Type of Device Caused the Injury? (check one box only) Needle-Hollow Bore
 Surgical
 Glass

Which Device Caused the Injury? (check one box from one of the three sections only)

Needles (for suture needles see "surgical instruments")

- | | | |
|---|--|--|
| <input type="checkbox"/> 1 Disposable Syringe | <input type="checkbox"/> e 22-gauge needle | <input type="checkbox"/> 8 Vacuum tube blood collection holder/needle (includes Vacutainer™ *-type device) |
| <input type="checkbox"/> a Insulin | <input type="checkbox"/> f 21-gauge needle | <input type="checkbox"/> 9 Spinal or Epidural Needle |
| <input type="checkbox"/> b Tuberculin | <input type="checkbox"/> g 20-gauge needle | <input type="checkbox"/> 10 Unattached hypodermic needle |
| <input type="checkbox"/> c 24/25-gauge needle | <input type="checkbox"/> h "Other" | <input type="checkbox"/> 11 Arterial catheter introducer needle |
| <input type="checkbox"/> d 23-gauge needle | | <input type="checkbox"/> 12 Central line catheter needle (cardiac, etc.) |
| <input type="checkbox"/> 2 Pre-filled cartridge syringe (includes Tubex™ *, Carpuject™ *-type syringes) | | <input type="checkbox"/> 13 Drum catheter needle |
| <input type="checkbox"/> 3 Blood gas syringe (ABG) | | <input type="checkbox"/> 14 Other vascular catheter needle (cardiac, etc.) |
| <input type="checkbox"/> 4 Syringe, other type | | <input type="checkbox"/> 15 Other non-vascular catheter needle (ophthalmology, etc.) |
| <input type="checkbox"/> 5 Needle on IV line (includes piggybacks & IV line connectors) | | |
| <input type="checkbox"/> 6 Winged steel needle (includes winged-set type devices) | | <input type="checkbox"/> 28 Needle, not sure what kind |
| <input type="checkbox"/> 7 IV catheter stylet | | <input type="checkbox"/> 29 Other needle, please describe: _____ |

Surgical Instrument or Other Sharp Items (for glass items see "glass")

- | | |
|--|---|
| <input type="checkbox"/> 30 Lancet (finger or heel sticks) | <input type="checkbox"/> 43 Specimen/Test tube (plastic) |
| <input type="checkbox"/> 31 Suture needle | <input type="checkbox"/> 44 Fingernails/Teeth |
| <input type="checkbox"/> 32 Scalpel, reusable (scalpel, disposable code is 45) | <input type="checkbox"/> 45 Scalpel, disposable |
| <input type="checkbox"/> 33 Razor | <input type="checkbox"/> 46 Retractors, skin/bone hooks |
| <input type="checkbox"/> 34 Pipette (plastic) | <input type="checkbox"/> 47 Staples/Steel sutures |
| <input type="checkbox"/> 35 Scissors | <input type="checkbox"/> 48 Wire (suture/fixation/guide wire) |
| <input type="checkbox"/> 36 Electro-cautery device | <input type="checkbox"/> 49 Pin (fixation, guide pin) |
| <input type="checkbox"/> 37 Bone cutter | <input type="checkbox"/> 50 Drill bit/bur |
| <input type="checkbox"/> 38 Bone chip | <input type="checkbox"/> 51 Pickups/Forceps/Hemostats/Clamps |
| <input type="checkbox"/> 39 Towel clip | |
| <input type="checkbox"/> 40 Microtome blade | |
| <input type="checkbox"/> 41 Trocar | <input type="checkbox"/> 58 Sharp item, not sure what kind |
| <input type="checkbox"/> 42 Vacuum tube (plastic) | <input type="checkbox"/> 59 Other sharp item: Describe: _____ |

Glass

- | | |
|--|---|
| <input type="checkbox"/> 60 Medication ampule | <input type="checkbox"/> 66 Capillary tube |
| <input type="checkbox"/> 61 Medication vial (small volume with rubber stopper) | <input type="checkbox"/> 67 Glass slide |
| <input type="checkbox"/> 62 Medication/IV bottle (large volume) | |
| <input type="checkbox"/> 63 Pipette (glass) | |
| <input type="checkbox"/> 64 Vacuum tube (glass) | <input type="checkbox"/> 78 Glass item, not sure what kind |
| <input type="checkbox"/> 65 Specimen/Test tube (glass) | <input type="checkbox"/> 79 Other glass item: Describe: _____ |

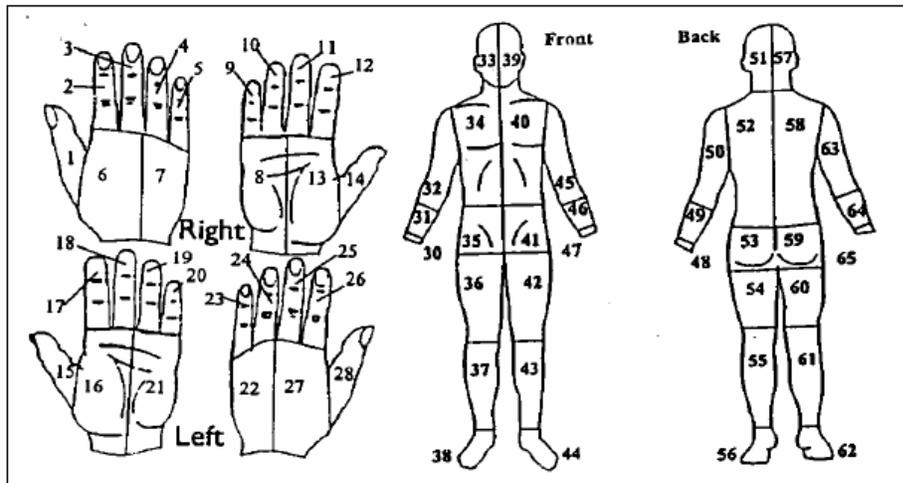
12a) Brand/Manufacturer of Product: (e.g. ABC Medical Company) _____

- 12b) Model: _____
 98 Please Specify: _____ 99 Unknown

- 13) If the Item Causing the Injury was a Needle or Sharp Medical Device, Was it a "Safety Design" with a Shielded, Recessed, Retractable, or Blunted Needle or Blade?
- 13a) Was the Protective Mechanism Activated?

- | | |
|------------------------------------|------------------------------------|
| <input type="checkbox"/> 1 Yes | <input type="checkbox"/> 3 No |
| <input type="checkbox"/> 2 No | <input type="checkbox"/> 4 Unknown |
| <input type="checkbox"/> 3 Unknown | |
- 13b) Did Exposure Incident Happen?
- | | |
|--|---|
| <input type="checkbox"/> 1 Before activation | <input type="checkbox"/> 3 After activation |
| <input type="checkbox"/> 2 During activation | <input type="checkbox"/> 4 Unknown |

14) Mark the Location of the Injury:



15) Was the Injury?

- 1 Superficial (*little or no bleeding*)
- 2 Moderate (*skin punctured, some bleeding*)
- 3 Severe (*deep stick/cut, or profuse bleeding*)

16) If Injury was to the hand, did the Sharp Item Penetrate?

- 1 Single pair of gloves
- 2 Double pair of gloves
- 3 No gloves

17) Dominant Hand of the Injured Worker:

- 1 Right-handed
- 2 Left-handed

18) Describe the Circumstances Leading to this Injury (*please note if a device malfunction was involved*):

19) For Injured Healthcare Worker: If the Sharp had no Integral Safety Feature, Do you have an Opinion that such a Feature could have prevented the Injury? 1 Yes 2 No 3 Unknown

Describe: _____

20) For Injured Healthcare Worker: Do you have an Opinion that any other Engineering Control, Administrative or Work Practice could have prevented the Injury? 1 Yes 2 No 3 Unknown

Describe: _____

Cost:

_____	Lab charges (Hb, HCV, HIV, other)
_____	Healthcare Worker
_____	Source
_____	Treatment Prophylaxis (HBIG, Hb vaccine, tetanus, other)
_____	Healthcare Worker
_____	Source
_____	Service Charges (Emergency Dept, Employee Health, other)
_____	Other Costs (Worker's Comp, surgery, other)
_____	TOTAL (round to nearest dollar)

Is this Incident OSHA reportable? 1 Yes 2 No 3 Unknown

If Yes, Days Away from Work? _____

Days of Restricted Work Activity? _____

Does this incident meet the FDA medical device reporting criteria? (Yes if a device defect caused serious injury necessitating medical or surgical intervention, or death occurred within 10 works days of incident.)

- 1 Yes (*if Yes, follow FDA reporting protocol.*)
- 2 No

* Tubex™ is a trademark of Wyeth Ayers; Carpuject™ is a trademark of Sanofi Winthrop; VACUTAINER™ is a trademark of Becton Dickinson. Identification of these products does not imply endorsement of these specific brands.

TOOL 19

Health and Lifestyle Questionnaire

To be answered by Workers

Adapted from CERSSO Manual. Central America and the Dominican Republic. 2003

Your opinion concerning your workplace conditions and your health is very important to promote a healthy workplace. Please answer the following questions:

1. Name: _____

2. In regard to your job:

2.1. Job: _____

2.2. Function: _____

2.3. Weekly working hours: _____

2.4. How long have been working in this job (in months): _____

2.5. How long have been working in this company (in months): _____

3. Sex: Male () Female ()

4. Age: _____ years

5. How many years did you study? _____

Know how to read () Know how to write ()

6. How many working days were lost in the past 12 months due to the following causes?

Common Diseases: _____ days

Occupational injury: _____ days

Occupational diseases: _____ days

7. Over the past 12 months, have you suffered, or have you been diagnosed with, any of the following health problems?

- Upper respiratory tract infections ()
- Asthma ()
- Bronchitis ()
- Allergies ()
- Mental health problems ()
- Cardiac problems ()

- Diabetes ()
- Cancer ()
- Others (please specify): _____

8. Please identify what disease or diseases have you suffered, or was diagnosed with, before starting to work in this company:

a) _____, b) _____, c) _____

9. Family Background

- Has anyone in your family suffered from:
 - Respiratory diseases ()
 - Asthma ()
 - Bronchitis ()
 - Cardiac problems ()
 - Diabetes ()
 - Cancer ()

10. You consider yourself to be:

- Healthier than your colleagues ()
- As healthy as your colleagues ()
- Less healthy than your colleagues ()

11. Personal habits:

a) Do you exercise regularly?

- Yes () what kind of exercise? _____

- No () why?

- Lack of time ()
- Have no interest ()
- Health problems ()
- Lack of practical conditions ()
- Too tired ()

b) If you do not exercise, would you be willing to if you had the adequate conditions to do so?

- Yes ()

- No ()

c) In regard to tobacco:

- Do smoke ()
- Do not smoke ()
- Did you quit smoking within the past 12 months? ()
- Did you quit smoking more than 12 months ago? ()
- d) If you smoke, would you like to quit?
 - Yes ()
 - No ()
- e) How many days per week do you eat meat?
 - Fewer than 2 days per week ()
 - 2 – 4 days per week ()
 - Almost everyday ()
- f) How often do you eat fruits, vegetables, or legumes?
 - In all meals ()
 - In 2 meals/day ()
 - In 1 meal/day ()
 - Never ()
- g) How do you feel in regard to your job and your personal life?
 - Very well ()
 - Fair ()
 - Have problems ()
- h) Would you participate in a health promotion program in your company?
 - Yes ()
 - No ()
- i) Which of the following subjects would you be interested in having a program on? (Check as many as you please)
 - Exercising ()
 - Eating healthier ()
 - Stress management ()
 - Quitting smoking ()
 - Heart problems ()
 - Cancer ()
 - Lumbar diseases ()
 - Stopping drinking ()
 - Diabetes ()

TOOL 20

Statistical Analysis of Occupational Illness and Injury Data

Copied from the workbook "Joint Occupational Health & Safety Committee". Education and Development Section Prevention Division Workers' Compensation Board of British Columbia. 2000.

Basic Statistics - Rates

Rates usually give more detailed and meaningful information than counts by showing the level or extent of injuries or diseases. Injury rates express various measures of injury and illness in terms of a constant such as exposure time (e.g. employee hours worked).

Payroll records may provide additional information that can be used to determine:

- How many workdays were lost last year from injuries on the job?
- How many paid hours were worked for the year?
- How many employees were there this year compared to the previous year?

The following example shows how injury rate information can be more meaningful than an injury count alone.

Suppose there were 9 lost time injuries in a nursing home in 1998 and 11 in 1999. If only counts of the number of injuries were considered, one might conclude that the risk of injury from working at the nursing home was on the rise. But if the nursing home had 100 employees in 1998 and 130 in 1999, the number of injuries per 100 workers actually decreased from 9 in 1998 to 8.5 in 1999. Statistically speaking, workers had a lower chance (risk) of injury in 1999 when compared in 1998. Thus, simple counts alone (like 9 injuries one year compared to 11 the next) may be an unreliable or misleading indicator of health and safety performance.

Calculating Rates

With good records (data), different kinds of injury rates can be calculated, measuring different aspects of workplace health and safety. Rates can be used to answer such questions as:

- How many STD injuries were there for every 100 full-time equivalent workers in the past year?
- What was the average number of days lost for each Time Loss injury?

There are various methods available to calculate injury/illness rates. A few examples are provided below.

Example A

	Annual total number of work injuries
Incidence Rate =	————— Number of employees

For example, suppose you wanted to know the incidence rate for time loss injuries/illness in your workplace for the previous year. Assume there were 34 employees and 10 time loss injuries/illnesses

$$\text{Incidence Rate} = \frac{10}{34} = .29$$

In general, the lower the incidence rate, the lower the risk of injury on the job.

S.T.D. = Short Term Disabilities

Example B

	Number of STDs X 100
Injury Rate =	—————
	Number of FTEs

This calculation represents the number of short term disability claims per 100 person years of employment. One person-year of employment is the equivalent of 52 paid weeks of employment (one FTE or full time equivalent), whether worked by one person or several. The number of FTEs for a workplace is calculated using the following formula:

$$\text{Number of FTEs} = \frac{\text{Total number of paid hours for the year}}{\text{Paid hours/FTE/Year}}$$

Note:

- (a) The formula is for an annual calculation and the figures must be adjusted accordingly if they cover a shorter period.
- (b) The formula provides no details of the number of full-time, part-time or casual workers.
- (c) The actual number of workers in a workplace is often greater than the number of FTEs (e.g. due to the number of part-time workers).

Injury Rate Calculation Example:

If you wanted to determine the injury rate (number of STDs per 100 FTEs) for your workplace for the previous calendar year based on the formula noted above, the following information must be obtained from your records:

- Number of paid hours for the year (from payroll record)
- Number of paid hours per FTE (from payroll record)
- Number of STD claims for the year (from WCB Claims Cost Summary)

Assume in this example there were:

- 234,000 paid hours per year
- 1872 paid hours per FTE per year
- 12 STD claims for the year.

The number of FTEs is determined as follows:

$$\text{Number of FTEs} = \frac{234,000 \text{ paid hours for the year}}{1872} = 125 \text{ FTEs}$$

Using the value of 125 FTEs and 12 STD claims, the injury rate is calculated as follows:

$$\text{Injury Rate} = \frac{12 \text{ STDs} \times 100}{125 \text{ FTEs}} = 9.6$$

An injury rate of 9.6 means that, on average, there were 9.6 Time Loss (STD) claims for every 100 full time equivalent workers (9.6 out of 100) in the previous calendar year.

The lower the injury rate, the lower the risk of injury on the job. Effective health and safety programs limit the risk of injury/disease which results in a lower injury rate.

Example C - OSHA Rates

The Occupational Safety and Health Administration in the United States has frequency and severity rate calculations that are commonly used in the United States and Canada.

$$\text{Frequency Rate} = \frac{\text{Number of Time Loss Injuries} \times 200,000}{\text{Person-hours worked}}$$

$$\text{Severity Rate} = \frac{\text{Days Lost} \times 200,000}{\text{Person-hours worked}}$$

Note: 200,000 = 100 person plant X 40 hours (work week) X 50 weeks per year

For example, suppose you want to know the OSHA frequency and severity rate for the month of February 2000. Assume your company had 1 time loss injury, 2 days lost and there were 4700 person hours worked for that month.

$$\text{Frequency Rate} = \frac{1 \times 200,000}{4700} = 42.5$$

$$\text{Severity Rate} = \frac{2 \times 200,000}{4700} = 85.1$$

The lower the frequency rate, the lower the risk of injury on the job. The lower the severity rate, the lower the seriousness of injury when injury/illness occurs (e.g. fewer days lost for sprained wrist versus amputation of hand).

TOOL 21

Sample Statistical Summary of Occupational Accidents and Illnesses

Copied from the workbook "Joint Occupational Health & Safety Committee". Education and Development Section Prevention Division Workers' Compensation Board of British Columbia. 2000.

ACCIDENT STATISTICS				
December 1999 Monthly Summary				
TYPE	December 1999	December 1998	YEAR TO DATE	Y.T.D. LAST YEAR
REPORTED ONLY (FIRST AID)	12	9	150	131
HEALTH CARE ONLY	2	1	28	22
STD (TIME LOSS)	1	0	10	8
TOTAL	15	13	188	161
DAYS LOST	6	0	70	55
ACC. INVESTIG.	3	4	40	30
			THIS YEAR	(PREV.) (YEAR)
FREQUENCY FOR DECEMBER 1999	$\frac{1 \times 200,000}{3,250}$	=	61.53	(42.10)
SEVERITY FOR DECEMBER 1999	$\frac{6 \times 200,000}{3,250}$	=	369.23	(289.5)
<p>The committee evaluated the three incident investigations. Although the initial incident appears to have been addressed, it appears that table saw users need training, and this will be recommended by the committee.</p>				
1999 Annual Summary				
TYPE	1998	1999		
DANGEROUS OCCURRENCE	5	12		
REPORTED ONLY (FIRST AID)	131	150		
HEALTH CARE ONLY	22	28		
STD (TIME LOSS)	8	10		
TOTAL	166	200		
DAYS LOST	70	55		
ACC. INVESTIG.	30	40		
1999 INJURY RATE =	$\frac{\text{No. of STDs} \times 100}{\text{No. of FTEs}}$		=	$\frac{10 \times 100}{25} = 40$
1998 INJURY RATE (18 FTEs) =	44.4			
<p>The committee reviewed the statistics. A decision was made to start reviewing dangerous occurrences or near misses on a monthly basis so that potential hazards can be identified and controlled before more serious injury/illness might occur.</p>				

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