



Ministry of Health

Basic Occupational safety and Health Training for Healthcare Workers in Kenya

Participant's manual 2015



MINISTRY OF HEALTH

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Contents

1.0. Acronyms	8
AKNOWLEDGEMENT	9
FORWARD	10
2.0. Introduction and background	12
3.1 Purpose.....	13
3.2 Objectives	13
3.3 Target Group	13
3.4 Teaching and learning Methods	13
3.5. Course structure and duration	14
3.6. Assessment/Evaluation.....	15
3.7 Award of Certificate	15
MODULE 1: OVERVIEW OF SAFETY AND HEALTH	16
Objectives:	16
Definition	16
Importance of occupational safety and health practice	16
Background and Global history of OSH	16
Legal aspects of occupational safety and health	18
The Kenyan Constitution, 2010	18
Occupational Safety and Health Act, 2007	18
Work Injury Benefits Act, 2007.....	22
Other related Legislation.....	24
MODULE 2: CLASSIFICATION OF HAZARDS AND THEIR CONTROL	30
Objectives	30
Categories of Hazards	30
1. Biological Hazards.....	30
2. Chemical Hazards	32
3. Physical hazards.....	33
4. Ergonomic	37
5. Mechanical Hazards.....	38
6. Psychosocial Hazards.....	39

Safety Signage	41
Personal protective equipment (PPE)	42
Types of personal protective equipment	43
Protection of the various parts of the body	43
Role of management in the provision of PPE	45
Role of employees on PPE.....	46
Fire safety and Management	46
Classification of Fires and extinguishing agents:-	47
Fire Risk Evaluation	47
MODULE 3 SAFE WORK PROCEDURES.....	50
Objectives	50
Risk management.....	50
Risk identification and Job Safety Analysis.....	50
Hazard identification Process.....	51
Risk assessment	52
Occupational diseases.....	57
Impact of Occupational diseases.....	58
Classification of Occupational diseases	58
Examples of Occupational Diseases	58
Prevention of Occupational diseases:	59
Diagnosis of occupational diseases.....	59
Occupational accidents	60
Definition	60
Causes of occupational accidents.....	60
Effects of accidents	61
Accident investigation techniques	61
Recommendations.....	62
Key considerations on Recommendations	63
First Aid	63
Medical Immediate Action (I.A).....	63
Rules of First Aid.....	64
First Aid in the Field	64

Priorities for evacuation	64
Medical surveillance	65
Purpose of medical surveillance	65
Fundamentals of Medical Surveillance	65
Workplace safety and health inspection.....	66
Statutory requirements of Health and safety audit.....	67
Workplace inspection.....	67
Procedure of a workplace inspection	67
Implementation: Workplace inspection procedure	67
Corrective action	67
Reporting and record keeping	67
Follow-up and monitoring	68
Waste Management.....	68
MODULE 4: SAFETY EQUIPMENT	68
Objectives	68
Introduction.....	69
Biological Safety Cabinets (BSC).....	69
Triple Packaging Equipment.....	72
Fume cupboards/fume hoods	73
Cytotoxic drug safety cabinet	75
Pharmaceutical isolators	76
Emergency showers and eye wash stations.....	76
Hand wash stations	77
Other equipment that enhance protection	78
MODULE 5: SAFETY AND HEALTH MANAGEMENT IN HEALTH FACILITIES	80
Objectives	80
Elements of safety management	80
1. Policy	81
2. Organising	81
3. Planning and Implementation	83
DOCUMENTATION AND REPORTING	88
Documentation.....	88

Document and data control	88
Records and records management.....	88
Record keeping	89
In house documentation	89
Statutory documentation	89
Accidents/incidents and near misses.....	90
References	92
Appendices	93
Appendix 1. Employee exposure report form	93
Employee exposure report form	93
Hazard reporting form	94
Appendix 5: Workplace inspection checklist for hospitals	99
Workplace inspection checklist for hospitals	99
SUMMARY REPORT FORM	107
Number of employees examined.....	107

1.0. Acronyms

AFENET	African Field Epidemiological Network
AQM	Air Quality Monitor
BEI	Biological Exposure Indices
BSC	Biosafety Cabinet
CT	Computed Tomography
DOSHS	Directorate of Occupational Safety and Health Services
EMCA	Environmental management and Coordination Act
HAVS	Hand Body Vibration syndrom
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HCW	Health care worker
HINI	Hemagglutinin Type 1 and Neuraminidase Type 1
HIV	Human Immunodeficiency Virus
HSA	Health Safety Authority
HTV	Hand Tranmitted Vibration
ICOH	International Commission of Occupational Health
ILO	International Labor Organization
MDR	Multi drug Resistance
MOH	Ministry of Health
MSDS	Material Safety Data Sheet
MSH	Management Sciences for Health
OEL	Occupational exposure limit
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Act
PEP	Post Exposure Prophylaxis
PPE	Personal Protective Equipment
PTS	Permanent Threshold Shift
PVC	PolyVinyl Chloride
SARS	Severe Acute Respiratory Syndrome
SPHLS	Strengthening Public Health Laboratory Services
TTS	Temporary Threshold Shift
UV	Ultra Violet
VWF	Vibration -Induced White finger
WBV	Whole Body Vibration
WHO	World Health Organization
WHR	World Health Resolution
WIBA	Work Injury and Benefits Act

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Finally I wish to commend all those who contributed to this document in one way or another and who have not been specifically mentioned here.

Dr. Nicholas Muraguri
DIRECTOR OF MEDICAL SERVICES

FORWARD

The Ministry of health and her partner organizations are mutually committed to assuring a safe and healthy workplace for our employees, clients and the general public. We recognize that it is only where a safe and secure work environment exists that employees can achieve their full career potential.

Employees can contribute substantially to achieving the goals of safety and health, but only if they have an awareness of recognized safety standards and the ability to identify unsafe and unhealthy situations. Therefore, we believe that the education and training of each employee is a primary factor in achieving a safe and secure workplace. Such education and training should also enable employees to identify mechanisms to eliminate identified hazards.

The risk assessment carried out in 100 public health facilities within the republic in 2011/2012 revealed that the level of awareness on occupational health and safety within the health sector was running low. The report further recommended development of Occupational health and safety minimum package for all levels of health care delivery system. Further to that training was prioritized as a major activity to be undertaken for all health workers if their safety and health is to be ensured. It is in this regard that the curriculum, guidelines and training manual have been developed.

This training curriculum in conjunction with the manual represents a significant step in meeting our commitment to workplace health and safety. The training emphasizes the importance of

identifying the root cause(s) of accidents and other work related diseases with a systems-based approach. With this knowledge, each trained employee will be better able to provide input to his/her department or unit and the management team as well as fulfilling Health and Safety requirements. By working with and through occupational health and safety committees, we can achieve results that would have been impossible if either management or the employees had worked alone.

We jointly hope that health workers will benefit from the training curriculum, and find it valuable in their everyday work environment.

Mr. James Macharia

CABINET SECRETARY

2.0. Introduction and background

Occupational Safety and Health (OSH) is a discipline concerned with protecting and promoting the safety, health and welfare of people engaged in work or employment. The goals of occupational safety and health programme include fostering a safe and healthy work environment. It is a multi-disciplinary activity targeting four basic aspects:

- (1) Protection and promotion of workers health by preventing and controlling occupational diseases, accidents and injuries;
- (2) Development and promotion of healthy and safe work and work environments;
- (3) Promotion of physical, mental and social well-being of workers; and
- (4) Enabling workers to conduct socially and economically productive lives and to contribute positively to sustainable development (WHO 2010).

A number of occupational diseases and injuries are rarely reported. The World Health Organization (WHO) estimates that sharps' injuries contribute 30% of new cases of Hepatitis B Virus (HBV) and 2.5 % of annual infections of Human Immunodeficiency Virus (HIV) among health care workers in Sub-Saharan Africa (WHR 2002). An assessment done by the Ministry of Health (MoH) together with partners in 95 health facilities across Kenya between 2011 and 2012 suggests that OSH compliance is a challenge that cuts across the public and private sectors. An OSH baseline survey from 6 healthcare facilities indicated low awareness of OSH among healthcare workers (HCW) (MoH, 2014).

To respond to the call for improved implementation of Occupational Safety and Health Act 2007 (OSHA-2007) of Laws of Kenya, the Government and partners prioritized implementation of key aspects of OSH across various sectors. However, there are still challenges to mainstream OSH across the health sector especially training.

The International Labour Organization (ILO) constitution includes “measures to be taken for protection of the worker against sickness, disease and injury arising out of employment” (ILO, 1919). A safe and healthy work environment enhances work productivity and reduces loss of man hours and is a key element of worker human dignity (ILO, 2010). Occupational Safety and Health (OSH) has for decades dominated international agenda prompting continued support for the ILO to execute their mandate on behalf of the international community through regional and national governments. The World Health Organization (WHO) considers the improvement of working conditions an important factor in health protection and promotion. The WHO developed a nine-year 2008 to 2017 global plan of action on health workers OSH requirements. In developed economies access to OSH services by working population is over 90% whereas in emerging and some developing economies the access is below 10% (ICOH 2013). In Kenya, workers' health concerns date back to “The Factories Ordinance 1950” and currently, “The Occupational Safety and Health Act, 2007”. The Directorate of Occupational Safety and Health Services (DOSHS), in the Ministry of Labour, Social Security and Services is mandated to enforce safety and health legislations.

In 2012 Kenya had about 4% of the working population accessing services of OSH (ICOH 2013). The MoH is already working on WHO action plan of 2008 - 2017 to ensure that OSH requirements are mainstreamed and maintained in healthcare environments through: Laboratory Biosafety and Biosecurity Policy Guidelines 2014, National Infection Prevention and Control guidelines for healthcare services in Kenya among others. Healthcare facilities are potentially hazardous workplaces that expose workers to a wide range of hazards; biological, chemical, physical, psychosocial, ergonomic and mechanical. The emergence of highly infectious diseases such as severe acute respiratory syndrome (SARS), the H1N1 Influenza and Ebola increases the infection risk dramatically among HCWs. Therefore, there are efforts to ensure a safe and healthy work environment in line with the Kenya Constitution 2010 and the OSHA 2007. The implementation of OSH guidelines largely depend on improvement of work environment, training, and creating awareness in occupational health. It is in this regard that this curriculum has been developed to support the training component of Occupational Safety and Health policy guidelines for the health sector in Kenya.

3.1 Purpose

The purpose of this course is to promote a safe and healthy work environment in Kenya's healthcare settings.

3.2 Objectives

At the end of this course, the participant is expected to:-

- a) Describe the basic concepts of OSH,
- b) Explain the background of OSH,
- c) Describe the importance of OSH practice,
- d) Describe the legal aspects relating to OSH,
- e) Conduct OSH risk management in the health facilities.

3.3 Target Group

The participants should be healthcare workers including, administrative, contractual and support staff. Healthcare workers can be trained in clusters according to cadres.

3.4 Teaching and learning Methods

- Lectures
- Group discussions/ assignments

- Demonstrations
- Videos
- Practicals
- Pre-test and post-test
- Course evaluations
- Field visits

3.5. Course structure and duration

The training will take 30 hours and 30 minutes of which 24.5 hours are contact-hours and 6 hours for action plan development, course evaluation and travel time for site visit.

	Module	Unit	Duration		
			Lecture	Demo	Practical
1	Overview of Occupational Safety and Health	Introduction and importance of OSH practice	30 min	0	0
		Historical developments in OSH	30 min	0	0
		Legal aspects of occupational safety and health- OSHA, 2007	1 hr	0	0
		Legal aspects of occupational safety and health- Work Injury Benefits Act (WIBA) 2007, other Laws of Kenya and subsidiary legislations	1 hr		
		Legal aspects of occupational safety and health- safety and health committee rules	30 min		
2	Classification of Hazards and control measures	Hazards categories	1 hr	0	0
		Prevention and control of hazards	1 hr		
		Personal protective equipment(PPE)	1hr	30 min	0
		Fire safety	1hr	1 hr	0

3	Safe Work Procedures	Risk management	1 hr		
		Occupational accidents	1 hr		
		First Aid management	1 hr		
		Waste management and disposal	1 hr		30 min
		Medical surveillance	1 hr		
		Occupational diseases	30mins		
		Workplace inspection and audit	1 hr		3 hr
4	Safety Plant and Equipment	Safety plant and equipment	1 hr	0	0
		Safety video	0	30 min	0
5	Occupational Safety and Health Management in Health Facilities	Elements of OSH management	1 hr	0	0
		Documentation and reporting	1 hr	1 hr	1 hr

3.6. Assessment/Evaluation

The participant will be assessed before and after the training through pre-test and post-test. An evaluation of the course and the facilitators will be carried out at the end of the course.

3.7 Award of Certificate

Upon successful completion of the course, the MoH will award a certificate to the participant. Successful completion of the course means a participant must attend 100% of the sessions and must participate in all practicals and field visits

MODULE 1: OVERVIEW OF SAFETY AND HEALTH

This module introduces the participants to Occupational Safety and Health concepts, and its legal aspects to be implemented and adhered to in the health facilities.

Objectives:

At the end of this module, the participants are expected to:-

- a. Describe the concepts of occupational safety and health
- b. Describe the background of OSH
- c. Explain the legal aspects relating to OSH

Definition

Occupational Health and Safety (OSH) is a multi-disciplinary activity targeted at four basic aspects namely;

1. The protection and promotion of workers health by preventing and controlling occupational diseases and accidents;
2. The development and promotion of healthy and safe work, work environments and work organizations;
3. Enhancement of physical, mental and social well-being of workers; and
4. Enabling workers to conduct socially and economically productive lives and to contribute positively to sustainable development.

This is essentially *Fitting work to the worker and the worker to work*

Importance of occupational safety and health practice

Practising safety and health at the workplace is vital for the following reasons:

1. Economic sense - When safety and health system is in place, worker productivity is enhanced. The employer will benefit from reduced insurance premiums, reduced long term health care costs and reduced legal costs.
2. Legal importance- Organizations that uphold safety and health experience reduced litigations, reduced ambulance chasers (common law costs) and cushion workers from exploitation by employers.
3. Health implications- good safety and health systems at work lead to reduced morbidity, mortality and fatality.
4. Organisational competitiveness – Organisations that promote occupational health and safety also gain improved public image employee satisfaction and retention.

Background and Global history of OSH

The father of occupational health is considered to be Bernardino Rammazzini (1633 – 1714). He is credited with establishing the field of occupational medicine during his life time. In 1700, Dr. Rammazzini published the famous book called the “Diseases of Workers”. He recommended that one of

the questions that a doctor should ask his patient is, “What is your occupation?” This is in order to relate the illness to the patient’s work environment.

Owing to the deplorable work conditions and the exploitation of workers during the Industrial Revolution (1760 – 1840), a lot of concern was expressed. Workers were exposed to increasing pressures of production, and associated physical and psychological hazards at work. In response to these concerns, in 1802 the first law to protect workers was enacted in Britain. This was the Health and Morals Apprentices Act which dealt mainly with limiting long hours of work and installing mandatory ventilation in factories – it required “inter alia that places of work should be ventilated and washed down twice a year”. Measurement of occupational mortality was first introduced in Britain around the middle of the nineteenth century. This drew attention to the gross risks of injury and diseases in factory workers and miners at that time. The need to deal with notification and reports from certifying surgeons led to the appointment of the first Medical Inspector of Factories in 1898.

In 1919, The International Labour Organization (ILO) was founded because it was felt that conditions of labour, which involved injustices and hardships needed to be improved. The ILO constitution includes “measures to be taken for protection of the worker against sickness, disease and injury arising out of employment”. The World Health Organization (WHO) mandate and interest in OHS is derived from its constitution in which it is envisaged that “the improvement of working conditions is considered an important factor in health protection and promotion”. In Alma Ata, Resolution No.14 of 1978 specifically urged the Director General (WHO) to give special attention to working people by the development of Occupational Health Care as an important contribution to this social call.

In Kenya, the workers’ health concerns date back to “The Factories Ordinance 1950” which then became “The Factories Act 1951” “The Factories and Other places of work Act, 1990” and lately, “The Occupational Safety and Health Act, 2007”. The Directorate of Occupational Safety and Health Services (DOSHS), in the Ministry of Labour, Social Security and Services is mandated to administer safety and health legislations. In this regard, there is need to integrate this service into the health care delivery system in the country. This will allow for comprehensive planning and implementation of the necessary programmes to achieve the objectives of occupational health and safety.

Legal aspects of occupational safety and health

The Kenyan Constitution, 2010

Occupational safety and health is cited in the constitution in the following articles:-

- a) Article 35: access to information required for the exercise of protection of any right
- b) Article 41: reasonable working conditions for all workers in Kenya
- c) Article 42: a clean and healthy environment
- d) Article 43: Right to the highest attainable standard of health.
- e) Article 70: compensation for any victim of a violation of the right to a clean and healthy environment respectively.

Occupational Safety and Health Act, 2007

The Act applies to all workplaces where any person is at work, whether temporarily or permanently.

Duties of occupiers

- a) Ensure safety, health and welfare at work of all his employees.
- b) *Registration of workplaces:* All occupiers shall register their premises as workplaces
- c) *Renewal of registration certificate:* The certificate of registration shall be renewed every year.
- d) Prepare a written safety and health policy statement.
- e) Carry out *risk* assessments in relation to the safety and health of persons employed.
- f) Not make any deduction from an employee's salary or other benefits for anything provided under the Act.
- g) *Safety and health audits* - ensure that a safety and health audit of the workplace is carried out at least once every year by an approved safety and health adviser.
- h) *Safety and health committees:* - An employer with twenty or more employees shall establish a workplace safety and health committee whose membership shall comprise both the workers and management.

Duties of self employed persons

Take all necessary precautions to ensure his own safety and health and that of any other person who may be affected by his activities.

Duties of employees

- a) Take care of his own safety and health and that of other persons who may be affected by his acts or omissions at work.
- b) Co-operate with his employer in discharge of any requirement imposed by the Act.
- c) Use at all times protective equipment or clothing provided by the employer for the purpose of preventing risks to his safety and health.
- d) Report to the immediate supervisor any situation which he believes presents imminent or serious danger to his safety or health.
- e) No person shall wilfully interfere with or misuse anything provided for safety, health and welfare.

Accidents, diseases and dangerous occurrences

- 1. Notice of accidents and dangerous occurrences: -An employer or self-employed person shall notify the nearest occupational safety and health office of any accident, dangerous occurrence, and occupational poisoning which has occurred at the workplace within 7 days of occurrence.
- 2. In the case of a fatal accident the notice must be given within twenty-four hours.
- 3. Notification of occupational diseases:-Every medical practitioner shall notify the Director of any occupational disease he encounters while attending a patient within 7 days .

Enforcement of the Act

- 1. Inspections – Occupational Safety and Health Officers have powers to inspect every workplace by day or by night. Any person obstructing such an officer is liable to a penalty.
- 2. Improvement notices and prohibition notices – These are issued when contraventions recur and no action for improvement is taken.
- 3. Prosecution: for fresh and repetitive contraventions

General Health Provisions

- 1. Cleanliness. - Every workplace must be kept clean.
- 2. Overcrowding. - A workplace must not be overcrowded . each worker to have 10 m³ of space,
- 3. Ventilation. - Adequate ventilation of workrooms must be secured by the circulation of fresh air.

4. Lighting. – There must be sufficient and suitable lighting in every part of the workplace in which persons are working or passing.
5. Drainage of Floors. – Where wet processes are carried on, adequate means for draining the floor must be provided.
6. Sanitary Accommodation. – Sufficient and suitable sanitary conveniences, separate for each gender, must be provided.

Machinery safety

1. Safe use of Plant machinery and equipment: - All plant, machinery and equipment shall only be used for work which they are designed for and be operated by a competent person.
2. Fencing. – Every part of the transmission machinery and every dangerous part of other machinery must be securely fenced.
3. Cranes, Hoists and other lifting equipment, pressure vessels and refrigeration plants– Must be thoroughly examined periodically according to the law by a person approved by DOSHS.

General Safety Provisions

1. Safe means of access: Floors, passages, gangways, steps, stairs and ladders must be soundly constructed and properly maintained, and handrails must be provided for stairs.
2. Removal of Dust or Fumes – Where dust or fumes are likely to be injurious or offensive, workers must be protected against inhaling, and where practicable, localized exhaust ventilation must be provided and maintained.
3. Meals in Certain Dangerous Trades. - A person must not partake of food or drink in workrooms where there are hazardous dusts or fumes.
4. Protective Clothing and Appliances. – Suitable protective clothing and appliances must be provided and maintained for the use of workers employed in any process involving exposure to wet or to any injurious or offensive substance.
5. Confined spaces. – Adequate precautions should be taken for work in confined spaces where persons are liable to be overcome by dangerous fumes.
6. Explosions of Inflammable Dust or Gas. – Precautions should be taken against explosions for welding or soldering on containers, which have held any explosive or inflammable substance. (such containers must be washed thoroughly before welding.)

7. Protection of Eyes. – Goggles or effective screens must be provided in certain specified processes.
8. Training and Supervision of Inexperienced Workers. – A person must not work at any dangerous machine or process unless he has been fully instructed as to the dangers and precautions, and has received sufficient training in the work or is under adequate supervision.
9. Fire. - Adequate and suitable means for extinguishing fire must be provided in every workplace.
10. Adequate fire exits must be provided and marked. All doors affording a means of exit from the workplace must be sliding doors or made to open outwards.
11. Fire Safety Audit: Every occupier shall carry out a fire audit of the work place once every twelve months by a person approved by DOSHS.
12. Evacuation procedures: - Every occupier of a workplace shall design evacuation procedures to be used during any emergency.

Chemical safety

1. Handling of hazardous substances: Any person supplying, distributing conveying or handling hazardous substances shall ensure that they are packaged, conveyed, handled and distributed in a safe manner.
2. Material Safety Data Sheets: Manufacturers, importers, suppliers and distributors of chemicals shall make available to employers material safety data sheets for chemicals and other hazardous substances.

Welfare Provisions

1. Drinking Water. – An adequate supply of wholesome drinking water must be provided.
2. Washing Facilities. – Adequate and suitable washing facilities must be provided and maintained
3. Accommodation for clothing. - Adequate and suitable accommodation for clothing not worn during working hours must be provided.
4. Facilities for Sitting. – Suitable facilities for sitting must be provided for all workers whose work is done standing, sufficient to enable them to take advantage of any opportunities for resting.
5. First-aid. –a first-aid box or cupboard of the prescribed standards must be provided and should be under the charge of a trained first-aider.

6. General Register. – The occupier must keep a general register in the prescribed form. Information kept in the register includes cases of accidents, occupational diseases and dangerous occurrences.

Safety and health regulations

The Cabinet Secretary in charge of labour matters, may make rules under this Act to deal with any hazardous exposures at workplaces.

Penalties

1. Not using provided PPE KShs. 50,000/3mths
2. General contravention of any section – 300,000/3mths
3. If contravention is not rectified after conviction – KShs. 10,000 each day it is continued
4. If accident causes death and occupier has knowledge of the causative agent – KShs. 1million/12mths

Work Injury Benefits Act, 2007

Objective-To provide compensation to employees for work related injuries and diseases contracted in the course of employment.

Application-Act applies to all employees including those employed by the Government except Kenya Defense Forces.

Obligations of Employers-Employer to have an insurance policy with approved insurer for any liability. Every Employer must—

- a) Register with DOSHS.
- b) Keep a register of earnings and other prescribed particulars for minimum of *six years* from date of last entry.
- c) Produce register on demand for inspection by DOSHS.

Right to Compensation-

- a) Employee involved in an accident resulting in disablement or death is entitled to compensation.
- b) An employee is not entitled to compensation if an accident not resulting to serious disablement or death is caused by his/her deliberate misconduct except in the case of serious disablement (40% or more) or death.

Director may deny to compensate employee(s) if

- a) Employee has falsely denied suffering from a medical condition which has aggravated injury or disease
- b) Death or injury is caused, prolonged or aggravated by unreasonable refusal or wilful neglect of an employee to submit to medical aid for present or previous accident or disease

Reporting of Accidents-

- a) Fatal accident should be reported to employer with copy to DOSHS within twenty-four hours
- b) Other accidents to be reported to DOSHS within seven days in the prescribed form (DOSH 1)
- c) Accident to be reported even where an employer denies it arose out of and in the course of employment.

Settling claim- If an employer fails to report an accident or provide information as required by the director, the Director may conduct investigations at the cost of the employer.

Compensation-

- a) Temporary total disablement; due to an accident that keeps an employee out of work for three or more days. A periodical payment equivalent to his/her earnings for a period not exceeding 12 months.
- b) Compensation for permanent disablement is calculated on the basis of ninety six months earnings as set out in the Third Schedule 'Employee's earnings': Monthly rate at which one was being paid by the employer at the time of accident: Earnings; salary/Wage, Allowances paid regularly, Any overtime payment or special payment of a regular nature

Medical Aid-

- a) Employers are required to provide and maintain appliances and services for rendering of first aid. Failure is an offence.
- b) Conveyance of injured workers to hospital or medical facilities and residence is the responsibility of the employer.
- c) Employers shall settle expenses reasonably incurred by his employees as a result of an occupational accident or disease. Medical expenses include:
 - i. dental, medical, surgical or hospital treatment
 - ii. skilled nursing services,

- iii. supply of medicine, supply of surgical dressing,
- iv. traveling
- v. Supply, maintenance, repair and replacement of artificial limbs, crutches and other appliances and apparatus used by persons with disability.

Other related Legislation

Public Health Act, Cap. 242

Touches on various cross cutting occupational health issues eg Notification of infectious diseases, by-laws as to buildings and sanitation, inspection of premises.

Radiation Protection Act, Cap 243

Before authorization of a new or modified practice, the Board shall require, as appropriate, and review supporting documents from the applicant that show-

- a) the design criteria and design features relating to the exposure and potential exposure of workers in all operational states and accident conditions
 - b) The design criteria and design features of the appropriate systems and programs for monitoring of workers for occupational exposure in all operational states and accident conditions.
1. Every employer shall be responsible for the protection of workers against occupational exposure.
 2. Every employer shall ensure that protection and safety is optimized and that the dose limits for occupational exposure are not exceeded.
 3. For workers who are engaged in activities in which the workers are or may be subject to radiation exposure every employer shall be responsible for-
 - a) the protection of workers against occupational exposure;
 - b) the compliance with other relevant requirements of the Act.
 - c) A person who contravenes this section commits an offence.

Pharmacy and Poisons Act, Cap 244

Gives clear guidelines on handling, storage, transportation and custody of drugs and poisons. Only authorised personnel are allowed to handle these substances.

Pest control products Act, Cap 346

The Act regulates the importation, exportation, manufacture, distribution and use of products used for the control of pests and of the organic function of plants and animals.

It defines a Pest Control Product as a product, device, organism, substance or thing that is manufactured, represented, sold or used as a means for directly or indirectly controlling, preventing, destroying, attracting or repelling any pest.

The Act intends to safeguard Human Health and the Environment from Pesticide Risks by:-

- a. Promoting adoption of cleaner technologies in the pesticide life cycle.
- b. Benchmarking and implementing pesticide guidelines and procedures to regional treaties and international conventions to which Kenya is a party.
- c. Increasing collaboration, benchmarking and enhanced risk assessment with leading pesticides registration /regulators internationally.

Environmental management coordinattion act, 1999

EMCA, 1999 provides for the establishment of an appropriate legal and institutional framework for the management of the environment and related matters. It provides for improved legal and administrative co-ordination of the diverse sectoral initiatives in order to improve the national capacity for the management of the environment. This is in view of the fact that the environment constitutes the foundation of national economic, social, cultural and spiritual advancement.

It compels persons responsible for the environmental degradation to restore the degraded environment as far as practicable to its immediate condition prior to the damage

It has a number of regulations touching on safety and health of workers e.g. Waste management regulations LN 121/2006. The regulations includes

- a) Approval of biomedical waste generating facility- Any person who generates biomedical waste shall ensure that generating facility has been approved by the appropriate agency and Local Authority.
- b) Segregation of biomedical waste - Any person who generates biomedical waste shall at the point generation and at all stages thereafter segregate the waste accordance with the categories provided under the Seventh Schedule to these Regulations
- c) Treatment of biomedical waste- Any person who generates waste shall treat or cause to be treated all biomedical waste in the manner set out in the Ninth Schedule to these Regulations, before such biomedical waste is stored disposed of.

Subsidiary Legislation under OSHA, 2007

There are 13 subsidiary legislations in OSH

1. Safety and Health Committees Rules, 2004. L.N. No. 31
2. First – Aid Rules, 1977 L.N. 160
3. Fire Risk Reduction Rules, 2007 L.N. No. 59
4. Hazardous Substances Rules, 2007 L.N. No. 60
5. Medical examination Rules, 2005. L.N. No. 24
6. Protection of eyes Rules, 1977 L.N. No. 44
7. Noise prevention and control Rules, 2005. L.N. No. 25
8. Electric Power Rules 1979 L.N. 340
9. Building Operations and works of Engineering Construction) Rules, 1984
10. Woodworking machinery Rules. L.N. 431/1959
11. Docks Rules. L.N. 306/1962
12. Cellulose Solution Rules L.N. 231/1957, L.N.87/1964
13. The Government Financial Management (Occupational Safety And Health Fund) Regulations, 2011.

Safety and Health Committees Rules, 2004

These rules apply to all workplaces which regularly employ twenty or more employees including casuals/temporary workers.

Composition of the committee

Number of employees	Number of safety representatives
20 to 100	6-Members-3 representatives from workers and 3 from management
101 to 1000	10-members-5 representatives from workers and 5 from management
Over 1000	14 members-7 representatives each from workers and management

Organization of the committee

1. Management representative will be appointed by occupier.
2. Workers representative will be elected by workers and the occupier will be the overseer
3. Consideration to be made during appointment of safety representative
 - a) representation from different departments/ units/sections
 - b) Representation reflecting gender parity

Safety and health committee training

Within 6 months of appointment or election a committee member shall undertake the prescribed basic training course in OSH by institution approved by DOSHS and thereafter further training from time to time.

Functions of the committee

- a) Establish inspection schedule for each calendar year.
- b) Conduct safety and health inspection at least once in 3 months.
- c) Investigate, inspect and make recommendations to occupier immediately an accident or dangerous occurrence takes place.
- d) Identify occupational hazards and cases of ill-health among workers and make appropriate recommendations.
- e) Compile statistics of accidents, dangerous occurrences and cases of ill-health as primary data for providing remedial measures, planning and allocation of resources.
- f) Investigate complaints relating to workers health ,safety and welfare and make representations to employer on their findings.
- g) Advise on the adequacy of safety and health measures for particular hazardous work or activities.
- h) Establish effective communication channels between the management and the workers.
- i) Organize contests or activities necessary for achieving the fulfillment of the mandate of the committee.
- j) Conduct seminars and workers' education programs and provide information for safety, health and welfare at the workplace.
- k) Carry out any other function necessary for the promotion of a safe and healthy environment.

Role of the chairman

- a) Preside over all meetings at which he is present.
- b) Keep members informed of the safety and health policy.
- c) Assist the committee in setting of objectives and its scope of activities.
- d) Assign responsibility to members.

Role of the secretary -

- a) Be a competent person and member of management responsible for safety, health and welfare at the workplace.
- b) Call scheduled meetings, and any other as advised by the chairman
- c) Keep records of meetings and activities of the committee

Role of members:

- a) Attend all meetings.
- b) Provide feedback to their departments or units on safety, health and welfare issues raised at the meeting.
- c) Set good examples of safe and healthy work practices.
- d) Monitor compliance with safety and health rules in their respective departments or units
- e) Participate in training of workers in matters relating to safety and health.

- f) Carry out activities necessary for the promotion of occupational safety, health and welfare.
- g) Provide written recommendations to the occupier on areas and issues requiring action following inspections carried out under the rules.

Meetings

At least 4 times a year and not more than three months between meetings. The chairman shall convene meeting within 24 hours of accident or dangerous occurrence or outbreak of an unusual illness and minutes shall be sent to DOSHS within 7 days of the meeting.

Duties of the Occupier (manager/employer)

- a) Provide at no cost, a suitable venue and other facilities for holding committee meetings
- b) Ensure all safety representatives undertake training courses organized for the purpose of the policy
- c) Provide the committee with:
 - i. Information on accidents, dangerous occurrences and incidents of occupational diseases
 - ii. The necessary or relevant information on hazardous substances
 - iii. Safety and health reference materials and facilities
- d) Facilitate implementation and review of organization's safety and health policy
- e) Make available to the committee legislation on occupational safety and health

First Aid Rules, 1977

These Rules apply to workplaces, and require the occupier to put in place appropriate measures to ensure that those injured at work receive necessary medical attention. The Rules specify the contents of the first-aid box in accordance with the number of workers, and the training of first-aiders.

Fire Risk Reduction Rules, 2007

The Rules are intended to provide guidelines on fire prevention and control at the workplaces. Rules required occupiers to carry out a fire safety audit at least once in 12 months using services of an approved fire safety auditor.

Hazardous Substances Rules, 2007

- a) Provide occupational exposure limits (OEL) and Biological exposure indices (BEI) for Hazardous substances and Biological determinant respectively.
- b) They require every workplace where hazardous substances are used. The employer shall ensure that measurements of the substances in the air are carried out at least once in every 12 months by a certified Air Quality Monitor (AQM).

Medical Examination Rules, 2005

- a. Requires that every employer shall ensure that all persons employed in specified occupations involving risk to health undergo both pre-employment and periodic medical examination by designated health practitioners.

Noise Prevention and Control Rules, 2005

- a) Requires measurement of noise at workplaces at least once in every period of twelve months in order to determine the prevailing noise conditions.
- b) Also requires competent persons in the area of safety and health matters to carry out measurements of noise to determine the prevailing noise conditions.

Eye Protection Rules, 1977

These Rules apply to workplaces, and require the occupier to protect their employees against exposure that is injurious to the eyes.

Policies and Guidelines associated with OSH

- The National OSH Policy, 2012
- OSH Policy Guidelines for the Health Sector in Kenya, 2014
- National IPC Guidelines for Healthcare Services in Kenya, 2010
- National Policy on Injection Safety and Medical Waste Management, 2007
- Laboratory Biosafety & Biosecurity policy Guidelines, 2013
- Safe Phlebotomy Training for health Care workers in Kenya, 2013
- Other relevant policies and guidelines within the Health Sector.

MODULE 2: CLASSIFICATION OF HAZARDS AND THEIR CONTROL

This module discusses the various types of hazards in the workplace and their control measures.

Objectives

At the end of this module participants are expected to be able to:

1. Define the term “hazard”,
2. Categorize hazards and their effects,
3. Describe sources of exposure,
4. Discuss fire safety and management,
5. State hazard prevention and control measures of occupational hazards.

Definition –A ‘Hazard is a potential source of harm or adverse health effect on a person or persons’. Health and safety Authority (HSA). It is anything or situation which has the potential of causing harm, injury, disease, disruption or death to man. It may produce an immediate (acute) effects or long- term (chronic) problems that affect all or only part of the body. Someone with an occupational illness may not recognise the symptoms immediately, for instance detection of noise- induced hearing loss is often difficult for the victim, until it is advanced. Additionally some occupational diseases may take long to manifest e.g. mesothelioma due to asbestos exposure, musculoskeletal disorders.

Categories of Hazards

Hazards can be clustered into 6 categories: biological, chemical, physical, ergonomic, mechanical, and psychosocial.

1. Biological Hazards

Biological hazards, also known as biohazards, refer to biological substances that pose a threat to the health of a worker in health care facilities and community. This can include medical waste or samples of a microorganism, virus or toxin (from a biological source) that can affect human health posing a significant risk to health care and community care workers if not properly controlled.

Mode of exposure and Effects

1. **Contact** (direct or indirect): touching a person or contaminated surface, sexual contact. Examples of illness include: Ebola, haemorrhagic fever virus, enteric pathogens, **Droplet:** infected droplets come into contact with eyes, nose or mouth. Examples of illness include: influenza and rubella viruses, corynebacterium and diphtheria among others.

2. **Airborne: residue** from infected droplets or contaminated dust particles remain in the air for long periods of time and enter the body through the respiratory tract. Examples of illness include: TB, including MDR, chicken pox, and measles.
3. **Fecal-Oral route:** organisms infect the digestive system through contaminated food or water. Examples of illness include: salmonellosis, cholera, typhoid fever, hepatitis A.
4. **Vector:** Animals capable of transmitting disease, such as, mosquitoes, and fleas. Examples of illness spread by mosquitoes include: malaria, yellow fever, dengue fever.
5. **Percutaneous:** (needle stick/sharp injuries) and **Mucocutaneous route:** (splash of blood or other body fluids into the eyes, nose or mouth). Examples of illness include human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV).
6. **Contagious diseases** – Contagious diseases can be spread in 3 ways.
 - a) Direct physical contact with an infected person.
 - b) Direct physical contact with objects and other surfaces that an infected person has touched.
 - c) Coming in contact with airborne bacteria (through sneezing and coughing).

Examples – Ebola, measles, chicken pox, HIV/AIDS, Skin diseases.

Prevention and control

- a) Implementation of standard precautions (hand hygiene, handling of sharps, decontamination of instruments)
- b) Immunization against hepatitis B, influenza, yellow fever, typhoid,
- c) Management of waste materials
- d) Provision of appropriate and proper use of personal protective Equipment (PPE)
- e) Post Exposure Prophylaxis (PEP)

Summary - Control of biological hazards in healthcare settings

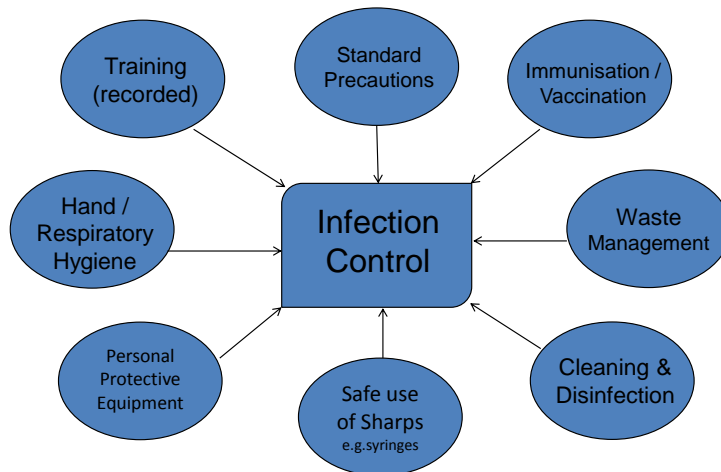


Figure Infection control in healthcare setting

2. Chemical Hazards

Chemicals hazards in the work environment can be solids, liquids, gases dust, fumes, mists, vapours, and small and fine particulate matter. These chemical agents include metals, acids, alkali, and solvents, asphyxiants and narcotics among others. Health care environment can house a vast array of chemicals. Examples of hazardous chemicals may include formaldehyde, used for preservation of specimens for pathology; ethylene oxide, glutaraldehyde, and paracetic acid used for sterilization; anaesthetics gases, laboratory reagents and numerous other chemicals used in healthcare. Even some drugs administered to patients can be harmful to staff if not properly handled e.g. cytotoxic drugs.

Modes of exposure and effects

1. **Inhalation:** gases, dust, vapour, fumes, aerosols or mists. Examples of chemicals here are xylene, formaldehyde
2. **Ingestion/swallowing:** occurs accidentally, through contaminated foods or drinks, touching mouth with contaminated hands, or inhaling airborne particles
3. **Topical (skin)** – chemicals such as acids or alkalis can corrode or burn the skin. Some such as organic solvents can penetrate through the skin causing systemic damage. Others cause allergic reactions.
4. **Ocular (eye):** chemicals that come into contact with the eye can cause damage.
5. **Injection:** sharp objects contaminated with chemicals can penetrate the skin and cause damage.
6. Chemical exposure can have severe effects to the body systems. Eg respiratory, nervous, skin and reproductive etc. other effects include cancers, tumors and mutations.

Prevention and control

- a) Availability and use of Material Safety Data Sheet (MSDS),
- b) Availability and use of chemical safety policies and Standard Operating Procedures (SOPs),
- c) Management of exposures and first aid,
- d) Emergency showerEmergency Eye wash station.

3. Physical hazards

Physical hazards are conditions or situations that can cause the body physical harm or intense stress. They can be natural and man made. They include extreme temperature, extreme pressure, noise, vibration and radiation that can be harmful to workers if not properly controlled. All can be found in excess in some health care settings. Other physical agents such as electrical energy, ionizing and non-ionizing radiation, or other forms of radiation used on patients can be harmful to workers if not properly controlled. The effects of these agents are explained below:-

Thermal conditions (Extremes of temperatures)- Both very cold and very hot temperatures could be dangerous to health.

- a) **Heat**- commonly understood as high temperature. Risks come about in conditions where temperature and/or humidity are unusually high, exposure to high radiant heat. In addition, other factors that can increase the heat risk are; high rate of performance in the work process, and working under the cover of heavy protective clothing. Excessive exposure to heat is referred to as heat stress whereas heat strain is the response both physiological and behavioural resulting from the applied heat stress. Prolonged exposures to mildly hot environment may cause discomfort, irritability, lassitude, decreased morale, increased anxiety and inability to concentrate. Increased exposure to heat can result in heat rash, heat cramps, heat exhaustion and finally heat stroke. Other consequences of extreme heat include cataracts, and aggravation of other medical conditions like cardiovascular and endocrinal disorders. In a very hot environment, the most serious concern is heat stroke. In absence of immediate medical attention, heat stroke could be fatal. Heat exhaustion, and fainting (syncope) are less serious types of illnesses which are not fatal but interfere with a person's ability to work. Control of heat stress can be achieved by increasing the distance between the equipment and the exposed workers, reduction of surface temperatures through change of operational temperature, surface insulation and reduction of heat emissions using radiation barriers between the surface and the working environment, water-cooling the hot surfaces, and use of portable reflective shielding. Other control measures include insulation and ventilation with cool dehumidified air, air conditioning and air movement, and evaporative cooling.

- b. Cold-** Excessive exposure to cold is referred to as cold stress. Cold stress arises when temperature is unusually low, high wind speed against a background of low temperatures. Working for long durations in a cold environment without protective clothing and use of bare hands increase the risk of cold stress. At very cold temperatures, the most serious concern is the risk of hypothermia or dangerous overcooling of the body. Another serious effect of cold exposure is frostbite or freezing or cold burns of the exposed extremities such as fingers, toes, nose and ear lobes. Hypothermia could be fatal in absence of immediate medical attention. Cold temperature diminishes the quality of work performed by hand especially when fine details are involved. Temperatures below 15°C reduce the sensitivity of the fingers resulting in decreased manual dexterity and consequently increasing the risk of accidents. Handling of cold metal objects at work can result in local freezing and metal-skin adhesions.

Extremes of Pressures

This is not encountered frequently in the health care facilities, however Caisson's syndrome and decompression diseases are common in extreme pressures.

Noise

Noise is unwanted sound. The effects of noise exposure are determined by the noise level and frequency, duration of exposure and individual susceptibility. It can be nuisance resulting in disturbance, loss of sleep and fatigue. High noise levels with long exposure duration can result in noise-induced hearing loss. Noise may also interfere with communication resulting in nervous fatigue, distract attention and concentration, mask perception of verbal safety warnings, signals and alarms hence an increased risk of occupational accident and injury. Damage can be due to rupture of the ear drum or injury to the sensory hair cells of the inner ear.

- a) **Acoustic trauma-** Sudden hearing damage caused by short burst of extremely loud noise such as a gunshot.
- b) **Tinnitus-** Ringing or buzzing in the ear -Temporary hearing loss: Also known as Temporary Threshold Shift (TTS) which occurs immediately after exposure to a high level of noise. There is gradual recovery when the affected person spends time in a quiet place. Complete recovery may take several hours.
- c) **Permanent hearing loss-** Permanent hearing loss, also known as Permanent Threshold Shift (PTS), progresses constantly as noise exposure continues month after month and year after year. The hearing impairment is noticeable only when it is substantial enough to interfere with routine activities. At this stage, a permanent and irreversible hearing damage has occurred. Noise-induced hearing damage cannot be treated and worsens as noise exposure continues.

When noise exposure stops, the person does not regain the lost hearing sensitivity. As the employee ages, hearing may worsen as "age-related hearing loss" adds to the existing noise-induced hearing loss. Control focuses on elimination of noise producing machines and processes that are not necessary, then substitution with preference to those generating less noise. Barriers can then be employed through enclosure of the noise source, increasing the distance between worker and the source of noise. Appropriate personal protective equipment can then be utilised as final option.

Vibration

Vibration is mechanical oscillation of a surface around its reference point, and basically classified into whole body vibration (WBV) and segmental vibration. Main example is the hand transmitted vibration (HTV). Whole-body vibration exposure occurs when the body is supported on a surface that is vibrating e.g. on trucks, tractors and other transport vehicles, and when working near vibrating industrial machinery. Hand-transmitted vibration exposure results from various processes in which vibrating tools or work pieces are grasped, pushed by the hands or fingers. WBV cause musculoskeletal, neurologic, circulatory and digestive (secretion and motility) system disorders. Low back pain, intervertebral disk damage, spinal degeneration, autonomic nerve dysfunction . Segmental vibration is associated with degenerative osteoarticular lesions in elbows and shoulders, and neurovascular syndrome; Hand-arm-vibration syndrome (HAVS)/ vibration white finger/ traumatic vasospastic disease. Vibration-induced white finger (VWF) is the most common condition among the operators of hand-held vibrating tools. The symptoms of VWF are aggravated when the hands are exposed to cold. Workers affected by HAVS commonly report:

- a. attacks of whitening (blanching) of one or more fingers when exposed to cold
- b. tingling and loss of sensation in the fingers
- c. loss of light touch
- d. pain and cold sensations between periodic white finger attacks
- e. loss of grip strength
- f. bone cysts in fingers and wrists

Vibration can be controlled by elimination or avoiding use of high risk tools, mounting vibrating machines on vibration isolators (anti-vibration mounts), and regular maintenance of vibrating tools because worn components may increase vibration levels. Seating in vehicles and vibrating static machines should be designed to minimize transmission of vibration to the operator, and permit an ergonomically good working position. Workers exposed to significant vibration hazards should be trained about the hazards and risks in use of vibrating tools, effects of vibration and control measures especially those within their control which can minimize risk e.g. proper adjustment of seating and working positions, correct handling and use of hand tools, and encourage early reporting of any symptoms.

Radiation

Radiation is divided into ionising and non-ionising. Ionising radiation is capable for producing ions when interacting with matter – x-rays (Roentgen), alpha, beta, gamma, cosmic rays. Source are x-ray machines, fluoroscope and CT Scan, radioactive drugs, Machines used in radiotherapy.

Non- ionising e.g. Ultraviolet - Sun light , Fluorescent lamps, Electric arc welding, Germicidal lamps. Effects of UV includes

- a. High ultraviolet – kills bacterial and other infectious agents
- b. High dose causes - sun burn – increased risk of skin cancer
- c. Pigmentation that results in suntan
- d. Suntan lotions contain chemicals that absorb UV radiation
- e. Reaction in the skin to produce Vitamin D that prevents rickets
- f. Strongly absorbed by air – thus the danger of hole in the atmosphere

Electrical Hazards

The major hazards associated with electricity are electrical shock and fire. Electrical shock occurs when the body becomes part of the electric circuit, either when an individual comes in contact with both wires of an electrical circuit, one wire of an energized circuit and the ground, or a metallic part that has become energized by contact with an electrical conductor.

The severity and effects of an electrical shock depend on a number of factors, such as the:

- a) Pathway through the body
- b) The amount of current
- c) The length of time of the exposure
- d) Whether the skin is wet or dry.

Water is a great conductor of plug electricity, allowing current to flow more easily in wet conditions and through wet skin. The effect of the shock may range from a slight tingle to severe burns to cardiac arrest. In addition to the electrical shock hazards, sparks from electrical equipment can serve as an ignition source for flammable or explosive vapors or combustible materials.

Loss of electrical power can create hazardous situations.

- a) Flammable or toxic vapors may be released as a chemical warms when a refrigerator or freezer fails.
- b) Fume hoods may cease to operate, allowing vapors to be released into the laboratory.
- c) Biosafety cabinets may cease to operate allowing aerosols be released into the laboratory
- d) If magnetic or mechanical stirrers fail to operate, safe mixing of reagents may be compromised.

Prevention and control of Electrical Hazards

The hazards caused by electricity can be prevented and controlled by insulation, guarding, grounding, and electrical protective devices. The following measures can be taken to promote safety while using electricity and electrical equipment:-

- a) Inspection of wiring of equipment before each use. Replacement of damaged or frayed electrical cords immediately.
- b) Provision of information of specific location and how to operate shut-off switches and/or circuit breaker panels.
- c) Limit the use of extension cords. Use only for temporary operations and then only for short periods of time. In all other cases, request installation of a new electrical outlet.
- d) Multi-plug adapters must have circuit breakers or fuses.
- e) Place exposed electrical conductors (such as those sometimes used with electrophoresis devices) behind shields.
- f) Minimize the potential for water or chemical spills on or near electrical equipment.

Summary of prevention and control of physical hazards

- a. **Noise** – noise minimization through muffling, use of acoustic materials and signage. Noisy equipment should be appropriately sited and isolated. Hearing conservation programme for noisy areas and use of appropriate PPEs.
- b. **Vibrations** – appropriate personal protective equipment and mechanization of processes
- c. **Ionising Radiation** – time, distance, shielding, monitoring
- d. **Light** – adequate and avoid glare
- e. **Extreme hot temperatures** – PPE (, time (shifts), personal clothing (cotton, light and loose fitting), rehydration (water avoid beverages), ventilation (spot cooling fans, air conditioning), monitoring, permit to work
- f. **Extreme cold temperature** – PPE, time (shifts), monitoring
- g. **High Pressures** – decompression camps, permit to work

4. Ergonomic

The word Ergonomics comes from the Greek words “Ergos”--(work) and “Nomos”-- (natural law). Ergonomics is the study of how human beings relate to their work environment. The result of ergonomics is the adaptation of the workstation design and work tools to suit the individual performing a particular job function. The application of ergonomic principles to workstation design can result in increased effectiveness, work quality, health and safety, and job satisfaction

Healthcare personnel are also exposed to many ergonomics risk factors due to the nature of their work. Common examples of ergonomic risk factors are found in jobs requiring repetitive, forceful, or prolonged exertions of the hands; frequent or heavy lifting, pushing, pulling, or

carrying of heavy objects; and prolonged awkward postures. Vibration and cold may add risk to these work conditions. Jobs or working conditions presenting multiple risk factors will have a higher probability of causing a musculoskeletal problem. Environmental work conditions that affect risk include intensity, frequency and duration of activities.

Prevention and control

Mechanization (equipment and assist devices), proper work station design, use of appropriate tools, proper lifting procedures (transfer patient bed to chair, chair to stretcher, bed to stretcher, car to chair etc), adequate staffing, training

Safe systems of work

DOs:

- a) Push rather than pull.
- b) Keep a good grip.
- c) Maintain clear vision between the object and your destination.
- d) When lowering an object, try and keep the natural curve of your back.
- e) Place the load on the edge (tailgate) and push it back.

DON'T:

- a) Lift above shoulder height.
- b) Catch falling objects.

5. Mechanical Hazards

A mechanical hazard is any hazard involving a machine or process. Equipment used in healthcare facilities if not properly installed and maintained may pose mechanical hazards. Compressed gases or liquids can also be considered a mechanical hazard. Dangers in machinery are divided into

1. **Continuing danger** – the danger that occur during the normal operation of the machinery such as dust, heat, fumes among others and
2. **Contingent danger** - the danger which is as a result of failure of a guard or a safety device. When a guard or device fail, it must “fail safe” This implies that when a guard or a device does not function, no machinery should be in a functional state.

Effects

- i. being trapped between fixed and moving parts of machines
- ii. entanglement
- iii. struck by moving parts
- iv. striking fixed/and or moving parts
- v. being struck by ejected flying particles
- vi. Friction (abrasion)
- vii. Cutting
- viii. Shearing
- ix. Crushing
- x. Puncture

Prevention and control

- a) Training of operators to get competent persons
- b) Incorporating machinery safeguards in design
- c) improvisation/modification where necessary
- d) Maintenance of machines
- e) Use of suitable PPE

6. Psychosocial Hazards

Psychological hazards include an unsatisfactory work environment such as “work overload, lack of control over one’s work, non-supportive supervisors or co-workers, limited job opportunities, role ambiguity or conflict, rotating shift work, and machine-paced work.” Psychosocial hazards, however, may be anything that conflicts with an employee’s social and mental well-being, including workplace violence

Stress

Stress is the “wear and tear” our minds and bodies experience as we attempt to cope with our continually changing environment

Negative stress-Is a contributory factor in minor conditions, such as headaches, digestive problems, skin complaints, insomnia and ulcers

Excessive, prolonged and unrelieved stress can have a harmful effect on mental, physical and spiritual health

Positive stress- Stress can also have a positive effect, spurring motivation and awareness, providing the stimulation to cope with challenging situations. Stress also provides the sense of urgency and alertness needed for survival when confronting threatening situations

Main causes of stress at work are:-

- a) shift work
- b) work overload
- c) lack of task control/role ambiguity
- d) working alone
- e) drug and alcohol abuse
- f) Violence
- g) Working with terminally ill
- h) Poor work relationships
- i) Unfair management (bossy)
- j) Financial and economic factors
- k) Conflict between work, family roles and responsibilities
- l) Lack of opportunity for growth and promotion
- m) Bullying
- n) Sexual harassment

Effects

- a) Burnout
- b) Irritability
- c) Depression
- d) Anxiety
- e) Absenteeism
- Presenteeism- insomnia, headache, stomach upsets, loss of appetite
- f) high blood pressure, ulcers, neurosis, stroke

Prevention and control

1. Work Schedule should be compatible with demands and responsibilities outside the job. When schedules involves rotating shifts the rate of rotation should be stable and predictable
2. Work load: demands should tally with the capabilities and resources of individual
3. Contents: jobs should be designed to provide meaning, stimulation and an opportunity to use skills
4. Participation and control: workers should be given the opportunity to have input on decision that affect their jobs
5. Work roles: roles and responsibilities at work should be well defined
6. Social environment: opportunities for personal interactions both for purposes of emotional support and help as needed in accomplishing assigned tasks (sports club, family fun days, open events)
7. Job future : career development and job security
8. Counselling,
9. Psychotherapy
10. Developing Employees Assistance Programme
11. Use of Rights based Approach - Equality and Basic Rights
 - a) The right to express my feelings
 - b) The right to express opinions / beliefs
 - c) The right to say 'Yes/No' for yourself
 - d) Right to change your mind
 - e) Right to say 'I don't understand'
 - e) Right to be yourself, not acting for the benefit of others
 - f) The right to decline responsibility for other people's problems

Safety Signage

Safety signs give a specific message to those who may be exposed to hazards in the workplace. The message may be to **prevent accidents**, signify **health hazards**, indicate the location of **safety and fire protection** equipment, or for giving guidance and instruction in an **emergency**.





Personal protective equipment (PPE)

Objectives of the sub module

At the end of this sub module participants should be able to:

1. Define and state various types of PPE
2. Explain the benefits of use and consequence of not using PPE
3. Explain the role of management in PPE
4. Explain the role of Employee in PPE

Definition of personal protective equipment

Personal protective equipment is a device that is worn by a worker in order to prevent any part of his body from coming into contact with hazards present at his or her place of work.

1. The material of PPE's chosen must be able to withstand the specific hazard prevailing in a given work place.
2. PPE is the last means of hazard control
3. Must be carefully selected
4. Good fit is important
5. Does not make wearer invincible
6. Only works if worn correctly

Types of personal protective equipment

There are various types of PPE depending on the type of hazards prevailing in any given place of work. PPE act as barriers between the worker and the hazard and include;-

- a) Head gear(helmets and caps
- b) Ear protectors or defenders (ear muffs and ear plugs)
- c) Face shields
- d) Goggles
- e) Safety spectacles
- f) Masks (dust, fluids)
- g) Respirators
- h) Safety shoes/boots
- i) Gloves/Mittens
- j) Aprons
- k) Overalls
- l) Dust coats
- m) Safety harnesses
- n) Safety belts

Protection of the various parts of the body

1. Head protection- The head is protected by use of head gears.

Role of headgears includes:-

- a) Protects the head from injury on impact by falling objects. Here helmets (hard hats) are used.
- b) Prevents the entanglement of hair in machinery. Here fabrics cap (soft caps) are used
- c) Prevents foodstuffs from contamination by hair and dandruff
- d) Protects the head from splashes of corrosive chemicals. Here plastic or P.V.C caps are used.

2. Eye and face protection-The eyes are protected by use of eye protectors which include:-

- a) Clear plastic or glass goggles with side shields for protecting the eyes from flying objects
- b) Safety spectacles with toughened lenses and side shields for workers with eyes defects and who are exposed to flying objects.

Both the eyes and face are protected by use of:-

- a) Clear or transparent plastic face shields or visors for protecting persons from corrosive chemical splashes.
- b) Tinted (darkened) glass goggles or face shields for protecting persons from harmful radiation (light) emitted by welding processes.

3. Ear protection

The ears are protected by use of ear defenders or protectors, the ears are protected from dangerously high noise levels. There are two types of ear protectors

- a) Ear muffs
- b) Ear plugs

4. Respiratory system protection

The objective of respiratory system protection is to prevent contaminated air from getting into the respiratory system. Air contaminants include dusts, vapours, gases and fumes. The respiratory system is protected by use of respirators.

Types of respirators includes

- a) Air-Purifying Respirators
 - i. Cover the mouth and nose and trap or filter air contaminants before they enter into the respiratory system.
 - ii. Are used in an environment which contain enough oxygen
 - iii. Examples of air-purifying respirators include:-Simple dust masks for use against nuisance dust (non-toxic dust) and Face masks (half-face masks or full-face masks)
 - iv. The face masks contain replaceable filters or cartridges
 - v. Each cartridge or filter trap only the air contaminant it has been designed for e.g. some will trap Chlorine (Cl_2), Hydrogen Sulphide (H_2S), Sulphur Dioxide (SO_2), Carbon Monoxide (CO) etc.

- b) Air-Supplying Respirators

Are used where a person has to work in an oxygen deficient environment e.g. During fire fighting, Carrying out repairs in confined spaces, Research in space and under water And carrying out research operations (rescuing drowning people or people in a burning building)

Examples of air-supplying respirators:

- (i) Portable air-supplying respirators-The weaver carries the air (O_2) on his/her back in a cylinder
- (ii) Air-supplying respirators with an external source of air (O_2)- Air is pumped from a remote or external source (air receiver) through a hose pipe to a face mask

5. Hand/arm protection

The hand and arm is protected by use of gloves, there are various types of gloves depending on the type of hazard at a given place of work

Types of gloves

- i. Single use examination gloves: should be worn for procedures where there will be contacts with intact mucous membranes like IUD insertions, or pelvic examination etc
- ii. Surgical gloves: used for all clinical procedures where staff are in contact with the tissues under the skin or with the bloodstream. i.e surgical procedures, norplant implant insertion etc

- iii. Heavy duty gloves: thick rubber gloves for handling contaminated instruments equipment patients and other items. These can be reused after cleaning.

To make selecting the right medical glove even more interesting they are also available in powdered, non-powdered, sterile, non-sterile, textured and coated.

6. Foot protection

Various types of footwear are used depending on the prevailing hazard at a given place of work

Types of footwear

- i. Safety shoes or boots fitted with metal toe caps for use when exposed to falling objects
- ii. Safety gumboots for use when exposed to wet and corrosive chemicals
- iii. Safety shoes/boots with oil resistant or heat resistant soles for use when exposed to organic compounds or when working on hot floors

7. Main body protection

The main body is protected by use of overalls, dustcoats and aprons. Overalls, dustcoats and aprons protect the wearer's home clothes against contamination by work place hazards such as dusts, dirt, and chemicals etc. They minimize the risk of entanglement of home clothes by machinery and the material of the overall will depend on the nature of hazard at the work place eg

- i. For corrosive chemicals (use plastic or P.V.C type)
- ii. For cold environments (cold rooms) use Eskimo suits
- iii. For hot environments use asbestos overalls or leather type

NB: Non use of PPE could lead to dismissal.

Role of management in the provision of PPE

- a) Management must provide free of charge the correct PPE by taking into account the nature of hazard at their premises
- b) Must demonstrate how to use the PPE
- c) Inspect PPE regularly before and after use
- d) Ensure PPE are cleaned dried and stored in a clean place after use.
- e) Issue the PPE individually and ensure that no sharing takes place.
- f) Ensure PPE is not taken home
- g) Training on PPE and cover
 - i. What PPE is necessary
 - ii. When PPE is necessary
 - iii. How to properly inspect PPE for wear or damage
 - iv. How to properly put on and adjust the fit of PPE
 - v. How to properly take off PPE

- vi. The limitations of the PPE
- vii. How to properly care for and store PPE

Role of employees on PPE

- a) Must make full use of PPE provided
- b) Must report to the management the loss or damage of or any defect in PPE
- c) Must take reasonable care of the PPE and not wilful misuse them.

Fire safety and Management

Objectives

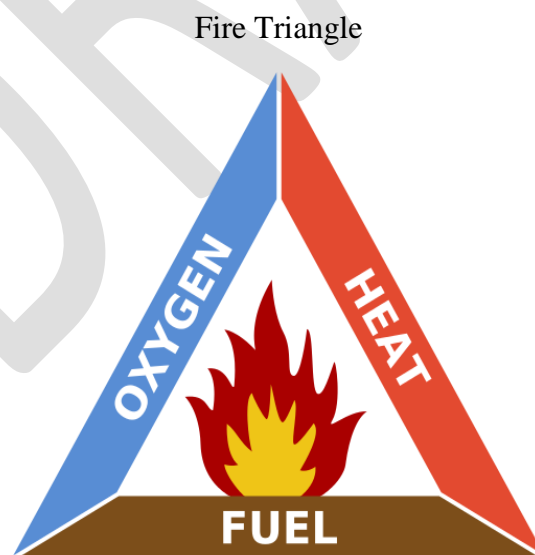
At the end of this sub module participant should be able to

- 1. Define and classify fire
- 2. Describe fire risk evaluation
- 3. Explain fire detection and preparedness
- 4. Explain fire prevention strategies
- 5. Explain evacuation procedure in fire management
- 6. Formulate fire safety programme

Definition:

Fire is a process of combustion in which energy is released in form of heat and light.

It occurs when three of the following components are present in the environment; Fuel, Heat at a minimum temperature and Oxygen – usually air



Classification of Fires and extinguishing agents:-

Class 'A': It involves fires that occur in materials such as wood, paper, lags and rubbish.

Extinguishing agent – large quantity of water.

Class 'B': This involves fires that occur in vapour mixture of flammable liquids. G.G. Gasoline, oil, grease, paints and Thinners. **Extinguishing agent – dry chemical, Carbon dioxide, very fine water spray.**

Class 'C': It Involves types of fires caused by energized electrical equipments. Extinguishing agent – **dry chemical, Carbon dioxide, very fine water spray.**

Class 'D': it is the type of fires that involves burning of metals e.g. potassium, titanium, Zirconium, Lithium, Potassium and Sodium. **Extinguishing agent-dry powder.**

Fire Hazard

When fire is uncontrollable or unwanted it is referred as a hazard, and may result to one all of the following consequences:

- a) Loss of life
- b) Personal injury
- c) Loss or damage to property

Development of Fire

There are four main stages of fire development. They are:-

- a) Incipient stage
- b) Smouldering stage
- c) Flame stage
- d) Heat Stage

Understanding these stages will assist the occupier to take appropriate action.

Suppression of Fire

To suppress fire one of the three components that support fire must be removed or eliminated by:-

- a) Cooling – removing heat by lowering temperature
- b) Smothering – separating oxygen from fuel and heat.
- c) Starvation – removing fuel.

Fire Risk Evaluation

It may be considered in three major groups:-

- a) Recognition of hazards and potential dangers
- b) Evaluate the hazards and expected loses.
- c) Evaluate the preventive measures required.

In doing that take into account of the situation of premises, site, building construction, content, management factors, people, fire protection systems and follow up after fire.

Factors that contribute to most fires

This includes; electrical, incendiarism {Behaviour}, smoking, hot surfaces, friction, overheated material, cutting and welding, open flames, spontaneous ignition, combustion sparks, molted substances, static sparks, chemical action and lightening.

Fire Detection

There are two major facilities:

- a) Human observer and
- b) Automatic fire detection systems

Fire Preparedness

The main objective is to prevent, control and manage fire disaster in the workplace. This may be achieved through: -

- 1) Fire prevention by controlling fire hazards.
- 2) Establishing evacuation procedures in case of fire.
- 3) Establishing a team to extinguish fires at early stages.

Fire Prevention

Survey the premises or workplace to establish and record the following observations for the purpose of instituting remedial measures: -

- a) Fire Load
- b) Fire hazards
- c) Fire fighting equipment
- d) Building fire protection facilities

Fire Fighting Team

Establish a fire fighting team with well-defined responsibilities in case of fire.

Evacuation procedures

On hearing the fire alarm sound, the following steps are necessary to observe;

- a) Stop machine and switch off power.
- b) Close the doors and windows behind you. Do not lock the doors.
- c) Leave the building through the marked fire exists.
- d) Do not use lifts.
- e) Use corridors, staircases and external routes.
- f) Do not panic and do not make unnecessary noises.
- g) Assist visitors, customers, patrons by leading them through the fire exists.
- h) Do not allow people to come back to the building.
- i) Do not stop to collect personal belongings unless clear escape is obvious.
- j) Join the firefighting team if you are a member and render any necessary assistance.
- k) Proceed to the assembly point for roll-call.

Fire Safety Programmes

- a) Fire Safety Programmes must be established to include inspection, fire drills, training, management procedures and communication.
- b) Fire drill is an important exercise for instilling skills on evacuation procedures in event of fire.

- c) Remember that fire consequences are completely avoidable if safety requirements are observed.

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MODULE 3 SAFE WORK PROCEDURES

Objectives

At the end of this module, participant should be able to:

1. Identify and manage risks at workplace
2. Investigate and prevent accidents
3. Apply First Aid skills
4. Describe the importance of medical surveillance
5. Classify and describe occupational diseases
6. Carry out workplace safety and health inspection
7. Explain waste management processes

Risk management

The process of risk management includes hazard identification, risk assessment, risk control and risk communication. The overall level of organizational risk is dependent on the interaction between hazards, operations and people.

- a) **Risk** is the probability of occurrence of an adverse event from a substance on people or the environment combined with the magnitude of the consequence of that adverse effect
- b) **Hazard** is a situation that poses a level of threat to life, health, property, or environment. Most hazards are dormant or potential, with only a theoretical risk of harm. Examples are: Electricity, forklift truck, chemicals etc.

Where this occurs

- a) **Operations** - Office work, clinical areas, production processes, transportation and other specific work areas (eg. kitchen, stores, workshops etc).

- b) **Who is affected?**

These include patients, visitors, managers, administrators, worker and other stakeholders.

Risk identification and Job Safety Analysis

Risk identification is the process through which we identify the probability of occurrence of an adverse event (risk) and categorise as well as documenting and listing the risks

A Job Safety Analysis (JSA) is one of the risk assessment tools used to identify and control workplace hazards. A JSA is a second tier risk assessment with the aim of preventing personal injury to a person, or their colleagues, and any other person passing or working adjacent, above or below. JSAs are also known as Activity Hazard Analysis (AHA), Job Hazard Analysis (JHA) and Task Hazard Analysis (THA).

Four basic stages in conducting a JSA are:

- a) selecting the job to be analyzed
- b) breaking the job down into a sequence of steps
- c) identifying potential hazards
- d) determining preventive measures to overcome these hazards

Factors to be considered in setting a priority for analysis of jobs include:

- a) Accident frequency and severity: jobs where accidents occur frequently or where they occur infrequently but result in disabling injuries.
- b) Potential for severe injuries or illnesses: the consequences of an accident, hazardous condition, or exposure to harmful substance are potentially severe.
- c) Newly established jobs: due to lack of experience in these jobs, hazards may not be evident or anticipated.
- d) Modified jobs: new hazards may be associated with changes in job procedures.
- e) Infrequently performed jobs: workers may be at greater risk when undertaking non-routine jobs and a JSA provides a means of reviewing hazards.

Hazard identification Process

- a. After a job has been chosen for analysis, the next stage is to break the job into steps. A job step is defined as a segment of the operation necessary to advance the work.
- b. Most jobs can be described in less than ten steps. If more steps are required, you might want to divide the job into two segments, each with its separate JSA, or combine steps where appropriate
- c. Once the basic steps have been recorded, potential hazards must be identified at each step. Based on observations of the job, knowledge of accident and injury causes, and personal experience, list the things that could go wrong at each step.
- d. To help identify potential hazards, the job analyst may use questions such as;
 - i. Can any body part get caught in or between objects?
 - ii. Do tools, machines, or equipment present any hazards?
 - iii. Can the worker make harmful contact with moving objects?
 - iv. Can the worker slip, trip, or fall?
 - v. Can the worker suffer strain from lifting, pushing, or pulling?
 - vi. Is the worker exposed to extreme heat or cold?
 - vii. Is excessive noise or vibration a problem?
 - viii. Is there a danger from falling objects?
 - ix. Is lighting a problem?
 - x. Can weather conditions affect safety?
 - xi. Is harmful radiation a possibility?
 - xii. Can contact be made with hot, toxic, or caustic substances?
 - xiii. Are there dusts, fumes, mists, or vapours in the air?
 - xiv. Is there potential of exposure to biological hazards?

Risk assessment

Risk assessment is a process of making a determination of how safe a situation is, and then making judgement of the acceptability of the risk.

The aim of the risk assessment process is to remove a hazard or reduce the level of its risk by adding precautions or control measures, as necessary. By doing so, you have created a safer and healthier workplace

Why do a risk assessment

- Create awareness of hazards and risks
- Identify who may be at risk (employees, cleaners, visitors, contractors, the public, etc)
- Determine if existing control measures are adequate or if more should be done
- Prevent injuries or illnesses when done at the design or planning stage
- Prioritize hazards and control measures

Steps of risk assessment

The technique chosen must take into account the hazards involved, the number of people who may be affected, and the size of the organization. Simple hazards may be assessed by means of simple qualitative techniques while complex hazards are best assessed by thorough quantified or semi quantified techniques.

Qualitative approach in risk assessment

- a. Normally descriptive in nature and do not use standards for likelihood, harm or acceptability of risk.
- b. Used in low hazard environment areas eg offices and in small and medium sized organizations
- c. Steps in qualitative approach
 - i. Identify task
 - ii. Identify the hazards associated with the task
 - iii. Identify the people affected by the hazard
 - iv. Identify control measures in place
 - v. Recommend further action.

Quantitative approach in risk assessment (risk matrices)

- a) 3x3 matrix is the simplest version and the least quantified
 - Provides very little differentiation between low, medium and high levels of risk.

- Used only for simple hazards in low risk environments in small and medium size companies

L I K E L I H O O D	Likely	MEDIUM RISK	HIGH RISK	EXTREME RISK
	Unlikely	LOW RISK	MEDIUM RISK	HIGH RISK
	Highly unlikely	INSIGNIFICANT RISK	LOW RISK	MEDIUM RISK
		Slightly Harmful	Harmful	Extremely Harmful
CONSEQUENCES				

Risk Levels

- Insignificant-Acceptable risk. No further action required
- Low- Tolerable risk but look for areas of improvement
- Moderate-Improve risk control measures within 3 months
- high-Stop operation and make immediate improvements

b) 5x5 matrix

is the most common encountered matrix. Standards used for probability, severity and acceptability are normally descriptive but can be made semi-quantified by the use of probability values and quantified values of severity.

- Provides adequate level of differentiation between wide ranges of risks and risk levels
- May be applied in most work environments and with most hazards.

		CONSEQUENCES					
		1	2	3	4	5	
LIKELIHOOD	1	1	2	3	4	5	Low Risk
	2	2	4	6	8	10	Medium Risk
	3	3	6	9	12	15	
	4	4	8	12	16	20	High Risk
	5	5	10	15	20	25	

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Risk Levels

- a) 1 – 4 (insignificant) Acceptable risk. No further action required
- b) 5 – 9 (low) Tolerable risk but look for areas of improvement
- c) 10 – 16 (moderate) Improve risk control measures within 3 months
- d) 17 – 25 (high) Stop operation and make immediate improvements

When is risk assessment done?

- a) Any time there is new or redeployed / transfer of staff/ equipment/ method
- b) Any time there is an accident/ incident or near miss
- c) At scheduled annual risk assessments
- d) During maintenance activities.
- e) During disposal of equipment

How does one carry out risk assessment?

- a) Use risk assessment tools.
- b) Consider whether to carry out the assessment for the whole facility/ department/ machinery or specific procedure
- c) Identify the gaps.
- d) Analyze the data generated.
- e) Determine if the risk is high, moderate or low.
- f) Develop correction plans and budget.

Who conducts the risk assessment

- a) OSH committee at different facility levels
- b) SOSH representative.
- c) COSH Focal person.
- d) DOSHS approved auditors.

Common mistakes during risk assessment include;

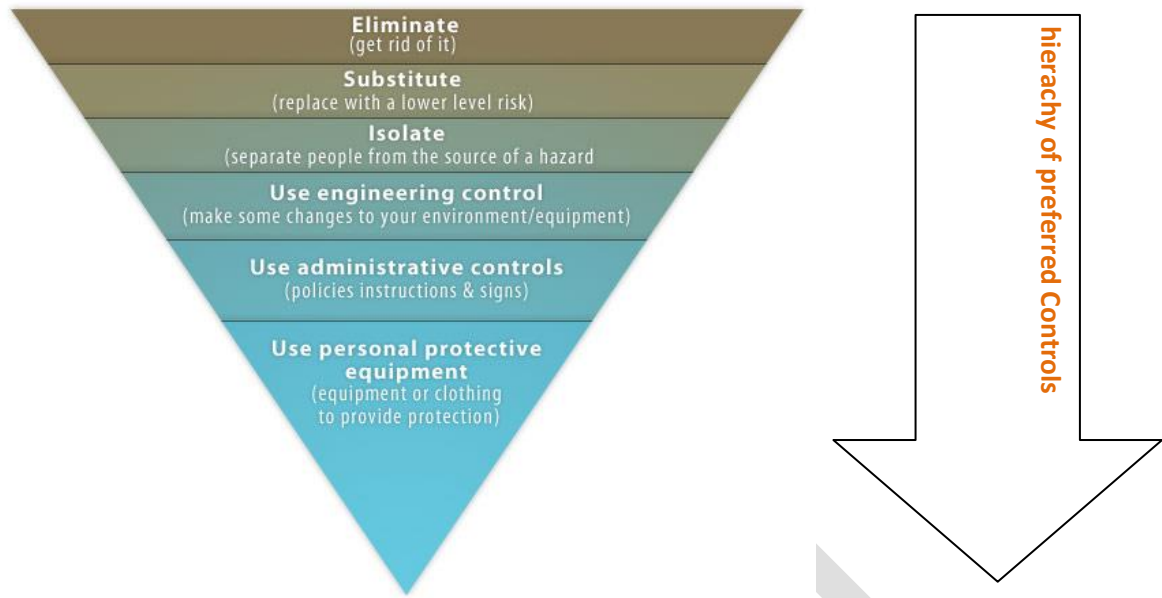
- Carrying out Risk Assessments only for Legal reasons: Primary reasons for carrying out Risk Assessments is to manage safety.
- Done from the desktop/ office: It is important to view the operations and discuss what actually happens (not just what should happen)
- Covering only Control Measures in place: You need to know what control measures are in place but far more important what controls should be in place but aren't
- Lack of a Management Plan: This should address the highest ranking risks
- Not Ranking the risks: You need to rank the most serious risks at the top of your list

Risk control

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories i.e avoid, control, accept, or transfer (ACAT).

In risk control, it is important to determine the nature and severity of the risk, who is affected and the frequency of the risk. The following risk control methods are recommended;

- a) Elimination: The process of removing the hazard from the workplace.
- b) Substitution: Means using a less toxic substance to replace one that is less hazardous.
- c) Isolation: Separates the worker from the source of hazards
- d) Engineering controls: Are methods that are built/modified into the design of a plant, equipment or process to minimize the hazard
- e) Administrative controls: Limit workers' exposures by reducing duration, job rotation and work rest schedules.
- f) Personal protective equipment (PPE): Equipments used to protect the worker against health or safety risks at work



Risk communication

This is the dissemination of information to stakeholders about the likelihood and consequences of adverse effects

Risk communication seeks to;

- Promote the establishment of appropriate prevention and control actions
- Establish appropriate emergency response mechanisms
- Develop risk communication plans

Consideration

- message-target-audience
- Sensitivity and confidentiality of the risks
- Communicator-Good speaker, identify with audience
- Social, religious, cultural, political and economic aspects associated with a certain area, as well as the concerns of the affected population.
- Dissemination should be through appropriate channels

Monitoring risk control program and methods

It is important to monitor both the hazard and the control method to make sure that the control is working effectively and that exposure to the hazard is reduced or eliminated. Some tools include physical inspection, testing, exposure assessment, observations, injury and illness tracking, employee feedback/input, occupational health assessment and other methods.

Be sure to answer the following questions:

- Have the controls solved the problem?

- b) Is the risk posed by the original hazard contained?
- c) Have any new hazards been created?
- d) Are new hazards appropriately controlled?
- e) Are monitoring processes adequate?
- f) Have workers been adequately informed about the situation?
- g) Have orientation and training programs been modified to deal with the new situation?
- h) Are any other measures required?
- i) Has the effectiveness of hazard controls been documented in your committee minutes?
- j) What else can be done?

Occupational diseases

Occupational diseases are acute, recurring or chronic health problems caused or aggravated by work conditions or practices.

ILO Definitions

- a. occupational diseases covers any disease contracted as a result of an exposure to risk factors arising from work activity (Protocol of 2002 to the Occupational Safety and Health Convention, 1981 (No. 155))
- b. diseases known to arise out of the exposure to substances and dangerous conditions in processes, trades or occupations as occupational diseases. (The ILO Employment Injury Benefits Recommendation, 1964 (No. 121), Paragraph 6(1))

Kenya – Definition

occupational diseases” means any departure from health occasioned by exposure to any factor or hazard in the workplace. (the factories and other places of work act (medical examination rules), 2005)

Work related diseases are those with multiple causes where factors in the work environment may play a role in their development or progression.

Two main elements are present in the definition of occupational diseases namely:-

- i. The **work place hazards** which predispose the worker to a particular agent/work process.
- ii. The **exposure effect** (temporal) relationship between a specific working environment and/or activity and a specific disease effect

According to the Factories & Other Places of Work (Medical Examination) Rules, 2005, an occupational disease is any departure of health occasioned by exposure to any factor or hazard at the workplace.

- i. There is need to identify the occupational origin of these diseases for the purpose of their:-
 - a. Prevention
 - b. compensation
 - ii. Help to better health surveillance of workers
- Occupational diseases, by definition, exclusively affect working people exposed to specific hazards in question but other factors may nevertheless play a varying role in their occurrence. These factors include:-
- (a) Individual susceptibility

- (b) Age/Sex
- (c) Personal characteristics and social cultural factors
- (d) Amount of exposure (Dose)
- (e) Duration of exposure (Time)
- (f) Extent and type of exposure (inhalation, ingestion, Skin)
- (g) Nutritional status
- (h) Prevailing health status

Work-related diseases on the other hand are multifactorial and often also occur among the general population. Such diseases include, among others, hypertension, ischaemic, heart diseases, asthma, chronic non-specific respiratory diseases and peptic ulcers.

When they affect the worker, that may be aggravated, accelerated or exacerbated by workplace exposures (e.g. noise, chemicals, heavy workload, dust, stress etc) and may impair working capacity.

Impact of Occupational diseases

An estimated 2.34 million people die each year from work-related accidents and diseases. Of these, the vast majority -an estimated 2.02 million- die from a wide range of work-related diseases. Of the estimated 6,300 work-related deaths that occur every day, 5,500 are caused by various types of work-related diseases.

The ILO also estimates that 160 million cases of non-fatal work-related diseases occur annually

Classification of Occupational diseases

1. According to causative agent(s)
 - a. chemical agents- mercury, beryllium, lead
 - b. physical agents – noise, vibration, radiation
 - c. Biological agents- brucellosis, Hepatitis, HIV, TB, Anthrax
2. According to target organ systems
 - a. Respiratory
 - b. Skin
 - c. Musculoskeletal
 - d. Mental and behavioural disorders
3. Occupational cancers
4. Others

Examples of Occupational Diseases

- (1) Skin - Allergic and irritant contact dermatitis
- (2) Pulmonary - Asthma, Silicosis, premonitis.
- (3) CNS - encephalopathy - secondary to Carbon disulphide (CS₂), Carbon monoxide (CO), lead, manganese, mercury, chromates, Nickel organic
- (4) Cancer - Bronchus – Asbestos, Chromates, Nickel Arsenic
 - a) Bladder – filthy (urines, Anile dye, rather)
 - b) Ulcer – VCM, Aspergillosis
 - c) Blood – Radiation, chemicals e.g. Benzene
 - d) Skin – radiation, Nickel.

(5) Biological agents

- a. Bacteria e.g. anthrax, TB
- b. Viruses e.g. rabies, HIV AIDS, hepatitis, Ebola etc
- c. Fungi e.g. candida, aspergillums
- d. Proteins from animal skin, hair from furs and protein from faecal material and urine can cause allergies leading to diseases like occupational asthma and allergic alveolitis

(6) Psychosocial factors

- a) Stress at work.
- b) Workplace stressors include among others:-
 - i. Threats
 - ii. Pressure
 - iii. Frustration

Prevention of Occupational diseases:

- a. Elimination of hazards by substitution or redesign.
- b. Total/partial enclosure of process.
- c. Local exhaust ventilation
- d. Segregation of process e.g. Noise, radiation, engineering control.
- e. Limitation of exposure – time factors
- f. General ventilation
- g. Cleanliness of workplaces and personal hygiene.
- h. Appropriate personal protective equipments.
- i. Environment and Biological monitoring of peoples at greatest risk.
- j. Medical examinations:- Pre-employment/pre-placement- Periodic- Statutory (special)
- k. Return to work – rehabilitation
- l. Stress management-team buidling, workshops, annual leaves etc
- m. Health Education
- n. Investigation as appropriate:-
 - i. Lung function (Vitalograph / Spirometry/ Peak Expiratory Flow Rate (PEFR)
 - ii. Blood
 - iii. Patch testing (skin test)
 - iv. sweat, saliva ,Urine, Stool ,x-ray

Diagnosis of occupational diseases

1. Occupational history
2. Thorough medical exam
3. Investigations should be carried out as appropriate e.g.
 - Lung function
 - Blood
 - Patch testing (skin test)

- sweat, saliva , Urine, Stool
- x-ray, etc

4 Literature search

5 Appropriate referral

Occupational accidents

Definition

Accident: An unforeseen and undesired event that results in harm to people, damage to property, loss to process or damage to the environment. It usually implies a generally negative outcome which might have been avoided or prevented had circumstances leading up to the accident been recognized, and acted upon, prior to its occurrence.

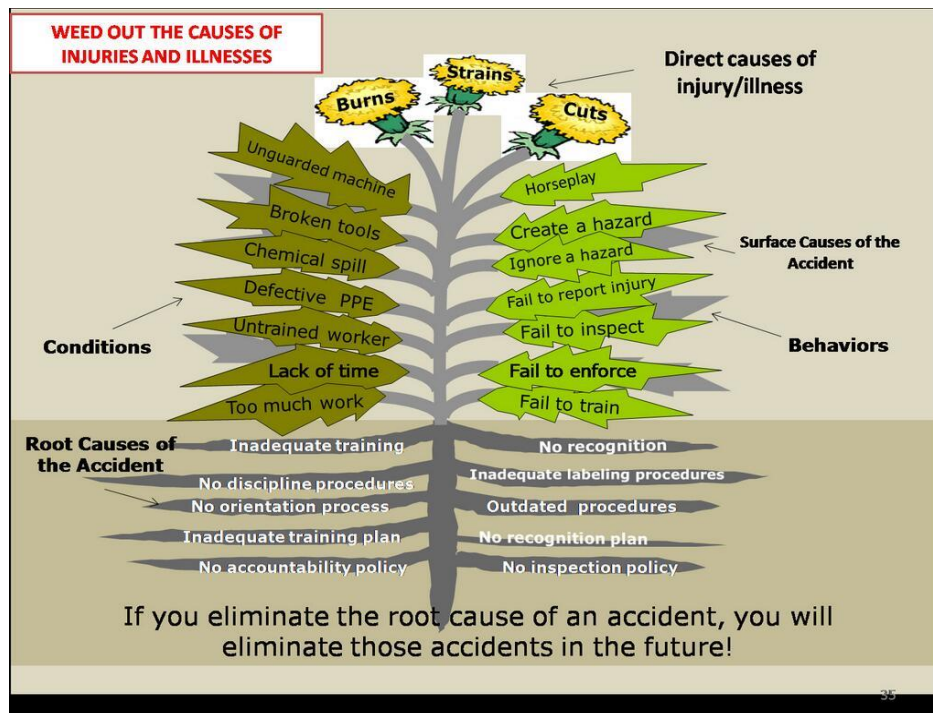
Near miss: Unplanned event that does not result in injury, illness or damage but has the potential to do so.

Causes of occupational accidents

All accidents or near miss situations are preceded by:-

- a) **Unsafe conditions**-Some mechanical, technical,physical or environmental (hazardous) situation, which causes the accident independent of Employees.Examples: defective flooring,Unguarded machinery e.t.c
- b) **Unsafe Acts and Omissions**- An act or omission by the injured or another person(or both) which causes the accident, unsafe acts may include:-
 - (i) Un-intentional human errors:psychological,Social e.t.c.
 - (ii) Negligence
 - (iii)recklessness,
 - (iv)Ignorance
 - (v) Horse-play

Examples:Operating machinery without authority, training or experience or taking unsafe positions(overreaching from ladders,Lifting heavy loads manually e.t.c.



Effects of accidents

- Injury- including disability, pain and suffering.
- Damage- to equipment, machinery, building
- Loss- of life, earnings, output, image, time
- Emotion- following injury, pain, death.

Accident investigation techniques

- Planning:** Decide a plan for the investigation, who will assist you, priorities for activity and note on your timetable.
- Interviews:** Do these as soon as possible in a place which is non-threatening for the people being interviewed.
- Physical evidence:** Take photographs, draw block diagrams, arrange for testing of material or equipment involved.
- Analysis:** It is a process of determining the causes of accidents and ways of preventing re-occurrence (Figure out what happened. Clarify information if necessary)
- Report:** Complete and present your report to the Senior Management for any further comments before circulating it to the S&H Committee and to all who helped you out as per the facility reporting mechanism.
- Recommendations:** Make recommendations. If immediate steps can be taken to improve conditions, do not wait until you are finished, initiate them.
- Follow-up:** Establish a timetable for the implementation of your recommendations and make sure it is followed

During investigation, one must answer six basic questions - 5Ws & 1H

- a) **Who?:** learn the names of all the people involved in the accident/incident, not only the person or persons injured, but also any witnesses, others in the area, team leaders, others doing the same kind of work. while you may only speak briefly with them during your initial contact, make sure you know how to get in touch with them later.
- b) **What?:** describe what happened. include in your description details of any equipment or materials involved. be sure you include the exact names of any chemicals. check the equipment for defects. in your initial description try to be clear about the sequence of events.
- c) **Where?:** describe the exact location of the accident / incident. use a camera to take photographs from different several angles. make a drawing of the scene. note exits, ventilation, vehicle paths and lighting on the diagram.
- d) **When?:** specify the time the accident/incident occurred. note anything significant about the time: just at shift change; first day back after lay off etc. note weather / operating conditions at the time, if relevant.
- e) **How?:** describe the sequence of events that led to the accidents/incident and its 'presumed' causes. your assessment of how it happened may change as your investigation proceeds, but start with your initial impressions.
- f) **Why?:** this is the hardest part of your investigation, but it is also the reason for it. as above, start with your initial impressions, but do not stop asking questions until you are satisfied that you know all the causes, direct and indirect

Recommendations

These aim at preventing the accident/incident from happening again. It should be as thorough as possible.

- a) In each case where you identified a cause, either direct or indirect, outline a course of action designed to minimize or eliminate the problem.
- b) In presenting your report, tie recommendations directly to the causes of accident/incident identified. Some may be simple, even minor, changes in the procedure or equipment. In others, they will be complicated and perhaps expensive.
- c) Follow up the recommendations to see that they are implemented.
- d) Assign target dates and responsible parties for implementation.
- e) Accidents/incidents do not happen in isolation. They result from a combinations of factors, many of which have implications for working conditions elsewhere in the workplace.
- f) Employees look at their own conditions in a different light after an employee has been injured or killed. They are likely to increase pressure on management to make needed repairs, replace equipment, strengthen maintenance programs and employee training.
- g) The investigations provides all employees with an opportunity to see and participate in ongoing health and safety at work - through inspections or chemical surveys

Key considerations on Recommendations

- a) Should be based on the conclusions of the report
- b) Achievable and realistic
- c) Statements should be supported with documentation i.e statements of interviewees
- d) Might include drawings, pictures, etc.

First Aid

First aid is the initial care and treatment given to the sick or wounded. First aid must start immediately and continue until medical assistance is available.

Principles And Rules Of First Aid

1. Preserve Life

- a) Check, clear, maintain airway.
- b) Check, clear, maintain breathing
- c) Check, restore and maintain circulation
- d) Control bleeding (haemorrhage)
- e) Treat shock

2. Prevent deterioration of injury or illness

- a) Cover wounds.
- b) Immobilise fractures
- c) Check for other injuries

3. Promote recovery & protect the unconscious

- a) Relieve pain.
- b) Reassurance
- c) Gentle handling
- d) Protection from the elements (weather)
- e) Position casualty in LATERAL position

Medical Immediate Action (I.A)

Evaluation is based on the following:

- a) Check for **Danger** to yourself, others and the casualty.
- b) **Response:** Determine conscious state of casualty, do this before entering incident site through a shout
 - If the casualty responds, then ABC's are clear, this may inform you of other dangers.
 - No response to shout

- c) **Airway** - Check, clear and maintain.
- d) **Breathing** - Check, if absent initiate Expired Air Resuscitation (EAR).
- e) **Circulation** - Check for Pulse, if absent initiate External Cardiac Compression (ECC).

(The acronym DR. ABC is used for the actions above)

Rules of First Aid

- a) Do not get excited, determine whether casualty is conscious.
- b) If conscious, ask what happened and what is wrong now.
- c) Examine the casualty gently, examining back and front of casualty. Remove clothing to expose wounds.
- d) Keeps casualty lying down with head level.
- e) Examine for bleeding, shock and poisoning.
- f) Keep the casualty warm and comfortable
- g) Act with quiet confidence. Reassure the casualty.
- h) Do not give anything by mouth
- i) Do not move the casualty unless - rescuer and casualty are at risk from further injury or it is required for 1st aid to occur.

First Aid in the Field

Treatment of the casualty in the field has four phases.

- a) **Self-aid** - Treatment that the injured gives to him/herself.
- b) **Buddy aid** - Care the injured receives from colleagues before treatment - Emergency treatment -
- c) **Initial wound surgery** - first operative treatment given to a casualty by a trained health care worker.
- d) **Referral**

Priorities for evacuation

- a) Priority 1 - (Urgent) Life itself is immediately threatened. Rapid evacuation, urgent resuscitation and / or surgery are required.
- b) Priority 2 - (Priority). Life or limb is in serious jeopardy. Evacuation to allow early resuscitation and / or surgery is required.
- c) Priority 3 - (Routine) Neither life nor limb is in serious jeopardy. Evacuation should be as soon as practicable

Requirements:

- a) Provision of First Aid Boxes
- b) Contents of First Aid Boxes
- c) Grade and quality of drugs and dressings
- d) Marking of First Aid Boxes and Cupboards
- e) Trained personnel to be always available, Two for every fifty employees at all times

- f) Qualifications – certificate of competency
- g) First Aid Room in facilities with many employees.
- h) Five hundred employees and above - Presence of a nurse
- i) Application of Rules: apply day and night
- j) Offences, penalties and legal proceedings

Medical surveillance

Medical surveillance means a planned programme of periodic examination, which may include clinical examinations, biological monitoring, biological effect monitoring or medical tests of persons employed by a designated health practitioner or by an occupational medical practitioner. (OSHA 2007 section 2)

The goal of medical surveillance is to minimize adverse health effects in workers exposed to hazardous situations.

Purpose of medical surveillance

- a) To ascertain the health status of the employees pre-employment, during and after employment
- b) To determine the health status of the employee before transfer to another work area
- c) To determine the job placement within an organization
- d) To ensure that those who have had occupational medical conditions or exposures are attended to early, to prevent complication or progression
- e) To provide information that would help in determining and justifying worker compensation and to help prevent disease or injury to other workers.

Fundamentals of Medical Surveillance

Pre-employment and pre-placement medical examination

This examination is to ensure that the employee is fit to undertake the job without risk to himself or his colleagues. The baseline medical examination conducted at the start of employment will define the initial health status: subsequent examinations will be used to evaluate the evident health effects of the work environment and other working conditions.

Periodic Occupational Health surveillance

This consists of examinations conducted periodically to identify vulnerable groups among the staff which can be of immense value to prevention. The frequency and types of examinations will be determined for each vulnerable group based on nature of work, ages and sex of the group members.

Return to work/ post sickness absence examination

This is to ensure that an employee who has been absent with a medical condition for a considerable length of time is fit to undertake his/her usual job. On the other hand, it will facilitate the rehabilitation or temporary or permanent resettlement of those who are not fit to return to their usual occupations.

Exit medical examination

This is to provide data on employees at the point of exit from a particular occupation or workplace. The advantage to employees is that it provides the opportunity for employees with ailments which have a causal relationship to any factor in the work environment to continue to receive assistance for managing it after they have left the employment or moved on to another schedule

Vaccination

The MoH implements a comprehensive occupational vaccination programme for its employees who handle patients. Due to the risks of contracting infectious diseases from the work environment, all staff and potential staff members should be made aware and provided with appropriate vaccination. The most important diseases to be vaccinated against includes Hepatitis B and Tetanus however other diseases where occupationally are relevant should be considered. For staff who have not been vaccinated in childhood (e.g. by virtue of their country of origin), vaccination against Tuberculosis and Poliomyelitis is

required. The immunization programme have robust arrangements for record keeping and recall for boosters. Vaccination should be carried out at pre-employment and as required for the work area.

The following guidelines should be considered:

- a) Determine if the employee had received the primary vaccinations.
- b) Avail vaccines.
- c) Administer the prerequisite vaccinations depending on work area requirement (the employee has right to decline the vaccination but that should be documented).
- d) The COSH focal person should identify the vaccination centers for the employees and ensure they are manned by qualified medical staff with training in vaccination.
- e) The employees should be sensitized on where, when and what vaccines
- f) Document the vaccination history

Workplace safety and health inspection

Workplace audit is a systematic, documented, periodic, and objective evaluation of working environment and organizational management systems in a workplace for prevention of accidents, occupational diseases and ill health and damage to property. Audits can either be internal or external

Statutory requirements of Health and safety audit

- a) These are external audits by a registered health and safety advisor.
- b) Every workplace should be audited at least once in every period of twelve months.
- c) The report of the audit shall be kept by the occupier.
- d) A copy of the same shall be submitted to DOSHS by the auditor within a period of thirty days following the audit.

Workplace inspection

A workplace inspection is a planned event in which the workplace is inspected to identify potential hazards. It is the best way of proactively identifying hazards before they have the ability to cause an injury

Procedure of a workplace inspection

1. Planning

1. Determine frequency of inspections. The frequency of workplace audits is determined by
 - a) past accident/incident records
 - b) number and size of different work operations
 - c) type of equipment and work processes--those that are hazardous or potentially hazardous may require more regular inspections
 - d) number of shifts and the activity of every shift may vary
 - e) new processes or machinery
2. Identify areas subject to workplace inspection: identify areas within the workplace that are to be subject to regular inspections
3. Establish a workplace inspection team

Implementation: Workplace inspection procedure

- a) identify the risks and the levels of those risks within the workplace;
- b) identify strengths and weaknesses in your safety procedures;
- c) assess whether your safety procedures are legally compliant;
- d) compare current documentation and practices against best practice and legal obligations;
- e) recommend improvements in your safety procedures;
- f) ensure that there adequate resources available to manage OHS; and
- g) ensure that the resources devoted to health and safety are being utilised effectively

Corrective action

Corrective actions to non-conformities should be identified and implemented

Reporting and record keeping

When reporting a workplace inspection/audit, ensure the department or area inspected, the date and the inspection team's names and titles are on top of the page. Number each item consecutively, followed by a hazard classification of items according to the chosen scheme. State exactly what has been detected and accurately identify its location. Instead of stating Assign a priority level to the hazards observed to indicate the urgency of the corrective action required. For example:

A = Major--requires immediate action

B = Serious--requires short-term action

C = Minor--requires long-term action

Follow-up and monitoring

Review the information obtained from regular inspections to identify where immediate corrective action is needed. Identify trends and obtain timely feedback. Analysis of inspection reports may show the following:

- priorities for corrective action
- need for improving safe work practices
- insight about why accidents are occurring in particular areas
- need for training in certain areas?
- areas and equipment that require more in-depth hazard analysis

Waste Management

Health care waste is a potential reservoir of pathogenic microorganisms and requires appropriate, safe, and reliable handling. Waste is generated during patient management and care and in other areas of the health care setting. Waste from health care facilities can be non-infectious, infectious, highly infectious or hazardous waste.

Safe management of health care waste is a key issue in controlling and reducing health care associated infections. The purpose of proper waste management is to; protect people who handle waste items from accidental injury, prevent the spread of infection to patients, clients, and HCWs, prevent the spread of infection to the local community, and safely dispose of hazardous materials.

Health care waste should be segregated at point of waste generation. Waste should be placed in appropriate colour coded bins. Used sharps should be placed in the safety boxes for disposal. Highly infectious, infectious and hazardous waste should be incinerated. General waste such as paper can be disposed in a community disposal site or a waste pit.

MODULE 4: SAFETY EQUIPMENT

Objectives

By the end of this module, participants should be able to:

- a) Relate safety equipment and their areas of operation
- b) apply acquired knowledge and skills in ensuring safety and health in the work environment.

Introduction

Safety equipment is any equipment specifically designed to minimize occupational hazards and are also used as a protective measure to individuals exposed to specific hazardous agents. The following are some of the key safety equipment in a hospital setting that this chapter will address on their basis of definition, types and uses.

- a) Biosafety cabinets
- b) Fume hoods
- c) Cytotoxic drug safety cabinet
- d) Pharmaceutical Isolators
- e) Emergency showers
- f) Emergency Eye wash stations
- g) Hand wash stations

Biological Safety Cabinets (BSC)

It's a Ventilated Cabinet or Enclosure that uses directional airflow and High-Efficiency Particulate Air (HEPA) filters to provide personnel , environmental and product protection depending on the type.

Biological Safety Cabinets (BSCs) are used in conjunction with good microbiological techniques to protect laboratory workers and the immediate lab environment from infectious aerosols generated within the cabinet. BSC cabinets should be certified when installed, or whenever they are moved and at least annually. Employers should ensure that a risk assessment has been conducted and approved for the work to be conducted and to identify the class and type of BSC needed for the operation or procedure

Class	Use
Class I BSC	Provides operator and environment protection but no product protection. The exhaust air from the cabinet is filtered by a High-Efficiency Particulate Air (HEPA) filter.
Class II BSCs	Class II biosafety cabinet will provide personnel, environment and product protection.

	<p>Types of class II biosafety cabinets:</p> <p>Class II, type A1: This does not have to be vented, which makes it suitable for use in laboratories which cannot be ducted</p> <p>Class II type A2 Biosafety cabinet; this must be vented 70% of the air is exhausted from the cabinet while 30% is re-circulated.</p> <p>Class II type B1 Biosafety cabinet; this cabinet must be vented, with 30% of the air exhausted from the cabinet while 70% is re-circulated back to the room.</p> <p>Class II: type B2 Biosafety cabinet; this cabinet must be totally exhausted through a dedicated duct.</p>
Class III BSC	<p>Class III provides maximum protection of the environment and user while working with highly infectious microbiological agents. Both supply and exhaust air are HEPA filtered.</p> <p>(used mainly with highly pathogenic agents that usually do not have prophylaxis)</p>
Cytotoxic drug safety cabinets	Provides a barrier to the operator and environment
Laminar Flow or Clean Bench cabinets	provides product protection only (must not be used where operator protection is required)
Pharmaceutical isolators	provide protection to operator, product and work environment

Employers should train workers to do the following before using the BSC

Prepare a written checklist of materials necessary for a particular activity and place only necessary materials in the BSC before beginning work.

Turn off any overhead room germicidal ultraviolet light (UV) and any BSC UV lights.

Confirm that the BSC is currently certified for use.

Confirm that the BSC is operating properly prior to beginning work by checking airflow gauges.

Adjust the stool height so that armpits are level with the bottom of the view screen or sash.



Unvented and vented to a duct biosafety cabinetTable... Protection conferred by Biosafety cabinets

Type (Class)	Worker Protection	Product Protection	Environment Protection	Volatile Chemicals	Application
I	Yes	No	Yes	Yes*	Enclose equipment or procedures with a potential to generate aerosols (tissue homogenization, cage cleaning, etc).
II, A1	Yes	Yes	Yes	No	Cell culture and infectious material procedures that do not include the use of volatile chemicals.

II, A2	Yes	Yes	Yes	Yes (minute amounts)**	Same as Type A but exhausted to outside. Minute quantities of hazardous chemicals may be used.
II, B1	Yes	Yes	Yes	Yes (minute amounts)**	Must be hard-ducted to exterior exhaust. Same procedures as Type II,A but manipulations of minute quantities of hazardous chemicals used with in vitro biological systems can be done.
II, B2	Yes	Yes	Yes	Yes (small amounts)	Cabinet has total-exhaust, no air is recirculated. This cabinet provides simultaneous primary biological and chemical containment. Care must be given as some chemicals can damage the filters or gaskets.

Table ...Protection conferred by some safety equipment

Triple Packaging Equipment

Improper collection, internal transport and receipt of specimens in the laboratory carry a risk of infection to workers. The following should be strictly adhered:-

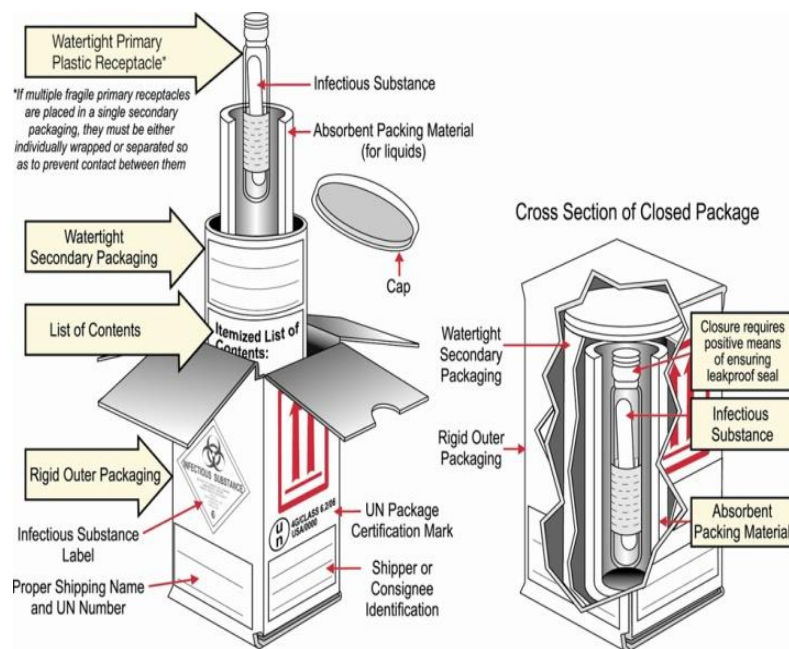
Plastic specimen containers are preferable to glass due to biosafety reasons and should not leak when the cap or stopper is correctly applied.

No material should remain on the outside of the container.

Containers should be correctly labeled to facilitate identification.

Specimen request or specification forms should not be wrapped around the containers but placed in separate, preferably waterproof envelopes.

Under ideal circumstances triple packaging should be used for transport of infectious specimens. These are expensive equipment that may not be found in our set-up; these can be home made by use plastic containers from the pharmacy, to act as a secondary packaging. Gauze can be used as adsorbent material. A cardboard box can be used as the outer packaging.



Fume cupboards/fume hoods

A fume hood or fume cupboard is a type of local ventilation device that is designed to limit exposure to hazardous or toxic fumes, vapors or dusts. A fume hood is typically a large piece of equipment enclosing five sides of a work area, the bottom of which is most commonly located at a standing work height.

All local ventilation devices are designed to address one or more of three primary goals:

to protect the user from inhaling toxic gases (fume hoods, biosafety cabinets, glove boxes);

to protect the product or experiment (biosafety cabinets, glove boxes);

to protect the environment (recirculating fume hoods, certain biosafety cabinets, and any other type when fitted with appropriate filters in the exhaust airstream).

The fume hood is often the primary control device for protecting laboratory workers when working with flammable and/or toxic chemicals.

Before using a fume hood:

- Make sure that you understand how the hood works.
- You should be trained to use it properly.

- c) Know the hazards of the chemical you are working with; refer to the chemical's Material Safety Data Sheet if you are unsure.
- d) Ensure that the hood is on.
- e) Make sure that the sash is open to the proper operating level, which is usually indicated by arrows on the frame.
- f) Make sure that the air gauge indicates that the air flow is within the required range.

When using a fume hood:

- a) Never allow your head to enter the plane of the hood opening. For example, for vertical rising sashes, keep the sash below your face; for horizontal sliding sashes, keep the sash positioned in front of you and work around the side of the sash.
- b) Use appropriate eye protection.
- c) Be sure that nothing blocks the airflow through the baffles or through the baffle exhaust slots.
- d) Elevate large equipment (e.g., a centrifuge) at least two inches off the base of the hood interior.
- e) Keep all materials inside the hood at least six inches from the sash opening. When not working in the hood, close the sash.
- f) Do not permanently store any chemicals inside the hood.
- g) Promptly report any hood that is not functioning properly to your supervisor.
- h) The sash should be closed and the hood "tagged" and taken out of service until repairs can be completed.
- i) When using extremely hazardous chemicals, understand your laboratory's action plan in case an emergency, such as a power failure, occurs.

Fume hood (pictured below)



Table ... The extent of protection by safety equipment

	Personnel	Product	Environment
Chemical Fume Hood (Protection from Vapours & Gases only)	X		
Laminar Flow Clean Benches (Protection from Particulates)		X	
Class I Biological Safety Cabinets (Protection from Particulates)	X		X
Class II & III Biological Safety Cabinets (Protection from Particulates)	X	X	X

Cytotoxic drug safety cabinet

Cytotoxic drug safety cabinets are defined as the primary barrier against exposure to aerosols that are produced in the preparation, manipulation and dispensing of cytotoxic drugs. Many of

these drugs are known to be mutagens, and are suspected of being carcinogens and teratogens. These effects are insidious and may not manifest themselves for some years.

The requirements for protection involve the following:

- a) Protection of cabinet users and other staff from exposure to aerosols or vapours which maybe generated in the preparation, manipulation and dispensing of cytotoxic drugs.
- b) Protection of drug products, so that they may be prepared in an environment which is essentially free from particulate and biological contamination.
- c) Protection of cabinet maintenance personnel from the residue of drug particles which can contaminate filters, fans and other mechanical components.

Pharmaceutical isolators

The term 'Isolator' as used in the Pharmaceutical Industry covers a variety of pieces of equipment. One group has the main objective of providing containment for the handling of dangerous materials either aseptically or not. Another group has the main objective of providing a microbiologically controlled environment within which aseptic operations can be carried out.

Containment isolators often employ negative internal air pressure and most isolators used for aseptic processing employ positive pressure. A sporocidal process, usually delivered by gassing, can be used to aid microbiological control. Some large scale isolators provide an opening, often called a mousehole, to permit continuous removal of sealed product. Other isolators remain sealed throughout production operations. The capability for the isolator to be sealed allows operations to be carried out in controlled gaseous environments e.g. anaerobic conditions.

It is up to the employer to ensure that safety equipment are:-

- a) properly used.
- b) regularly tested and inspected and that adequate records of all such tests are kept.
- c) immediately repaired, should it be suspected that contaminants are not being contained and fans tested and replaced as required

Emergency showers and eye wash stations

Emergency showers, also known as drench or deluge showers, are designed to flush the user's head and body. They should not be used to flush the user's eyes because the high rate or pressure of water flow could damage the eyes in some instances. Eyewash stations are designed to flush the eye and face area only. There are combination units available that contain both features: a shower and an eyewash.

Emergency showers and eyewash stations provide on-the-spot decontamination. They allow workers to flush away hazardous substances that can cause injury. The first 10 to 15 seconds after exposure to a hazardous substance, especially a corrosive substance, are critical. Delaying treatment, even for a few seconds, may cause serious injury.

Emergency showers can also be used effectively in extinguishing cloth fires or for flushing contaminants off clothing.

Hand wash stations

Washing hands using liquid soap, water and friction removes 99% of the transient micro-organisms/bacteria. Hand wash station is a designated place in an easily accessible area in which employees may wash their hands.

Hand washing facilities which are not immediately accessible are one of the main reasons that healthcare providers do not comply with hand hygiene guidelines. A sink with running water should be available for hand washing in all clinical areas. Nearby surfaces should be nonporous to resist fungal growth and should be protected from splashes with impermeable back/side splashguards. Hand washing sinks should be cleaned and inspected regularly to ensure they are maintained in good condition. Paper towels and liquid soap should be provided at each hand washing sink. A current hand washing poster should be posted at each hand washing sink in order to promote correct washing methods.

Improper sink placement and design can add to the environmental reservoir of contaminants and can lead to outbreaks, particularly with gram-negative bacilli (e.g., *Pseudomonas* spp.).

Sinks need to be convenient and accessible and, where possible, follow established criteria regarding placement and design which include;

- a) Wheelchair-accessible hand hygiene sinks shall be provided in addition to the hand hygiene sinks used by staff with physical challenges.
- b) Should have elbow-operated taps
- c) Sinks used for hand hygiene should not be dedicated to any other purpose.

When to wash hands

- a) After arriving at work
- b) Before and after examining each client
- c) After touching anything that might be contaminated
- d) Before putting on gloves for clinical procedures

- e) After removing gloves
- f) Before and after using the toilet or latrine
- g) Before leaving work

Other equipment that enhance protection

Autoclaves

An autoclave is a pressure chamber used to sterilize equipment and supplies by subjecting them to high pressure saturated steam. Sterilization autoclaves are widely used in microbiology, medicine, podiatry, tattooing, body piercing, veterinary science, mycology, dentistry, and prosthetics fabrication. They vary in size and function depending on the media to be sterilized.



Hazards associated with autoclaves

Autoclaves pose many hazards including physical hazards (e.g., heat, steam and pressure) and biological hazards. High temperatures and presence of extremely hot water which is not vented creates potential for burns and scalding. Inadequate decontamination allows for the potential of biological hazards and personnel and environmental contamination. Large heavy doors and loading carriages also present an ergonomic and pinch hazard to employees.

Safety measures

Ensure ready availability and Use of owner's manual . Autoclave maintenance is an important aspect of a properly functioning autoclave.

End user operators must be well trained on how to use.

Health care incinerator

An incinerator is an apparatus used for burning waste materials at high temperature until it is reduced to ash. Health care facilities use incinerators to burn highly infectious and infectious waste. Medical wastes when burned are likely to emit various air pollutants which can be harmful to workers and the environment. Medical wastes that can be burned using the incinerator include, sharps, syringes, vials, ampoules, histological samples, blood stained materials, plaster of Paris, body parts etc.



Medical waste incinerator

MODULE 5: SAFETY AND HEALTH MANAGEMENT IN HEALTH FACILITIES

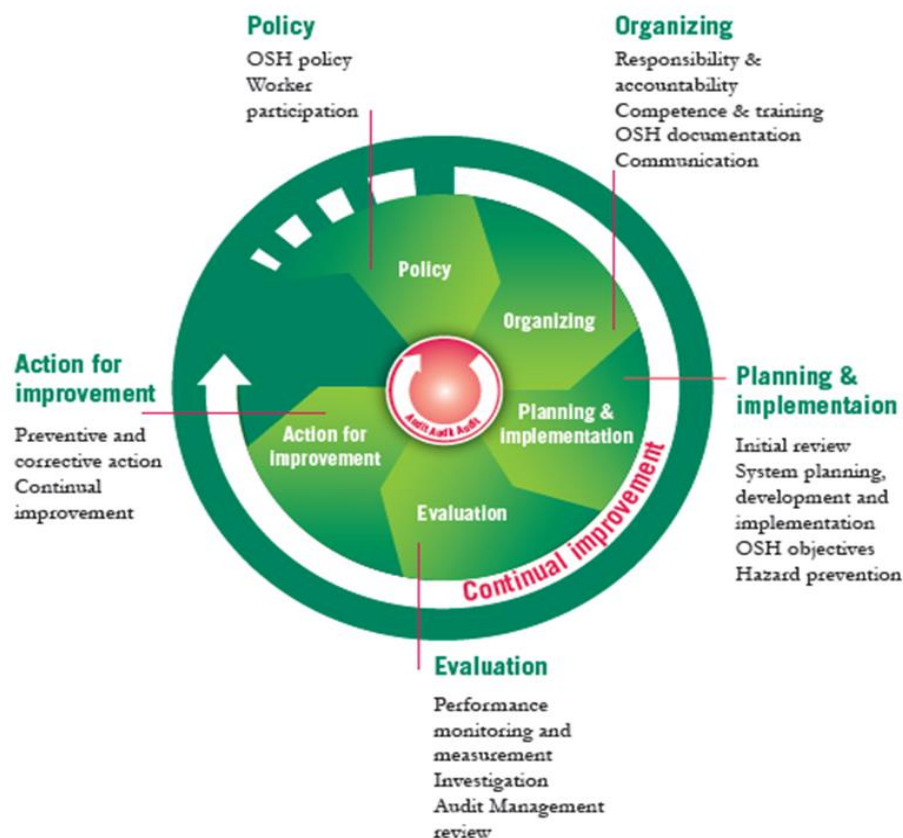
Description: this module guides on safety and health management system to be adopted in the health facilities and procedures of documentation and reporting of all OSH activities

Objectives

By the end of this module, the participant should be able to-

1. Describe elements of safety management.
2. Explain change management, procurement and contracting in the context of occupational health and safety in health
3. Describe the role of training, monitoring, evaluation and reporting of occupational health and safety activities in the facilities
4. Describe how to Store and maintain OSH data in such a way that it is readily retrievable.
5. Outline the procedures of in-house and statutory documentation procedures.

Elements of safety management



1. Policy

- Policy is a document outlining the company's commitment to protect and promote the health, safety and welfare of workers signed by the top executive to emphasize its importance.

A well-defined policy on health and safety will help reduce the incidence and seriousness of work-related injuries. Fewer accidents mean lower workers' compensation costs, less down time and increased productivity.

The employer, in consultation with workers and their representatives, should set out in writing an OSH policy which should be:

- a) Specific to the facility and appropriate to its size and the nature of its activities;
- b) Concise, clearly written, dated and made effective by the signature or endorsement of the CEO or the most senior accountable person in the facility;
- c) Communicated and readily accessible to all persons at their place of work;
- d) Reviewed for continuing suitability; and
- e) Made available to relevant external interested parties, as appropriate.

The policy should include, as a minimum, the following key principles and objectives to which the health *facility* is committed:

- a) Protecting the safety and health of all members of the *facility* by preventing work-related injuries, ill health, diseases and incidents;
- b) Complying with relevant OSH national laws and regulations, voluntary programmes, collective agreements on OSH and other requirements to which the *organization* subscribes;
- c) Ensuring that workers and their representatives are consulted and encouraged to participate actively in all elements of the OSH management system; and
- d) Continually improving the performance of the OSH management system.

Worker participation

- a) Worker participation is an essential element of the OSH management system in the *organization*.
- b) The employer should ensure that workers and their safety and health representatives are consulted, informed and trained on all aspects of OSH, including emergency preparedness.
- c) The employer should make arrangements for workers and their safety and health representatives to have the time and resources to participate actively in the improvement of the OSH management system.
- d) The employer should ensure, as appropriate, the establishment and efficient functioning of a safety and health committee and the recognition of workers' safety and health representatives.

2. Organising

Organising is deciding how to utilise the organisation resources. It entails-

a. Responsibility and Accountability

- i. The employer should have overall responsibility for the protection of workers' safety and health, and provide leadership for OSH activities in the organization.
- ii. The employer and senior management should allocate responsibility, accountability and authority for the development, implementation and performance of the OSH management system and the achievement of the relevant OSH objectives.

b) Competence and training

- The necessary OSH competence requirements should be defined by the employer, and arrangements established and maintained to ensure that all persons are competent to carry out the safety and health aspects of their duties and responsibilities.
- The employer should have, or should have access to, sufficient OSH competence to identify and eliminate or control work-related hazards and risks, and to implement the OSH management system.
- Under the arrangements referred to above, training programmes should:
 - a) cover all members of the organization, as appropriate;
 - b) be conducted by competent persons;
 - c) provide effective and timely initial and refresher training at appropriate intervals;
 - d) include participants' evaluation of their comprehension and retention of the training;
 - e) be reviewed periodically. The review should include the safety and health committee, where it exists, and the training programmes, modified as necessary to ensure their relevance and effectiveness; and
 - f) be documented, as appropriate and according to the size and nature of activity of the organization.
- Training should be provided to all participants at no cost and should take place during working hours, if possible.

c) OSH documentation

A facility should establish and maintain OSH records.(covered in documentation)

d) Communication

Proper flow of information among all members of the organisation.

Arrangements and procedures should be established and maintained for receiving, documenting and responding appropriately to internal and external communications related to OSH; ensuring the internal communication of OSH information between relevant levels and functions in the workplace; and ensuring that the concerns, ideas and inputs of workers and their representatives on OSH matters are received, considered and responded to.

e) Structures and processes should be established which:

- i) ensure that OSH is a line-management responsibility which is known and accepted at all levels;
- ii) define and communicate to the members of the *organization* the responsibility, accountability and authority of persons who identify, evaluate or control OSH hazards and risks;

- iii) provide effective supervision, as necessary, to ensure the protection of workers' safety and health;
- iv) promote cooperation and communication among members of the *organization*, including workers and their representatives, to implement the elements of the *organization's* OSH management system;
- v) fulfil the principles of OSH management systems contained in relevant national guidelines, tailored guidelines or voluntary programmes, as appropriate, to which the *organization* subscribes;
- vi) establish and implement a clear OSH policy and measurable objectives;
- vii) establish effective arrangements to identify and eliminate or control work-related hazards and risks, and promote health at work;
- viii) establish prevention and health promotion programmes;
- ix) ensure effective arrangements for the full participation of workers and their representatives in the fulfilment of the OSH policy;
- x) provide appropriate resources to ensure that persons responsible for OSH, including the safety and health committee, can perform their functions properly; and ensure effective arrangements for the full participation of workers and their representatives in safety and health committees, where they exist.

3. Planning and Implementation

Planning includes identifying existing hazards and then investigating the root causes to formulate an action plan to mitigate the problem in relation to OSH in accordance to the policy.

Doing what has been planned requires leadership commitment, clear allocation of responsibility on OSH from top leadership down to shop floor level worker. At all levels, worker participation and resource allocation

4. Evaluation

Performance monitoring and measurement

Procedures to monitor, measure and record OSH performance on a regular basis should be developed, established and periodically reviewed. Responsibility, accountability and authority for monitoring at different levels in the management structure should be allocated.

The selection of performance indicators should be according to the size and nature of activity of the *organization* and the OSH objectives.

Both qualitative and quantitative measures appropriate to the needs of the *organization* should be considered. These should:

- a. be based on the *organization's* identified hazards and risks, the commitments in the OSH policy and the OSH objectives; and
- b. support the *organization's* evaluation process, including the management review.

Performance monitoring and measurement should:

- i. be used as a means of determining the extent to which OSH policy and objectives are being implemented and risks are controlled;
- ii. include both active and reactive monitoring, and not be based only upon work related injury, ill health, disease and incident statistics; and
- iii. be recorded.

Monitoring should provide:

- i. feedback on OSH performance; information to determine whether the day-to-day arrangements for hazard and risk identification, prevention and control are in place and operating effectively.
- ii. The basis for decisions about improvement in hazard identification and risk control, and the OSH management system.

Active monitoring should contain the elements necessary to have a proactive system and should include:

- i. monitoring of the achievement of specific plans, established performance criteria and objectives;
- ii. the systematic inspection of work systems, premises, plant and equipment;
- iii. surveillance of the working environment, including work organization;
- iv. surveillance of workers' health, where appropriate, through suitable medical monitoring or follow-up of workers for early detection of signs and symptoms of harm to health in order to determine the effectiveness of prevention and control measures; and
- v. compliance with applicable national laws and regulations, collective agreements and other commitments on OSH to which the *organization* subscribes.

Reactive monitoring should include the identification, reporting and investigation of:

- i. work-related injuries, ill health (including monitoring of aggregate sickness absence records), diseases and incidents;
- ii. other losses, such as damage to property;
- iii. deficient safety and health performance, and OSH management system failures;
- iv. and
- v. workers' rehabilitation and health-restoration programmes.

5. Action for Improvement

Preventive and corrective action

Arrangements should be established and maintained for preventive and corrective action resulting from OSH management system performance monitoring and measurement, OSH management system audits and management reviews. These arrangements should include:

- a) identifying and analysing the root causes of any non-conformities with relevant OSH regulations and/or OSH management systems arrangements; and
- b) initiating, planning, implementing, checking the effectiveness of and documenting corrective and preventive action, including changes to the OSH management system itself.

When the evaluation of the OSH management system or other sources show that preventive and protective measures for hazards and risks are inadequate, the measures should be addressed according to the recognized hierarchy of prevention and control measures. These measures should be documented as appropriate and in a timely manner.

Continual improvement

Arrangements should be established and maintained for the continual improvement of the relevant elements of the OSH management system and the system as a whole. These arrangements should take into account:

- a) the OSH objectives of the organization;
- b) the results of hazard and risk identifications and assessments; the results of performance monitoring and measurements; the investigation of work-related injuries, diseases, ill health and incidents, and the results and recommendations of audits;
- c) the outcomes of the management review; the recommendations for improvement from all members of the organization, including the safety and health committee, where it exists;
- d) changes in national laws and regulations, voluntary programmes and collective agreements; new relevant information; and
- e) the results of health protection and promotion programmes. The safety and health processes and performance of the organization should be compared with others in order to improve health and safety performance.

Management of change

The impact on OSH of internal and external changes should be evaluated and appropriate preventive steps taken immediately after introduction of these changes. Internal changes include:- those in staffing or due to new processes, working procedures, organizational structures or acquisitions while external changes include amendments of laws and regulations, organizational mergers, and developments in OSH knowledge and technology.

A workplace hazard identification and risk assessment should be carried out before any modification or introduction of new work methods, materials, processes or machinery. Such assessment should be done in consultation with facility safety and health committee. The implementation of a "decision to change" should ensure that all affected members of the *facility* are properly informed and trained.

Procurement

Procedures should be established and maintained to ensure that compliance with safety and health requirements for the *organization* is identified, evaluated and incorporated into purchasing and leasing specifications;

Contracting

Arrangements should be established and maintained for ensuring that the facility's safety and health requirements are applied to contractors and their workers through the implementation of the OSH guidelines.

Arrangements for contractors working on site should:

- a. include OSH criteria in procedures for evaluating and selecting contractors by the supplies chain management units;
- b. establish effective ongoing communication and coordination between appropriate levels of the facility and the contractor prior to commencing work. This should include provisions for communicating hazards and the measures to prevent and control them in form of a policy;

- c. include arrangements for reporting of work-related injuries, ill health, diseases and incidents among the contractors' workers while performing work for the facility by use of the provided reporting tools;
- d. provide relevant workplace safety and health hazard awareness and training to contractors or their workers prior to commencing work and as work progresses, as necessary;
- e. regularly monitor OSH performance of contractor activities on site by the manager; and
- f. ensure that on-site OSH procedures and arrangements are followed by the contractor(s).
- g. Infrastructure/construction/building safety
 - i. Design of the building has to be friendly; safe to all persons including vulnerable groups such physically challenge persons, children and elderly.
 - ii. Relevant legislation and approvals must be followed.
 - iii. Approval authorities include; Ministry of Works, NEMA, DOSHS and Ministry of Health – Public Health

Orientation of the national OSH guidelines

Background

Provide four basic aspects of OHS namely;

- a) The protection and promotion of the health workers by preventing and controlling occupational diseases and accidents;
- b) The development and promotion of healthy and safe work, work environments and work organizations;
- c) Enhancement of physical, mental and social well-being of workers; and
- d) Enabling workers to conduct socially and economically productive lives and to contribute positively to sustainable development (WHO 2010)

Rationale

- a) The working population spends much of their time at work than they do at their homes (EU 2004).
- b) On estimate, 6,300 people die daily as a result of occupational accidents or work-related diseases resulting in over 2.3 million deaths per year (ILO 2010)
- c) Health and safety policies and procedures to reduce occupational hazards are key strategies in improving work climate for health workers in Kenya (NHRH Strategic Plan 2009-2012).
- d) All health facilities need to be compliant with basic safety requirements.

Scope/ Objectives

The policy and technical guidelines apply primarily to:

- a) all employees within the health sector (government, quasi-government, private as well as NGO's)
- b) prospective employees of the health sector
- c) Clients, contractors, and visitors at any health facility in Kenya
- d) Health institutions including training institutions

Objectives

- a) To provide a framework for implementing safe and healthy work practices in the Kenya's health sector
- b) Promote a safe and healthy work environment, work practices and procedures for all staff of the health sector in order to minimize work-related injuries and occupational diseases.
- c) Promote a culture of safe and healthy attitudes and practices

Technical guidelines

- The guideline sets out who shall provide Medical surveillance, the purpose of carrying out the medical surveillance and what shall entail a medical surveillance.
- The guidelines also sets the OSH minimum reporting parameters for Incidence/ accident , Dangerous occurrences or near misses and Notifiable illnesses
- It also sets the minimum requirements for safety equipment including Biological Safety Cabinets.
- The guidelines cover OSH training and capacity building which include induction of new and contracted employees and regular training of existing staff.
- The guidelines include incooperation of OSH training as part of the curriculum during pre and in-service training of health care workers.
- Compliance to the OSH requirements is also set out in the guidelines.
- The guidelines also provides guidance on OSH mointoring and research at all levels.

Monitoring and evaluation

National Level

- i. NOSH committee shall develop national indicators
- ii. NOSH shall monitor indicators and submit to PS
- iii. PS to ensure annual management review of OSH indicators is done

County level

- i. COSH to coordinate development, review and approval of county objectives and targets in reference to National targets and indicators.
- ii. COSH to develop yearly implementation plan.
- iii. COSH focal person to monitor implementation and report using MOH reporting system
- iv. Review quarterly

Facility level

- i. Facility OSH committee to adopt OSH targets and indicators
- ii. Facility OSH committee develop implementation plan and integrate it to facility operational plan
- iii. Facility OSH committee monitor implementation and report to County OSH.

Evaluation

Evaluation tools to be designed by NOSH

- OSH unit to disseminate the tool to county OSH focal person
- County OSH to coordinate evaluation at facility level, compile county OSH report
- Submit to health management committee at county level.

DOCUMENTATION AND REPORTING

Documentation

A facility should establish and maintain information in a suitable medium such as paper or electronic form, to:

- a) Describe the core elements of the management system and their interaction
- b) Provide direction to related documentation

Document and data control

There should be a documented procedure established and maintained for record management.

These documents should be:

- a) Controlled and logged
- b) Periodically received, reviewed as necessary and approved for adequacy by authorized personnel
- c) Current and available at all locations where operations essentials to the effective functioning of the OHS system are performed

Note: Documentation and data shall be legible, dated (with dates of revision) readily identifiable and maintained in an orderly manner for a specified period. Procedures and responsibilities shall be established and maintained.

An inventory of OHS documents in the data control system should be available.

- a) Obsolete documents and data should be promptly removed from all points of issue or use and properly disposed.
- b) Archival documents retained for legal and knowledge preservation purposes should be suitably identified.

Records and records management

- a) There should be documented procedures for the identification and maintenance of OSH records as well as the results of audits and reviews.

- b) OSH records should be legible, identifiable and traceable to the activity, product or service involved.
- c) OSH records should be stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration or loss.
- d) OSH records should be retained for a minimum period of 6 years.

Record keeping

As good health practice, facilities have a general obligation to keep records on health services provided to the workers. The record-keeping obligations are:

- a) General health record if the workers are treated as patients or health service clients
- b) Data on surveyed, detected and measured occupational exposures and risk assessments which have been made
- c) Statistics on occupational diseases and injuries
- d) Data on medical surveillance
- e) Documents on proposals for preventive and control measures

In house documentation

- a) The employees should be sensitized on hazard identification both general and specific to the unit.
- b) Employees should be orientated to the use of workplace inspection checklist and hazard reporting form.
- c) Safety checks should be done at the beginning of each working day and both normal and abnormal findings documented e.g electrical switches, fire extinguishers, first aid kits and other safety equipment.
- d) Employees should report on hazards they encounter in the course of work to their supervisors in writing.
- e) All accidents, incidents, dangerous occurrences and near misses should also be reported and documented using the forms attached in appendix.
- f) Other issues that should be recorded include:- Replenishes of the first aid kit, Use of fire extinguishers, Safety alarms (whether intentional or unintentional)

Statutory documentation

- a) Notification of all accidents and dangerous occurrences should be done to the nearest DOSHS office in the prescribed form (DOSH1 form). All accidents and occurrences should be documented in the prescribed form(DOSH 1) and reported to the nearest DOSH office
- b) Reports on safety and health audits, fire safety audit, plant examination and medical examinations should be well kept and documented.
- c) Servicing and maintenance of safety equipment e.g. fire extinguishers should be regularly done and documented.
- d) Annual inspection of the work environment should be done and findings documented

- e) Workplace registration: Every workplace must be inspected to be registered for an annual OSHA certificate. apply for an annual registration for the OSHA certificate of registration

Accidents/incidents and near misses

All OSH committee secretaries in health facilities should establish and maintain records of OSH events in the facility. Each facility shall investigate, analyze and record incidents in the General Accident Register. This shall be done in a timely manner (within 8 hours after occurrence). Incident and accident reports shall be reviewed by the facility OSH committee on a monthly basis.

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Appendices

Directorate of occupational safety and health services forms:

Appendix 1. Employee exposure report form

Employee exposure report form

To be completed by staff within 12 hours of exposure

Last Name _____ First Name: _____ Middle Initial _____

Department/Section _____ Job Title: _____ ID/Personal No. _____

Date/Time of Exposures: _____ / _____

Hazard(s): _____

Type of Exposure (e.g. inhalation, ingestion, contact, fall): _____

Cause of Exposure _____

Was personal protective equipment available? Yes No

Was personal protective equipment used? Yes No

What type of personal protective equipment was used? _____

Severity of Exposure: (Minor, Moderate or Major) _____

Describe: _____

Attention required:

1. First Aid
2. Medical Treatment (admission, outpatient)
3. Not necessary

Did the employee lose time from work? Yes No

Estimate time lost: _____

Were other employees exposed? Yes No

List Names

How would you prevent recurrence?

Exposed employee's signature _____ Date _____

Supervisor's Name: _____ Signature: _____ Date _____

Appendix 2. Hazard reporting form

Hazard reporting form

1. Employees should report hazards immediately to the supervisor
2. Hazards can be reported verbally or by filling a simple form available at bulletin boards or other conspicuous places. The following is an example of such a form.

Hazard Report Form - Example	
Name:	Date:
Location:	
Equipment:	
Description of the hazard:	
Suggested corrective action:	
Signature:	
Supervisor's remarks:	
Corrective action taken:	
Signature of Supervisor:	Date:

Sources: <http://www.ccohs.ca/oshanswers/hsprograms/orientation.html>

Appendix 3. DOSH 1

DOSH 1

REPUBLIC OF KENYA

DIRECTORATE OF OCCUPATIONAL SAFETY AND HEALTH SERVICES

NOTICE BY EMPLOYER OF AN OCCUPATIONAL ACCIDENT/DISEASE OF AN EMPLOYEE

PART 1

1. Employer/Occupier Particulars:-

ii. Name of

Employer/Occupier.....

iii. WIBA* registration No..... OSHA* Registration No.

iv. Full Address P. O. Box..... Physical
Location.....

v. E- Mail address.....

Tel.....

vi. Nature of Work

vii. Name and address of Insurance Company which has insured employee against accident

2. The Injured/sick employee's particulars :-

i. Name.....

ii. Sex.....

iii. Age.....

iv. Occupation

v. Full Address.....

vi. E- Mail address..... Tel:

vii. Identity Card No. *(Incise of fatal injury, Death Certificate No.).....

viii. Home District: Division: Location: Sub-location

3. Occupational Accident

i. Date of Accident Time: Fatal /Non fatal

ii. Has the worker resumed working Yes/No Date of resumption

iii. Place where accident took place.....

iv. What is the injured worker's Occupation.....

v. What duties was the employee undertaking at the time of the accident?

vi. Length of service with the present employer.....

vii. What work is the worker employed to undertake.....

viii. Cause of Injury.....

ix. Type of Injury

x. Part of Body Injured.....

4. Occupational Disease

Detail about the Occupational disease affecting the employee.

i. Date of diagnosis of the occupational disease

ii. Name of medical practitioner who made the diagnosis

iii. Date the employer was notified of the disease by the employee or medical practitioners.....

iv. Describe the Cause of the occupational disease

5. Total Monthly earning at the date of the Accident/disease:-

Salary/wage Sh.

Allowances paid regularly (including house, medical etc) Sh.....

Overtime payment or/and other special remuneration for work done whether by way

of bonus otherwise if of constant character and for work habitually performed.. .. Sh.

Total earning per month Sh.....

Total earnings paid to the employee during the period of incapacity Sh.....

Name of Employer or person notifying on behalf of EmployerSignature

Designation Date

Note:-

1. In the case of injury to an employee involving incapacity for work for three or more consecutive days, it is requested that the employer complete Part 1 in triplicate and then dispatch the forms immediately as hereunder:
One copy: - To the Occupational Health and Safety Officer in charge of the District in which the accident occurred.
2 copies: - To the medical practitioner attending or examining the injured/sick employee. The forms to be forwarded to the Occupational Health and Safety Officer immediately the doctor completes part II
2. Please attach any evidence detailing any payment forming part of the employee's total earning that the employee has been paid during the period of temporary disablement when he/she was out of work as a result of the injury.
3. Indicate who has paid for the medical bills
4. In the case of an occupational accident/disease causing the death of an employee, Part 1 should be completed in duplicate and then dispatched as hereunder:
One copy: - Immediately to the Occupational Health and Safety Officer in charge of the District in which the death occurred.
The other copy together with a copy of the death certificate:- to the Occupational Health and Safety Officer in charge of the District in which the death occurred.

PART 11 (for use by the Medical Practitioner)

MEDICAL REPORT

Name of employee.....

Date admitted to hospital.....Discharged.....

In-patient No.

Attendance as out-patient from.....to.....

Out -patient No.

Type of injury.....or Occupational disease.....

Is there permanent incapacity?.....*Yes/No

If yes please give:

a) Details and nature of permanent incapacity.....

b) Percentage of permanent incapacity to be indicated in both words and figures(*reference must be made to the first and second schedule of the Work Injury Benefit Act No. 13 of 2007*).....

.....per cent.

Temporary incapacity :- (Duration of absence from work in days, from the date of injury or acquiring occupational disease/or

diagnosis of occupational disease to the time of resumption of duty or death.).....(employee's working days)

Is a further examination required before final assessment of permanent incapacity can be given?.....If yes ;

a) which ones

.....
b)

when?.....

.....

c) Who paid the medical bills paid (Employee or Employer).....
.....
Name of Medical Practitioner.....KMP&DB No.....
.....
SignatureDate
.....
Name of Hospital/Clinic/Private
Practice.....

PART 111

(For use by Occupational Health and Safety Officer)

Compensation *is / is not being claimed on behalf of the employee/dependants of the deceased employee.

District and Accident Register No.....

Station..... Date.....

Occupational Health and Safety Officer

*Delete whichever is inapplicable__

Appendix 4: GENERAL REGISTER

GENERAL REGISTER: OCCUPATIONAL ACCIDENTS

Date of Accident (1)	Date on which notification is/was sent to Occupational Health and Safety Officer (2)	Injured Person				Circumstances of the accident	
		Name (3)	Sex (4)	Age (5)	Usual occupation (6)	Precise occupation at time of accident (7)	How caused? E.g. whether by machinery in motion, and by what part of such machinery (8)

Appendix 5: Workplace inspection checklist for hospitals

Workplace inspection checklist for hospitals

KEY:

1	2	3	4	5
Very Poor	Poor	Satisfactory	Good	Excellent

STAIRWAYS

	1	2	3	4	5
1. Free of obstacles					
2. Slippery step surfaces					
3. Stairs and grab rails in good condition					
4. Fire doors are closed					

AISLES AND FLOORS

	1	2	3	4	5
5. Free of obstruction					
6. In good repair					
7. Slippery					
8. Smoke doors free from obstacles					
9. Appropriate footwear worn by staff					

LIGHTING

	1	2	3	4	5
10. Adequate illumination					
11. Good natural lighting					
12. No direct or reflected glare					
13. Light fittings clean and in good repair					

14. No single fluorescent tubes					
15. Exit signs laminated					
16. Night lights fitted					

WINDOWS

	1	2	3	4	5
17. Lockable					
18. Controlled opening height					
19. In good condition					
20. Fly screens are in good condition					

STORAGE

	1	2	3	4	5
21. Adequate					
22. Materials/equipment stacked					
23. Obstructing access					
24. Safety steps provided for high storage					
25. Designed to minimise manual handling a) light plant/substance/goods stored at higher level than heavy plant/substance goods b) in frequently used plant/substances/goods stored at ground level or over shoulder height					
26. Shelves are free of dust and rubbish					

EQUIPMENT

General	1	2	3	4	5
27. Adequate work space to use					
28. Fitted with brakes where applicable					

29. Adjustable where applicable					
30. Adequate guarding mechanisms					
31. In good repair					
32. Regular on-going maintenance attended (check dates)					
Beds: All beds are:					
33. Height adjustable					
34. Fitted with brakes					
35. Cotsides fitted					
36. Accommodates all lifting machines					

OFFICE AREAS

	1	2	3	4	5
37. The office chairs are adjustable					
38. There is sufficient leg room for the worker					
39. There is foot support for the worker if required					
40. The chair controls are within easy reach					
41. Arms are provided where necessary					
42. There is adequate space to work in					
43. If the chair has castors is it on carpet?					
44. Shelving for manuals and folders					

SCREEN BASED EQUIPMENT

There is:	1	2	3	4	5
45. Sufficient contrast					
46. Glare (screen)					
47. Glare (external)					

48. Variation from keyboard duties					
49. Work station is adjustable to meet individual needs:					
a) monitor					
b) desk					
c) keyboard					
d) document holder provided					
e) - sufficient room to work in					

WASTE DISPOSAL

	1	2	3	4	5
50. Correct bins provided for:					
a) General – paper, etc.					
b) Sharps					
c) Food					
d) Other:					
e) infected / cytotoxic / glass (indicate which)					
51. Appropriate colour coded bin liners being used					
52. Bins are vermin proof					

OXYGEN CYLINDERS

	1	2	3	4	5
53. Trolley provided and used					
54. Cylinder stabilisation – straps / chains - provided and used					
55. Empty cylinders stored separately and labelled					
56. Stores advised when replacement is required					
57. Replacement is prompt					

58. Warning signs displayed					
59. There is sufficient oxygen in the cylinder					
60. Frequency checked when not used. Specify					

HAZARDOUS SUBSTANCES

	1	2	3	4	5
61. A material safety data sheet for each chemical used (including cleaning agent) available					
62. Containment materials available for spills					
63. Personal protective equipment a) Available b) used correctly c) suitable					
64. Disposal procedure satisfactory					
65. Flammable agents in a flameproof cupboard					
66. Storage of minimal quantities in the workplace					
67. Ventilation with extraction available at source					
68. Sufficient room to use product					

PHYSICAL HAZARDS

Noise					
69. have acceptable noise levels posted at work area where applicable					
70. Noise levels monitored					
Radiation					
71. Does exposure to radiation get monitored					

HOUSEKEEPING

	1	2	3	4	5
--	---	---	---	---	---

72. Are cleaning signs used appropriately?					
73. Are all exits clear?					
74. Are all verandahs clear?					

ELECTRICAL

	1	2	3	4	5
75. Power cords frayed / damaged					
76. Power cords in the way					
77. Double adaptors used					
78. Unchecked equipment being used					
79. Equipment not in use properly stored					
80. Is equipment checked regularly (check dates)					

STAFF AMENITIES

	1	2	3	4	5
81. Washrooms clean					
82. Toilet segregate male female					
83. Well stocked with toilet / hand paper					

FIRE AND EVACUATION

	1	2	3	4	5
84. Have all staff attended Emergency Procedure lectures/training?					
85. Do staff know fire procedure? Fire policy					
86. What is the procedure if you find or suspect a fire? a) activate break glass alarm b) the hose reel: when last checked? (check dates)					
87. Does staff know evacuation procedure?					

88. Identify lateral evacuation points if fire was located (specify area)					
89. Do the staff know: a) the different fire extinguishers b) Hose reels c) The maintenance of fire extinguishers d) how to use them					
90. The evacuation kit is available and complete					
91. Do the staff know where the area floor plan is?					

ENVIRONMENT

	1	2	3	4	5
92. Is the area: a) Too hot? b) Too cold?					
93. Taps are drip free when turned off					
94. Wet areas: a) non-slip surface b) water contained within the area					
95. Drug storage areas are locked: a) drug cupboards b) drug fridge c) drug trolley d) drug keys are being carried by an authorised person Nurse					
96. Medical Emergency - Staff know: a) where equipment is stored b) drugs c) reuse equipment					

d) suction					
------------	--	--	--	--	--

LIFTING MACHINE/EQUIPMENT

	1	2	3	4	5
97. Brakes fitted where applicable					
98. Wheels in good order					
99. Free of leakages					
100. Slings in good condition					
101. Correct slings available					

BED BATH

	1	2	3	4	5
102. Brakes working					
103. Hydraulics working					
104. Vinyl in good state					
105. Trolley corners have fittings					

SUCTION MACHINE

	1	2	3	4	5
106. Wheels working					
107. Clean bottle					
108. Oil half way in site glass					
109. Suction working					
110. Pressure <50mHg					
111. Dilly bag: - Gloves ,Suction Catheters					

Appendix.6 Medical examination report

THE FACTORIES AND OTHER PLACES OF WORK (MEDICAL EXAMINATIONS RULES) 2005

SECOND SCHEDULES 6 (2)

SUMMARY REPORT FORM

Name of work place.....

Work place registration No.....

Location.....

Tel..... Fax

Address.....E-mail.....

Type of Risk to health:.....

Number of workers exposed:.....

RESULTS OF EXAMINATIONS

Number of employees examined.....

Number with abnormal results.....

(a) Occupational disease.....

(b) Non-occupational disease.....

Number of workers recommended for re-deployment.....

I certify that the information given above is correct. Particulars of all workers with abnormal results including those recommended for re-deployment are attached.

Name of Designated Health Practitioner.....

Address.....

Physical Address of office.....

Tel. Fax

E-mail.....

Signature.....Date.....

Appendix.7 Dangerous occurrences form

Dangerous occurrences reporting form

State the dangerous occurrence in accordance with the First Schedule OSHA, 2007

.....

.....

Describe the nature of the occurrence and what was involved.....

.....

.....

.....

.....

.....

.....

Notified by: Name..... Signature.....

Email Date_...../...../20.....

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