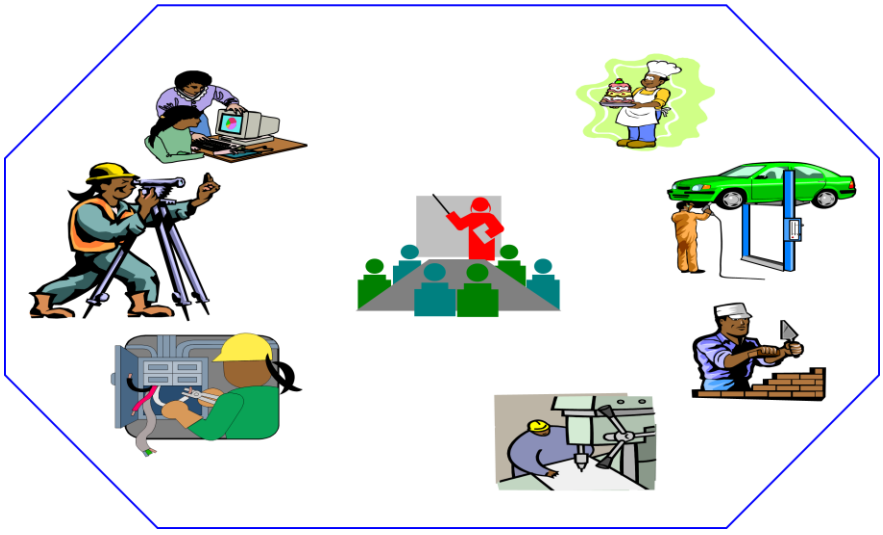
Animal Health care Level-III

Based on March 2018, Version 3 Occupational standard



Module Title: - Applying OHS Policies and Procedures

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East Africa Skills for Transformation and Regional Integration (EASTRIP) Project

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LG # 29	LO#1- Apply OHS policies and procedures

Instruction Sheet

learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Organization OHS policies and procedures.
- Preparing tools, equipment and materials.
- Identifying employee roles and responsibilities
- Identifying employee responsibilities

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Organization OHS policies and procedures
- Prepare tools, equipment and materials.
- Identify employee roles and responsibilities
- Identify employee responsibilities

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the “Information Sheets”.
4. Accomplish the “Self-checks” which are placed following all information sheets.
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Information sheet-1 Organization OHS policies and procedures

1.1. Introduction

Occupational Safety and Health (OSH) police and procedure is concerned with the health, safety, and welfare of employees in the workplace. Apart from fostering a healthy and safe work environment, the term also includes the protection of co-workers and family members.

OHS includes the laws, standards, and programs that are aimed at making the workplace better for workers, along with co-workers, family members, customers, and other stakeholders.

Occupational health and safety (OHS) police procedure relates to health, safety, and welfare issues in the workplace.

Improving a company's occupational health and safety standards ensures good business, a better brand image, and higher employee morale.

1.2. Policy

Policy" as "a plan of action; a course or method of action that has been deliberately chosen and that guides or influences future decision." By stating principles and rules, an occupational health and safety policy guides actions. A policy statement indicates the degree of an employer's commitment to health and safety. The statement of the employers' obligation should be more than an outline of legal duties.

1.3. Policy Statements

An organization's occupational health and safety policy is a statement of principles and general rules that guides action. Senior (or top) management must be committed to ensuring that the policy is carried out with no exceptions. The health and safety policy should have the same importance as the other policies of the organization.

1.4. The policy statement indicate

- Management's commitment to protecting and promoting the safety and health of workers, and preventing injuries and illnesses.
- The objectives of the program.
- The organization's health and safety philosophy.
- Who is accountable for the health and safety programs.
- The general responsibilities of all managers and workers.
- That health and safety shall not be sacrificed for convenience or expediency.
- That unacceptable performance of health and safety duties will not be tolerated.

1.5. The policy should be stated in.

- Clear terms.
- Signed by the current President or Chief Executive Officer.
- Kept up-to-date.
- Communicated to each worker.
- Followed for all work activities.

1.6. Purpose of Organizational policies and procedure for OHS

The purpose of organizational policies, procedures for OHS are to:

- Establish the practices and standards that a company will follow.
- Ensure that the company is in full compliance with the legislative requirements concerning work health & safety for employees
- Create a safe work environment for all employees.
- Create better work relationships between company owners, and their employees.
- Provide trying to protect them from injury.

1.6. Key Principles in Occupational Health and Safety Policies and Procedures

Occupational safety and health is an extensive multidisciplinary field, invariably touching on issues related to scientific areas such as medicine – including physiology and toxicology: ergonomics, physics and chemistry, as well as technology, economics, law and other areas specific to various industries and activities. Despite this variety of concerns and interests, certain basic principles can be identified, including the following:

All workers have rights. Workers, as well as employers and governments, must ensure that these rights are protected and must strive to establish and maintain decent working conditions and a decent working environment. More specifically:

- Work should take place in a safe and healthy working environment;
- Conditions of work should be consistent with workers' well-being and human dignity;
- Work should offer real possibilities for personal achievement, self-fulfillment and service to society
- Occupational safety and health policies must be established. Such policies must be implemented at both the national (governmental) and enterprise levels.
- They must be effectively communicated to all parties concerned.

A national system for occupational safety and health must be established. Such a system must include all the mechanisms and elements necessary to build and maintain a preventive safety and health culture. The national system must be maintained, progressively developed and periodically reviewed.

A national programme on occupational safety and health must be formulated. Once formulated, it must be

- Implemented
- Monitored
- Evaluated and
- Periodically reviewed.

Social partners and other stakeholders must be consulted. This should be done during formulation, implementation and review of all policies, systems and programs.

- Occupational safety and health programs and policies must aim at both prevention and protection.
- Continuous improvement of occupational safety and health must be promoted
- Information is vital for the development and implementation of effective programmes and policies.
- Health promotion is a central element of occupational health practice.
- Occupational health services covering all workers should be established.
- Compensation, rehabilitation and curative services must be made available to workers who suffer occupational injuries, accidents and work related diseases.
- Education and training are vital components of safe, healthy working environments
- Workers, employers and competent authorities have certain responsibilities, duties and obligations
- Policies must be enforced. A system of inspection must be in place to secure compliance with occupational safety and health measures and other labour legislation.

1.5. Rights and duties of Workers

Duties

The responsibilities of governments, employers and workers should be seen as complementary and mutually reinforcing in the common task of promoting occupational safety and health to the greatest extent possible within the constraints of national conditions and practice.

Workers' rights

It is increasingly recognized that the protection of life and health at work is a fundamental workers' right in other words, decent work implies safe work. Furthermore, workers have a duty to take care of their own safety,

Self-check 1-	**Written test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Describe the Principles of Occupational Health and Safety Policies and Procedures (3pts)

Note: Satisfactory rating –3 points **Unsatisfactory - below 3 points**

Information sheet -2:	Prepare tools, equipment and materials

2.1. Introduction

The key difference between equipment and materials is that materials form the actual product and are the parts, components, ingredients and raw materials that become a part of the product whereas equipment refers to the tools, machinery, devices that help create the product.

Tools and Equipment means all hand tools, implements, camp equipment, drawing office and survey instruments, medical and surgical instruments and all articles of similar nature, whether or not they are of an expendable nature, which are not normally issued to officers personally for use in carrying out their official duties.

Tools and equipment's

1. **Centrifuge**

A centrifuge separates liquids of different densities, such as DNA, blood, and proteins, at a high rate of speed. To ensure the safety of your lab personnel, the integrity of your research, and the investment in your lab, implement the following best practices:

Follow all the manufacturer's instructions for care.

- Develop and implement a strict cleaning, storing, and maintenance protocol.
- Only use manufacturer compatible centrifuge, rotor, buckets, caps, and adapters.
- Replace centrifuge parts including bottles, tubes, and O-rings at the first sign of damage.
- Assemble the bottles, buckets, and rotor per the manufacturer's instructions.

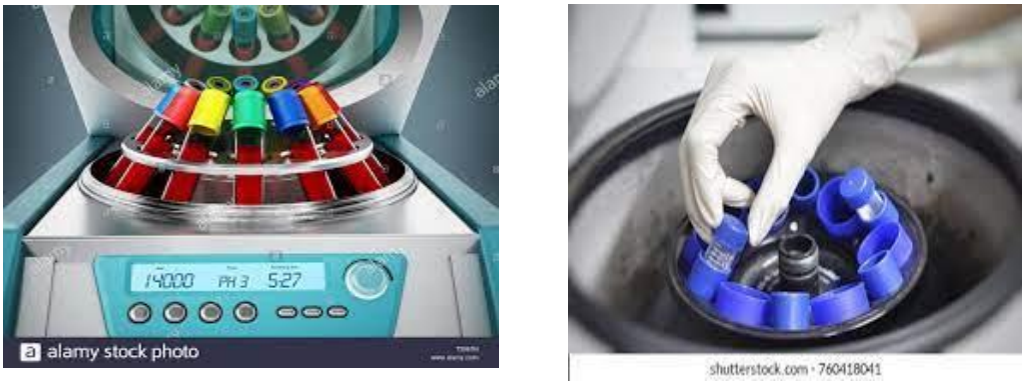

Figure 1: Centrifuge

2. Biological Safety Cabinets

A biological safety cabinet (BSC) is a primary engineering control used to protect personnel against bio-hazardous or infectious agents and to help maintain quality control of the material being worked with as it filters both the inflow and exhaust air.

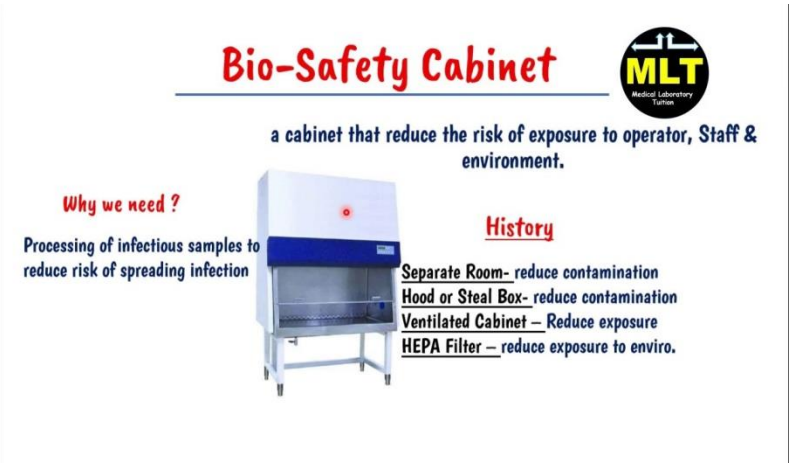

Figure 2: Biological Safety Cabinets

3. Sharps materials

The improper handling of “sharps” materials creates a significant risk for the primary individual working with them, as well as secondary individuals that may be cleaning or handling the lab’s waste. A significant number of injuries from “sharps” occur in

research labs each year, many of which go unreported, and a high percentage of these injuries are avoidable.

Figure 3: Sharp materials

3.1. Sharps materials such as Scalpel blade

- Hypodermic needles
- Pasteur pipettes
- Contaminated broken glass
- Intravenous tubing with needle attached
- Capillary tubes

All sharps objects, such as, but not limited to the following, must be disposed in an approved “sharps container

Figure 4: sharp materials and disposing place

4. Disposal lab coat

This is a lightweight fabric that covers the torso and arms, usually worn over scrubs or street clothing. Laboratory coats minimize contamination of clothing and skin beneath the gown by particulates and mists. Should be removed once contaminated.

Figure 5: Lab coat

5. Face mask

Face mask: A variety of masks are used in the animal facilities. For the purpose of this SOP, a face mask refers to a surgical mask or cone mask. Face mask and eye splash shield combination.

This protects the user's mouth and eyes from potential splashes or particulates.

Figure 6: Face mask

6. cap/head cover

Figure 7: head cover

This protects the wearer's hair from particulate contamination and minimizes contamination of the environment by the wearer.

7. Gloves

Selection of glove type and material is based on the type of exposure and nature of the hazard. Some chemicals can easily penetrate gloves that work very well for other chemicals.

The following should be considered when choosing gloves necessary for work in the animal facility

Figure 8: Gloves

8. Shoe covers

Shoe covers: Lightweight fabric or plastic booties worn over shoes to prevent contamination of the shoes and to prevent contamination of the environment by material that may be on the shoes. Shoe covers are especially important in minimizing the spread of contamination from area to area, provided they are removed and replaced appropriately

Figure 9: shoe covers

Waterproof shoe covers: These are booties worn over shoes that are resistant to water

9. Face shield

Face shield: This is eye protection that provides splash protection from the sides and top. The top portion of the shield is composed of soft foam that rests against the wearer's forehead, creating a protective barrier.

10. Safety glasses

Safety glasses: Hard plastic eye protection worn to protect the wearer's eyes from splashes and particulate

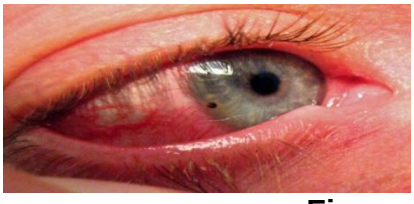

Figure 10: Safety glasses

Some important tools in animal Lab

No	Items	Specification
1	Bio-ocular Microscope	Olympus
2	Refrigerator of 12cc	Samsung SR-28NMB
3	Electrical Sterilizer	
4	Manual Centrifuge	 Hettich Technology
8	Frist Aid Kit	
9	Surgical Kit	 Indiamart
11	Automatic Vaccination Syringe of 30ml	
12	,, ,, ,, of 10ml	
13	,, ,, ,, of 2ml	

15	Obstetrical kit	
16	Bovine Ultrasound Kit	
17	Centrifuge	 Model 800

General Function of materials and equipment's

- Protect personnel who enter animal facilities and/or perform animal procedures from exposure to animal dander, hair, secretions, and excretions that may cause allergic respiratory and skin responses, or that may cause illness.
- Prevent exposure (to animal dander, hair, secretions, and excretions) of persons by contact with persons who have been in animal facilities or have conducted animal procedures.
- Minimize the risk of possible ocular, oral, or dermal exposure to chemical disinfectants.
- Minimize the transmission of disease agents among animals.
- To protect personnel work with macaques or macaque tissues from the risk of Herpes B virus infection and other naturally occurring infectious diseases of macaques.
- This procedure applies to anyone entering an animal or procedure room occupied by one or more animals.

Self-check 2-	**Written test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Test 1: Short Answer Questions

1. List some tools and equipment's used in laboratory activities (4pts)

Test 2: choice

1. Which of the following is present sharp materials (2pts)

   A. face mask B. needle C. gauze D. all

Note: Satisfactory rating –6 points Unsatisfactory - below 6 points

Information sheet – 3: Identifying employee roles and responsibilities

3.1. Introduction

A **role** describes a related set of activities that someone may perform to complete a process.

Responsibilities refer to the tasks and **duties** of their particular **role** or job description. Employees are held accountable for completing several tasks in the workplace.

3.2. Benefits of functional roles and responsibilities

Along with increasing team efficiency, creating functional roles and responsibilities provides several other benefits that could help your company as a whole. Understanding these benefits will motivate team leaders to implement them in the future if they haven't already.

Here are some of the **benefits** of establishing functional roles and responsibilities.

- **Increased productivity**

When teams understand what's expected of them, they know what they need to work on. Having a clear definition of their responsibilities will increase your team's overall productivity. This productivity will then lead to your team's increased momentum and success in the long run.

- **Team success**

By effectively delegating necessary tasks and having a set schedule, you're setting your team up for success. Employees with clear duties and deadlines have all the tools they need to get the job done and achieve optimal success.

- **Increased morale and momentum**

When an employee's responsibilities are clearly defined and they are successful in their role, the entire team will benefit from it. Team success is a great way to build momentum for future projects, thus fostering more productivity. This same success will also contribute to the team's heightened confidence.

3.3. How to develop functional roles and responsibilities

Understanding your team's goals and objectives is a great way to determine functional roles and responsibilities. When employees know what they should be working on, they're more productive and have the ability to produce higher-quality content. Here's how to develop functional roles and responsibilities in your team:

- **Determine what needs to get done.**

Make a list of all the tasks that need to be completed. This will give you an idea of how many tasks you'll need to delegate. Make note of what your team is currently working on as well as previous projects. Were past projects met with success? If not, what could have been improved? Are there tasks that need to be completed but haven't been? Recognize and delegate them to your team accordingly.

- **Identify strengths and weaknesses.**

Noticing your team's strengths and weaknesses is a great way to assign responsibilities as they pertain to their job descriptions. Once you have an idea of where an employee tends to shine, assign them tasks that cater to their strengths. If they show weakness in a specific area, consider assigning that task to another team member who can perform the task more successfully. This will help your team work more efficiently and help them gain confidence in knowing they can do what was asked of them. At the same time, it's important to remember that employees should always be learning and expanding their skill set on the job.

- **Refer back to a team member's job description.**

Take note of every team member's job description when determining their duties. An employee should be given tasks that adhere to what they were hired for in the first place. It's also important to take into consideration their interpersonal skills, interests and past successes. A combination of their job description and their individual personality traits will help you better delegate your team's assignments.

- **Get feedback**

Asking for feedback can provide you with more insight into how to create functional team roles and responsibilities. By asking your team for feedback, you're also showing them that you care about their opinion and insight. This will help foster a healthy discussion of their expectations within the company. Having a clear stream of communication with your team is key.

3.3. There are two possible types of employee roles, including:

- **Technical role**. The first type requires a worker to be is accountable for doing assigned tasks and duties as prescribed. It actually means this worker needs to be appropriately skilled, have necessary knowledge, and be responsible for work results.
- **Social role.** The second type refers to the necessity of an employee to socialize with colleagues and supervisors when doing assigned duties and responsibilities. It requires using communication as an effective mechanism to exchange information and share knowledge with other employees.

3.4. Employee responsibilities

- Actively participate.
- Be an active listener.

- Take notes.
- Complete tasks and assignments.

3.5. Team leader roles and responsibilities

The main role of a team leader is to provide the team with direction and support. They're also responsible for delegating tasks. To effectively lead a team, a team leader must outline not only the team's main objective but the tasks each employee is responsible for. As an effective team leader, you should:

- Prepare material for your team.
- Maintain a team calendar or schedule.
- Schedule and hold meetings.
- Facilitate discussion.
- Communicate with team members.
- Assign responsibilities.
- Draft and deliver correspondence.
- Supervise team members.
- Support team members.

Self-check 3: **Writing Test**

Name: _____ Date: _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List the roles and Responsibility of workers and Leaders (4pts)
2. Mention 4/four/ Benefits of functional roles and responsibilities (4pts)
3. Which of the following is the role of employees

   A. National role B. International role C. Social role D. all

Note: Satisfactory rating – 8 points **Unsatisfactory - below 8 points**

Information sheet – 4: Identifying employee responsibilities

4.1. Introduction

This section provides information about policies, procedures, and guidelines related to health and safety procedures. Topics covered include responsibilities, services, Health and Safety (OH&S), a variety of topics related to workplace safety (e.g. Hazardous, ergonomics), the management of hazardous materials, and how to prevent and handle emergencies.

4.2.Lab Technicians Responsibility

- Ensure lab supplies are sufficiently stocked.
- Identify chemicals and quantities required to support inventory functions.
- Choose and develop suitable equipment and instrumentation for laboratory.
- Develop testing reagents like buffers and gels on demand.
- Ensure to maintain equipment perfectly.
- Operate and manage, pipettes, thermometers, balances and other lab apparatus.
- Ensure to maintain clean work floor and dispose waste appropriately.
- Ensure to label chemicals and reagents properly having all needed quality documents.
- Conduct regular physical testing of test specimens.
- Report or order required laboratory supplies for on time orders and receipt.
- Maintain and update laboratory notebooks to ensure conformance to test procedures and specifications.
- Receiving, labeling and analyzing samples (blood, toxic, tissue etc.)
- Designing and executing laboratory testing according standard procedures
- Conducting experiments under defined conditions to verify/reject various types of hypotheses using refined scientific methods

4.3. Lab Assistant Role and Responsibilities

- Prepare samples for testing using various laboratory equipment.
- Maintain all laboratory records.
- Comply with the correct procedures, policies, and health and safety regulations
- Conduct laboratory tests, analyze results, and document your findings.
- Stay informed with the latest industry trends, techniques, and best practices.
- Document all activities, results and report back to management.
- Clean and sterilize equipment and work area.
- Collect and prepare research and information needed for studies.
- Classify and label samples.
- Undertake basic administrative tasks such as filing and answering telephones.

4.4. Responsibilities of management include:

- Providing a safe and healthful workplace.
- Establishing and maintaining a health and safety program.
- Ensuring workers are educated, trained or certified, as required.
- Reporting incidents and cases of occupational disease to the appropriate authority.
- Providing medical and first aid facilities.
- Ensuring personal protective equipment is available and maintained.
- Providing workers with health and safety information.
- Supporting supervisors in their health and safety activities.
- Evaluating health and safety performance of supervisors.
- Ensuring the health and safety program is reviewed at defined intervals.
- Ensuring any changes necessary as the result of this review are implemented

4.5. Responsibilities of safety coordinators include:

- Advising all workers on health and safety matters.
- Coordinating interdepartmental health and safety activities.
- Collecting and analyzing health and safety statistics.

- Providing health and safety education and training.
- Conducting research on special problems.
- Attending health and safety committee meetings as a resource person.
- Resolving reported health and safety issues.
- Ensuring the timely implementation of corrective and preventive actions with supervisors and management.

4.6. Providing a Safe Workplace

- **Facility Design**

Facilities will be designed in a manner consistent with health and safety regulations and standards of good design

- **Hazard Identification and Correction**

Supervisors, managers and staff, shall assure that regular, periodic inspections of workplaces are conducted to identify and evaluate workplace hazards and unsafe work practices.

- ✓ The frequency of inspections should be proportional to the magnitude of risk posed in the particular workplace.
- ✓ Means of correcting discovered hazards and/or protecting individuals from the hazards shall be determined and implemented appropriately.
- ✓ Unsafe conditions which cannot be corrected by the supervisor or manager must be reported to the next higher level of management.

- **Shutdown of Dangerous Activities**

Shutdown of Dangerous Activities Considered constituting a clear and imminent danger to health or safety.

- **Providing Medical Surveillance**

Organization shall evaluate and monitor, through a program of medical surveillance, the health of workers, who are exposed to certain hazardous materials and situations as defined by law or workplace policy. Each supervisor is responsible for ensuring that

employees and students under their supervision participate in the medical surveillance program as required by workplace policy and procedures. EH&S will monitor medical surveillance program participation.

- **Emergency Response and Preparedness**

EH&S coordinates overall emergency response planning for the institution and provides guidelines for departmental emergency response plans. Every department shall have an individual emergency response plan and shall develop business continuity and contingency plans and implement appropriate mitigation programs to reduce the impact of emergency events.

- **Safety Communication and Training**

Safety and compliance required training shall be communicated in a manner readily understandable to college, staff and students, in accordance with the communication policy outlined below.

✓ **Systems of Communication**

Managers and supervisors, both faculty and staff, shall establish, implement and maintain a system for communicating with employees and students about health and safety matters. Information should be presented in a manner readily understood by the affected employees and students. Due attention must be paid to levels of literacy and language barriers. Verbal communications should be supplemented with written materials or postings if appropriate.

✓ **Communication about Hazards**

Organization, staff, and students who may come in contact with hazardous substances or practices either in the workplace or in laboratories shall be provided information concerning the particular hazards which may be posed, and the methods by which they may deal with such hazards in a safe and healthful manner

✓ **Training**

Supervisors, including faculty, shall be experienced, trained or knowledgeable in the safety and health hazards to which employees and students under their immediate direction and control may be exposed, and shall be knowledgeable of current practices and safety requirements in their field.

Supervisors, both organization and staff, shall ensure that employees and students have received appropriate training and information regarding

- ❖ General health and safety practices of the workplace or laboratory, including emergency procedures.
- ❖ Job-specific health and safety practices and hazards;
- ❖ Recognition and assessment of health and safety risks; and,
- ❖ How to minimize risks through sound safety practices and use of protective equipment; and,
- ❖ Awareness of appropriate practices to protect the environment.

- **Documentation and Recordkeeping**

Documentation and records as required by regulation shall be kept to demonstrate compliance with applicable statutes, regulations and policies.

Self-check: 4	Writing Test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Describe 2 Responsibility of employee and management (4pts)

Note: Satisfactory rating – 4 points **Unsatisfactory - below 4 points**

LG # 30	LO #2: Identify and control workplace hazards and risks

Instruction sheet

learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Providing information regarding hazards.
- Recognizing and reporting hazards.
- Making assessment of risk hazards.
- Following workplace procedures and work instructions
  - ✓ Recognizing risk to follow workers
  - ✓ Providing Safety training as necessary.

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

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Information sheet – 1 providing information regarding hazards

1.1. Introduction

Employee access to information about workplace risks has generated intense debates over government policies and growing conflicts on the shop floor. The success of lobbying and negotiating efforts on the part of workers, their unions, and health professionals is reflected in the proliferation of collective bargaining agreements, state and local laws, and federal regulations which mandate the transfer of hazard information from management to employees.

1.2. Purposes

The **purpose** of this section is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets and employee training.

1.3. Sources of information

- **Internal sources of information on workplaces hazards.**

  - ✓ Safety Data Sheets (SDSs).
  - ✓ Manufacturer's operating instructions, manuals, etc.
  - ✓ Test or monitor for exposure (occupational hygiene testing such as chemical or noise exposure).
  - ✓ Results of any job safety analysis.
  - ✓ Experiences of other organizations similar to yours.
  - ✓ Trade or safety associations.
  - ✓ Information, publications, alerts, etc. as published by reputable organizations, labor unions, or government agencies.

- **External sources of information on workplaces hazards.**

  - ✓ Websites and other government agencies from around the world.
  - ✓ Best practices or other publications made available by industry groups or trade associations.
  - ✓ Labor unions, state and local occupational safety and health committees.
  - ✓ Safety and health experts and consultants

2. What if I am new to the workplace?

If you are new to your workplace, to learn about the hazards of your job, you can:

- Ask your supervisor
- Ask a member of the health and safety committee or your health and safety representative
- Ask about standard operating procedures and precautions for your job
- Check product labels and safety data sheets
- Pay attention to signs and other warnings in your work
- Watch for posters or instructions at the entrance of a chemical storage room to warn of hazardous products
- Ask about operating instructions, safe work procedures, processes, etc.

Self-check: 1	Writing Test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention internal and external source of information (3pts)

Note: Satisfactory rating – 3 points **Unsatisfactory - below 3 points**

Information sheet – 2 recognizing and reporting hazards

2.1. What is a hazard?

There are many definitions for hazard but the most common definition when talking about workplace health and safety is “A hazard is any source of potential damage, harm or adverse health effects on something or someone.”

"Occupational health and safety standard - Hazard identification and elimination and risk assessment and control" uses the following terms:

- **Harm** – physical injury or damage to health.
- **Hazard** – a potential source of harm to a worker.

Basically, a hazard is the potential for harm or an adverse effect (for example, to people as health effects, to organizations as property or equipment losses, or to the environment).

2.2. Hazard identification

Hazard identification is part of the process used to evaluate if any particular situation, item, thing, etc. may have the potential to cause harm. The term often used to describe the full process is **risk assessment:**

- Identify hazards and risk factors that have the potential to cause harm (hazard identification).
- Analyze and evaluate the risk associated with that hazard (risk analysis, and risk evaluation).
- Determine appropriate ways to eliminate the hazard, or control the risk when the hazard cannot be eliminated (risk control).

Overall, the goal of hazard identification is to find and record possible hazards that may be present in your workplace. It may help to work as a team and include both people familiar with the work area, as well as people who are not – this way you have both the experienced and fresh eye to conduct the inspection.

2.2.1. Hazard identification can be done:

- **During design and implementation**
  - ✓ Designing a new process or procedure
  - ✓ Purchasing and installing new machinery
- **Before tasks are done**
  - ✓ Checking equipment or following processes
  - ✓ Reviewing surroundings before each shift
- **While tasks are being done**
  - ✓ Be aware of changes, abnormal conditions, or sudden emissions
- **During inspections**
  - ✓ Formal, informal, supervisor, health and safety committee
- **After incidents**
  - ✓ Near misses or minor events
  - ✓ Injuries

2.2.2. To be sure that all hazards are found:

- Look at all aspects of the work and include non-routine activities such as maintenance, repair, or cleaning.
- Look at the physical work environment, equipment, materials, products, etc. that are used.
- Look at injury and incident records.
- Talk to the workers:
- Look at the way the work is organized or done.
- Determine whether a product, machine or equipment can be intentionally or unintentionally changed
- Review all of the phases of the lifecycle.
- Examine risks to visitors or the public.
- Consider the groups of people that may have a different level of risk such as young or inexperienced workers, persons with disabilities, or
- new or expectant mothers

3. Types of hazards

1. Chemical Hazards

A chemical hazard is a substance that has the potential to cause harm to life or health. Chemicals are widely used in the laboratory and in many other places. Exposure to chemicals can cause acute or long-term detrimental health effects

Chemical exposure can result in a number of effects ranging from cancer and organ failures to death.

There are different toxic chemicals that employees may be exposed to as they complete daily tasks in the workplace. Usually, these chemicals are classified according to the type of harm that they can cause to the body as shown below:

- **Corrosives:** These are chemicals that can cause irreversible bodily harm such as hydrochloric acid.
- **Irritants:** Exposure to irritant chemicals can result in reversible inflammation of the contact skin area. Examples of irritant chemicals include strong solvents.
- **Teratogens:** This class of chemicals can cause birth defects when employees are exposed to them. A popular teratogen in the workplace is thalidomide.
- **Sensitizers**: A sensitizer, such as an isocyanine, can trigger allergic reactions upon exposure.
- **Mutagens**: Exposure to this type of chemicals can lead to negative gene mutation and damage to the chromosomes. A good example of this chemical is benzene.
- **Carcinogens**: A carcinogen is a chemical that can trigger malignant growth in body cells; thereby potentially causing cancer. Asbestos is a common carcinogen.

Employees can be exposed to these chemicals through **inhalation, direct or indirect skin contact, ingestion, and injection.**

Figure 8: Chemical Hazards

Workplace Safety Tips to Prevent Exposure to Dangerous Chemicals

- Limit individual employees' exposure to chemicals by creating a work roaster.
- Monitor daily employee safety using.
- Wear personal protective equipment while handling chemicals in the workplace.
- Good **housekeeping and hygiene** are also important for protecting your team from chemical hazards

Figure 9: Chemical Hazards prevention

2. Physical Hazards

And with so many unique risks at play in the modern lab, it can be easy to overlook the more commonplace, physical risks. Trip hazards and mishandling mistakes are rife in busy, bustling labs.

Figure 10: Physical Hazard

Handling is one of the major concerns for all lab managers, with members of the research team susceptible to injury if not following safe handling requirements. Hot, heavy and sharp apparatus can all compromise the health and welfare of members of the research team. This makes it important that full and correct handling equipment such as safety gloves is provided. Furthermore, training for correct lifting should be conducted so the whole team can lift and carry without fear of injury.

Slips, trips and falls are more likely to occur in the laboratory than many other workplaces due to the amount of time researchers spend on their feet and the volume of different materials present. Due care and diligence must be paid by every member of the team to reduce the presence of slip and trip hazards – to protect themselves and other members of the team. All essential and non-essential items which are stored in the laboratory must have a sufficient storage space, keeping them well out of the team's way.

And finally, perhaps the most common of all hazards and risks in the science lab is the humble glass tube. Many an experienced lab professional has cut their finger or hand when forcing a rubber stopper into a glass tube. Whilst this will, perhaps, always occur – the risk can be reduced with continued encouragement of correct stopper replacement, using gentle pressure whilst rotating the glass tube.

Note: (**physical** – radiation, magnetic fields, temperature extremes, pressure extremes (high pressure or vacuum), noise, Laboratory materials, tools machinery, biting, scratching etc.)

Figure 11: Accident by Laboratory materials(knife)

Prevention

- Organizations must carry out frequent risk assessments.
- Tools and machinery should be maintained regularly and replaced when due.
- Appropriate protective equipment must be worn in the workplace.
- Employees must undergo training on how to make use of machinery and tools.
- Safety guards must be fitted into workplace equipment.

2. Electrical Accident

Electrical accidents are very common in the workplace and they are caused by unprotected exposure to high voltage electrical outlets. According to the Electrical Safety Foundation International, electrical hazards cause more than 300 deaths and 4,000 injuries in American workplaces every year.

Electrical burns, electrical fires, and electrical shocks are 3 major types of electrical accidents. Electrical shocks occur when bodily contact with electricity causes the current to run through your body and in severe cases, it can lead to heart or respiratory failures.

When workers have to make use of faulty extension cords or work in environments littered with exposed power lines, they are directly at risk of electrical accidents. Such exposure can result in minor to major injuries especially burns, cardiac arrest, and even death (electrocution) in many cases.

Figure 12: Electrical Accident

Other scenarios that can result in electrical accidents include the following:

- Hidden electrical outlets in the workspace.
- Unsafe equipment or installation.

- Lack of personal protective equipment.
- Poor control of work activities
- Un-insulated electrical wiring
- Lack of training
- Failure to isolate circuits before working

Here are a few things to do when electrical accidents; especially shocks and burns, happen in the workplace.

- Avoid touching the victim with your hands.
- Do not remove any blisters or burnt flesh from the victim's body.
- Do not rub any ointment on the burns.

Workplace Safety Tips to Prevent Electrical Hazards

To protect your employees and prevent electrical shock accidents in the workplace, employers and employees must take extra care to practice workplace safety habits. Specifically, here are a few precautions you can take:

- Always inspect the working area for un insulated wires, broken cord, and exposed electrical circuits beforehand.
- Do not make use of faulty electrical equipment at all times.
- Workers must wear personal protective equipment.
- Isolate electrical equipment before working on them.
- Have a prompt system for reporting and documenting electrical shock incidents in the workplace.

3. Slips, Trips and fall

Figure 12: fall

- Bad housekeeping and poor drainage can make floors and other walking surfaces wet and slippery.
- Electrical wires along the floor pose a tripping hazard.
- You can fall if you are not provided with fall protection equipment, guardrails, and safe ladders.

4. Fire Accidents

A fire accident is a very serious danger that can result in loss of life and property in the workplace.

The first step to **preventing** a fire outbreak in any organization is recognizing potential causes. Here is a list of some of the things you should look out for

- Faulty Electrical Equipment:
- Clutter: Untidy work environments can also result in fire outbreaks.
- Combustible Materials:
- Negligence: When employees fail to adhere to safety precautions, such negligence can result in fire accidents.

Figure 13: Fire Accidents

How to Prevent Workplace Fire Accidents

- Create numerous fire exits in the workplace.
- Install fire alarms and extinguishing systems.

- Do not place inflammable materials near ignition sources like circuits and electrical outlets.
- Organize compulsory fire drills regularly.
- Promptly inform your employer about fire hazards
- Do not overload power circuits
- Improper labeling, handling or storage of certain materials can pose a risk of fire or explosion.
- Every workplace should have an evacuation plan for getting people out of a building in case of fire and an alarm or alert system to quickly inform employees of an emergency.
- Every worker should be trained on what to do in case of an emergency.

5. Confined Spaces

- A confined space is an area with small openings for a worker to enter and exit and is not designed for regular work. Examples of confined spaces include manholes, sewer digesters and silos. There are many hazards in confined spaces.

Figure 13: Confined Spaces

- Workers can become unconscious and die from a lack of oxygen.
- There may be too much oxygen, or other chemicals that can catch fire or explode.
- Poisonous gases and vapors, such as hydrogen sulfide or carbon monoxide, may also build up in a confined space.
- Confined spaces can also pose physical hazards. They can be very hot or cold, very loud, or slippery and wet.
- Grain, sand or gravel can bury a worker.

6. Biological Hazards

The use of bacteria, viruses, blood, tissue and/or bodily fluids in the lab can lead to potential **biological hazards**. These materials can all carry disease or hazardous allergens which could put the lab team at risk. The effects of the diseases and allergens can be immediate or take significant time to manifest, demonstrating the importance that all members of the lab team are given sufficient protection, even if the dangers are not yet known.

Diseases carried by humans and animals used in research can be transmitted by the team, who then may become carriers. This means that biological hazards could prove to be a massive risk for not only the lab professionals working with the materials, but anyone they come into contact with outside of work. Sometimes incredibly infectious, biological hazards (biohazards) can be amongst the biggest risks of the modern research lab, so every consideration must be made to ensure the team and the wider public are protected against contagious materials.

Example of Biological hazards

- Bacteria
- viruses
- Zoonotic Diseases
- Insects
- Plants
- Birds
- Animals

Figure 13: Biological hazards

Prevention

Proper storage and protection is key to preventing a biological emergency in your lab. Wearing appropriate protective clothing and keeping biological agents contained in the

correct areas are essential for minimizing exposure to risk. Systems and procedures for safe use, handling, storage and transport of biological hazards should all be in place. Appropriate housekeeping, such as disinfecting **work surfaces** and properly disposing of waste, are also vital for minimizing biological risk.

Figure14: PPE Safety protection

Emergency

Emergency procedures should be prepared in **advance**, and the primary objective should be to contain the biological hazard and minimize risk to people and the environment. Depending on the situation, a variety of actions may be required, such as informing others, isolating the area, evacuation, seeking assistance, preventing the spread of contamination or spills, or decontaminating the work area. First aid or medical treatment may be required in some situations.

7. Ergonomic Hazards–(repetitive movements, improper set up of workstation, etc)

Working in awkward postures or being in the same posture for long periods of time. Using positions that place stress on the body, such as prolonged or repetitive reaching above shoulder height, kneeling, squatting and leaning over a counter, using a knife with wrists bent, or twisting the torso while lifting.

7.1. Ergonomic hazards include:

- ✓ Improperly adjusted workstations and chairs.
- ✓ Frequent lifting.
- ✓ Poor posture.

- ✓ Awkward movements, especially if they are repetitive.
- ✓ Using too much force, especially if it's done frequently.
- ✓ Vibration.

Figure15: Ergonomic hazards

8. Psychosocial Hazards

Psychosocial risks can be defined as "the risks to mental, physical and social health caused by **working conditions** and organizational and **relational factors.**

They result from the interaction between the worker, living conditions at work and living conditions outside work, and are likely to influence the health, safety and well-being of the worker, with possible repercussions on productivity and satisfaction.

They are closely associated with occupational

- Stress
- Violence
- Intimidation/fear and
- Harassment

Figure16: Psychosocial Hazard

Stress is one of the strongest pillars of psychosocial risk in the workplace. Occupational stress, also referred to as “professional stress” or “work-related stress,” highlights “a consequence of the disharmony (or imbalance) between the demands of work and the capabilities (and resources or needs) of the worker”

9. Workplace Harassment

Workplace harassment is a common problem that can result in an unhealthy working environment, reduced productivity, and toxic behaviors. It encompasses any actions that repeatedly threaten, abuse, ridicule, or discriminate against employee(s) and can have adverse effects on work performance.

Many times, such negative actions are targeted towards specific demography; thus, employees may suffer abuse and discrimination as a result of their social status, gender, race, or physical appearance.

Figure16: Workplace Harassment

10. Zoonotic diseases

Although humans usually are not susceptible to infectious diseases suffered by animals, there are some important exceptions. Infections of animals may, on some occasions, produce significant diseases in humans even when the animals themselves show little if any sign of illness. A bacterium in the normal flora of a healthy animal may cause a serious disorder in a person exposed to it because the animal has developed "resistance" to these microorganisms, whereas humans with no previous exposure to the agent lack this protective immunity. Therefore, one should always be aware of possible consequences when working with each species of animals, and take precautions to minimize the risk of infection.

Q-fever arises from infected sheep, cattle, goats, rodents, marsupials, fowls and their ticks. It is caused by the ricksettial agent Coxiella burnetii. Onset of Q-fever is usually abrupt 2 to 3 weeks following exposure with symptoms of headache, shivering, weakness, severe sweating, dry cough, joint and muscle pains, loss of appetite, vomiting, shortness of breath, nose bleeds and sometimes intolerance of light. Antibiotic treatment is required. Vaccination against Q-fever is advisable for persons working in or frequently visiting abattoirs, large milk handling plants; handling wool, hides, bones or entrails from cattle, sheep or goats; or working with pregnant cattle, sheep or goats.

In the event that a person becomes ill with a fever or some other sign of infection, it is important that they let their treating doctor know that they work with animals.

There are some common sense steps that can be taken to lessen the risk of infection in general. These include not eating, drinking, or applying cosmetics or contact lenses around animals or animal care areas, wearing gloves when handling animals or their tissues, taking care not to accidentally rub the face with contaminated hands or gloves, and hand washing after each animal contact.

10.1. Persons working with laboratory animals can protect themselves against accidental self-inoculation by wearing gloves, substituting manually operated pipettes for needles and syringes, taking enough time to give injections properly, anaesthetizing animals prior to inoculation with infectious agents, and using a two person team to inoculate animals.

Do not recap the needles! Instead, discard them promptly in a biohazard "sharps" container. Should you accidentally prick yourself with a needle or find a discarded needle, For procedures such as necropsies, bedding changes, and tissue and fluid samplings physical containment devices such as biological safety cabinets, full-face respirators or other personal safety equipment should be used as indicated.

The scope of possible zoonotic infections is quite large and only a few examples will be described here. However, all personnel should be aware that laboratory animals are sources of potent allergens to sensitized persons.

- **Working with rodents or rabbits**

In working with rodents (rats and mice) or rabbits, development of allergies to these species is probably the most common health hazard. Limiting exposure to soiled bedding and the use of gloves and mask may help. The potential for zoonotic disease is greatly reduced due to the high quality of animals available through suppliers today.

- **Working with dogs and cats**

In working with dogs and cats, the risk of transmitted disease is high because most of these animals are purchased from sources that do not have disease control programs in place.

Toxoplasma is an infectious agent found primarily in cat faeces. It can infect the unborn baby in women exposed during pregnancy who do not already have immunity to the

agent. Asymptomatic toxoplasma infection is common before childbearing years and many women have elevated antibody levels indicative of immunity. To help assess the level of immunity against this agent, serum samples can be tested prior to pregnancy. Cat faeces should be avoided and gloves should be worn when working in areas potentially contaminated with cat faeces. Thorough hand washing after handling any potential source of infection is also necessary.

- **Working with sheep**

It is now known that the Q-fever organism is shed abundantly from the placental membranes of sheep. This route of exposure has been the cause of recent cases of Q fever pneumonia and other associated symptoms in laboratory workers.
Personnel working where exposure is possible should take extra precautions. Gloves, masks, and protective clothing are recommended for individuals working with pregnant sheep. Infected persons can be effectively treated. Q fever vaccinations are available.
Contagious ecthyma ("orf") from the mouth of an infected sheep can be transmitted to humans causing focal skin lesions on the hands.

- **Asthma and allergies**

In the January 1998 publication by the US National Institute for Occupational Safety and Health (NIOSH), Preventing Asthma in Animal Handlers, several strategies for preventing exposure to animal allergens are discussed. Animal-related asthma is the immune system's response to allergens including animal dander, scales, fur, body wastes and saliva. Workers including laboratory animal workers, veterinarians, veterinary technicians, livestock workers, garment workers, and horse handlers are all at risk of developing work-related allergy symptoms.

Workers who show signs of allergies previous to employment are more likely to develop animal-induced asthma. Most reactions in technicians handling animals are due to

exposures to small animals (rodents) on contact during feeding, cleaning, dosing, sacrifice, surgery, and body fluid collection. Most allergens are found in the urine of rats, and the urine, saliva, and pelts of guinea pigs.

Symptoms of mild reaction include sneezing and runny nose. More serious reactions include cough, chest tightness, wheezing, or shortness of breath. In sensitized individuals the reaction may be immediate or delayed 2 to 8 hours. Occupational asthma without nasal symptoms is uncommon. On developing skin hives, nasal, eye and throat symptoms, usually 50% of workers will go on to develop asthma.

Workers who report symptoms of work-related asthma should be medically monitored for early intervention. Without removal from exposure to allergens, affected workers may develop an irreversible disease. A worker who has severe or life-threatening allergic reactions should be strongly advised to change jobs, since no prevention strategy is completely effective.

Preventing exposure Animal handlers should take steps to protect themselves from exposure to animals and animal products. These steps include:

- ✓ Performing animal manipulations within ventilated hoods or safety cabinets when possible,
- ✓ avoiding wearing street clothes while working with animals, or as minimum protection gloves and lab coats should be worn,
- ✓ leaving work clothes at the workplace to avoid potential exposure problems for family members,
- ✓ keeping cages and animal areas clean,
- ✓ reducing skin contact with animal products such as dander, serum and urine by using gloves, lab coats, and approved particulate respirators with face shields, and

- ✓ Training workers in recognizing the signs and symptoms of allergic reactions and sensitization may prevent further asthma development.

Prevention of exposure includes several engineering and work practice controls such as, the following:

- ✓ Modification of ventilation and filtration systems by increasing the ventilation rate and humidity in the animal housing areas.
- ✓ ventilating animal-housing and handling areas separately from the rest of the facility,
- ✓ directing airflow away from workers and toward the backs of the animal cages, and
- ✓ installing ventilated animal cage racks or filter-top animal cages
- ✓ decreasing animal density (number of animals per cubic metre of room volume),
- ✓ keeping cages and animal areas clean,
- ✓ using absorbent pads for bedding - if these are not available, use corncob bedding instead of sawdust bedding,
- ✓ using an animal species or sex that is known to be less allergenic than others,
- ✓ providing protective equipment for animal handlers: gloves, lab coats, and approved particulate respirators with face shields,
- ✓ providing training to educate workers about animal allergies and steps for risk reduction, and
- ✓ Providing health monitoring and appropriate counseling and medical follow-up for workers who have become sensitized or have developed allergy symptoms.

11. Anesthetic agents

Anesthetic agents used in laboratory animals may also pose potential hazards to workers. These agents should be treated as hazardous chemicals with a risk

assessment carried out of the chemical agents and the operations involved. A material safety data sheet (msds) should be available and understood by all relevant workers.

In addition to worker safety, animal welfare is a paramount consideration in selecting the anesthetic for each particular species of animal and each operation carried out. The Animal Ethics Committee should always be consulted early in the planning stages and prior to a decision regarding which type of anesthetic to use.

Self-check: 2	Written test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention the type of hazards and give some examples in each of them (10pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

Information sheet – 3 making assessment of risk hazards

3.1. Introduction

A workplace risk assessment is one of the key tools for improving occupational safety and health conditions at work. Thus it plays an important role in protecting workers and businesses, as well as complying with the laws in many countries. It helps everyone focus on the risks that really matter in the workplace – the ones with the potential to cause real harm. In many instances, straightforward measures can readily control risks, for example providing drinking water to prevent dehydration, window blinds to reduce temperature gain in buildings, ensuring spillages are cleaned up promptly so people do not slip, or cupboard drawers are kept closed to ensure people do not trip. For most, that means simple, cheap and effective measures to ensure workers, businesses most valuable asset, are protected. A well conducted workplace risk assessment will contribute to the protection of workers by eliminating or minimizing work related hazards and risks. It should also benefit businesses through better organization of working practices potentially increasing productivity.

3.2. What is risk assessment?

A risk assessment is simply a **careful examination** of what, in the workplace, could cause harm to people. It enables a weighing up of whether enough precautions are in place or whether more should be done to prevent harm to those at risk, including workers and members of the public. Accidents and ill health can ruin lives as well as affecting businesses, for example if output is lost; machinery is damaged, insurance costs increase or other financial penalties. In many countries employers are legally required to assess the risks in their workplace so that they can put in place a plan to control these risks.

3.3. How to carry out a risk assessment?

- Identifying potential hazards
- Identifying who might be harmed by those hazards
- Evaluating risk (severity and likelihood) and establishing suitable precautions
- Implementing controls and recording your findings
- Reviewing your assessment and re-assessing if necessary

Figure16: Fire risk assessment

3.4. How to assess the risks in the workplace

Follow the five steps

Steps1 Identify the hazards

Step 2 Identifying who might be harmed by those hazards

Step3 Evaluate the risk – identifies and decides on the safety and health risk control measures

Step4 implementing controls and recording your findings

Step5 reviewing your assessment and re-assessing if necessary

The key to risk assessments is not to overcomplicate the process. In many organizations, the risks are well known and the necessary control measures are easy to apply. Those conducting the risk assessment probably already know whether, for example, workers move heavy loads and so could harm their backs, or where workers

are most likely to slip or trip. If so, check that reasonable precautions are in place to avoid injury and ill health.

STEP 1 Identify the hazards

It is important to firstly identify any potential hazards within a workplace that may cause harm to anyone that comes into contact with them. They may not always be obvious so some simple steps you can take to identify hazards are:

- Observation: Walking around your workplace and looking at what activities, tasks, processes or substances used could harm your employees (or others)
- Looking back over past accidents and ill-health records as they may identify less obvious hazards
- Checking manufacturers' data sheets, instructions, information and guidance
- Consulting with employees (and others) who are carrying out the activities, tasks or processes

STEP 2 Identifying who might be harmed by those hazards

For each hazard identified, and there may be many, assessors need to be clear about who might be harmed and how; this will help ascertain the best way of managing the risk. That doesn't mean listing everyone by name, but rather identifying groups of people (e.g. 'people working in the storeroom' or 'passers-by'). In each case, identify how they might be harmed, i.e. what type of injury or ill health might occur.

- Some workers have particular requirements, e.g. new and young workers, new or expectant mothers and people with disabilities may be at particular risk.
- cleaners, visitors, contractors, maintenance workers etc., who may not be in the workplace all the time;
- members of the public, if they could be hurt by your activities;
- if the workplace is shared, think about how your work activities affect others present, as well as how their work affects your colleagues – talk to them; and
- Ask workers if they can think of anyone that may have been missed.

Step3. Evaluate risk severity and establish precautions

- Likelihood that harm may occur
- Severity of harm that may occur
- Knowledge about eliminating, reducing or controlling hazards and risks
- Availability of control measures designed to eliminate, reduce or suitably control or the risk
- Costs associated with available control measures designed to eliminate, reduce or suitably control or the risk

Step4. Implement changes and record your findings.

If a workplace has five or more individuals, significant findings of the risk assessments are required to be kept either electronically or in writing. Recording your findings on a risk assessment form is an easy way to keep track of the risks and control measures put in place to reduce the identified risk. The form includes:

- What hazards were found
- Person(s) or groups affected
- The controls put in place to manage risks and who is monitoring them
- Who carried out the assessment
- On what date the assessment was done.

Step5. Review your assessment and reassess if necessary

Employers should periodically review the assessment and if necessary, re-assess any controls in place.

Good guides as to when you may need to review your processes are:

- After any significant change within the workplace or process in question
- After an accident or ill-health incident has occurred
- After near-misses have been reported.

Self-check: 3	Writing Test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List the five step of risk assessment and explain each of them (10pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

Operation Sheet : 1 Identify workplace Hazards

1. Assess the risks in the workplace Following the five steps

Steps1 Identify the hazards

Step 2 Identifying who might be harmed by those hazards

Step3 Evaluate the risk

Step4 implementing controls and recording your findings

Step5 reviewing your assessment and re-assessing if necessary

Name: _____ **Date:** _____

Information sheet – 4 Following workplace procedures and work instructions

4.1. Introduction

Safe Working Instructions are written instructions for a process or activity that outlines the recommended safe method of undertaking the process or activity. Written Safe Working Instructions are an essential part of a safe system of work and are an important part of an overall occupational health and safety program. Safe Working Instructions provide information necessary to assist all staff and students to perform tasks safely and reliably. Instructions also assist in the training and orientation of new staff and students in the hazards of the process or activity to be performed. Lastly Safe Working Instructions are a valuable tool in assessing the level of understanding with regards to on the-job training. The term “Safe Working Instructions” is often used interchangeably with Safe Working Procedures, Safe Work Method Statements and other related terms. In a laboratory they may be collected into a Laboratory Safety Manual.

A **procedure** states *how* the *process* needs to be done.

A **work instruction** explains *how* to carry out the *procedure*.

4.2. Purpose of Workplace safety procedures and instructions

Safe Work Procedures are documented procedures for performing tasks. The purpose of a safe work procedure is to reduce the risk to health and safety in the workplace and reduce the likelihood of an injury by ensuring that employees know how to work safely when carrying out the tasks involved in their jobs. Safe work procedures may also be called safe work method statements (SWMS).

The purpose of a safe work procedure is to reduce the risk to health and safety in the workplace and reduce the likelihood of an injury through improving employees know how to work safely when carrying out the tasks involved in their jobs. Another term for safe work procedures is safe work method statements (SWMS).

4.3. Different types of Workplace safety procedures and instructions

- Handling chemicals – these involves procedures on how to handle chemicals in workplace where these are used.

- Lifting and moving objects – are procedures that pertain to how objects are to be lifted and moved safely and without strain to the person or worker.
- Working at heights – these are procedures that underscore what a worker must observe to keep himself safe while working in an elevated structure or environment.
- Slips, trips and falls – are procedures that pertain to safety procedures that should be in place to prevent slips, trips and fall accidents in the workplace.
- Housekeeping – are procedures that pertain to how housekeeping activities should be done while keeping in mind safety, health and well-being of workers in a facility or workplace.
- Electrical equipment – these are safety procedures that pertain to the installation, repair and maintenance of electrical equipment.

4.4. Components or elements of Workplace safety procedures and instructions

The following steps should be followed to ensure a sound safe work procedure is developed:

- **Observe the task/activities:** t is important to observe the task/activity being performed the preferred way to ensure safest method is documented.
- **Review associated legislative requirements:** Some task/activities are governed by legislative requirements. These must be considered when developing a safe work procedure to ensure any legal requirements are included.
- **Record the sequence of basic job steps:** write down the steps that make up the task/activity.
- **Record potential hazards of each step:** Next to each step identify what may have potential to cause injury or disease
- **Identify ways of eliminating and controlling the hazards:** list the measures that need to be put in place to eliminate or control any likely risk.
- **Test the procedure:** Observe staff/student following the safe work procedure
- **Obtain approval:** Before the safe work procedure can be used it must be approved by each approver nominated.
- **Monitor and review:** Make sure the activity is supervised to ensure the documented process is being followed.

4.5. Terms are used when developing Workplace safety procedures and instructions

- **Consultation and participation** –

Management or the owners of a business/organization must consult with employees about OHS matters that can directly affect them in the carrying out of their duties.

- **Emergency situations/incidents** – Any situation that may arise unexpectedly that could cause injury or harm to any person in a workplace.
- **Employee and employer responsibilities** – Employees must take reasonable care to ensure the safety of themselves and others, and comply with all OHS requirements.
- **Hazard identification and risk control** – Identifying any hazard as a source of potential harm to people, or damage to property, and reducing risk.
- **Occupational Health and Safety (OHS**) – OHS concerns the health and safety of all people in a workplace, including employers, employees and visitors
- Safe work practices and procedures – **These** provide practical guidance to business on how to fulfill their duty to provide a safe and healthy workplace.
- Workplace accidents, injury or impairment – Unexpected events that cause physical harm or damage to people or property.

4.6. Safe Working Instruction Guidelines

- **Manual Handling:** Reduce the weight of the object to be lifted or carried; for example, smaller containers or less material per container.
- **Make sure containers are easy to lift or carry;** for example, they are provided with handles or grips, or are a comfortable shape and size.
- **Change the height** of workbenches or shelving to reduce the need to bend or overreach.
- **Provide equipment** to assist with the lifting carrying or moving; for example, hoists, trolleys, scissor lifts, conveyors.
- Make sure tools or equipment are comfortable and easy to lift, use or operate.
- Suspend heavy tools or equipment.

- Provide footrests, comfortable and adjustable seating and cushioned floor coverings. 8. Reduce the distance to carry objects.
- Change the work process so that objects do not have to be lifted or moved as often by hand.
- Introduce job rotation with a mixture of repetitive and non – repetitive tasks.
- Provide training in safe manual handling.
- Make sure there is a two – person lift.
- Provide frequent short rest breaks for workers carrying out repetitive tasks.

4.7. Tools or Equipment

- Make sure tools or equipment with rotating or moving blades or cutters are fitted with guards.
- Make sure electrically powered equipment is only used if protected by a safety switch (Residual Current Device).
- Provide industrially insulated power extension cords.
- Prevent mobile plant or vehicles driving over power cords.
- Regularly test and tag electrically powered equipment.
- Write safe operating procedures for all powered tools and equipment.
- Train workers on the safe use of tools and equipment.
- Introduce job rotation and frequent rest breaks for jobs which involve the risk of injury from mechanical vibration.
- Provide safety glasses or face shields.
- Provide workers with good quality hearing protection.
- Provide workers likely to be burnt by hot material with personal protective equipment such as gauntlets, aprons, face shields.

4.8. Chemicals or Substances

- Use less dangerous chemicals or substances.
- Use paste or pellets instead of powders.
- Apply paint by brush instead of spraying.

- Store chemicals in sealed containers.
- Install an extraction system to remove fumes vapours or dust.
- Obtain Material Safety Data Sheets for all chemicals or substances. Particularly Hazardous Substances and Dangerous Goods.
- Follow safety precautions contained in Material Safety Data Sheets.
- Make sure all containers are labeled.
- Write safe operating procedures for the handling or use of chemicals or substances.
- Train workers on the safe handling or use of chemicals or substances.
- Provide first aid, safety showers, eye wash.
- Provide proper personal protective equipment such as gloves, aprons, cartridge respirators, safety glasses and face shields.

4.9. Workplace procedures and instructions in case of animal laboratory

Veterinary laboratory is a place where different specimens for physical, biochemical and biological examination tested and analyzed. Examination may be macroscopic or microscopic and it is performed manually or using specialized instruments by aid of chemicals and reagents. Due to this, lab technicians must have the skill to perform varies duties, including handling of different instruments, chemicals and reagents with their use during lab work.

Every lab technician must aware of the potential danger of chemicals, electrical, biological hazard to safe themselves and their partner during work. Keeping the living things in the vicinity or surrounding area and pollution of environment from any lab hazard is on the hand of lab technician. So, to avoid /minimize/ risk there is many safety regulations. Most problems may happen due to carelessness, neglect and shortage of knowledge. Therefore, to avoid accidents, lab technicians and students must follow all safety procedures in the lab.

1. Workplace training

Figure 17: Workplace Training

- Workplace orientation.
- Fire safety and emergency **procedures**.
- First aid.
- Health and safety (such as risk assessments or accident reporting **procedure**)
- Safe use of **workplace** tools, machinery, equipment.
- Risk assessments.
- Maintenance or storage of personal protective equipment.

2. Preparing for laboratory work

Before starting to work in a laboratory, familiarize yourself with the following:

- Read labels and material safety data sheets (MSDSs) before moving, handling or opening chemicals.
- Never use a product from an unlabeled container
- . If you are unsure of any aspect of a procedure, check with your supervisor before proceeding.
- The location and operation of safety and emergency equipment such as fire extinguishers, eye wash and shower, first aid, telephone and emergency exits.

- Emergency reporting procedures and telephone numbers
- Designated and alternate escape routes

3. during laboratory work

- Restrict laboratory access to authorized persons only. Children are not permitted in labs.
- Use the appropriate PPE while working in the laboratory.
- Never Smoke; eat; drink; store food, apply cosmetics in laboratory.
- Wear lab coats (knee length) and safety glasses in laboratories. Open shoes, such as sandals, should never be worn in the lab.
- Tie back or otherwise restrain long hair when working with chemicals, biohazards, or moving machinery.
- Keep work places clean and free of unwanted chemicals, biological specimens, and unused equipment. Avoid leaving reagent bottles, empty or full, on the floor.
- Work only with materials or chemicals once you know their properties safe handling and storage.
- Prepare and maintain a chemical inventory for the lab.
- Never pipette by mouth; use mechanical transfer devices.
- Walk; do not run, in the lab.
- Keep exits and passageways clear at all times.
- Ensure that access to emergency equipment (first aid boxes, safety showers and fire extinguishers) is not blocked.
- Report accidents and dangerous incidents ("near-misses") promptly to your supervisor
- Wash your hands thoroughly before leaving the laboratory.
- Perform procedures that liberate infectious bio-aerosols in a biological safety cabinet.
- Handle all samples for laboratory process as potentially infectious.

4. Cleaning up before leaving.

Figure 18: Workplace Cleaning

Perform a safety check at the end of each experiment and before leaving the lab. Make sure to:

- Turn off gas, water, electricity and any other heating apparatus
- Return unused materials, equipment and apparatus to their proper storage locations
- Label, package and dispose of all waste material properly.
- Remove defective or damaged equipment immediately.
- Decontaminate any equipment or work areas that may have been in contact with hazardous materials.
- Do not leave with your protective clothing (lab coats, gloves, etc.) when leaving the laboratory.
- Keep your personal hygiene before leaving a laboratory or after conducting any laboratory activity.
- Close and lock the door to the laboratory if you are the last one to leave.

5. Essential Rules for Laboratory Safety

Always:

- Familiarize yourself with laboratory safety
- Wear the appropriate PPE.
- Wash your hands before leaving laboratory
- Read the instructions carefully before starting any experiment

- Check that the apparatus is assembled correctly
- Keep your working area tidy
- Attend to spills immediately
- Ask your instructor if any doubt

Never:

- Eat or drink in laboratory
- Smoke in laboratory
- Inhale, taste or sniff chemicals
- Run in the laboratory
- Work alone
- Pour flammable liquids from one container into another with few meter distance of a flame.

6. Recognizing risk to follow workers (**Refer from LO2, information sheet - 3**)

7. Providing Safety training as necessary.

Training is helping and showing employees what they should and should not do when they carry out their workplace activities.

Employees should be suitably trained in all aspects of their job from the most menial to the riskiest activities in the workplace.

Suitable employee training can reduce workplace incidents and accidents which in turn can lead to reduced costs, lower insurance premiums and fewer potential lawsuits. It would also promote a healthier, safer and happier workforce.

Workplace instruction can be carried out in various ways, it could be a written document such as a method statement, or it could be verbal communication from a line manager or colleague.

2. Types of workplace training

- **Induction training**

Induction training is provided for new employees to help them to settle into the new workplace environment and activities.

This basic training will give the new employees an outline of the organization and the services it provides.

It will assist employees to become familiar with their new workplace environment, colleagues and procedures.

Some of the topics you should provide in induction training could be

- ✓ workplace orientation
- ✓ fire safety and emergency procedures
- ✓ first aid
- ✓ health and safety (such as risk assessments or accident reporting procedure)
- ✓ welfare facilities
- ✓ safe use of workplace tools, machinery, equipment
- ✓ risk assessments
- ✓ Maintenance or storage of personal protective equipment.

- **Refresher training**

Refresher training is given to employees on the assumption that existing skills have become outdated or obsolete. This could be because of the advancement of technology or simply that people can forget things.

Employees could become complacent with safety procedures which could lead to mistakes or errors, for this reason, it is important to refresh employee's knowledge and skills.

- **Toolbox talks**

A toolbox talk is an informal workplace safety meeting. These are intended to communicate vital safety information to employees. The talks will help facilitate health and safety discussions and will promote a positive safety culture within the organization.

The talks focus on various safety topics that are related to any specific workplace activity. For example, you can use them to deal with

- ✓ Hazards
- ✓ Safe systems of work
- ✓ Risk assessments

- ✓ training needs
- ✓ Health and safety updates
- ✓ Incidents and accident investigation updates
- ✓ New equipment.

The talks can be done face-to-face, at shift handovers, planned huddles or in a short presentation. They are often kept short and can be carried out by managers, supervisors or even fellow workplace colleagues.

Self-check 4:	**Writing Test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List 3 laboratory rules(3pts)
2. Mention and Describe the type of workplace training (7pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

LG # 31	LO #3: Monitor safe practices during work operations

Instruction sheet

learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Monitoring and reporting workplace safety
- Identifying and maintaining PPE
- Undertaking and checking basic safety equipment & machinery
- Identifying risks & hazards with handling substances
- Assessing and identifying noise hazards.
- Assessing manual handling risks
- Accessing information on OHS

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Monitor and report workplace safety
- Identify and maintain PPE
- Undertake and check basic safety equipment & machinery
- Identifying risks & hazards with handling substances
- Assess and identify noise hazards.
- Assess manual hand risks
- Access information on OHS

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the “Information Sheets”.
4. Accomplish the “Self-checks” which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work
6. If you earned a satisfactory evaluation proceed to “Operation sheets
7. Perform “the Learning activity performance test”

Information sheet – 1	Monitoring and reporting workplace safety

1. Introduction

Safety monitoring is the routine examination of the status of a system, equipment, workplace, working environment or the human body.

In terms of health and safety at work, monitoring can be anything from observing the way a worker performs a task to chemical monitoring and analysis to determine concentrations of toxic chemicals in the air.

Safety monitoring may take a number of forms depending on the levels of sophistication required and may include:

- Safety inspections
- Audits
- Surveys
- Sampling exercises.

There are three key benefits from a monitoring programme.

- Measuring the performance of the system, eg monitoring the level of a particular substance in air to confirm that extraction systems are working correctly.
- Reinforcement of management control and influence: involving all levels of management in the monitoring process reinforces the message that safety matters should be taken seriously.
- Improving the system of safe working, eg looking at which procedures are working well and which need adjustment or even a complete overall.

2. Safety Inspections

A safety inspection is generally taken to mean a scheduled inspection of a workplace or part of a workplace. While the principal objective of a safety inspection is to identify hazards and assess the risks, this form of monitoring may also examine maintenance standards, working practices, environmental conditions and compliance with written safety procedures.

A safety inspection is a general examination of the workplace situation at a specific point in time.

The inspection programmes cover the following.

- What to inspect.
- When, and how often, inspections will take place.
- Who should undertake and be involved in the inspections.
- How to ensure the completeness of the inspection and ensure that it is recorded. Remember, at a later date, it may also be important to be able to review what was seen and when.
- How to initiate and progress action by local supervision and management to correct non-compliances.

3. Health and Safety Inspection Practicalities

- **Timing of the inspection**

A busy time will provide the inspection team with the best chance of observing normal working practices. However, this needs to be balanced with the need to be able to talk to staff and follow up on any immediate queries.

- **Frequency of inspections**

In general, the greater the risk, the more frequent the inspections should be.

✓ **Follow-up inspections**

An up-to-date list of the previous non-compliances, along with their expected date of completion, should always be available to the inspection team, so items can be added to the list as they are observed and removed as the inspection team checks that they are completed. The remedial action of non-compliances will be actively checked and progressed, helping the organization to make sure that it is doing all that is reasonably practicable to ensure the safety of the area and the people affected by the work within it.

✓ **The inspection team**

The composition and size of the team will often depend on the purpose of the inspection and the magnitude of risk. Sometimes one person can carry out an inspection, eg the person responsible for the area. However, there may be benefits in expanding the team

to include others, such as a senior manager, a safety representative, an employee who works in the area and a technical expert. To ensure the safety of the inspection team, it should consist of at least one person who is familiar with the working practices in the actual area of the inspection and the equipment and machinery that is used.

Certain areas may have specific dangers that will require the inspection team to have special permissions and/or personal protective equipment to enter. To comply with the risk controls or safe system of work in a particular area, it would be necessary for the team to notify someone of its presence in that area, with a clear protocol for managing any unannounced inspections.

The inspection team must always be aware of the emergency procedures in the area of inspection, particularly if this inspection is undertaken outside normal work hours. Only suitably trained and equipped members of the inspection team should be involved with visiting any high-risk areas.

4. Conducting a safety inspection

The inspection should be conducted according to a predetermined checklist or process a general list of aspects or items can be used as a basis for the inspection.

A safety inspection should assess whether:

- hurt themselves (either through physical injury and/or disease)
- hurt or otherwise endanger others, eg creating near misses
- damage equipment and tools of the lab.
- it would be safer if the item:
- was removed/replaced
- was moved
- was repaired or disposed of
- had warning signs fixed to it or around it
- had a barrier with notices placed around it
- had more suitable guards or other physical controls fitted to it
- If additional equipment is needed eg to improve manual handling.

5. Safety Audits

A safety audit is a process that systematically measures the organization's management of its health and safety programme against a series of specific and attainable standards, to determine if there is compliance.

The Terms of Reference should be clear and unambiguous statements that describe either:

- What will fall under the remit of the audit
- If the remit is to be flexible, the arrangements for determining the scope and terms of reference for individual audits.

7. Purpose of an audit

The purpose of the audit is to examine the system and its implementation to determine if and where the system could be failing. The auditor's role should be focused on identifying problems rather than providing solutions. A system may fail because of:

- poorly written procedures or processes (be these electronic or hard copy)
- inadequate scope of procedures or processes
- inadequate training
- abuse of procedures or agreed processes
- poor recording, ie incorrect documentation of activities or misuse of electronic devices when recording activities eg where PDAs are used or onscreen records of process stages are maintained
- management failings, eg lack of safety commitment, ineffective supervision or not supplying resources
- Lack of appropriate equipment and facilities, eg suitable storage containment for hazardous materials.

8. Safety Surveys

A health and safety survey is a detailed examination of a critical area of operation, eg materials handling operation, perhaps revealed as a weak spot from an audit.

The survey may center on a specific work area, eg a warehouse, or be focused on a single procedure that covers the entire facility.

Safety surveys will be used when a potential area for concern has been identified during an audit. The survey will identify the issues and the root causes responsible for the weakness of the system.

The report may be in hard copy of purely an electronic document. Any preference the organization has in this regard should be defined in advance. Most reports should have a common general structure as follows.

- **Administration information**, eg title, reference number, date of publication, contact person, table of contents.
- **Introduction**, which concisely sets out the purpose of the report and clarifies any assumptions or limitations.
- **Summary**. This should detail the main points of the report on a single page.
- **Report body**, which should address the issues raised in the introduction. It should be confined to factual information, eg monitoring results that can be substantiated. Tables and charts can be used to aid the interpretation of results.
- **Conclusions and recommendations**. These can be subjective to the expertise of the writer but an agreed protocol as to how findings are always presented will minimize the risks of inconsistent approaches. Conclusions should be justified and explained, detailing any assumptions. Where conclusions are based on external factors, the source of these factors should be given. Where conclusions require further investigations this should be stated and timescale agreed to report back. When considering recommendations, readers should be given alternatives so they can select the most appropriate solution.

9. Remedial Action

Since the aim of the safety monitoring is to ensure the safety of the organization and all those working for and affected by its activities, it is not sufficient to simply carry out the inspection; non-compliances must be dealt with. Suitable remedial action must be taken to remedy the non-compliances. How this is achieved will depend on the nature and

size of the remedial action, the priority with which it must be undertaken and the budgetary constraints of the department, section or organization.

Senior management must become involved if there is any suggestion that a serious non-compliance either cannot be resolved or is going to be delayed.

There should be a suitable means of ensuring the progress of remedial work and checking that non-compliances are not permitted to remain for an unreasonable time.

10. Training

Adequate information and training must be provided to all Technicians involved in the lab process. An assessment of individual training needs by undertaking a gap or training needs analysis is advisable.

Self-check 1:	Writing Test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. **How you conduct a safety inspection (2pts)**

Note: Satisfactory rating – 2 points **Unsatisfactory - below 2 points**

2. Introduction

To minimize exposure to hazards chemicals, it is necessary to wear protective equipment when working with these chemicals. The employer must provide all personal protective equipment and the employee must wear it as required by the employer. The employee must ensure that protective equipment is properly cleaned and maintained and that sufficient equipment is available to fit each work correctly. OHS regulations require that staff members be trained to recognize when use of equipment in necessary, the type of equipment to use in each situation, how to wear and adjust the equipment, the limitations of the equipment, and the proper care of the equipment.

2. Personal protecting equipment's

- **Eye and face protection**

All students, staff and visitors must wear appropriate eye and/or facial protection in the following:

- ✓ All areas where hazardous materials, or substances of an unknown nature, are stored, used or handled
- ✓ All areas where the possibility of splash, flying objects, moving particles and/or rupture exist
- ✓ All areas where there are other eye hazards, e.g. UV light

Instructions for selection and use of protective eyewear are as follows:

- Work with significant risk of splash of chemicals: - **goggles.**
- Work with significant risk of splash on face, or possible explosion: - full face shield, plus goggles.

Figure 20: Face mask and Eye goggle

- **Lab coats**

Appropriate protective clothing (e.g., lab coats, aprons, and overalls) is required in all experimental areas where hazardous materials are handled.

Instructions for selection and use of protective laboratory clothing are as follows:

- ✓ Select knee-length lab coats with button or snap closures
- ✓ Wear protective aprons while working in x-ray room.
- ✓ Remove protective clothing when leaving the laboratory
- ✓ Remove protective clothing in the event of visible or suspected contamination.

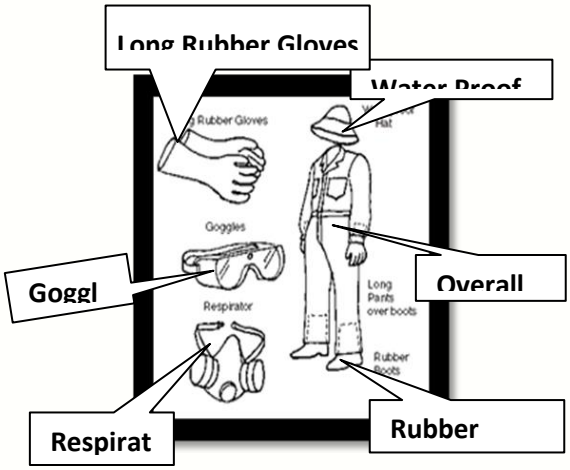


Figure 21: Personal protecting equipment's

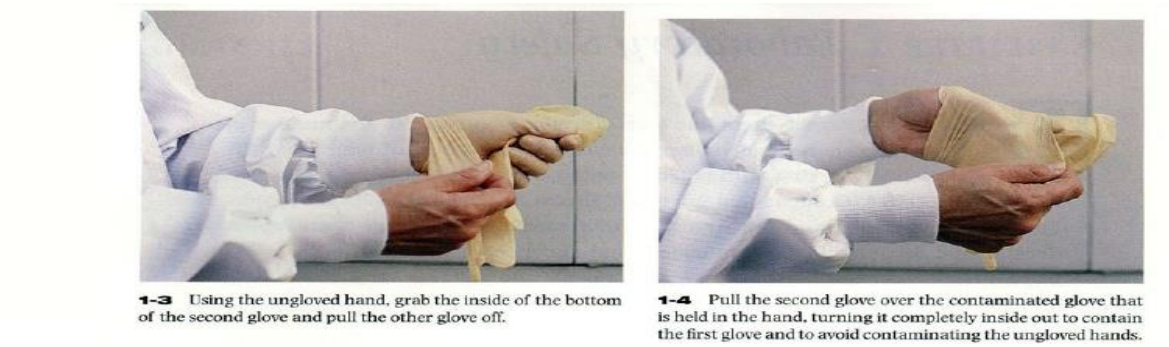
- **Hand protection**
  - ✓ **Latex gloves and skin reactions**

In the laboratory, **Latex** gloves are used for protection from radiation, chemical products, bio- hazardous material and physical hazards such as abrasion, tearing, puncture, exposure to temperature extremes and contamination of microorganisms.

Figure 22: Latex glove

Guidelines for glove use include the following:

- ❖ Choose a glove that provides adequate protection from the specific hazard(s).
- ❖ Inspect gloves for leakage before using; test the gloves by inflating them.
- ❖ Discard worn or torn gloves.
- ❖ Discard disposable gloves that are, or may have become contaminated.
- ❖ Always wash your hands after removing gloves, even if they appear not to be contaminated.
- ❖ Do not reuse disposable gloves.
- ❖ Follow the manufacturer's instructions for cleaning and maintenance of reusable gloves
- ❖ Before using gloves, learn how to remove them without touching the contaminated outer surface with your hands.



1-3 Using the ungloved hand, grab the inside of the bottom of the second glove and pull the other glove off.

1-4 Pull the second glove over the contaminated glove that is held in the hand, turning it completely inside out to contain the first glove and to avoid contaminating the ungloved hands.

Figure 23: Glove use techniques

- **Respirators**

Respirators should be used only in emergency situations (e.g. hazardous spills or leaks) or when other measures, such as ventilation, cannot adequately control exposures. There are two classes of respirators: **air-purifying** and **supplied-air**. The latter supply clean air from a compressed air tank or through an airline outside the work area, and are used in oxygen-deficient atmospheres. **Air-purifying** respirators are suitable for many laboratory applications and remove particulates (dusts, micro-organisms, etc.) or gases and vapours from the surrounding air.

Selection, use and care of respirators

Figure 24: N95 Respirator and Dust Mask

Follow proper procedures for selecting and using respiratory protective equipment. Correct use of a respirator is as vital as choosing the right respirator. An effective program for respiratory protection should include the following:

- ✓ Written standard operating procedures and training.
- ✓ Selecting a respirator that is suitable for the application. Consult the Assigning respirators to individuals for their exclusive use, whenever possible.
- ✓ Fit-testing: evaluation of facial fit for all users of respirators; the wrong size of respirator may prevent an effective seal between the wearer's face and the respirator.
- ✓ Protocols for using, cleaning and sanitary storage of respirators.
- ✓ Regular inspection of the respirator, and replacement of defective parts

Self- check 2:	Writing Test

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

Test 1: choice

1. Which of the following materials included in PPE(2Pts)

   A. burdizoo B. speculum C. Glove D none

Test 2: Answer question

2. List three PPE(4pts)

Note: Satisfactory rating – 6 points Unsatisfactory - below 6points

Information sheet – 3 Undertake & check basic safety equipment & machinery

3.1. Introduction

A maintenance schedule should be in place to ensure that you maintain your equipment regularly. You should check equipment as often as suggested by the manufacturer or more often if indicated by the risk assessment. Any daily checks should be undertaken as recommended by the manufacturer. This will help prevent problems such as blockages, leaks or breakdowns, which can increase risks

The duty to maintain work equipment and take measures to manage the risks from maintenance (Provision and Use of Work Equipment Regulations) builds on the general duties of the Health and Safety at Work Act, which requires work equipment to be maintained so that it is safe, and work to be undertaken safely, so far as reasonably practicable.

3.2. Why is machinery and Equipment safety important?

Moving machinery can cause injuries in many ways:

- People can be struck and injured by moving parts of machinery or ejected material. Parts of the body can also be drawn in or trapped between rollers, belts and pulley drives.
- Sharp edges can cause cuts and severing injuries, sharp-pointed parts can cause stabbing or puncture the skin, and rough surface parts can cause friction or abrasion.
- People can be crushed; both between parts moving together or towards a fixed part of the machine, wall or other object, and two parts moving past one another can cause shearing.
- Parts of the machine, materials and emissions (such as steam or water) can be hot or cold enough to cause burns or scalds, and electricity can cause electrical shock and burns.
- Injuries can also occur due to machinery becoming unreliable and developing faults or when machines are used improperly through inexperience or lack of training.

3.3. How to check equipment safely

If any equipment is to be checked or repaired, it should always be turned off and isolated so no one can start it in error.

Most equipment now comes with guidelines for maintenance. This includes advice on how to carry out equipment checks safely.

Many businesses use documented procedures for maintenance and repair work, such as a permit to work scheme. You can also use warning signs to remind workers that equipment is temporarily out of use. You could also user a lock out system. This means the person doing the maintenance work has a key that prevents the equipment starting up while they work on it.

What should employers do?

Before they start

- Check that the machine is complete, with all safeguards fitted, and free from defects.
- Produce a safe system of work for using and maintaining the machine.
- Maintenance may require the inspection of critical features where deterioration would cause a risk.
- Ensure every static machine has been installed properly and is stable.
- Choose the right machine for the job and do not put machines where customers or visitors may be exposed to risk.

Things employers should also consider

- Ensure control switches are clearly marked to show what they do.
- Have emergency stop controls where necessary,
- Make sure operating controls are designed and placed to avoid accidental operation and injury.
- Don’t let unauthorized, unqualified or untrained people use machinery.
- Adequate training should ensure that those who use the machine are competent to use it safely.
- Ensure the work area around the machine is kept clean and tidy.

Self-check 3:	**Writing Test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. How to check equipment safely(5pts)
2. Why is machinery and Equipment safety important?(5pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

Information sheet 4: Identifying risks & hazards with handling substances

4.1. Introduction

Working with laboratory animals, or tissues from laboratory animals, is associated with potential health hazards to humans. These hazards include

- bites, scratches, and kicks;
- Allergic reactions; and
- Possible zoonotic diseases. The key to minimizing these hazards is awareness and proper training.

4.2. Physical Hazards

Animal Bites, Scratches, Kicks, etc.

Animal bites, scratches, and kicks are ubiquitous hazards whenever working with animals, either in the laboratory, or in other locations. Most of these injuries, however, are easily preventable with proper training in animal handling procedures and by proper procedures. Knowledge of animal behavior is important in predicting and responding to the animal's reaction. It is essential, both for the animal's and for the human handler's sake that each person be properly trained and proficient at handling the animals under their care. New personnel should be fully trained and instructed before handling animals. All personnel injured by animal bites or scratches should immediately report the incident to their supervisor and the Department of Environmental Health and Safety after initial first aid procedures have been completed. All animal bites are potentially serious incidents because of the high potential for disease transmission and local infection from the animals contaminating oral flora. Medical attention should be sought in all but the most trivial injuries.

4.3. Sharps

Needles, broken glass, syringes, pipettes, scalpels, scissors, etc. are all common in laboratory animal facilities and pose a hazard to personnel. Everyone in the laboratory

animal facility has a responsibility to know how to handle potentially dangerous objects and how to properly store these items. Used needles, syringes, and scalpels should be disposed of in "sharps" containers that are located throughout the laboratory animal facilities. Personnel using needles and syringes should use care in the procedures and not recap any needle without consideration of the potential hazard of a needle injury. Except in rare instances where a one-handed recapping technique is used, needles should be disposed of uncapped in the appropriate biohazard sharps containers.

4.4. Chemicals

A variety of chemicals are used in the laboratory animal facility. These range from disinfectants, to alkaline and acid soaps, to grease. Proper handling of these chemicals is essential to prevent potential injury. Appropriate safety equipment including gloves, face protection, goggles, aprons, etc. should be worn whenever these chemicals are handled. Material Safety Data Sheets for all chemicals used in the Laboratory Animal Resources are available in the office and posted within the facility

4.5. Machinery

Tunnel washers, rack washers, autoclaves, floor polishers, etc., all pose potential risk to the operator or others if improperly used. Personnel using the equipment in the facility should be familiar with the proper procedures for use and follow standard procedures when using the equipment. The Laboratory Animal Resources supervisor should be immediately notified if any piece of equipment is not functioning normally and the equipment should not be used until a determination of potential safety problems has been made.

4.6. Allergies

Among the most common occupational hazards associated with working with laboratory animals is the development of allergies. The prevalence of allergies in

animal-care workers has been estimated from 10% to 44% while it is estimated that nearly 10% of all personnel working with laboratory animals will develop occupation-related asthma.

4.6.1. Laboratory Animal Allergens

Laboratory Animal Allergens

Species	Allergen	Source of Allergen	Relative Risk
Rats	*Rat n 1A, Rat n 1B*	Urine	+++++
Mice	*Mus m1*	Urine	++++
Guinea Pigs	-	Urine, dander, fur, saliva	++
Gerbils	-	-	+
Rabbits	Glycoprotein	Fur, saliva, urine	+++
Cats	*Fel d 1*	Sebaceous glands, saliva	+++
Dogs	*Can f 1*	Saliva, hair, skin	++
Nonhuman Primates	-	Dander	+
Pigs	-	Urine	+
Sheep	-	Lanolin?	+
Birds	Protein	Feces, serum	+

The best method to minimize the potential for the development of allergies is to minimize exposure to the allergens. Animal facilities have relatively high air flow requirements, which reduce the concentration of allergens in the air by dilution.

4.5. Zoonoses

Zoonoses are diseases transmitted between animals and man under natural conditions. These diseases, many of which are often relatively innocuous in their normal host, may result in serious or fatal diseases in abnormal hosts. With the number and range of potential zoonotic diseases, it is a reaffirmation of the validity of standard containment techniques that the number of zoonotic diseases transmitted between the laboratory research animals and the research personnel is so small.

- **Orf Disease (Contagious Ecthyma and Contagious Pustular Dermatitis)**

Transmission –

Transmission is via direct contact with the virus-laden secretions from the lesions. Transmission via fomites is possible and rare person to person transmission has occurred.

Clinical Signs - The disease in humans is usually characterized by a single, or rarely multiple, lesion that is initially maculopapular or pustular and progresses to a weeping proliferative nodule. Regional lymphadenitis in uncommon and progression to a systemic disease is rare.

Treatment - Treatment is supportive. Lancing of the initial lesion is contraindicated.

Prevention - Vaccination of susceptible sheep and goats effectively prevents the disease. Protective clothing and good personal hygiene is effective in preventing exposure from infected animals.

- **Rabies**

Transmission - Usually via a bite wound although aerosol transmission has been documented in caves with bats. Personnel handling tissues of infected animals are potentially at risk. Most laboratory animal associated cases involve bite wounds from random source dogs and cats. Clinical Signs - Patients initially experience apprehension followed by headache, malaise, fever and indefinite sensory changes referred to the site of the bite wound. Disease progression leads to paresis, paralysis, inability to swallow, delirium, convulsions, coma, and death due to respiratory paralysis.

Treatment - When exposure is documented, active immunization with rabies vaccine often prevents disease development. Treatment after the development of symptoms is futile.

Prevention - Acquisition only of animals with documented clinical health histories and vaccination to rabies virus. Animal vaccination is the most critical asset in rabies prevention. Pre-exposure vaccination for personnel at risk for exposure is strongly recommended.

- **Cat-Scratch Fever**

Transmission - Transmission to humans generally occurs after a cat scratch incident. Clinical Signs - A small erythematous papule arises at the inoculation site within several days of exposure, which is followed by a vesicle and scab formation with resolution in several days. Several weeks later regional lymphadenopathy appears in the draining lymph nodes that may persist for months. Lymph nodes may suppurate. Fever, malaise, anorexia, headache, and splenomegaly may occur. Rarely, central nervous system signs, osteolytic lesions, granulomatous hepatitis, and pneumonia may occur. Isolation of the organism from the blood, a cutaneous lesion, or biopsy material is required for definitive diagnosis. Serology is available and positive for most patients. Prevention - Proper cat-handling techniques and protective clothing minimizes exposure. Flea control may minimize disease exposure between cats and personnel.

- **Tuberculosis**

Transmission - While infection can occur by direct entry into the body or ingestion, inhalation of infective aerosols is the primary means of human exposure. Infective aerosols can be generated by high-pressure hoses, tissue manipulations at necropsy, improper sample handling in a clinical laboratory, or via coughing of the infective animal.

Clinical Signs - The incubation period for the development of a primary lesion and tuberculin skin test conversion is 4 - 12 weeks. The usual clinical signs are pulmonary due to the usual site of entry and consist of cough, sputum production, and progressive pulmonary disease. The disease may become latent with recrudescence over the lifetime of the infected person.

Treatment - The appearance of multiply antibiotic resistant Mycobacterium has made treatment difficult or impossible in some rare cases. Isoniazid, rifampin, and streptomycin are all used in treatment regimens. Organism sensitivity should guide the treatment regimen.

- Brucellosis
- Leptospirosis
- Salmonellosis
- Shigellosis etc

Self-check 4:	**Written Test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define Zoonotic Diseases (5pts)

2. Mention some zoonotic diseases and their symptoms, treatment and prevention (5pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

Information sheet – 5: Assessing and identifying noise hazards.

5.1. Introduction

Excessive noise levels over a long period of time will damage your hearing. This may happen so gradually and painlessly that you may not notice the minor deterioration from one day to the next. Excessive noise in the workplace presents a risk of hearing damage and other health problems.

The parts of the ear that process high frequency sounds are usually the first to be affected. The degree of hearing loss depends on the loudness of the noise and how long you are exposed to it. Sudden explosive sounds, such as gunshots, can cause immediate damage.

Some people exposed to excessive noise develop tinnitus, which is described as a constant ringing sound. For most cases of noise-induced hearing loss, there is no cure. Hearing aids only amplify sounds and can't replace normal hearing.

5.2. Main sources of noise at work

It is the most common health **hazard** in industries such as

- Entertainment
- manufacturing
- agriculture
- ship-building,
- textiles
- mining
- Vehicles
- food and drink
- woodworking
- Metal working and construction.
- Loud music.
- the use of heavy machinery
- Sleep and behavioral disorder

5.3. The Four types of noise

Here's a breakdown of the different types of noise that affect us all.

1. Continuous noise

Continuous noise is exactly what it says on the tin: it's noise that is produced continuously, for example, by machinery that keeps running without interruption. This could come from factory equipment, engine noise, or heating and ventilation systems.

You can measure continuous noise for just a few minutes with a sound level meter to get a sufficient representation of the noise level. If you want to analyse the noise further, you need to look for a sound level meter with octave band analysis. Octave bands allow you to break the noise down into its separate frequencies. This information will tell you exactly what frequency is causing the noise.

2. Intermittent noise

Intermittent noise is a noise level that increases and decreases rapidly. This might be caused by a train passing by, factory equipment that operates in cycles, or aircraft flying above your house.

We measure intermittent noise in a similar way to continuous noise, with a sound level meter. However, you also need to know the duration of each occurrence and the time between each one.

3. Impulsive noise

Impulsive noise is most commonly associated with the construction and demolition industry. These sudden bursts of noise can startle you by their fast and surprising nature.

4. Low-frequency noise

Low-frequency noise makes up part of the fabric of our daily soundscape. Whether it's the low background hum of a nearby power station or the roaring of large diesel engines, we're exposed to low-frequency noise constantly. It also happens to be the hardest type of noise to reduce at source, so it can easily spread for miles around.

If monitoring is taking place outside over a longer period, you may want to consider an environmental noise monitoring kit.

5.4. Associated effects of constant noise pollution

Apart from damage to hearing, exposure to constant and excessive noise can cause other health problems including:

- Headache
- elevated blood pressure
- fatigue

- irritability
- digestive disorders
- Increased susceptibility to colds and other minor infections.

5.5. Reducing noise pollution in the workplace

Noise levels can be measured using a sound level meter, which detects the pressure of sound waves as they move through the air.

Reducing exposure to excessive noise in the workplace can be accomplished in many different ways:

- ✓ Change or modify equipment.
- ✓ Locate the equipment in a more isolated area, or soundproof the room
- ✓ Make sure that people spend time working in quiet areas too.
- ✓ Try to run noisy equipment early or late in the day when fewer people will be exposed.
- ✓ Use personal hearing protection such as ear plugs or ear muffs.

Personal hearing protectors

A personal hearing protector can be worn to cover the ear and ear canal entrance, or inserted in the ears of a person to protect their hearing. Personal hearing protectors should be used when noise levels cannot be reduced by other control measures.

Staff at workplaces should be:

- supplied with personal hearing protectors of correct rating and suitable for the work conditions
- instructed in their correct use
- instructed to wear them when exposed to noise
- Monitored to ensure they wear hearing protection.

Self-check 5:	**Written Test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

3. Mention the Four types of noise (5pts)
4. Main sources of noise at work (5pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

Information sheet – 6 Assessing manual handling risks

6.1 Introduction

Manual handling is any transporting or supporting of a load by one or more workers. It includes the following activities:

- Lifting
- Holding
- Putting down
- Pushing
- Pulling
- Carrying or moving of a load.
- The load can be an animate (people or animals) or inanimate (boxes, tools etc) object.

Manual handling occurs in almost all working environments (factories, warehouses, building sites, farms, hospitals, offices etc). It can include lifting boxes at a packaging line, handling construction materials, pushing carts, handling patients in hospitals, and cleaning.

6.2 What are the possible negative health effects of manual handling?

Manual handling can result in fatigue, and lead to injuries of the back, neck, shoulders, arms or other body parts. Two groups of injuries may result from manual handling:

- Cuts, bruises, fractures etc, due to sudden, unexpected events such as accidents
- Damage to the musculoskeletal system of the body (muscles, tendons, ligaments, bones, joints, bursa, blood vessels and nerves) as a consequence of gradual and cumulative wear and tear through repetitive manual handling

These injuries are called '**musculoskeletal disorders'** (MSDs) and can be divided into 3 groups:

- Neck and upper limb disorders
- Lower limb disorders

- Back pain and back injuries.

What makes manual handling hazardous?

There are several factors that make manual handling hazardous, and increase the risk of injury. These are called risk factors. The risk factors, particularly for back injury, are related to 4 aspects of manual handling: the load, the task, the environment and the individual.

1. The load

The risk of back injury increases during lifting, carrying, pushing and pulling of loads, if the load is:

- Too heavy
- Too large
- Over load
- Difficult to grasp
- Unbalanced/imbalance

2. The environment

- Space available
- Climate
- Floor
- Lighting

Figure 25: Unbalanced load

3. The individual

There are also some individual factors that can influence the risk of back injury:

- Experience, training and familiarity with the job (for example, new episodes of low back pain are common in the first year of employment)
- Age (the risk of low back disorders increases with the number of years at work: the first episode of low back pain occurs in most people by the age of 30)
- Physical dimensions and capacity (length, weight, strength, etc.)
- Personal lifestyle (smoking may, for example, increase the risk of low back disorders)
- History of back disorders (this is a predictor of future back injuries)

- Willingness to use personal protective equipment.

4. Task/every day job

Tasks may be very demanding if they have to be carried out too frequently or for too long with insufficient rest or recovery time (e.g. continuous lifting or carrying for long distances, or activities where the working speed is imposed by a process which cannot be altered by the worker).

5. Difficult postures or movements

Working with a bent and/or twisted trunk, raised arms, bent wrists, a bent neck and turned head increases the risk of back injury and should be avoided, as should twisting, turning and bending movements of the trunk, overreaching, sudden movements and repetitive handling.

6. Reducing or eliminating manual handling risks

After identifying workplace hazards you can do several things to control the risk of manual handling injuries. These tips can help reduce injury at home as well as at work.

Safety suggestions include:

- **Change the task** – ask 'Does this task need to be carried out? If so, does it have to be done this way?'
- **change the object** – for example, repack a heavy load into smaller parcels
- **change the workspace** – for example, use ergonomic furniture and make sure work benches are at optimum heights to limit bending or stretching
- **change the environmental conditions** – including heat, cold and vibration
- **use mechanical aids** – such as wheelbarrows, conveyor belts, cranes or forklifts
- **change the nature of the work** – for example, offer frequent breaks or the chance to do different tasks
- **Offer proper training** – inexperienced workers are more likely to be injured.

7. Manual handling – protecting your back

The back is particularly vulnerable to manual handling injuries. Safety suggestions include controlling risk factors in the workplace, in addition to personal controls:

- Lift and carry heavy loads correctly by keeping the load close to the body and lifting with the thigh muscles.

- Never attempt to lift or carry loads if you think they are too heavy.
- Pushing a load (using your body weight to assist) will be less stressful on your body than pulling a load.
- Use mechanical aids or get help to lift or carry a heavy load whenever possible.
- Organize the work area to reduce the amount of bending, twisting and stretching required.
- Take frequent breaks.
- Cool down after heavy work with gentle, sustained stretches.
- Improve your fitness – exercise regularly to strengthen muscles and ligaments, and reduce excess body fat.
- Warm up cold muscles with gentle stretches before engaging in any manual work.

8. Risks associated with manual handling of animals

- **Risks to the professional worker**

When veterinarians are administering drugs to laboratory or any disease suspected animal, they may encounter the following risks:

- ✓ **Animal bites and Scratches**: is an ever present hazard that faces all employees working directly with lab animals or any diagnostic practices.
- ✓ **Protocol-related hazards**: are those hazards specifically associated with either routine operational or experiment-specific protocols. E.g. a specific viral vector carrying a transgene (having the genetic material) for toxic production.
- ✓ **Zoonoses:** are those diseases that can be transmitted from animals to humans. Some diseases can be transmitted to the professional during animal handling and medicating practices. E.g. bovine TB, anthrax, rabies
- ✓ **Inherent hazards:** these are some potential hazards inherent in any work environment. These includes poor ergonomics, (the study of working condition,

especially design of equipments, buildings etc) slips and falls, electrical safety hazard etc.

- ✓ **Allergy:** hypersensitivity reactions to the animal allergens are serious occupational health problems that developed in many individuals after repeated exposure.
  - ❖ The guinea pigs, rabbit and mouse appear to be the most allergenic lab animals. The urinary and salivary protein from the animals fur, bedding and caging are known source of allergens.

9. Risks to the animal

During drug administering practices animals might be faced with risks like:

- Allergic reaction with some drugs and site of administration.
- Swelling at the site of drug injection site
- The needle may be broken inside the animal body.
- Drug resistance with respect to the under dosage of the drug and
- Over dosage of the drug which might result even death etc.

10. Risks to the public

The drug administered to the animal may result drug resistance on the user/public when they use animal products like egg, milk, meat and if they consumed before the normal withdrawal period of the specific drug administered.

e.g. for most common anthelmintic (drugs that kill or stop growth of parasite) like

- ✓ Albendazole — 8-14 days before meat consumption
- ✓ Febendazole — 3-5 days before milk consumption

Antibacterial drugs (drugs that can kill or stop growth of bacteria)

- ✓ Oxytetracycline
  - ❖ 28 days before consumption of milk in cattle.
  - ❖ 5 days before consumption of poultry meat.

Self-check 6:	**Writing Test**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

2. What are the possible negative health effects of manual handling?(4pts)

3. What makes manual handling hazardous? (6pts)

Note: Satisfactory rating – 10 points Unsatisfactory - below 10 points

Information sheet –7: Accessing information on OHS

7.1 Introduction

In an attempt to reduce workplace accidents in Ethiopia has introduced Occupational Health and Safety (OH&S) legislation. Its purpose is to increase awareness of work safety standards and requirements and empower employees on issues relating to health and safety.

Because all employees are responsible for maintaining a safe workplace, as a Team Leader, you will need to ensure that appropriate information is available for your team to access. How do you locate this OH&S information?

Occupational Health and safety information is available from a variety of sources both from within an organization and external resources.

7.2. Source of Information

- **Internal Sources of Information**

The following are sources of information on hazards that may already be available in your workplace and that are mentioned in OSH's document:

- ✓ Equipment and machinery operating manuals.
- ✓ Safety Data Sheets (SDSs) provided by chemical manufacturers.
- ✓ Self-inspection reports and inspection reports from insurance carriers, government agencies, and consultants.
- ✓ Records of previous injuries and illnesses.
- ✓ Workers' compensation records and reports.
- ✓ Patterns of frequently occurring injuries and illnesses.
- ✓ Exposure monitoring results, industrial hygiene assessments, and medical records.
- ✓ Input from workers, including surveys or minutes from safety and health committee meetings.
- ✓ Results of job hazard analyses or job safety analyses.

- **External Sources of Information**

Information on hazards can also be available from outside sources. Here is a few mentioned in OSH's document:

- ✓ OSH, National Institute for Occupational Safety and Health (NIOSH), and Centers for Disease Control and Prevention (CDC) websites and publications,
- ✓ Trade associations.
- ✓ Labor unions, state and local occupational safety and health committees.
- ✓ Safety and health consultants.
- ✓ Safety officers
- ✓ Safety representatives
- ✓ Health and safety inspectors
- ✓ Factory inspectors

7.3. State Legislation, the preparing and enacting of laws by local, state, or national legislatures. In other contexts it is sometimes used to apply to municipal ordinances and to the rules and regulations of administrative agencies passed in the exercise of delegated legislative functions.

State Legislation aim to

- Ensure the health, safety and welfare of people at work
- Protect other members of the public and contractors at the workplace
- Promote a working environment which meets the physical and psychological needs of employees
- Provide a framework based on the Codes of Practice

State Legislation cover

- The employer's duty of care (or responsibilities)
- The employee's duty of care
- How to Act is enforced

Self-check 7:	**Written**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List of source of Information (6pts)

Note: Satisfactory rating – 6 points **Unsatisfactory - below 6 points**

LG # 32	LO #4: Maintain health and safety of all people in the workplace

Instruction sheet

learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Raising OHS issues with designated personnel.
- Maintaining the workplace and safety
- Controlling the risk.

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Raising OHS issues with designated personnel.
- Maintaining the workplace and safety
- Controlling the risk.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the “Information Sheets”.
4. Accomplish the “Self-checks” which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work
6. If you earned a satisfactory evaluation proceed to “Operation sheets
7. Perform “the Learning activity performance test”

Information sheet – 1 Raising OHS issues with designated personnel

1.1. Introduction

Employees are well within their rights to raise occupational health and safety concerns without fear that their employment will suffer as a consequence. Under OHS laws, employers cannot dismiss, injure or alter (or threaten to) an employee in their employment to their **impairment for a prohibited reason**.

Typically, examples of injuring or altering the conditions of employment have included:

- Demotion/ refusing promotion
- Lower salary, increments or less rewarding bonuses
- Allocation of work below skill/classification level
- Fewer training opportunities
- Job transfer

If you have a problem at work it's normally better to **raise** it informally with your employer first.

You may feel nervous about raising an issue, but employers are often open to resolving problems quickly without going through a formal procedure.

These steps may include:

- Reporting the **issue** verbally to your supervisor or manager.
- Reporting the **issue** through the **workplace's** hazard reporting procedures.
- **Raising** the **issue** with the health and safety representative.
- **Raising** the **issue** with management through your union representative.

Procedure for reporting issues

- An employee wanting to raise a health and safety issue must report the issue to their elected OHS rep.
- If there is no rep, then the issue must be reported to the employer or the management rep.

- An employee can take all reasonable steps to report an issue, including leaving their part of the workplace.
- An employee can also report an issue to the employer or to any other person, in addition to their elected rep.

Procedure for resolving issues

- the number and location of employees affected
- whether appropriate temporary measures are possible or desirable
- the time needed to permanently resolve the issue
- who, on behalf of the employer, will be responsible for performing and overseeing any action agreed

Self-check 1:	Written

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. How you raise OHS issues with designated personnel (3pts)

Note: Satisfactory rating – 3points **Unsatisfactory - below 3 points**

Information sheet 2:	Maintaining the workplace and safety

2.1. Introduction

Safety of workers (also known as worker safety and occupational health and safety) refers to the provision of a safe working environment, safe equipment, policies, and procedures in order to ensure workers' health and safety.

2.2. The Importance of Keeping Your Workplace Safe

Safety in the workplace has a significant impact on many business KPIs. In other words, safer working environments benefit from fewer accidents, which results in fewer occupational health costs, better employee retention and satisfaction, less employee downtime, and less retraining time.

2.3. Employee retention

Employees appreciate safe working environments as this is a sign that their employer cares about their wellbeing. Therefore, employees who feel safe at work are also more loyal to their employers and stay longer within their organizations.

Employee productivity

Employees who feel safe in their working environments are also more productive than the ones who have been injured in that past and, therefore, have **developed a certain level of anxiety and fright**.

3. Workplace Safety Best Practices

Organizations with employees who are at high risk of getting injured, often have structured and well-designed workplace safety strategies in place. As they are aware of the consequences of neglecting workplace safety, they understand that having a good plan can significantly improve employees' health, safety and wellbeing.

- **Identify all the workplace safety hazards**

Before you even start building your workplace safety plan, it is important to **define and understand all the potential sources of hazard** in the workplace.

Identifying those safety hazards and issues is the first step in protecting employees in the workplace. Some of the most common hazards often include ergonomics,

hazardous chemicals, mechanical problems, noise pollution, restricted visibility, dangers of falling and weather-related hazards.

- **Define safety policies and remind employees to follow them**

After identifying all the possible workplace hazards, the next step is to define safety policies and procedures. Many organizations have safety handbooks that employees can use as a reference every time when in doubt.

- **Keep employees aligned to foster the culture of safety**

If you are trying to build an employee-centric workplace, **ensure positive employee experience** and **foster a culture of safety**, all your employees, including leaders and managers, need to be aligned and on the same page. Here, employers often neglect the importance of open and transparent workplace communications.

Besides just having a clear plan and safety trainings, organizations need to find ways to embed new employee behaviors by delivering inspiring safety stories, **communicating new safety programs** and sharing company's successes.

- **Build a safety communication plan**

Many organizations are now implementing safety communications as a **core company value**. This focus towards a safety-centric workplace improves not only employee morale, but also the bottom line.

In order to build a strong culture of safety in the workplace, organizations need to build safety communication plans. In other words, your workplace safety strategy will be as successful as you manage to communicate it properly.

When creating your safety communications plan, **always ask yourself these questions**:

- ✓ What are **the main messages** we want to communicate?
- ✓ What are the important **safety updates** to be shared with employees?
- ✓ How and where **important documentation** should be stored and shared with employees?
- ✓ **Which employees** should be reached?

- ✓ How will we **segment internal audiences** to make sure that the right employee gets the right message at the right time?
- ✓ What **type of content** should we distribute to ensure high engagement?
- ✓ Which communication channels should we use to distribute the messages?
- ✓ Can we **reach employees on their mobile phones** in a matter of seconds?
- ✓ How will we **recognize those who follow the guidelines** in order to ensure better compliance among other employees?
- ✓ How will we **measure the impact** of our communication campaigns?

4. Ways to ensure a safe workplace and promote a strong safety culture.

- **Eliminate Potential Hazards.**

Keep the workplace free from recognized physical and chemical hazards and make sure it is in compliance with OSHA standards, rules, and regulations. Use your digital signage systems to remind employees about proper body mechanics, forklift safety, safe backing, what PPE is necessary, and ways they can avoid slips, trips, and falls. Encourage workers to identify and report potential problems and safety violations and take immediate steps to have those issues resolved.

- **Make Sure All Workers Are Properly Trained.**

The organization must provide all workers with safety training using language they can understand. This training should be given to all new workers, with refresher courses offered to (or required) for existing workers or when workers change jobs (within the company). Use your electronic message boards to reinforce safety training, serving it up in bite-sized messages.

- **Ensure Workers Have The Proper Equipment**.

Make sure employees have and use safe tools and equipment and properly maintain this equipment. Workplace digital signage is an effective tool for reinforcing injury prevention. Raise awareness around proper handling of hazardous materials, lock-out tag-out and machine guarding.

- **Provide Visual Safety Aids And Messages.**

Use color codes, posters, labels and/or signs to warn employees of potential hazards. Additionally, place OSHA posters in all work and recreational areas – and use digital signage to broadcast important safety information, updates, and messages. For example, employers can display their safety recordable using automated counters. This visual aide displays real time data and reminds employees to stay safe.

- **Create A Safety Committee – And Hold Monthly Safety Meetings.**

Establish a workplace health and safety committee made up of workers from different departments, from senior management to shop-floor-based employees. The committee should meet at least once a month and keep employees and senior management informed about safety topics, inspections, injury and illness statistics, and other safety-related issues. Use your digital signage systems to share key safety updates to the entire workforce.

- **Make Safety Fun/Enjoyable**

While safety is no game, one way to help incorporate safety into company culture is to make learning about safety fun. Use your workplace digital signage to create safety-themed trivia, quizzes, and videos of safety dos and don'ts. Friendly competition including awards and chances for company-wide recognition are great motivators. By adding a little fun, there's a higher chance that employees will stay engaged, retain the information and therefore help prevent accidents.

4. General Maintenance a Safe Workplace

- Eliminate potential hazards.
- Make sure all workers are properly trained.
- Ensure workers have the proper equipment.
- Provide visual **safety** aids and messages.
- Create a **safety** committee – and hold monthly **safety** meetings.
- Make **safety** fun.

Self-check 2:	**Written**

Name: _____ **Date:** _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List General Maintenance a Safe Workplace (6pts)

Note: Satisfactory rating – 6 points **Unsatisfactory - below 6 points**

Information sheet – 3: Controlling the risk.

3.1. Introduction

Risk control is the set of methods by which firms evaluate potential losses and take action to reduce or eliminate such threats. It is a technique that utilizes findings from risk assessments, which involve identifying potential risk factors in a company's operations, such as technical and non-technical aspects of the business, financial policies and other issues that may affect the well-being of the firm.

Risk control also implements proactive changes to reduce risk in these areas. Risk control thus helps companies limit lost assets and income. Risk control is a key component of a company's enterprise risk management (ERM) protocol.

Key concepts

There are **four important concepts** that need to be understood so that this guide makes sense:

- **A hazard** is something currently in, or may in future be in, the work environment that has the potential to cause harm to people.
- **A risk** is the chance (or likelihood) that a hazard will cause harm to people.
- **Harm** is death, injury, illness (including psychological illness) or disease that may be suffered by a person from a hazard or risk.
- **A control** is a thing, work process or system of work that eliminates an OHS hazard or risk or, if this is not reasonably practicable, reduces the risk so far as reasonably practicable.

3.2. Consultation with HSRs and employees is critical

Consultation with Health and Safety Representatives (HSRs), employees and others is a critical part of controlling OHS hazards and risks. Apart from it being required by law, involving HSRs, employees and others at the workplace in the method makes sense. The people who do the job often know and can provide insight into how hazards and

risks can come about, and about the workability and effectiveness of potential controls. They also have to work with the control measures, and they will do this more effectively if they understand the reasons for them and how they work. Consultation with HSRs, employees and independent contractors and their employees at the workplace in each step of the process is required by law; that is, when:

- Identifying and assessing hazards and risks.
- Making decisions about controlling risks.
- Making decisions about procedures for providing information and training to employees and monitoring the health of employees.

Consultation must involve sharing information with those people, giving them a reasonable opportunity to express their views, and taking those views into account. If there is a Health and Safety Committee, it may be useful to engage the committee in the process as well.

3.3. Steps in controlling OHS hazards and risks

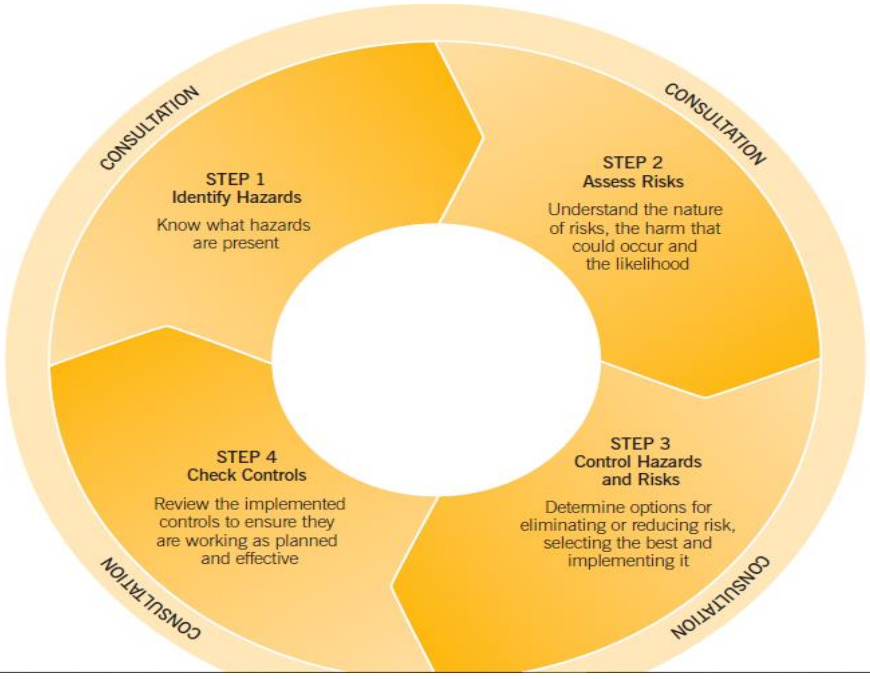


Figure 26: Steps in controlling OHS hazards and risks

Steps 1 – Identify hazards

Identifying hazards involves finding all of the foreseeable hazards in the workplace and understanding the possible harm that the hazards may cause.

Step 2 – Assess risks

Risk assessment is a process for developing knowledge and understanding about hazards and risks so that sound decisions can be taken about control. A formal risk assessment is unnecessary if the knowledge and understanding already exist. However, there will be many times when a risk assessment is the best way of building knowledge and understanding.

Risk assessment assists in determining:

- What levels of harm can occur
- How harm can occur
- The likelihood that harm will occur.

Step 3 – Control hazards and risks

Duty-holders are required to ensure health and safety by controlling risks. Risks must be controlled by eliminating them so far as reasonably practicable or, if this is not possible, reducing the risks that remain so far as reasonably practicable.

Step 4 – Check controls

Controls that are put in place to protect the health and safety of people need to be monitored to ensure that they work as planned. This requires checking them and ensuring that processes are put in place to identify and quickly fix.

problems. Checking controls

Checking controls involves the same methods as in the initial hazard identification step (step 1), and creates the loop in which workplace health and safety measures are maintained. Common methods used to check the effectiveness of controls are:

- Inspecting the workplace
- Consulting employees
- Testing and measuring
- Using available information

- Analyzing records and data.

3.4. Maintaining effective controls

Maintaining effective controls to withstand the impacts of changed operating conditions requires a number of things to be put in place. The following elements are necessary to maintain effective controls over time:

- **Allocated accountability for health and safety** – accountability must be clearly allocated at various levels of management to ensure procedures are followed and maintained.
- **Regular consultation** – risk controls are more effective where there is initial and ongoing consultation with employees and HSRs.
- **Effective communication** – risk controls are more effective where procedures are communicated in appropriate language, and signs and symbols are used.
- **Up to date training and competency** – risk controls, particularly lower level controls, depend on all workers and supervisors having the appropriate competencies to do the job safely. Training should be provided to maintain competencies and to ensure new employees are capable of working safely.
- **Up to date hazard information and risk assessments** – information about hazards, such as plant and substances, may be updated by manufacturers and suppliers from time to time, and needs to be checked to make sure controls are still relevant. Changes to operating conditions or the way activities are carried out may also mean that risk assessments need to be updated.

Self-check 3:	Written

Name ---------- Date----------

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Describe the steps in controlling OHS hazards and risks (6pts)

Note: Satisfactory rating – 6 points Unsatisfactory - below 6 points

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