

Module 1: WHMIS Basics

Learning Objectives

When you complete this reading and on line quiz, you should be able to explain the importance of:

- WHMIS information
- WHMIS training
- WHMIS legislation

Module Units

1. Why should I receive WHMIS training?
2. What is WHMIS?
3. What is a controlled product?

Why should I receive WHMIS Training?

As a health care worker, you may be exposed to potentially hazardous agents during:

- diagnostic tests
- maintenance activities
- housekeeping duties
- research activities
- therapeutic procedures



This potential exposure even applies to workers who do not normally work with hazardous materials.

In order to protect your health, you have the 'right to know' about the hazardous materials and controlled products in your work environment.

But with this right, you also have the responsibility to use this information in your work environment, regardless if you work with hazardous materials or not.

What is WHMIS?

WHMIS is an acronym for **W**orkplace **H**azardous **M**aterials **I**nformation **S**ystem. It is a national communication system for the safe management of hazardous chemicals. The goal of WHMIS is to reduce or eliminate illness and injury resulting from use or exposure to hazardous materials.



Why Was WHMIS Developed?

WHMIS was developed because of concerns of workers, employers and the government about how hazardous materials were used, handled, and stored in the workplace. WHMIS is legislated federally and provincially and is enforced under Ontario's OHS Act under special WHMIS regulations. It is in place to protect your health, your safety and the environment.

What is a controlled product?

A controlled product is the name given to a product, material or substance that is deemed a hazardous material. These controlled products are regulated by WHMIS.

All WHMIS controlled products fall into one or more hazard classes. Each of the six classes is uniquely identified by a symbol for quick recognition.

When household items such as bleach are used in the workplace, workplace labels need to be applied to the containers and proper training on use and disposal apply.

Module 2: Key Elements of WHMIS

Learning Objectives

When you complete this module, you should be able to describe in simple terms the three key elements of the WHMIS program.

Module Units

- What are the key elements of the WHMIS program?
- Labels



- Material Safety Data Sheet
- Worker education and training

Ontario's WHMIS legislation enhances the federal legislation in the areas of inventory, MSDS and worker education.

What are the 3 key elements of the WHMIS program?

The WHMIS program is made of:

- Labels
- Material Safety Data Sheet (MSDS)
- Worker education and training programs

Labels

A simple way to communicate warnings is to use labels. Labels are easily recognized and provide basic information about:

- Associated risks of a hazardous material
- Simple precautions for using the hazardous material

All containers of hazardous materials must be properly labelled. You will learn more about labelling in Module 4.

Material Safety Data Sheet (MSDS)

The Material Safety Data Sheet (MSDS) is a technical document that elaborates the health and safety information about a controlled product. LHSC must ensure that a MSDS is available for every controlled product that is used by its employees.

The MSDS adds to the warning information found on the supplier label by listing 9 sections of information. You will learn more about MSDS in Module 5.

Worker Education and Training

Under WHMIS regulation, you have a right to know about the hazardous materials that are in your workplace. Your employer is responsible to train you and those who work in proximity to hazardous materials.

Training is made up of two parts:

1. general overview of WHMIS that is intended for all employees.
2. job-specific WHMIS training for employees who work with and in close proximity to controlled products.

When training is complete and you pass the quiz, you are then responsible to use and apply WHMIS information so that you and your co-workers can work in a safe environment.

To ensure the WHMIS program remains current and effective, it is reviewed annually by LHSC in consultation with the Joint Health and Safety Committee.

Module 3: Classifications

Learning Objectives

When you complete this module, you should be able to:

- list 6 different hazard classifications
- identify 8 hazard symbols
- describe the effects of these precautions
- describe simple preventative measures for each hazard

Module Units

1. Six classifications
2. WHMIS symbols

Six Classifications

When a material is listed as a controlled product, the manufacturer needs to treat the product according to WHMIS regulations. Part of this regulation is to classify it according to a hazard class. The WHMIS system groups hazardous materials into 6 distinct classifications.

These six categories are:

Class A – Compressed Gas

Class B – Flammable and Combustible Materials

Class C – Oxidizing Materials

Class D – Poisonous and Infectious Materials

There are 3 divisions:

Division 1 – materials causing immediate and serious toxic effects

Division 2 – materials causing long term effects

Division 3 – materials causing biohazardous infections

Class E – Corrosive Materials



Class F – Dangerously Reactive Materials

Module 3: Classifications - WHMIS Symbols



WHMIS Symbols

Eight symbols are used to help you identify the six hazard classifications. [Click here to see all WHMIS symbols.](#)

Class A – Compressed Gas


Symbol / Example	Means:	You should...
  liquid nitrogen or oxygen	that the gas within the cylinder... <ul style="list-style-type: none">• may explode because it is under pressure• may explode if heated in a fire• may explode if dropped or crushed	<ul style="list-style-type: none">• handle cylinders with care; do not drop• keep cylinders away from direct heat like furnaces or open flames• store cylinders in areas designated by your supervisor.

Class B –Flammable and Combustible Material

Symbol / Example	Means:	You should...
  gasoline	that the material... <ul style="list-style-type: none">• is one that burns easily and is a potential fire hazard• may burn at relatively low temperatures; flammable materials catch fire at lower	<ul style="list-style-type: none">• keep the material away from heat sources• separate the material from other combustible and incompatible materials


	<p>temperatures than combustible materials</p> <ul style="list-style-type: none"> • may suddenly burn in the air or release a flammable gas on contact with water • may cause a fire when exposed to heat, sparks, flames or friction 	<ul style="list-style-type: none"> • never smoke when working with or near the material • store the material in a cool, well-ventilated area, as designated by your immediate supervisor
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Class C - Oxidizing Material

Symbol / Example	Means	You should...
 <p>oxygen</p>	<p>that the material...</p> <ul style="list-style-type: none"> • may burn or explode in the presence of flammable or combustible material • may cause fire when it touches combustible materials such as wood • may react violently or cause an explosion when it comes into contact with combustible materials such as fuels • may burn skin and eyes on contact 	<ul style="list-style-type: none"> • keep the material away from incompatible materials and store in the areas designated by your immediate supervisor. • keep the material away from sources of ignition • never smoke when working near the material • wear the proper protective equipment, including eye, face and hand protection and protective

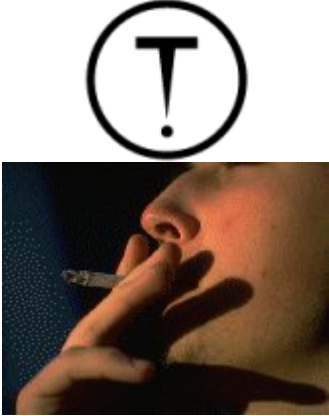
		clothing
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Class D1 - Poisonous and Infectious Material: Immediate and Serious Toxic Effects


Symbol / Example	Means	You should...
	<p>that the material...</p> <ul style="list-style-type: none"> • may be potentially fatal if inhaled, swallowed or if it touches the skin • may cause permanent damage if inhaled, swallowed or upon skin contact • may burn eyes or skin upon contact 	<ul style="list-style-type: none"> • handle the material with extreme caution • wear the proper protective equipment, including eye, face and hand protection and protective clothing • wear the proper respiratory equipment and work in well-ventilated areas • wash thoroughly after handling the material • store the material in designated areas only


Class D2 - Poisonous and Infectious Material: Other Toxic Effects

Symbol / Example	Means	You should...
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	<p>that the material...</p> <ul style="list-style-type: none"> • is not immediately dangerous to health • may cause death as a result of repeated exposures over time • may cause permanent damage as a result of repeated exposures over time • may be a skin or eye irritant • may produce a chemical allergy • may cause cancer • may cause birth defects or sterility 	<ul style="list-style-type: none"> • wear the proper protective equipment, including eye, face and hand protection and protective clothing • wear the proper respiratory equipment and work in well-ventilated areas • wash thoroughly after handling the material • store the material in designated areas only
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Class D3 - Poisonous and Infectious Material: Biohazardous Infectious Material


Symbol / Example	Means	You should...
	<p>that the material...</p> <ul style="list-style-type: none"> • may cause a serious disease resulting in illness or death • may produce a 	<ul style="list-style-type: none"> • Avoid contamination by wearing protective equipment • handle the material only


	<p>toxin that is harmful to humans</p>	<p>when fully protected by the proper designated equipment</p> <ul style="list-style-type: none"> • handle the material in designated areas that are approved by your immediate supervisor
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Class E - Corrosive Material

Symbol / Example	Means	You should...
 <p>batteries</p>	<p>that the material...</p> <ul style="list-style-type: none"> • causes severe eye and skin irritation upon contact • causes severe tissue damage with prolonged contact • may be harmful if inhaled 	<ul style="list-style-type: none"> • keep containers tightly closed • handle the material only when using appropriate protective clothing • handle the material in well-ventilated areas and wear proper respiratory equipment

Class F - Dangerously Reactive Material

Symbol / Example	Means	You should...
	<p>that the material...</p> <ul style="list-style-type: none"> • is very unstable • may produce a 	<p>that you should...</p> <ul style="list-style-type: none"> • keep material away from heat

 <p>acetone</p>	<p>toxic or flammable gas when it is reacting with other substances</p> <ul style="list-style-type: none"> • may explode as a result of shock, friction, temperature changes • may explode when heated in a closed container • violently changes when mixed with certain chemicals 	<ul style="list-style-type: none"> • handle containers with extreme care – do not drop or shake chemicals • check date on the containers • store the material in a cool, flame-proof area as designated by your immediate supervisor
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Module 4: Labelling

Learning Objectives

By the end of this module, you should be able to read and use supplier, workplace, and laboratory labels.

Module Units

1. What is the purpose of a label?
2. Supplier labels
3. Workplace labels
4. Laboratory labels

What is the purpose of a label?

The purpose of the label is to easily identify the product, its hazards and precautionary measures. All containers of hazardous materials are required to have a label.

There are three types of labels:

1. Supplier labels
2. Workplace labels
3. Laboratory labels

Supplier labels

Before a container is shipped, the supplier is required to affix a 'supplier label' to identify the hazardous material.

Seven pieces of information are required if volumes are greater than 100 millilitres:



1. Product Identifier or name of the product
2. The name of the supplier
3. Reference to MSDS
4. Hazard symbols
5. Risk Phrases – e.g.: vapour harmful, liquid causes severe burns, etc.
6. Precautionary Measures – e.g.: store away from heat, store in a well ventilated area, wear face protection, etc.
7. First Aid Measures – e.g.: flush eyes with water for 15 minutes, do not induce vomiting, etc.

The 'supplier label' must be shown in English and French and it must have the distinctive hatched border.

Workplace labels

Many times, an employer will purchase products in bulk and decant them to smaller, more manageable containers. A 'workplace label' is required when a controlled product is put into another container.

The employer is responsible for affixing workplace labels to these containers. The label requires three pieces of information:

1. Product's name
2. Safe handling procedures
3. The statement "Refer to MSDS"

This label does not require a hatched border, hazard symbols or special wording.

Laboratory labels

A controlled product that is intended for laboratory use only, does not need a supplier label if it meets these conditions:

- Comes from a laboratory supply house
- Weighs less than 10 kilograms

If you work in a laboratory setting, you will get job-specific applications of WHMIS guidelines.

Module 5: MSDS

Learning Objectives

When you complete this module, you should be able to use a MSDS to access information about the hazards of the controlled product, how to use it safely and what to do if an incident occurs.

Module Units

1. What is an MSDS?
2. What information is required?
3. Where should the MSDS be located?
4. How often does a MSDS have to be updated?

What is an MSDS?

A Material Safety Data Sheet (MSDS) is a detailed technical bulletin that lists health and safety information about the 'controlled product' that you are handling.

An MSDS of all controlled products must be accessible to all employees.

What Information is required?

An MSDS includes 9 sections of information:

1. Product Information – chemical name of product, supplier address, emergency phone numbers
2. Hazardous Ingredients – list of hazardous ingredients and concentrations
3. Physical Data – the physical state (solid, liquid, gas), appearance, smell, boiling and freezing point, etc.
4. Fire or Explosion Hazard – how the product is to ignite or explode under specific conditions, fire fighting control measures
5. Reactivity Data – chemical stability and product compatibility
6. Health Hazards/Toxicological Properties – how the product enters the body, adverse health effects from short or long term exposure
7. Preventive Measures - safe use, storage and handling procedures
8. First Aid Measures – steps to take if exposed and immediate treatment if exposed
9. Preparation Information – name and phone number of person or company who prepared MSDS and date on which it was prepared.

Where should the MSDS be located?

Your immediate supervisor should inform you of the location of the MSDS in your department. It should be in an area that is readily accessible at all times, on all shifts, for all employees.

How often is a MSDS updated?

An MSDS must be current and updated every 3 years or as new information becomes available.

Module 6: Hazards

Learning Objectives

When you complete this module, you should be able to identify a controlled product's hazards.

Module Units

1. What are health and safety hazards?

2. What are the 3 categories for hazardous materials?
3. What is a biological hazard?
4. What is a chemical hazard?
5. What is a physical hazard?
6. How can you control these hazards?

Health and Safety Hazards

Controlled products can be hazardous to your health if you do not limit your exposure to them. As you handle these materials, you'll need to know whether they are "health hazards" or "safety hazards."

A health hazard is the ability of a chemical to affect your health quickly (burn) or over a long period of time (cancer or lead poisoning)

A safety hazard is a sudden reaction such as a fire, explosion or corrosion. Safety hazards are controlled by handling chemicals properly.

Referring to the MSDS is the safest way to use, handle and store hazardous material.

Three categories for hazardous materials

Hazardous materials in the workplace are classified into three categories:

- Biological
- Chemical
- Physical

Biological Hazard

Biological hazards are living organisms or its properties that can adversely affect your health. A needle-stick injury is an example of an accidental exposure to possible blood borne pathogens.



Chemical Hazard

Chemical hazards include inhalation of fumes and powders. They also include skin contact from splashes, spills and touch. The MSDS contains safety information on the hazardous components, chemical characteristics and stability of the product and first aid measures.



Physical Hazard

Physical hazards are environmental. They include temperature, noise, vibration and radiation



Hazard Control

The most effective way to control exposures to hazardous materials is 'at the source' by eliminating, substituting or isolating the hazard.

The second best control is 'along the path'. This includes the use of controls such as general ventilation, barriers or shields.

The least satisfactory method for controlling a hazard is 'at the worker'. This includes personal protective equipment, job rotation, and good personal hygiene.



Module 7: Responsibilities

Learning Objectives

When you complete this module, you have the responsibility to apply your WHMIS knowledge so that you and your co-workers can work in a safe environment.

Module Units

1. What are the supplier's responsibilities?
2. What are the employer/immediate supervisor's responsibilities?
3. What are the worker's responsibilities?
4. What is a successful WHMIS program?

What are the supplier's responsibilities?

- Provide information
- Classify hazardous or WHMIS controlled products
- Provide supplier labels and MSDS



Employer's Responsibilities ...

- Implement the WHMIS program
- Make available workplace labels and up-to-date MSDS for employees
- Educate and train on how to interpret and use information
- Prepare and maintain a chemical inventory of all hazardous materials in the workplace

Employee's Responsibilities ...

- Attend and participate in WHMIS training
- Apply knowledge learned in training sessions
- Review labels and MSDS prior to use
- Report damaged, illegible or missing labels or MSDS to your immediate supervisor.

Successful Program

The goal of WHMIS is to create a safe and healthy workplace. WHMIS is successful only when suppliers, employers and employees assume their responsibilities.

Take the on-line test

When you are ready, go to http://appserver.lhsc.on.ca/quiz/_includes/index.php?loc=whmis to take the on-line test. . This will test your knowledge of LHSC's **WHMIS** procedures. If you're not ready, please review the previous modules.

Log in Screen:

Please enter your First Name, Last Name , Enter your department as **Medical Affairs** and then...Please enter "**I am not a hospital employee**" as your employee number has not yet been generated.

Your results will be collected by our Occupational Health and Safety Department and then will be reported back to Medical Affairs for tracking purposes.