



Identifying Hazards

Learning Outcomes

By the end of this unit the learner will be able to:

- ✓ Identify hazards and reduce them

Identifying Hazards

What is a Hazard

The meaning of the word hazard can be confusing. Often dictionaries do not give specific definitions or combine it with the term "risk". For example, one dictionary defines hazard as "a danger or risk" which helps explain why many people use the terms interchangeably.

There are many definitions for hazard but the more 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 under certain conditions at work.

Basically, a hazard can cause harm or adverse effects (to individuals as health effects or to organizations as property or equipment losses).

Sometimes a hazard is referred to as being the actual harm or the health effect it caused rather than the hazard. For example, the disease tuberculosis (TB) might be called a hazard by some but in general the TB-causing bacteria would be considered the "hazard" or "hazardous biological agent".

What are Examples of a Hazard?

Workplace hazards can come from a wide range of sources. General examples include any substance, material, process, practice, etc that has the ability to cause harm or adverse health effect to a person under certain conditions. See Table 1.

Workplace Hazard	Example of Hazard	Example of Harm Caused
Thing	Knife	Cut
Substance	Benzene	Leukemia
Material	Asbestos	Mesothelioma
Source of Energy	Electricity	Shock, electrocution
Condition	Wet floor	Slips, falls
Process	Welding	Metal fume fever
Practice	Hard rock mining	Silicosis

As shown in Table 1, workplace hazards also include practices or conditions that release uncontrolled energy like:

- an object that could fall from a height (potential or gravitational energy),
- a run-away chemical reaction (chemical energy),

- the release of compressed gas or steam (pressure; high temperature),
- entanglement of hair or clothing in rotating equipment (kinetic energy), or
- contact with electrodes of a battery or capacitor (electrical energy).

What is risk?

Risk is the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard. It may also apply to situations with property or equipment loss.

For example: The risk of developing cancer from smoking cigarettes could be expressed as "cigarette smokers are 12 times (for example) more likely to die of lung cancer than non-smokers". Another way of reporting risk is "a certain number, "Y", of smokers per 100,000 smokers will likely develop lung cancer" (depending on their age and how many years they have been smoking). These risks are expressed as a probability or likelihood of developing a disease or getting injured, whereas hazards refer to the possible consequences (e.g., lung cancer, emphysema and heart disease from cigarette smoking).

Factors that influence the degree of risk include:

- how much a person is exposed to a hazardous thing or condition,
- how the person is exposed (e.g., breathing in a vapour, skin contact), and
- how severe are the effects under the conditions of exposure.

What is a risk assessment?

Risk assessment is the process where you:

- identify hazards,
- analyze or evaluate the risk associated with that hazard, and
- determine appropriate ways to eliminate or control the hazard.

The OSH Answers Risk Assessment has details on how to conduct an assessment and establish priorities.

What is an adverse health effect?

A general definition of adverse health effect is "any change in body function or the structures of cells that can lead to disease or health problems".

Adverse health effects include:

- bodily injury,
- disease,
- change in the way the body functions, grows, or develops,
- effects on a developing fetus (teratogenic effects, fetotoxic effects),
- effects on children, grandchildren, etc. (inheritable genetic effects)
- decrease in life span,

- change in mental condition resulting from stress, traumatic experiences, exposure to solvents, and so on, and
- effects on the ability to accommodate additional stress.

(Source : <http://www.ccohs.ca>)

The Hazard Identification Process

Hazard Identification Techniques

Identifying hazards is a key step in making the workplace safer. This is a task that the safety committee can take on, with the assistance of all employees in the workforce. There are several key ways to identify hazards.

Look at accident reports.

Review past accidents and near misses. List the key facts of the incidents and look for patterns.

Perform a job safety analysis.

Although this can be time consuming, it is the best way to identify hazards. With this method, you review each job. You look at each task that the job entails and the method used to perform each task. Then, review each step for possible hazards. (A good way to test the safety of the step is to think, “Would I want my child doing this task this way?”) Ideally, this analysis will be performed with the employee to ensure every possible hazard is identified.

Perform a walk through.

Walk through the work site and look for hazards.

Use a checklist.

A checklist can help organize the walkthrough, ensuring that nothing is missed. It can also help identify common industry hazards. However, it may be too comprehensive or it could exclude aspects particular to your workplace. If you’re going to use a checklist, have the safety committee review it first to ensure that it is applicable and appropriate.

Common Hazards

Hazards will differ from workplace to workplace as there are so many variables to consider. However, here are some of the most common types of hazards.

Area	Description
Health	Extreme temperatures, air quality, noise
Biological	Exposure to illnesses, sick buildings (i.e., those with mold or toxins)
Chemical	Toxic substances (gases, solids, or liquids)
Ergonomic	Activities that can cause repetitive strain injuries
Physical	Physical elements of the workplace, including lighting, floors, ceilings, stairs, ramps, and machinery

Reviewing Hazards

It is important to note that hazards should be reviewed at a pre-determined interval. Other events that may trigger hazard re-identification can include:

- Addition of new equipment
- Office re-location
- Change in job responsibilities
- New pattern of incidents
- Issue raised by staff member

Further Reading:

- ✓ *Hazard Identification, By Geoff Wells,(1996)*
- ✓ *Hazard Identification, By Frank Crawley, Brian Tyler,(2003)*