HAZARD VS RISK: WHAT IS THE DIFFERENCE?

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What is a hazard? The meaning of the word hazard can be confusing as definitions often combine hazard with the term risk. Actually, ***hazard*** and ***risk*** are quite different.

A hazard is any source of potential damage, harm or adverse health effect on something or someone. Basically, a hazard is something that can cause harm or adverse effects such as to individuals as health effects, to the environment or to organizations as property or equipment damage. Some examples are: a lit cigarette, a wet floor, direct exposure to the sun, or exposure to toxic chemicals.

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. For example: there is a risk of developing lung cancer from smoking cigarettes, of slipping on the wet floor and breaking a bone, of developing skin cancer from long-term exposure to the sun.

Risk is not the same for everyone and there are many factors that influence the degree of risk such as:

- How much a person is exposed to a hazard (i.e. Smoking vs. second-hand smoke; walking on the wet floor thousands of times each day; working as a janitor handling toxic cleaning compounds every day)
- How a person is exposed (i.e. breathing in a vapour, contact with eyes or skin)
- How severe the effects are under the conditions of exposure.

Exposure to toxic chemicals is not just a hazard, it puts you at risk.

- We know that people engaged in risky behaviour have an increased chance that something bad might happen; i.e. an accident, illness, debilitation or even death.
- There are risks associated with handling and using dangerous chemicals, which can result in adverse environmental or human health effects if improperly handled, stored or used. Sometimes even the "proper" or accepted method of using a chemical carries health and environmental risks, just because we cannot be 100% sure we are not being exposed nor can we eliminate the probability of accidental exposure.
- There are also dangerous chemicals that can be found in air (as air pollutants) or water (water pollution).
- There is a wide variety of consumer products that may still contain the toxic chemicals used in their manufacture. There are chemicals in our homes, clothing, carpets and cars such as flame retardants, household cleaning compounds and various synthetics; some of which have been determined to cause adverse health effects. We are all at risk every day.

Risk is a measure of both the hazard and the probability of its occurrence. To illustrate this, consider crossing the ocean in both a row-boat and a large ocean liner. The hazard of drowning in the ocean remains the same. However, the risk is considerably reduced in the larger and powerful boat because the probability of say, capsizing (exposure to the hazard) is minimal compared to the row-boat. But, when you remove the hazard of the ocean by putting both boats on dry land, everyone is safer.

There are ways to reduce the risk of exposure to toxic chemicals. First you must know which chemicals you are dealing with, their toxicity, method of use and how you can be exposed. This is called **Risk Assessment**. From this information one or more methods are developed to manage the risk so that exposure is kept to a minimum. This is called **Risk**

Management. It should be noted that although risk management procedures are in place, they may not be enough to protect those that are being exposed. To be effective, risk management must communicate how to avoid expose to all those concerned and repeat the message as often as possible using various media. This is called **Risk Communications.** The labels on cigarette packages are a form or risk communications. However, it must be noted that risk communications is only effective if it results in behavioural change that reduces risk.

For example: There is a massive amount of scientific evidence that shows smoking causes chronic illnesses such as heart disease and lung cancer. The health risks of smoking to a smoker have been assessed and are well documented. Smoking is managed by a wide variety of regulatory controls such as: taxing tobacco products, requiring smoke free buildings, bans on advertising, etc. This information is communicated through signs, warning labels on cigarette packages as well as legislation that bans smoking in public places. Nevertheless, there are smokers who have smoked all their lives and have not yet experienced a serious adverse health effect. In other words, we are dealing with probabilities – the more you are exposed, the greater the risk.

These same procedures need to be instituted for other chemical substances known to be hazardous to health.

Knowledge is power.

WHAT YOU CAN DO!

There are many ways to reduce the risk of exposure to toxic chemicals.

1. Identify potentially dangerous chemicals in your work place, home and community.
    - Arm yourself with up-to-date information on these chemicals. You don't have to worry about the long and hard to pronounce name of the chemical, there is always a CAS # (Chemical Abstracts Service Number) that you can use to look up the chemical and learn about how it might effect health. Check out the "Substitute It Now (SIN) list" at www.sinlist.org to see if the chemical you are using is one of the most harmful that desperately needs to be substituted.
    - Learn about chemicals' toxicities, methods of delivery and the nature of exposure. Many Environmental Non-Governmental Organizations have this information on their websites. You can also contact your local health authority for information on chemicals that you are interested to learn more about or are worried may be unsafe.

- Store all chemicals safely, out of reach of children, and make sure they are handled properly when being used or transported.

2. Remove the hazard. Do not purchase products that you feel are unsafe; look for substitutes. The old method of storing food in glass containers (rather than plastic containers) is a great example of reducing risk.

3. Attend consultations and public hearings for new industries that may be coming into your neighborhood, get the facts about what they manufacture and how and determine how products they produce or chemicals they use may affect your community. Ask questions such as what kind of waste is generated and how will it be disposed of. What air or water pollutants are produced? In what quantity and what procedures are in place prevent pollution? Etc.

4. Stay away from sites that may be considered hazardous such as dumps, industrial emissions, and other potentially contaminated sites.

5. Call your Member of Parliament and tell them you want chemicals more strictly regulated like they are in Europe. Talk to other local politicians and decision makers about the chemicals that may be produced, disposed of or released in your area. The government should not allow market-access for products that are known to cause adverse health effects.

6. Make sure that you communicate what you know to your family, friends and community.