

Safety Issues in Healthcare Programs / Healthcare Employment

Observing all safety procedures in place and recognizing the hazards that may be around you at all times will help to minimize accidents while working towards a health care degree and while working in a health care setting. It is very important that safety always comes first. Carelessness by one person could cause injury not only to themselves, but possibly too many other people.

Part A: Possible Safety Issues and/or hazards that may be encountered

Chemical Hazards

Chemical hazards can be broken into two main categories. Chemicals that present health hazards and chemicals that present physical hazards.

A chemical which is considered a health hazard will usually have one of the following characteristics associated with it:

- Causes cancer
- Has toxic properties
- Is corrosive
- Has a direct affect on a particular body system
- Damages the lungs, skin, eyes or mucous membranes

A chemical which is considered a physical hazard may also be considered a health hazard, but will usually also have one of the following characteristics associated with it:

- Combustible liquid
- Compressed gas
- Explosive
- Flammable
- Forms an explosive crystal
- Has the ability to self-ignite
- Is very reactive with other chemicals
- Reacts when it comes into contact with water

The following website provides safety information for an extensive number of chemicals:

<http://msds.chem.ox.ac.uk/#MSDS>

Fire Hazards

Fire hazard may come in many forms while working in a lab. Chemicals that may ignite or react with other chemicals to produce flammable gases may be used. Equipment being used may overheat and cause fires.

For example, let's take a look at a Microbiology lab or a Chemistry lab and talk about a specific fire hazard that is present. It is very common to use something called a Bunsen burner to sterilize objects or run tests in these settings. These burners produce an open flame by burning natural gas. The use of these creates two hazards. Number one, by itself the open flame is a fire hazard that can cause serious burns if care is not taken. There is also the possibility that something that gets too close to the flame may be set on fire, like clothing or paper. Secondly, natural gas is extremely flammable and can cause massive explosions and/or fires if it is allowed to build up and come into contact with an ignition source.

Radiological Hazard

X-ray machines pose a relatively small hazard if used correctly. The main risk involved comes from overexposure to the electromagnetic radiation that X-ray machines pass through tissue to generate an image. While working towards a degree that would involve the use of X-ray, students will be well trained on ways to minimize and monitor their exposure to such radiation.

Here are a few web sites that provide more information on X-ray and radiation exposure:

www.nursingtimes.net/ntclinical/xray.html

www.epa.gov/radtown/index.html

www.school-for-champions.com/health/xrays.htm

www.radiologyinfo.org/en/safety/index.cfm?pg=sfty_xray

Sharps Hazard

Sharps hazards include such things as broken glass, needles, scalpels, and other items that pose a risk of cutting or puncturing the skin.

Broken glass may be encountered in lab classes where the use of beakers, test tubes, flasks, and other glass lab equipment is needed. These pose a risk of causing minor to serious cuts if not used with care. You should never work with glassware that has visible cracks or chips because they may break easily.

Needles pose a special risk because they can stick someone and introduce such things as viruses and bacteria into their blood stream. Needles should always be handled with great care and be disposed of in the proper type of container to minimize the risk of accidental sticks.

Infectious Biohazard Materials

When working in some health care fields such as Nursing or Phlebotomy you will be at risk of coming into contact with body fluids that may be infectious. These fluids may contain viruses and/or bacteria that have the ability to infect anyone who comes into contact with them. To help minimize the risk to individuals who deal with this risk, a

standard called the Bloodborne Pathogens Standard has been developed which outlines steps to be taken when dealing with this issue. You can read this standard at this web site:

www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051

For more information concerning a large variety of safety issues and control measures visit the following web sites:

Environmental Protection Agency (EPA): www.epa.gov/

Occupational Safety and Health Administration (OSHA): www.osha.gov/

OSHA Hospital eTool: www.osha.gov/SLTC/etools/hospital/index.html

American Dental Association (ADA): www.ada.org/

Center for Disease Control (CDC): www.cdc.gov/

National Fire Protection Association (NFPA): www.nfpa.org/

Part B: Safety Equipment and Personal Protective Equipment

To help minimize exposure risks to an individual, as well as the workplace environment at large, a number of things have been developed to help control or prevent the above hazards. The following list is by far not an exhaustive one, but will provide you with information on some of the ones you will most likely see.

Emergency Equipment

Eye Wash

Description: Looks like a drinking fountain with 2 to 4 spray heads that spray water in an arch. There will be a paddle that is pushed to activate or a knob that is pulled to activate.



Purpose: Used to clean the eyes if a chemical has been splashed into them.

Safety Shower

Description: Has a large shower head with a handle coming down which is pulled to activate the shower.



Purpose: Intended for use if large amounts of hazardous chemicals are spilled on clothing. These may also be used to put out fires on clothing.

Fire Blanket

Description: Usually a heavy wool blanket that is systematically folded into long container that will be mounted on the wall. Sometime these blankets will be rolled and stored in a round container that is wall mounted and opens from the bottom.



Purpose: Used to smother flames on a persons clothing in the event they catch fire.

Fire Extinguisher

Description: A small metal container that contains a substance that is under pressure. Depending on what is burning, fire extinguishers are basically divided into four different categories or classes; Class A, Class B, Class C, and Class D. For more information on the different classes visit this web site www.fire-extinguisher101.com/



Purpose: These are used to put out small fires.

Exposure Control Equipment

Fume Hood

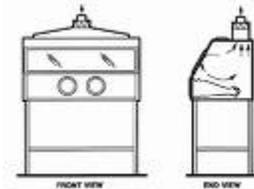
Description: Fume hoods come in a wide variety of shapes and sizes. Most are a cabinet like piece of equipment that has a glass door in the front called the sash. In some hoods, the sash only moves up and down. In others, the sash is divided into two halves that move right and left, meeting in the middle when they are closed. At the top of the hood is a fan that serves to draw air up and out of the hood.



Purpose: Fume hoods are a type of local ventilation system that capture, retain, and exhaust chemical vapors and/or dust that are generated in them. They are arguably one of the most important control methods used in the lab to keep exposure at a minimum.

Glove Box

Description: A glove box is a sealed container that has two gloves that are built into the front or side of the box to allow the user to manipulate the materials inside the box.



Purpose: In a biological lab setting, glove boxes are used mainly when working with infectious substances such as viruses and bacteria. They may also be used if absolute sterility is needed. In a chemical lab setting, glove boxes may be used when working with very hazardous chemicals.

Personal Protective Equipment

Gloves

Description: Gloves are made of a wide variety of materials. What material the glove is made of depends on what type of protection level is needed. Choice also depends on what type of materials and/or chemicals you are going to be working with. Depending on what it is to be used for, gloves may be designed to provide dexterity, strength, low permeability, resistance to penetration by sharp objects, or protection from extreme temperatures.



Purpose: Gloves protect the person using them from direct contact with the material they are working with. Gloves should always be worn when working with hazardous chemicals or possible infectious substances.

Safety Goggles

Description: Goggles come in a variety of styles. There are goggles that form a complete seal around the eye; there are goggles that only serve to protect against frontal impact; and there are goggles that protect against dust. They are almost always made of some type of plastic.



Purpose: Goggles protect the eyes against damage from flying debris and also from chemicals and/or infectious substances that may enter the body through the eye. They should always be worn when working with hazardous chemicals, infectious substances, and when working with materials that may produce dust or have the possibility of producing a projectile. Splash goggles provide the best protection because they form a liquid tight seal around the eyes.

Face Shield

Description: Face shields are a plastic shield that is worn on the head and cover the face and neck of the person wearing it.



Purpose: Face shields provide a higher level of protection when worn with safety goggles. They protect the face and neck of the person wearing them. They are commonly used when working with hot chemicals, pressurized systems, or when there is a risk of substantial splashing.

Lab Coat

Description: Lab coats are usually made of materials like cotton or polyester and come in a wide variety of colors. They are worn over the clothing of a person who is working in a lab or clinic setting.



Purpose: Lab coats protect clothing and also serve to prevent chemicals or fluids from getting on the skin. Lab coats also act as a form of fire protection because they can be quickly and easily removed in the event that they catch fire.