

Safety Leader's Discussion Guide

Back injuries

Hand safety

Hazard communication

Office ergonomics

Heat stress

Bloodborne pathogens

Shelter-in-place

Preventing violence in the workplace

Action steps for responding to violent behavior

Personal protective equipment

Walking and work surface safety

Hypothermia, a subtle foe



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Dear safety leader:

Safety is everyone's business.

Workplace safety begins with your organization's management taking the lead in safety efforts, but every employee plays a vital role in your safety success. Safety team members work with managers and employees to make safety a top priority for your organization's daily operations.

To share their safety perspectives, the Society of Ohio Safety Engineers coordinates with BWC's Division of Safety & Hygiene to develop this *Safety Leader's Discussion Guide*. By encouraging participation and interaction, the guide is designed to meet your employees' changing safety needs. In particular, monthly safety topics cover pertinent safety subjects that include violence in the workplace, shelter in-place strategies for bioterrorism, back safety, heat stress and office ergonomics.

Including safety topics in staff and safety meetings makes good business sense. By improving safety and preventing accidents, you can protect your employees while at the same time reducing your workers' compensation costs. Everyone benefits – employers, workers, family members and Ohio's communities.

P.S. Learn more about safety at BWC's Ohio Safety Congress & Expo, March 20 – 22 at the International Exposition Center in Cleveland.



Back injuries By John N. Waller

Ask the group how many employees have back injuries. From a statistical perspective, back injuries are one of the most common causes of lost-time workplace injuries. According to U.S. Department of Labor's Bureau of Labor Statistics, back injuries accounted for more than 280,000 nonfatal injuries in 2004 for private industries. Reports indicate 80 percent of Americans will experience back pain at some time in their lives, and fortunately, most will recover without requiring treatment within a couple of days. A small percentage will require surgical intervention and may suffer permanent disabilities.

Back pain primarily affects people between 25 to 60 years old. Back pain is described as being acute or chronic. Acute pain suddenly occurs and usually clears up in a short amount of time. Chronic pain is long term and may require continuous treatment or care.

Back anatomy

Review the back's anatomy. The back is a complicated piece of equipment that has numerous parts requiring proper care and use to remain productive. At birth you have 33 vertebrae. As you age, certain vertebrae naturally fuse. Most adults have 24 vertebrae.

The spine is divided into segments. Ask a group member to identify the segments. For example, the spine's uppermost part, your neck, is the cervical spine, consisting of the top five vertebrae. Next, the upper back, is the thoracic spine, consisting of 12 vertebrae. The lower back, or the lumbar spine consists of 5 vertebrae. The lumbar vertebrae are the thickest vertebrae because the spine's lumbar section supports the greatest body weight. These vertebrae also receive the most physical stress when you lift.

Before you begin

Review your business operations for job tasks that are recognized lifting hazards. Determine if there are mechanical-lifting alternatives that your organization could use. Review any back-related incidents at your facility.

Be prepared to discuss your findings with the group you are instructing. As a group, inspect your workplace for areas that may require employees to do lifting. Observe an employee lifting an object and review his/her technique.

Preventive measures

Improper use of this equipment causes it to fail. Taking care of your back provides some protection, but there are contributing factors that may increase your risk of back injuries. It may be a combination of factors that include:

- The size or weight of the object you attempt to lift;
- Repetitive lifting of light objects;
- Correct posture when lifting;
- Physical conditioning;
- Everyday stress.

Ask the group if anyone knows the proper way to lift. Safely lifting requires you to preplan your lift. Size up the object. Is it too heavy or bulky to handle alone? Can you use a mechanical lifting device, (i.e., a forklift), or do you need to ask for assistance from a co-worker? If you decide you can safely lift the item, posture is the next critical rule to follow in preventing injury.

Correct lifting requires you to:

- Squat in front of the object with your feet close to the object you are lifting;
- Ensure you have a good grip on the object. You do not want it to shift while you are lifting;
- Keep the load close to your body when you lift;
- Lift straight up;
- Do not twist or turn while you lift;
- Set the object down the same way you lifted it.

Properly maintaining your back, using exercises recommended by your doctor or other health-care providers will help protect your back from injuries.

BWC Division of Safety & Hygiene guidelines

Proper preparation and lifting techniques will help prevent back injuries. However, BWC's Division of Safety & Hygiene lifting guidelines on ohiobwc.com, explain the best way to prevent work-related back pain is to engineer out the hazards by:

- Eliminating unnecessary lifting. Whenever possible, eliminate manual-material handling by combining operations or shortening the distances that material must be moved. Look at the material flow through your facility and eliminate unnecessary lifts;
- Automate or mechanize lifting. If it is not possible to eliminate the lift, consider automating the lifting task or using a mechanical device. Devices such as hoists, cranes and manipulators can eliminate the forces on the spine associated with manual-materials handling;

- Modify the job to fit within worker capabilities. If material must be handled manually, design the job to reduce the stress on the body as much as possible. For example, job modifications could allow for lifting loads as close to the body as possible. Some techniques to reduce distances are:
 - o Eliminating any barriers, such as the sides of bins or boxes;
 - o Using a turntable for loads on pallets;
 - o Using a tilt table to allow for better access into bins.

Place the load as close to waist height as possible. You may use adjustable lift tables or inclined conveyors to locate the object to be handled at waist height. Reduce the need to twist the trunk by re-orienting the lifting origins and destinations. Reduce the weight of the load being lifted so the weights are within these lifting guidelines.

Back injuries can lead to a lifetime of discomfort. Be smart. Do not take unnecessary chances. Be a leader in preventing back injuries for your employees today.

John N. Waller is the regional health and safety manager for PSC Container Services Group. He oversees occupational health and safety at 24 facilities.

BWC strives to improve the *Safety Leader's Discussion Guide*. Your feedback can help. Please send your comments via e-mail to Safety@ohiobwc.com.

References

- Oklahoma State University, Online Safety Library: Back Safety: www.pp.okstate.edu
- Mayo Foundation for Medical Education and Research
- National Safety Council
- Mine Safety and Health Administration

Hand safety By Warren K. Brown



Before you begin

Review the history of hand incidents at your facility and any action plans in place. In addition, review this discussion guide and be prepared to associate elements of the guide with your work environment.

Introduction

Approximately 20 percent of disabling workplace incidents are hand related. Your hands are important because you use them all the time - both on and off the job. Just imagine how you would suffer if you disabled your hand or hands in some manner. Injuries can run from minor cuts, scratches, burns, chemical exposures and abrasions to amputations.

Many incident reports list uncommon work tasks, distractions, malfunctioning machinery and increased work pace as reasons for hand injuries. Not paying attention to the work task and not thinking of what can go wrong before it happens are more reasons for hand incidents. Most people don't think of safety enough or think they won't or can't hurt themselves.

Main section

Start the session by asking if anyone has had a hand incident. Then discuss with the group what factors led to the incident. Ask if anyone else has had a similar incident and what actions could have prevented it and future incidents from occurring.

Potential sources of hand incidents could include:

- Mechanical hazards;
- Chemical hazards;
- Abrasions;
- Burns;
- Electrical contact.

Ask the group members what kinds of activities they perform that could result in a hand incident. Examples could include:

- Improper use of a tool;
- Use of the incorrect tool for the task at hand;
- Not using correct personal protective equipment (PPE);
- Missing or inadequate machine guarding;
- Exposure to chemical agents without PPE;
- Job not ergonomically correct;
- Lack of training in proper completion of the job task.

Ask the group members what countermeasures they could put in place to correct these activities. Examples of safer approaches to the activities could include:

- Learn the correct use of hand tools;
- Know which tool to select to get the job done safely;
- Select the proper PPE for the task being performed and use it;
- Replace missing machine guards;
- Upgrade inadequate guarding;
- Wear the proper PPE to protect against chemical agents in the workplace;

- Report any symptoms resulting from ergonomically incorrect conditions to your supervisor;
- Ask for training on any tasks where needed.

Ask the group about glove use — where using gloves is appropriate and what kind of gloves to wear for particular activities. Issues to consider are degree of dexterity required, the duration of use, the frequency and degree of exposure to hazards, and the physical stresses the job tasks require.

You should study the work environment to determine the types of exposures present and then the type of glove that best fits the circumstances. Communicate this information to the work force and ensure the appropriate glove types are available when and where needed.

Types of gloves available are:

- Plain cloth gloves;
- Cloth gloves with grip coatings to the fingers and palm area;
- Cut-resistant gloves based on the hazard (these could range from wire mesh to cut-resistant synthetic compounds available);
- Leather gloves;
- Chemical-resistant gloves matched to the chemicals encountered in the work environment;
- Rubber electrical-rated gloves.

Conclusion

The American Conference of Governmental Industrial Hygienists has established a threshold limit value for hand activity. You can predict the likelihood of a hand injury for job tasks by considering strength requirement, repetition and amount of recovery time within the task cycle. There are also methods to determine the two key factors in hand activity: hand-activity level and peak-hand force.

These processes are available to organizations that choose to take advantage of a scientific approach to reducing and/or eliminating hand incidents. Organizations that want a more traditional approach to hand-incident reduction should become aware of the dangers in their workplaces, use training to make the work force more aware of the dangers and make sure their workers use appropriate PPE. One of the most important considerations is to ensure workers think about tasks prior to beginning them so they can take appropriate action to avoid hand injuries.

Group activity

Have group members determine the proper protective gloves needed for the tasks they normally encounter in their work activities. Make a poster showing the proper glove for the tasks identified. Display the poster in a common area to help workers make the proper glove selection for future tasks.

Quiz (Circle “T” for true or “F” for false.)

1. About 20 percent of disabling injuries are hand related. T F
2. Improper use of hand tools can result in hand injuries. T F
3. Since ergonomic incidents cannot be prevented you need not report them. T F
4. Training is an important element in hand injury prevention. T F
5. You must match chemical-resistant gloves to the chemicals encountered. T F

Answers: 1.T; 2.T; 3.F; 4.T; 5.T.

Warren K. Brown is a certified safety professional, an associate in risk management and a certified safety and health manager. He is supervisor of safety at DMAX, Ltd. in Moraine and a former safety lecturer at Dayton’s Sinclair Community College. He was named a General Motors Safety Fellow and Safety Professional of the Year for Ohio and Region 7 of the American Society of Safety Engineers (ASSE). He will be ASSE’s president from 2008 to 2009.

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References

- OSHA 3077 *Personal Protective Equipment* pamphlet
- United Auto Workers Occupational Health & Safety No. 1, 2003, “Designing Safe Handwork”
- *BWC Safety Leader’s Discussion Guide 2004*
- Washington State Department of Labor & Industries employee training kits, “Hand Protection”

Hazard communication By Andrew M. Pawuk



Before you begin

This lesson provides a short overview of hazard communication and does not replace a site-specific training program. Be prepared to supplement this session with site-specific requirements, labels and material safety data sheets (MSDSs).

Introduction

The Hazard Communication Standard, also called the "Right to Know" standard, is a federal regulation that began in 1987 to provide employees with information about workplace hazardous materials. The standard covers employees who may encounter hazardous chemicals under normal operating conditions or in foreseeable emergencies. Employees who encounter hazardous chemicals only in non-routine, isolated instances, such as office workers or bank tellers, are not covered.

The standard places responsibilities on the employer, employee and the manufacturer, importer or supplier of the chemical. Each is required to provide a safe workplace.

Main section

What are the responsibilities of manufacturers, importers or suppliers?

- Determine if there is a health or physical hazard associated with their product(s).
- Communicate information with:
 - o Labels;
 - o MSDS.

What is the employer's responsibility?

- Establish a written hazard communication program.
- Ensure you properly label chemicals.
- Provide training to employees about:
 - o Hazards, which may be present;
 - o The hazard communication program.

What are the employees' responsibilities?

- Attend training sessions to learn about hazard communication.
- Implement training to properly use chemicals.
- Ensure they properly label chemicals.
- Wear necessary personal protective equipment (PPE).

What are the types of hazards?

- Physical hazards, which include:
 - o Combustible liquids;
 - o Compressed gases;
 - o Explosives;
 - o Flammables;
 - o Organic peroxides;
 - o Oxidizers;
 - o Pyrophorics;
 - o Unstable items;
 - o Items that are water reactive.

- Health hazards
 - Exposed employees may notice measurable changes that occur in the body. (i.e., decreased lung function).
 - Exposed employees may have signs and symptoms, such as shortness of breath, which is a non-measurable, subjective feeling.
 - Effects rarely seen in the population at large make it easier to determine if the occupational exposure was the primary causative factor.

What are types of health hazards?

- Carcinogens
- Corrosives
- Toxic materials
- Irritants
- Sensitizers
- Toxic chemicals

What type of exposure can a worker have to a chemical?

- Acute effects usually rapidly occur as a result of short-term exposures and are of short duration.
 - Irritation
 - Corrositivity
 - Sensitization
 - Lethal dose
- Chronic effects generally occur as a result of long-term exposure and are of long duration.

How can a chemical enter the body?

- Dust, vapor and fume inhalation is generally the primary entry for workplace exposures.
- Skin absorption/contact is also an important entry route into the body or can result in direct effects on the skin.
- Ingestion is not a significant workplace route of exposure. However, it can be dangerous with highly toxic materials. (i.e., lead)
- Injection may unexpectedly occur, but that is not common. Injection often occurs when a laceration or puncture wound happens.

How do you share information with employees?

- Training sessions
 - Site-specific training program
 - Hazard-specific training
- Labels
 - Manufacturers' labels
 - Site-specific labels
- MSDS

What type of information is on a MSDS?

- Product identification
- Hazardous components
- Physical data and chemical characteristics
- Physical hazards, including fire-extinguishing information
- Spill and leak procedures
- Health hazards
- Emergency first-aid procedures
- PPE needed
- Special precautions

Conclusion

Hazard communication is a vital tool to help employees safely work with chemicals. Each worker plays an important role in ensuring employee safety. The workers may safely work around hazardous materials by identifying hazards, making the information available and using the knowledge. For additional information, review your company's program.

Quiz (Circle "T" for true and "F" for false.)

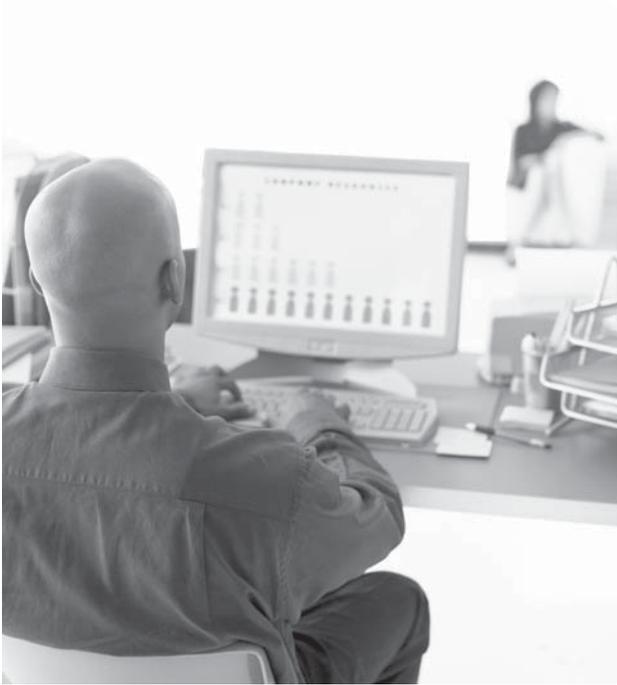
1. Hazard communication allows employees the right to know about hazardous materials in the workplace. T or F
2. A material may be a health or a physical hazard. T or F
3. You may find hazardous warnings on labels and MSDS. T or F
4. Long-term, adverse exposure may have a chronic effect on a worker. T or F
5. There are three primary entry routes into the body. T or F

Answers: 1.T; 2.T; 3.T; 4.T; 5.F.

Andrew M. Pawuk is the safety and security manager at Lucas Metropolitan Housing Authority in Toledo. He previously served for 18 years as the safety director for major hospitals in Toledo and Columbus; as a safety and health specialist for Columbia Gas of Ohio; and as a private consultant.

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Office ergonomics By Ted Ingalls



Before you begin

Inventory your office areas and write down your observations. Please pay attention to these areas:

- Computer workstations and how employees arrange them. Look for homemade adaptations to accommodate personal preferences and needs;
- Review how employees do their jobs and note if: 1) The job tasks' physical requirements include repetition; 2) The employees are required to use awkward positions; or 3) Some tasks require moderate or heavy exertion;
- Collect information about past office injuries, including strains/sprains that may be related to ergonomic conditions, and note if employees are complaining about shoulder, neck, back, hand or eye problems.

Introduction

During this session you will:

- Help group members understand what office ergonomics means,
- Increase their understanding that office ergonomics includes many issues;
- Encourage them to actively work to reduce ergonomic stress;
- Motivate members to take the initiative in making their job tasks more ergonomically friendly.

Ergonomic definitions

Start the discussion by asking the group what they think ergonomics means. If possible, record their ideas on a white board or flip chart and compare them with this definition: Ergonomics is making the work and work environment less stressful by designing the work and the environment to fit the workers' physical and psychological capabilities.

Discuss what the members think constitutes stress in the office environment. Responses may include lifting, standing and sitting at a computer workstation for long periods. These are good answers, but other office-related stresses include:

- Repeated pinch-grip effort;
- Leaning over a work table while assembling binders or training materials;
- Reaching above-shoulder height to retrieve stored items;
- Bending to reach items located below the knee;
- Glare associated with brightly lit areas or reflection from walls or smooth surfaces.

Additional computer stresses may include:

- Eye strain from looking at a computer screen;
- Neck pain from constantly turning your head to the side to view a document and then turning back to the screen;
- Neck strain from holding a telephone between your neck and shoulder to free up the hands;
- Wrist pain from repeatedly flexing the arm while holding an object.

Risk factors

To help the members organize their ideas about ergonomics, write these musculoskeletal disorder (MSD) risk factors on the white board or flip chart:

- Excessive force;
- Awkward positions;
- Static posture;
- Repetitive motion;
- Glare.

Ask for the group's help to list each potential ergonomic problem area identified during the previous discussion. Cite them under the appropriate risk factor written on the white board or flip chart. Members will then associate specific ergonomic problems with the correct type of risk factor.

Bring the list of potential problem areas you found when preparing for this session. Add those observations to those already listed under each risk factor. Then, discuss the work processes, tasks and effort that could become MSD risks and help employees understand they are not helpless when confronted by these risks.

Explain to the group that the discussion should be constructive and not a gripe session. Then, pose this question: "We've identified situations where poor ergonomics could affect employees and their work. What can you do about it?"

Members may respond with negative comments, but do not get sidetracked. If members do not respond, ask them this question: "If you were a supervisor, how would you improve office ergonomics in your work area?" Help them identify action steps they may take or steps the organization may initiate to lessen the stresses associated with MSD risk factors.

Write down the group's ideas and solutions so you can share them with organizational leaders.

Reducing risks

The group now discusses what members should do to reduce risk factors when they return to their work areas. Your objective is to help them realize they need to be looking for risk factors (see above) in their job functions. Each member initiates action that will reduce the stresses associated with job tasks.

Ensure each member recognizes he or she can take action to reduce the ergonomic stress associated with their jobs. Now ask the group, "If you choose not to identify the MSD risk factors (see above) associated with your job tasks, who will identify them?"

Group actions

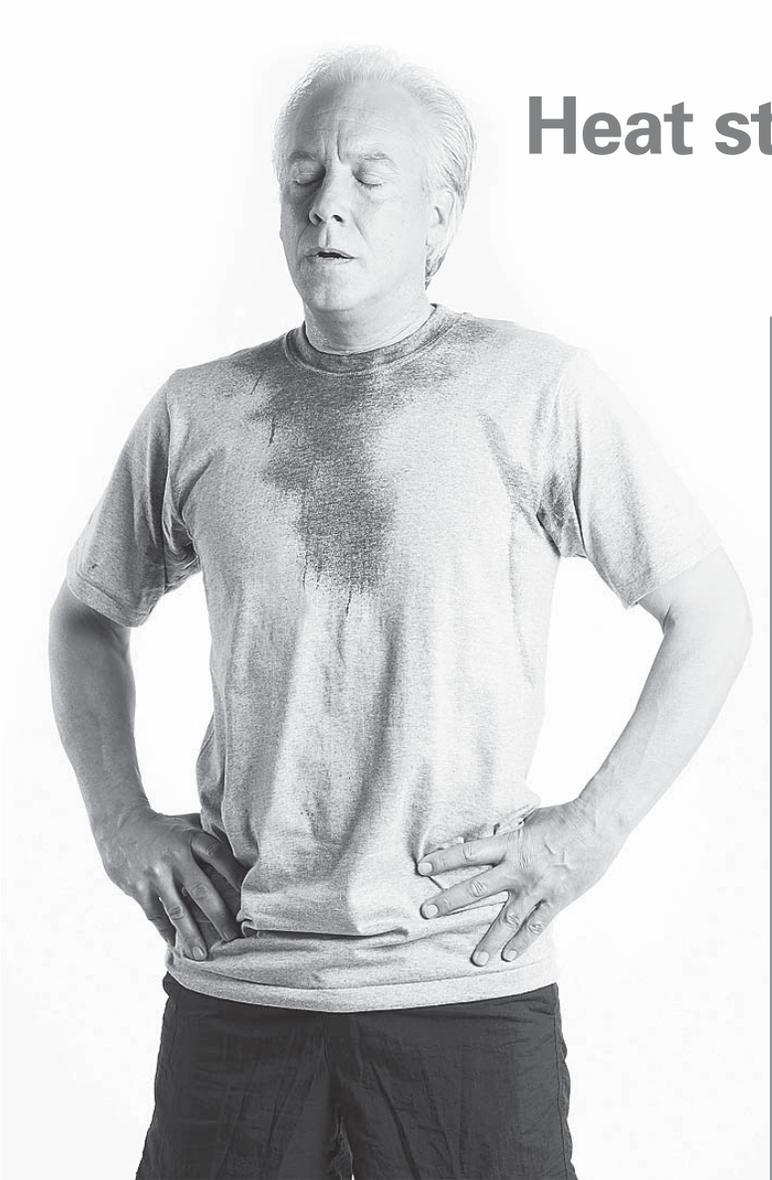
Conclude by asking, "Who knows your job better than you do?" The answer is no one. Each employee is responsible for his/her own safety and takes an active role in making the employee's job safer. Ask each member to:

- Identify MSD risk factors on the job;
- Initiate changes that reduce stresses associated with these factors;
- If necessary, seek assistance from supervisors and others in the company.

Employee involvement is crucial to safety's success. Be an active player with no one sitting on the bench. Thank each member for his/her commitment to safety and your employer.

Ted Ingalls, a certified hazardous materials manager, is president of Performance Management Consultants in Goodyear, Ariz. This firm specializes in helping organizations improve their safety management systems and processes.

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Heat stress By Joe Hammond

Before you begin

Review the reference section's Web sites at the end of this section. Become familiar with ways to prevent heat stress for your employees. Ask group members to list how they deal with heat-stress related symptoms at home and on the job.

Introduction

Statistics show a rise in temperature can affect workplaces in a negative way. The increased number of injuries and illnesses that crop up during the spring and summer seasons reflects this fact.

Heat stress or hyperthermia symptoms can range from minor illnesses to fatalities if the victim does not seek or get relief quickly.

The information in this discussion is vital for your safety at work, but it is also relevant for you and your family away from work.

Ask what types of incidents can result from working in hot environments. Answers include:

- Falls occurring on the same level or falls from a higher to a lower level, falls into machinery and equipment, etc.;
- Danger to the worker operating tools or equipment, and to other workers nearby.

Heat-related illnesses

Seek input by asking if anyone can name and define any of the heat-related illnesses listed below.

The list shows heat-related ailments workers may get (in ascending order from the least harmful to the most dangerous).

Heat rash — Excessive sweating during hot, humid weather causes this skin irritation, also known as prickly heat. Though not usually harmful, good hygiene and changes of clothing can control the discomfort it causes. It most often affects areas of the body that do not receive good ventilation.

Heat cramps — Everyone has probably experienced these painful muscle spasms. Rest and fluid replacement are the prescribed treatments for this ailment.

Heat syncope — The body attempts to send blood out from core areas surrounding the internal organs to the skin's surface, where it can be cooled. Heat syncope occurs when this process breaks down and

blood gathers and pools in the lower extremities. The victim is likely to faint due to poor blood circulation. To allow blood and body fluids to return to the upper part of the body's core area, the victim should lie down with his or her feet elevated.

Heat exhaustion — This is a dangerous condition for victims who do not receive quick help. The victim usually feels weak, has an elevated body temperature, and therefore, appears flushed. You should take the victim to a cooler, shaded environment and give him or her fluids right away.

Heat stroke — This is by far the most dangerous heat-related ailment. It happens when the body's cooling defense mechanisms become overwhelmed resulting in a continually rising core body temperature, permanent brain damage and even death. You should make every effort to immediately lower the victim's temperature with whatever means are at hand. Remember to never give liquids orally to an unconscious person because this could cause serious injury and/or death.

Heat-stress exposure

Ask what can you do to handle periods of heat-stress exposure. Try to draw out suggestions such as:

- Begin shifts earlier in the day;
- Provide good air ventilation (when the air temperature is lower than body temperature);
- Provide cool water and make sure workers can drink it on a regular basis;
- Promote workers beginning their shifts fully hydrated and allow them to consume fluids at will;
- Design a work/rest regimen that decreases the work rate/load;
- Develop a heat stress program that includes:
 - o Training;
 - o Health screening;
 - o Acclimatization;
 - o First-aid providers.

Fluids

Ask for ideas about what fluids are best for re-hydration.

The first choice should be water. Encourage workers to drink one cup of cool water every 15 to 20 minutes even if they are not thirsty.

Around 60 percent of our body's composition is water. Therefore, we should replenish our loss of fluids through perspiration by regularly drinking water. Make sure everyone understands thirst is not a good indicator that body fluids need replacement.

For un-acclimatized individuals, adding sliced fresh fruit to a container of water can help bolster lost electrolytes. Since many processed foods contain high amounts of salt, some experts do not recommend sports drinks.

You should avoid drinks that contain caffeine or alcohol. They promote loss of fluids through increased urination.

Group action

Ask the group members to identify those who are most likely to suffer from the effects of high temperatures and humidity.

Those most likely to suffer adverse effects are:

- Un-acclimatized individuals;
- Obese people;
- Elderly people;
- Pregnant women;
- Individuals under treatment who are taking medication(s).

Joe Hammond is a certified professional environmental auditor and occupational safety and health technologist. After a 27-year career with BWC, Hammond now provides safety training and consulting services to clients throughout Ohio. He is an authorized OSHA 10-and 30-hour course trainer.

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References

Web sites

- OSHA Web site: Heat Stress — Hazards and Possible Solutions: www.osha.gov/SLTC/heatstress/recognition.html
- NIOSH Safety and Health Topic, Heat Stress: www.cdc.gov/niosh/topics/heatstress/
- Occupational Hazards magazine: www.occupationalhazards.com/safety_zones/30/
- National Agriculture Safety Database, The Ohio State University (OSU): www.cdc.gov/NASD/docs/d001701-d001800/d001702/d001702.html

Resources

Dr. Robert Murphy, former OSU team physician

Bloodborne pathogens By Arne Larson



Before you begin

Survey your facility to identify work activities that could expose employees to blood or body fluids. These activities may include medical treatment, first aid, housekeeping and restroom-facility maintenance. To determine if your company has a bloodborne pathogen policy and training program, review your safety procedures.

Obtain disposable rubber or vinyl gloves and one shaving-cream can for the training exercise.

Introduction

Bloodborne pathogens are disease-causing microorganisms found in the blood and/or body fluids of infected people. If healthy people come into contact with these pathogens, they also may become infected. However, you can easily prevent diseases spread by contact with bloodborne pathogens. This training module will describe the methods used to avoid getting or spreading disease caused by bloodborne pathogens.

Review the hazards

Bloodborne pathogens may transmit serious diseases like Hepatitis B and C, as well as the human immunodeficiency virus (HIV). These microorganisms must find a direct route into the body to cause infection. Casual contact, coughing or sneezing typically do not transmit these microorganisms. Some of the ways bloodborne pathogens can enter the body are:

- Contact through a wound or other skin opening;
- Sprayed or splashed into your eyes or mouth;
- During cardiopulmonary resuscitation, rescue breathing without a barrier device;
- Direct injection by a contaminated needle;
- Touching contaminated hands to the eyes or mouth;
- Having unprotected sex with an infected person.

Take precautions

To reduce or eliminate infection risk, discuss these universal precautions. Ask attendees to identify jobs and locations in the facility where they might find risk examples. Talk to employees about which precautions may be best for your facility.

- Universal precautions are safe practices you should follow any time there is risk of contact with another person's blood or body fluids. These safe practices include the use of appropriate personal protective equipment (PPE).
- Wear disposable rubber gloves when there is risk of exposure to people or materials that may be contaminated with blood or body fluids.
- To prevent transferring the contamination to your hands, use care removing contaminated gloves. Thoroughly wash your hands after removing your gloves.

- If there is a possibility for a spray or splash of blood or body fluids to your face and eyes, put on goggles or a face shield. Cover any other exposed areas of your body where you may have cuts or breaks in the skin.
- Wear a rubber or vinyl apron to keep blood and body fluids off your clothing.
- Do not pick up needles or broken glass with your bare hands. Wear gloves and use a scoop or dust pan. Deposit the objects into a puncture-resistant, leak-proof container.
- Wash your hands or use waterless sanitizer after touching anything that another person's blood or body fluids may have contaminated.

Responding to injuries

- Use universal precautions when attending to any bleeding wound on another person. Assume that bloodborne pathogens could be present.
- Have the worker apply bandages to control bleeding for minor injuries. If needed, provide assistance.
- Wear disposable rubber gloves and try to avoid contact with any blood or body fluids on the person or their clothing.
- If disposable gloves are not readily available in an emergency, use your work gloves, a clean towel or newspaper to prevent contact with blood or body fluids.
- When finished with treatment and clean up, carefully remove your gloves to avoid touching the glove's contaminated exterior.
- Thoroughly wash your hands immediately after removing your gloves.
- If you do get blood or body fluids on your skin, immediately wash the contaminated areas with soap and water. Use emergency eyewash to thoroughly flush any contamination from your eyes or mouth. Report any exposure incidents to your supervisor or medical department.

Cleaning up contaminated areas and materials

Review the safety precautions listed below about safe clean up and disposal of contaminated materials. If needed, then ask employees where they can find the appropriate PPE, cleaning solution and equipment.

- Clean up and disinfect blood and body fluids as soon as possible. If needed, barricade the contaminated area to keep others from inadvertently touching or walking through it.
- HIV virus dies within hours of exposure to air, but the hepatitis B virus can survive on exposed surfaces in a dried state for at least seven days.
- Wear rubber gloves to clean up contaminated surfaces, tools, equipment, etc.

- Use a special germicidal cleaning product or a solution of one-quarter cup bleach in one gallon of water.
- Be careful not to splash or sling contamination during wiping/cleaning. If necessary, wear safety glasses, goggles or a face shield.
- Consider cleaning wipes, gloves and other disposable items contaminated waste.
- Place contaminated wastes into approved biohazard bags (red with the biohazard label) and follow the proper disposal procedures. Do not throw contaminated wastes into the regular trash.
- Thoroughly wash your hands after removing your gloves.

Group actions

- Step 1: Obtain disposable gloves for everyone and one can of shaving cream.
- Step 2: Have each member put on a pair of disposable gloves.
- Step 3: Spray some shaving cream on the palm and fingers of each gloved hand.
- Step 4: Ask each member to remove their gloves without getting any shaving cream on their hands, arms or clothing.

After the exercise, demonstrate the correct way to remove gloves by rolling the first glove off the hand inside out and then use the inside of it to remove the other glove.

Quiz (Circle "T" for true or "F" for false.)

1. Gloves cannot protect you from bloodborne pathogens. T or F
2. Coughing can spread bloodborne pathogens. T or F
3. You must not place contaminated wastes into regular trash containers. T or F
4. Only medical providers need to use universal precautions. T or F

Answers: 1.F; 2.F; 3.T; 4.F.

Arne Larson is a safety specialist with the Lubrizol Corp's research and testing facility in Wickliffe. He has 17 years of experience in safety and industrial hygiene.

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Shelter-in-place By Tim Govenor



Before you begin

If your organization has a shelter-in-place strategy or procedure as part of your emergency-planning manual, obtain a copy and review it. If you have not considered a shelter-in-place procedure, review this topic for discussion with your organization's leaders.

Background

The war on terrorism may potentially cause chemical or biological agents to be released. This possibility, along with accidental releases, are making employers examine the best responses possible for chemical or biological-agent incidents.

Everyone has a tendency to believe incidents like this will happen elsewhere but not close to their homes or businesses. In reality, these incidents may happen anywhere and at any time. When they do occur, a organization's state of preparedness may make a difference in your employees' survival or their death(s).

Discussion

If emergency authorities recommend sheltering-in-place, ask the group members if they know what steps to take. Encourage this training discussion.

What is shelter-in-place?

Shelter-in-place means selecting a room or rooms within your work facility with as few doors and windows as possible. Your employees will then take refuge in these room(s). The intent is to make a few rooms as safe as possible and to isolate these room(s) from the outside environment.

Rooms with water source(s) are best. Avoid rooms with mechanical-ventilation equipment or basement rooms. The rooms should be large enough to accommodate affected employees and visitors that are usually present.

For shelter-in-place, turn off the building's ventilation system. Once employees are in the room, isolate the room from the outside environment. Use plastic sheeting and duct tape to seal doors, ventilation grills or diffusers, windows, electrical outlets and communication jacks.

What should you do if you are at a work site outside a building?

Go to the nearest building with shelter-in-place capability. If your activities take you away from your office, this may not be your home office.

What do you do if you are in a vehicle?

A vehicle is not the best place to stay because it is not as air tight as a building. If you can, leave your car/truck and seek shelter in a building.

If you cannot leave, take these precautions:

- Stay in your vehicle;
- Turn the engine off;
- Close the windows and vents;
- If possible, seal the vents with duct tape;
- Tune into emergency radio broadcasts for updates and instructions;
- Follow police or emergency personnel's instructions.

What should you do if you are inside a work-site building?

Go to your employer's designated shelter-in-place rooms. Await instructions from safety or emergency personnel.

How much time do you have to respond to a shelter-in-place order?

Immediately react and seek the nearest shelter.

How long will it be necessary to stay in a shelter-in-place?

This may depend on the situation. Most scenarios require several hours. Follow the instructions from emergency personnel. They have the information necessary to determine when it is safe to leave the shelter.

What supplies and equipment do you need in a designated shelter?

Suggested supplies include water (one gallon per employee), a first-aid kit, flashlights, battery-operated radio, batteries, telephone, ready-to-eat foods, duct tape and scissors, towels, plastic sheeting and garbage bags.

Is there a standard alarm sound that indicates shelter-in-place?

This is determined by your work site. Do not confuse this sound with a fire or evacuation alarm. Whatever the method, you need to train your employees to recognize the shelter-in-place notification system.

Conclusion

Please review your organization's shelter-in-place policies and procedures with your employees. Pre-planning helps most businesses have effective and potentially life-saving shelter-in-place procedures.

Action items

- Create, review or revise your organization's shelter-in-place policy.
- Plan shelter-in-place drills for your employees.
- Procure and inventory the necessary items for a designated shelter-in-place room.
- Encourage employees to create shelter-in-place rooms in their homes.

Tim Govenor is a certified industrial hygienist and certified safety professional employed by The Ohio State University where he is semi-retired and serves as the university's chemical hygiene officer. Govenor served as president of the local chapters of the American Society of Safety Engineers, American Industrial Hygiene Association and the Society of Ohio Safety Engineers.

BWC strives to improve the *Safety Leader's Discussion Guide*. Your feedback can help. Please send your information via e-mail to Safety@ohiobwc.com.

References

Publication

- Department of Health and Human Services, Centers for Disease Control and Prevention, Chemical Emergencies Fact Sheet, *Chemical Agents: Facts about Sheltering in Place*

Web sites

- U.S. Department of Labor, Occupational Safety and Health Administration, e-tools Evacuation Plans and Procedures: www.osha.gov/SLTC/etools/evacuation/shelterinplace.html
- American Red Cross: www.redcross.org/services/disaster/beprepared/shelterinplace.html
- Ready America: www.ready.gov/america/makeaplan/work_school.html

Preventing violence in the workplace

By Mark J. Mullins



Before you begin

Contact your human resources department to see if your organization has a written policy on violence in the workplace. If so, review the policy before your meeting to identify key points. If your facility does not have a policy on violence in the workplace, use this information to help develop one. Be sure to include a cross section of employees to develop the policy.

Introduction

Workplace safety is a major concern to managers and employees alike. Media attention has resulted in fear and apprehension, yet violence is less common than is popularly believed. Given the millions of workers, the probability is very low that any single individual will be involved in a violent workplace incident leading to serious injury. Still, prevention is critical. Incidents involving disruptions and threats are increasing, and early intervention helps thwart more serious acts.

The session information highlights stresses and risks in the work environment. It also provides tips to enhance workplace safety and to reduce and prevent disruption and violence.

In presenting this information, there is no expectation that an incident will occur. The only assumption is that knowledge and preparation are the best ways to minimize and avoid such events.

What is disruptive, threatening or violent behavior?

All organizations should have policies in place to prohibit disruptive, threatening or violent behavior, which obstructs workplace functions and activities and endangers the health or safety of workers.

- Disruptive behavior disturbs, interferes with or prevents normal work functions or activities. Examples: yelling, using profanity, waving arms or fists, verbally abusing others and refusing reasonable requests for identification.
- Threatening behavior includes physical actions short of actual contact/injury (e.g., moving aggressively closer), general oral or written threats to people or property, ["You better watch your back" or "I'll get you"] as well as implicit threats ["You'll be sorry"].
- Violent behavior includes any physical assault, with or without weapons; behavior that a reasonable person would interpret as being potentially violent [e.g., throwing things, pounding on a desk or door or destroying property], or specific threats to inflict physical harm [e.g., a threat to harm a named individual].

Preventive steps to maintain a safe workplace

Workplaces with high levels of unresolved conflict and poor communication are often prone to having disruptive incidents. Conflict at work is normal, but must be addressed promptly and effectively, not avoided or suppressed. You can reduce or prevent disruptive behavior by facilitating an environment that promotes healthy, positive means of airing and resolving problems (e.g., methods that do not disrupt the workplace or harm or frighten others).

It is also essential to improve managers' and employees' conflict-management skills. Set and enforce clear standards of conduct and provide help (e.g., mediation and counseling) to address conflicts early.

Indicators of problem behavior

The following is a list of behaviors and attitudes that may be indicators of disruptive, threatening or violent behavior. If you observe a pattern of such behaviors and attitudes that cause a concern, contact your supervisor/human resources department.

Group action

Stimulate group discussion to develop a list of behaviors and attitudes that could lead to disruptive, threatening or violent behavior.

Behavior indicators

- Upset over recent event(s); work or personal crisis
- Recent major change in behavior, demeanor, appearance
- Recently has withdrawn from normal activities, family, friends, co-workers
- Intimidates, verbally abuses, harasses or mistreats others
- Challenges/resists authority
- Blames others for problems in life or work; suspicious, holds grudges
- Uses/abuses drugs and/or alcohol
- Unwelcome obsessive romantic attention
- Stalking
- Makes threatening references to other incidents of violence
- Makes threats to harm self, others or property
- Weapons; has or is fascinated with weapons
- Has known history of violence
- Has communicated specific proposed act(s) of disruption or violence

Attitude indicators

- Is isolated or a loner
- Morally superior, self-righteous
- Feels entitled to special rights and rules do not apply to him/her
- Feels wronged, humiliated, degraded; wants revenge
- Feels without choices or options for action except through violence

Mark J. Mullins is a certified safety professional and a certified hazardous materials manager. He is the health and safety supervisor for Lubrizol Corp. in Painesville. Mullins is past president of the Society of Ohio Safety Engineers and is vice-president of the Northern Ohio chapter of the American Society of Safety Engineers. He also is on the board of directors of the Greater Cleveland Safety Council.

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Action steps for responding to violent behavior

By Mark J. Mullins



Before you begin

Review your organization's violence in the workplace policy. Brainstorm disruptive, threatening or violent behavior scenarios that could happen within your facility with managers, employees and customers. Respond to these situations by asking the group members to role play the action steps they would take to manage the crisis situations.

Step 1:

General response to disruptive behavior (no threats or weapons)

1. Respond quietly and calmly. Try to defuse the situation.
2. Do not take the behavior personally. Usually, the behavior has little to do with you, but the person is using you as a target in the situation.
3. Listen with empathy and ask questions. Respectful concern and interest may demonstrate that aggression is not necessary.
4. Consider offering an apology. Even if you have done nothing wrong, an apology may calm the individual and encourage cooperation. "I'm sorry that happened. What can we do now that will solve the problem?"
5. Summarize and document what the individual says. Make sure you are communicating clearly. In crisis, a person feels humiliated and wants respect and attention. Your summary of the individual's concerns reflects your attention.
6. Focus on areas of agreement to help resolve the concern.

If this approach does not stop the disruption, assess whether the individual seems dangerous. If in your best judgment he or she is upset but not a threat, set limits and seek assistance as necessary.

Step 2:

Step 1 response, ineffective, individual does not seem dangerous.

1. Calmly and firmly set limits. For example, say, "Please lower your voice. There will be no disruptions in this office." "Please be patient so that I can understand what you need and try to help you."
2. Ask the individual to stop the behavior and warn that you may take official action. For example, say, "Disruption is subject to further action. Stop or you may be reported."

3. If the disruption continues despite a warning, tell the individual he or she may face discipline or prosecution, state that the discussion is over, and direct him or her to leave the office. Say, for example, "Please leave now. If you do not leave, I will call security and the human resource manager."
4. If the individual refuses to leave after you direct him or her to do so, state that this refusal is also a violation subject to disciplinary action.

Step 3:

Step 1 response ineffective and the individual seems dangerous

1. If possible, find a quiet, safe place to talk, but do not isolate yourself with an individual you believe may be dangerous. Maintain a safe distance, do not turn your back, and stay seated if possible. Leave the door open or open a closed door, and sit near the door. Be sure a co-worker is near to help if needed.
2. Use a calm, non-confrontational approach to defuse the situation. Indicate your desire to listen and understand the problem. Allow the person to describe the problem.
3. Never touch the individual yourself to try to remove him or her from the area. The agitated individual may interpret even a gentle push or holding his or her arm as an assault and may respond with violence toward you or file a lawsuit later.
4. Set limits to indicate the behavior needed to deal with the concern. For example, say, "Please lower your voice." "Please stop shouting (or using profanity) or I'll have to ask you to leave."
5. Signal for assistance. The individual may be antagonized if you call for assistance, so use a prearranged distress signal to have another staff member check on you to determine how you are. If you need help, the co-worker should alert your supervisor and/or the police.
6. Do not mention discipline or the sheriff's office if you fear an angry or violent response.
7. If the situation escalates, find a way to excuse yourself, leave the room or area and get help. Say, "You've raised some tough questions. I'll consult HR to see what we can do."

In an emergency

For violent incidents in progress or specific threats of imminent violence, call the local law enforcement. Immediately contact a member of management (human resources, the general manager or the health and safety supervisor). Have someone call for you if an individual:

- Makes threats of physical harm toward you, others or him or herself;
- Has a weapon;
- Behaves in a manner that causes you to fear for your own or another's safety.

Use a phone out of sight/hearing of the individual. The law enforcement agency will respond and take appropriate action.

1. Do not attempt to intervene physically or deal with the situation yourself. It is critical that the local law enforcement agency take charge of any incident that can or does involve physical harm.
2. Get yourself and others to safety quickly.

Post-incident response

Violent incidents affect many people: the victim, witnesses, bystanders, as well as friends and co-workers of those involved in or witnessing the event. To avoid long-term difficulties following a violent event (often called post-traumatic stress syndrome), be sure to take appropriate follow-up actions and interventions. There are crisis management companies and counselors available who can guide you in taking the appropriate steps for post-event counseling and intervention.

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Personal protective equipment

By Dan Stockwell



Before you begin, obtain the following:

- An example of the personal protective equipment (PPE) hazard assessment and selection form (see pg 29);
- A copy of your safety rules on the use of PPE.

Eliminating hazards is important for a safe work site. However, it may not be possible to eliminate all hazards through engineering design, guarding or administrative controls. In these cases, the use of PPE is necessary.

According to OSHA section 5A1 employers are responsible for providing a workplace free of recognized hazards that can seriously harm employees. To determine potential workplace hazards, the standard requires a written hazard assessment of each job function. If the assessment determines a hazard exists, then you must use the appropriate PPE.

The following sections may help with the PPE selection process.

Eye and face protection

Based on an assessment, affected employees should use appropriate eye or face protection when exposed to hazards. These hazards include flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. Examples of PPE are safety glasses, goggles and face shields.

You may select welding, cutting and brazing eye protection from information available in the "Filter Lenses for Protection Against Radiant Energy" table found in section 1910.133 (a) (5) of the OSHA Eye and Face Protection standard. All protective eye and face devices should meet the requirements of ANSI Standard Z87.1, "American National Standard Practice for Occupational and Educational Eye and Face Protection." In addition, you should review the general requirements section of the OSHA standard 1910.133 (Eye and face protection).

Foot protection

Your organization's employees may work in an area that could be dangerous for foot injuries. For example, an area may have falling or rolling objects, objects that could pierce a shoe's sole, and/or electrical hazards exposure. Based on these dangers, the area's employees should wear footwear meeting the requirements of the ASTM international standards F2412 "Test methods for foot protection" and F2413 "Specifications for performance requirements for protective footwear."

Examples of PPE are safety shoes, rubber boots and metatarsal guards.

Review the general requirements of OSHA standard 1910.136 (Occupational foot protection).

Hand protection

Appropriate gloves should be worn when employees' hands are exposed to potential hazards. These hazards may include skin absorption of harmful substances, severe lacerations, abrasions, punctures, chemical and thermal burns and harmful temperature extremes. Selecting a glove is based on the glove's performance characteristics, the job tasks to be performed and the conditions and duration of the glove's use.

Review the general requirements for OSHA standard 1910.138 (Hand protection).

Head protection

In areas where there is a potential for head injuries from falling objects or bumping into items, wear protective helmets/hard hats. Hard hats should meet the requirements of ANSI Standard Z89. Review the general requirements for OSHA standard 1910.135 (Head protection).

Protective clothing

Select protective clothing based on the potential hazards that you might encounter (i.e., heat and chemicals). Examples of PPE are protective coveralls, aprons and arm gauntlets.

Electrical protective devices

Insulating blankets, matting, covers, line hose, gloves and sleeves made of rubber should meet the requirements contained in OSHA standard 1910.137 (Electrical protective devices).

Hearing protection

Hearing protection is listed on the PPE hazard assessment and selection form. Review OSHA standard 1910.95 (Occupational noise exposure) for hearing protection guidelines.

Respiratory protection

Although respiratory protection is listed in the PPE hazard assessment and selection form, the OSHA Respiratory Protection standard 1910.134 should be reviewed for program guidance.

Training and documentation

According to the OSHA PPE standard, training is an important element in a PPE program. You should discuss the following items during the training process:

- When and what PPE is necessary;
- How to properly put on, take off, adjust and wear PPE;
- Proper care, maintenance, useful life and disposal of PPE.

OSHA says affected employees should understand the training and how to properly wear PPE. You should use practical and written exercises to meet this requirement.

When an employer believes training is not understood by employees, retraining will be available. Retraining will also be done when there are changes in the workplace, or PPE makes the previous training obsolete.

Documentation should verify employees received and understood the training. This documentation includes the name of each person trained, the training date(s) and the subject matter.

Dan Stockwell, a certified safety professional and a certified industrial hygienist, is a senior regional health and safety administrator for O-I (formerly known as Owens-Illinois) in Zanesville. He is a past president of the Society of Ohio Safety Engineers and has more than 25 years of experience in occupational health and safety.

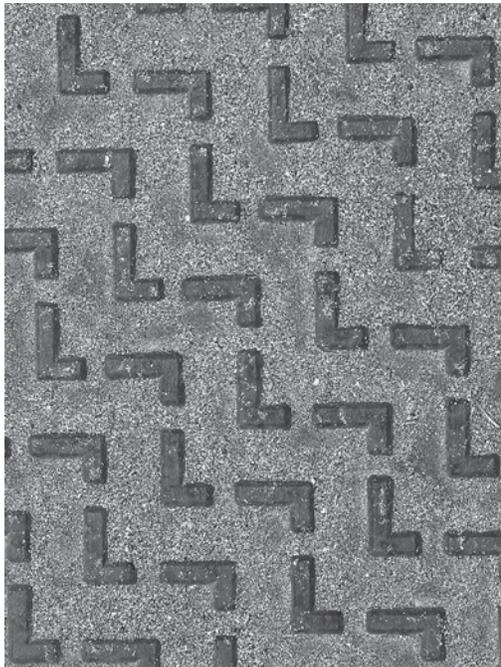
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References

Regulations

- www.osha.gov
- Additional regulations
- 29 CFR 1910.132 (General Requirements)
- 29 CFR 1910. Subpart I App B, (Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection)

Walking and work surface safety By John Orr



Before you begin

- Identify any slip/trip-related incidents or near misses within your organization for the past five years.
- Identify any locations within your facility where people frequently spill or drop water or other materials. Do your co-workers promptly take action to remove the hazard?
- Have a flip chart, chalkboard or white board available to capture discussion points.
- Use a question-and-answer format to encourage participation and involve the group in discussion.

Slips and falls

Falls represent the number one preventable cause of injury and death in the workplace. More than a million people suffer injuries and more than 16,000 people die as a result of falls in any given year. Obvious injuries occur from falls from six feet or more, but about 60 percent of all falls happen at the same level. (e.g. tripping)

Organizations that invite the public onto their property also expose themselves to an increased risk of slips and falls.

- Ask group members to raise their hands if they have slipped or fallen (in any location) in the past three months, six months and a year.
- For those who raised their hands, ask if they knew what caused their fall.
- Further ask, if the reason was obvious, and what they did to prevent it from happening to another person.

Fall factors

Nearly all slips or falls have one or more of these factors as a cause: 1) walking surfaces; 2) surface contaminants; 3) footwear; and 4) walking style of the person.

- Ask the group members of these factors, which would they consider controllable?
 - o Answers 1 and 2: Most experts believe employers have the most control over walking surfaces and surface contaminants.
 - o Answer 3: Employers can have some control over their employees' footwear by specifying types of acceptable footwear to wear on the job. Generally, the employee must provide this footwear. OSHA requires the employer furnish any specialized footwear (e.g., chemical resistant boots) needed on the job.
 - o Answer 4: How a person walks is much more difficult to control. You can influence walking behavior by making people aware through signs that the walking surface

may not be what they expect it to be. People who are aware of a wet or icy walkway will naturally take smaller steps and try to ensure their torso stays balanced over their feet.

- Ask the group what types of measures can employers take to improve walking surfaces within their store or production plant. Answers include:
 - Housekeeping and hygiene are the easiest, and sometimes the most difficult, to control. It is easy and cheap to clean up a spill, but sometimes very difficult for people to recognize the hazard and take action to fix it.
 - Engineering controls involve thinking ahead when building to decide where slip/trip hazards may occur. Putting the right floor down early or modifying an existing floor can help reduce the chance of a fall. These measures, although permanent, can be expensive.
- Ask the group what are some examples of objects or situations that present a tripping hazard. Answers include:
 - Obstructions, such as extension cords, power cords, hoses, boxes, other materials and parts projecting from machines
 - Employees carrying boxes or other objects that restrict vision
 - Uneven or damaged flooring, floor holes and poorly applied patches
- Other less obvious tripping hazards include:
 - Cracks in concrete and uneven or warped floorboards;
 - Loose or poorly fitted grates over pits;
 - Protruding nails, splinters and loose boards, which can create an uneven walking surface;
 - Carpets and mats that are not fixed, which may bunch, fold or slip under foot if not designed for the location and exposures encountered.

Hazards and prevention

Management attention may be necessary to get the proper tools, manpower or equipment to fix these types of tripping hazards.

- Ask the group what are the most logical ways to remove these hazards. Answer: Be sure employees:
 - Keep aisles and walkways free of all materials;
 - Remove materials from walkways;
 - Report burned out or missing lights;
 - Report uneven or broken pavement, sidewalks or handrails.
 - In addition, employers should:
 - Establish operating procedures where employees accept responsibility for removing hazards;
 - Establish walkway clear zones (i.e., paint walkway boundaries on floor in industrial areas).

Slip Prevention: What are examples of slip causes?

- Examples include, but are not be limited to:
 - Snow, ice and liquids, such as water;
 - Liquid escapes from production operations, such as hydraulic oil and chemicals.

- Other slip hazards include:
 - Highly polished floor surfaces;
 - Floor surfaces where slip prevention materials may have worn away;
 - Worn or poorly maintained floor surfaces;
 - Transitions from one type of floor surface to another, such as carpet to tile.
- What can you do to prevent slips on floor surfaces?
 - Keep the area clean, pick up liquids when spills occur, and do not allow spilled material to permeate the floor surface.
 - In industrial applications where different chemicals are used, be sure to follow company policy when cleaning and disposing of spilled materials.
 - Using deck brushes and aggressive cleaning is preferable to mopping.
- If you cannot prevent spills, management should consider other ways to increase traction.
 - The ideal way to prevent spills is to engineer the workplace so that spilled liquids do not intrude on a walking surface.
 - Use mats or other flooring materials designed for the location and operations being supported.
 - Use grates or raised platforms in traditionally wet production areas.
 - Consider footwear. Many organizations provide slip resistant footwear for different types of jobs.
- As another prevention technique, consider changing the flooring surface.

John Orr is a certified safety professional and a regional risk-management supervisor for the Erie Insurance Group.

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References

Regulations

- 29 CFR 1910.22 Walking-Working Surfaces

BWC resources

- Online Training Course: Preventing Slips, Trips and Falls, available September 2006
- Video: Slips, Trips and Falls, 2004, 13 minutes, No. 620323
- Video: Falls in the Workplace, 2000, 12 minutes, No. 620280
- Video: Slip, Trips and Falls, 2004, 17 minutes, No. 620316
- The BWC Video Library has several additional titles.

Web sites

- Teen Worker Safety in Restaurants: www.osha.gov/SLTC/youth/restaurant/cleanup_slips.html
- Agricultural and Landscape Workers, AgSafe: Slip Trip Fall Safety: www.cdc.gov/nasd/docs/d000101-d000200/d000110/d000110.html
- Preventing Slips and Falls, Health Safety Executive, United Kingdom: www.hse.gov.uk/pubns/indg225.pdf

December

Hypothermia, a subtle foe By Ted Ingalls



Examples are a great way to help people see how information about hypothermia might apply to them. Collect information about actual examples, or think of how people have, or might become hypothermic, both at work and in their home environment. If specific examples are not available, think of instances where people are exposed to temperatures below 40 degrees and when their skin could become wet.

We often get chilled, but sometimes the cold goes beyond our body's tolerance. People can become hypothermic when exposed to temperatures in the 30 degree to 50 degree range or below. Taking precautions and being prepared will prevent potential catastrophes, including death.

Ask those in attendance to name instances where people (at work or at home) could become so chilled that they could suffer from hypothermia, frostbite or even death. If there is a white board or flip chart available, write their thoughts down. Below are some examples.

| Activity | Environment | Action |
|--------------|-----------------------------------|----------------------------------------------------------------|
| Hunting | Working outdoors | Falling in a pond, stream or lake |
| Fishing | Becoming stranded in a snowstorm | While perspiring on a hike, being exposed to brisk cool breeze |
| Snowmobiling | Sliding off the road in a vehicle | Being a spectator at outdoor sports |

Before you begin

Ask group members to think about how low, cold temperatures affect them on the job and at home. Then have them consider the precautionary measures they need to take to be warm and safe.

Let the group know that hypothermia can kill due to exposure and exhaustion. The moment your body begins to lose heat faster than it produces it, you are undergoing exposure and becoming hypothermic.

Understand the physiology

Ask the group how cold it must be for there to be a risk of hypothermia. See if the group understands hypothermia can occur at surprisingly moderate temperatures. You can become hypothermic on a 50-degree day with wind and rain.

Make sure everyone understands the amount of heat you can generate through metabolism and exercise is minimal in comparison to the rate you will lose to cold environments. The muscles and metabolic chemical reactions generate heat. About 90 percent to 95 percent of this heat is lost through the skin.

Ask the group what the body does to compensate when a person gets cold. The answers are:

- The blood vessels in the skin and extremities constrict or narrow to prevent heat loss;
- Shivering, which is an involuntary contraction and relaxation of muscle tissue occurring on a large scale intended to produce heat.

Ask the group if it is a good idea to give someone suffering from hypothermia alcoholic beverages. The answer is No. Alcohol accelerates hypothermia by interfering with the body's ability to shiver.

One can voluntarily exercise to stay warm. The large muscles of the leg produce more heat than smaller muscles elsewhere. Walking or just repeatedly stepping up and down on a rock produces far more heat than shivering.

Know what to do

Ask the group how you can prevent hypothermia. The answers are: reduce heat loss and increase heat production. However, these concepts won't help if they are not applied.

Share with the group these four important prevention steps:

- Minimize air movement. You can withstand more cold in still air than you can when air is moving about you;
- Minimize contact with water. Water conducts heat away from your body 240 times faster than dry air.

When water immersion occurs, take immediate action to replace all wet clothing with dry clothing, and get to a warm area.

- Minimize sweating. Sweat-dampened clothing loses much of its insulating qualities and increases your level of evaporative heat loss.
- Eat correctly. You should eat three well-balanced meals each day, supplemented by small amounts of food (preferably carbohydrates) periodically during the day.

Clothing do's and don'ts

Share these tips for dressing appropriately in cold weather:

Use layers of clothing. Adequate clothing traps layers of warm air next to your body.

Wool is an excellent choice. It is durable and insulates well, even when dripping wet. Down is the best insulator for its weight, but only when it is dry.

Polyester fibers substitute for down in wetter climates. They retain much of their insulating value when wet, but are heavier.

Cotton denim is just about the worst fabric you can wear in cold and wet weather. If the cuffs of your jeans are out where they can get wet, the wicking action of cotton carries the water upwards.

Actions you can take

Recommend to the group the following action steps:

1. Understand that cool (30 degrees to 50 degrees) damp environments can be as lethal as those of 20 degrees or colder.
2. Be prepared to prevent hypothermia. Anticipate the possibility of exposure, have the right clothing available and understand how to combat hypothermia.
3. Once you realize you are in potentially hypothermic conditions, take immediate and positive action.

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References

Web sites

- Hypothermia <http://www.nlm.nih.gov/medlineplus/hypothermia.html>
- Outdoor Action Guide to Hypothermia and Cold Weather Injuries: <http://www.princeton.edu/~oa/safety/hypocold.shtml>
- Wind Chill: <http://www.nws.noaa.gov/om/windchill/index.shtml>

Videotapes

BWC's Division of Safety & Hygiene video library has several videotapes on hypothermia and winter safety. These are available for loan to Ohio employers. Order a catalog by calling **1-800-OHIOBWC** (ask for the video library), or visit our Web site, ohiobwc.com.

Documentation check list

Violence in the workplace

Documentation should include specifics to describe a particular incident or an employee's inappropriate behavior. When preparing the documentation, it may be helpful to review the following checklist to ensure completeness and accuracy.

1) Date: _____ Time: _____ Location: _____

2) Name of individual(s) involved: _____

3) Record the sequence of events promptly. _____

4) What behavior did the individual(s) exhibit? _____

5) What action did you take? _____

6) Did the individual(s) destroy company property? If so, what occurred? _____

Personal protective equipment

Hazard assessment and selection

Plant: _____

Department: _____

Job: _____

| Check required personal protective equipment | Type or model |
|-------------------------------------------------------------------------------------|---------------|
| <input type="checkbox"/> Eye protection (Safety glasses with side shield) | |
| <input type="checkbox"/> Face protection (Goggles/face shield) | |
| <input type="checkbox"/> Hearing protection (Plugs/muffs) | |
| <input type="checkbox"/> Respiratory protection (Specific use) | |
| <input type="checkbox"/> Hand protection (Specific use) | |
| <input type="checkbox"/> Protective clothing (Specific use) | |
| <input type="checkbox"/> Head protection (Hard hat) | |
| <input type="checkbox"/> Foot protection (Safety shoes/ metatarsal guards) | |
| <input type="checkbox"/> Electrical protective devices (Insulated sleeves/blankets) | |
| <input type="checkbox"/> Other | |
| <input type="checkbox"/> Other | |

Comments:

Assessment conducted and certified by: _____

Date: _____

