

SafeSupervisor

YOUR FRONT-LINE MANAGER SAFETY RESOURCE SINCE 1929

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Ergonomics in the Workplace

The goal of ergonomics (i.e. the scientific study of people at work) is to prevent soft tissue injuries and musculoskeletal disorders (MSDs) caused by sudden or sustained exposure to force, vibration, repetitive motion, and awkward posture. To create an ergonomically sound work environment, NIOSH ergonomists and industrial hygienists recommend designing tasks, work spaces, controls, displays, tools, lighting, and equipment to fit employee's physical capabilities and limitations.

INTERESTING ERGONOMICS INDUSTRY STATISTICS

- 71% of office workers say that their chair has caused them back pain at some point in time. (Staples Business Resource Center)
 - 74% of office workers say that using their keyboard contributes to either a wrist strain or an injury while completing their work duties. (Staples Business Resource Center)
 - 41% of workers complain about having neck pain because of the design of their personal working space. (Staples Business Resource Center)
 - 34% of all lost workdays in the United States are due to a musculoskeletal injury or related illness that was due to poor ergonomics. (Staples Business Resource Center)
 - The total lifetime cost of an injured worker with carpal tunnel syndrome is \$30,000. In total, injuries that are from a musculoskeletal disorder will cost employers in the United States more than \$20 billion each year. (Staples Business Resource Center)
 - Over 30% of workers say that having an ergonomic workspace would improve their mood while they are at work. 50% say that ergonomic workspaces would help them be more productive. Two-thirds say it would improve their posture. (Staples Business Resource Center)
 - 35% of workers who don't have an ergonomic environment at work say that they would feel less stress if they had access to products offered by the industry. (Staples Business Resource Center)
 - 44% of companies in North America are either subsidizing or providing standing desks for their employees. In 2013, only 13% of employers were providing that type of benefit. (Star Tribune)
 - Only 2% of workers in North America
- Ergonomics-related injuries accounted for over 380,000 days-away-from-work cases in 2013, which was the last year data was made available. That means 1 in every 3 cases are because of an ergonomics issue. (Bureau of Labor Statistics)
 - Carpel tunnel syndrome may affect as many as 1.9 million people in the United States. Doctors perform up to 500,000 surgeries each year to correct this issue. (Centers for Disease Control and Prevention [CDC])
 - In 2001, there were almost 27,000 CTS cases which involved days away from work, averaging 25 days away, compared to just 6 days for all non-fatal illnesses and injuries. (Bureau of Labor Statistics)
 - Two occupational groups account for 70% of all CTS cases that are recorded each year: administrative, sales, and technical support and operators, fabricators, and laborers. (CDC)
 - 79% of the back-injury cases which occur in work-related environments are suffered by workers in the 25-54 age demographic. 64% of these injuries are suffered by men. (Bureau of Labor Statistics)
 - 86% of office workers say that they have experienced soreness or strain because of their office equipment or furniture.

are currently using a sit-to-stand desk on a regular basis to complete their work duties. (Star Tribune)

- Motorized desks which rise or fall based on push-button action retail for up to \$3,000. Standard desks which require cranking or hand movements retail between \$200 to \$400 for most models. (Star Tribune)
- There were between 400,000 and 600,000 treadmill desks sold from 2007 to 2015. Steelcase was the first commercial manufacturer of this product, selling up to 70,000 of the desks at an average price of \$4,000. (Work While Walking)
- The entire market size for office desks and tables is about \$1.1 billion. (BIFMA)
- School furniture that is built with ergonomics in mind is expected to grow at a CAGR of 15% through 2020. (Technavio)
- Storage-related furniture items hold a 18.6% share of the school furniture market, even though electronic storage continues to increase in popularity in educational settings. (Technavio)
- Office furniture manufacturing is an industry which is valued at \$27 billion. Over the past 5 years, the industry has grown at an average rate of 1.4%, while the number of businesses has grown by 1.8% and employee growth has reached 2.4%. (IBIS World)
- About 120,000 people are directly employed in the manufacturing of office furniture, including ergonomic options. (IBIS World)

KEEP IN MIND

Ergonomics is the science of designing the workplace, keeping in mind the capabilities and limitations of the worker. Poor worksite design leads to fatigued, frustrated and hurting workers. This rarely leads to the most productive worker. More likely, it leads to a painful and costly injury, lower productivity and poor product quality.

A systematic ergonomics improvement process removes risk factors that lead to musculoskeletal injuries and allows for improved human performance and productivity.

By making improvements to the work process, you are removing barriers to maximum safe work performance. You are providing your workers with a job that is within their body's capabilities and limitations. And you'll be contributing to your company's bottom line.

Done well, an ergonomics improvement process can be a key contributor to your company's competitiveness in the marketplace and provide a better work experience for your people.

A huge part of an intelligent ergonomic program at work is the

involvement of the back in work operations and routines.

The back is a network of fragile ligaments, discs and muscles which can easily be thrown out of order.

There are 33 vertebrae in your back that are separated by discs and held together by ligaments. The back has many different muscles to hold all the vertebrae together. Three curves make up your back – cervical (neck), thoracic (mid-back) and lumbar (lower back)). Unless you are standing in a natural position, with your ears, shoulders and hips all aligned, your spine is under some type of stress.

Almost everyone has suffered back pain at some time. Common causes include but are not limited to sitting improperly, heavy lifting, falls, motor vehicle incidents and whole-body vibration. To understand how often the back is used, just think that every time you bend, your back lifts approximately 70% of your body weight even when you aren't lifting anything.

ERGONOMIC CONCERNS

It is important to remember that it is not necessarily the weight of the load that causes the injuries, but rather the frequency and duration of handling. If the load is heavy, the frequency and duration of the lift will have to decrease. The human body is made for a variety of tasks, so it's important to have variety in the tasks you do to prevent repetitive stress and keep your body active and flexible.

After you have been sitting or stooping for a long period of time you should not lift immediately, as this puts a great deal of stress on your back muscles, ligaments and tendons.

Overexertion and cumulative trauma were the biggest factors in these injuries. Bending, followed by twisting and turning, were the more commonly cited movements that caused back injuries. Strains and sprains from lifting loads improperly or from carrying loads that are either too large or too heavy are common hazards associated with manually moving materials.

In recent years, potential ergonomic problems have become a major concern in many business environments. Many facilities are now devoting significant time and effort to controlling the twisting, turning, stretching, and other motions that place stress and strain on employees' bodies.

Organizations incur significant annual costs due to workplace injuries. How much these costs impact their businesses depends, in part, on how well they are able to assess the impact of job demands on employee's health.

Assessing work-related hazards and minimizing injury risk is a critical part of controlling the cost of work-related injuries, keeping employees healthy, and returning injured employees to work faster. It is also a critical part of optimizing the selection and integration of

new technology into the workplace in addition to identifying training requirements.

No matter the field of work, be it at a desk or a construction site, the body needs rest to repair the damage done from daily labor. Without rest to repair the "micro-traumas" that occur in daily repetitive activity, a cumulative trauma disorder may develop. Cumulative trauma disorders (CTDs) are musculoskeletal disorders (MSDs) that form due to work-related activities wearing on the body. The musculoskeletal system is comprised of joints, tendons, nerves, ligaments and muscles; all of which can be damaged by seemingly harmless repetitive motions over long periods of time.

Occupations including office workers, assemblers, packers, sewers, housekeepers and construction workers are especially susceptible to CTDs due to the repetitive motions associated with their work. Without preventative measures, workers may start to notice swelling and pain in CTD-prone areas. There are multiple types of CTDs, though their symptoms and solutions are generally similar if not the same.

The following are important elements of an ergonomic process:

Provide Management Support – A strong commitment by management is critical to the overall success of an ergonomic process. Management should define clear goals and objectives for the ergonomic process, discuss them with their workers, assign responsibilities to designated staff members, and communicate clearly with the workforce.

Involve Workers – A participatory ergonomic approach, where workers are directly involved in worksite assessments, solution development and implementation is the essence of a successful ergonomic process. Workers can:

- Identify and provide important information about hazards in their workplaces.
- Assist in the ergonomic process by voicing their concerns and suggestions for reducing exposure to risk factors and by evaluating the changes made as a result of an ergonomic assessment.

Identify Problems – An important step in the ergonomic process is to identify and assess ergonomic problems in the workplace before they result in CTDs.

Encourage Early Reporting of CTD Symptoms – Early reporting can accelerate the job assessment and improvement process, helping to prevent or reduce the progression of symptoms, the development of serious injuries, and subsequent lost-time claims.

Implement Solutions to Control Hazards – There are many possible solutions that can be implemented to reduce, control or eliminate workplace CTDs.

Implement Solutions to Control Hazards – There are many possible solutions that can be implemented to reduce, control or eliminate workplace CTDs.

Evaluate Progress – Established evaluation and corrective action procedures are required to periodically assess the effectiveness of the ergonomic process and to ensure its continuous improvement and long-term success. As an

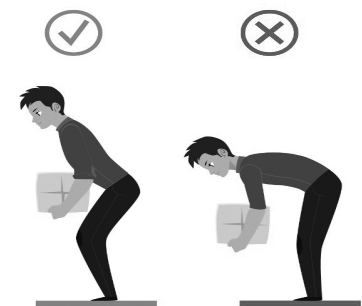
ergonomic process is first developing, assessments should include

determining whether goals set for the ergonomic process have been met and determining the success of the implemented ergonomic solutions.

DOS & DON'TS

Think your work station might be contributing to your pain problems, or know someone who could use some tips? Here are some DOs and DON'Ts:

- DO keep moving. Set an alarm to remind you if you need it! Sitting for long periods wreaks havoc on your spine and circulation. Get up, stretch, MOVE!
- DON'T use a desk or chair that's not the proper height for your size. Everyone is different; find what works for you.
- DO try to keep your body in a neutral posture, which creates the least strain on your body.
- DON'T cradle your phone between your shoulder and ear.
- DO keep your desk clear so you're not forcing your body to work awkwardly around clutter.
- DON'T keep your monitor too close or too far away, or hunch over a laptop. This can cause eye strain and headaches in addition to neck and back pain.
- DO wear a headset if a good portion of your day is spent on the phone.
- DO invest in workstation essentials that are ergonomic, and make sure they are adjusted to where you need them to be.
 - Look for an office chair with proper lumbar support that adjusts to your body.
 - A laptop raiser positions your laptop for optimum ergonomics while relieving eye and neck strain.
 - A monitor arm makes it easy to adjust the height and position of your monitor to reduce upper back and neck pain.
 - Use a footrest to reduce lower back pressure and increase blood flow.
 - A bright, adjustable light can reduce headaches, eye fatigue and neck strain.
 - Or try a standing desk to keep you moving! Less time spent sitting means less stress on your spine while increasing circulation and mental alertness.



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Showing How Worker Fatigue Harms the Bottom Line

As safety coordinator, you need to be aware of the dangers of workplace fatigue and warn company management to consider the economic impact of driving workers too hard. But you'll need solid evidence to support your argument. There are 2 studies published in the Journal of Occupational and Environmental Medicine (JOEM) you can use: One is on the relationship between fatigue and health-related lost productive time and the other links weekly work schedules of 60 or more hours to health and safety problems.

FATIGUE IN THE WORKFORCE

Workers suffering from fatigue—physical and mental—are not only less productive and more prone to illness but also more distracted and thus more likely to be involved in a safety incident. For example, studies show that fatigued workers are more than twice as likely to experience health-related lost productive time. One study found that 37.9% of U.S. workers experience fatigue, costing companies approximately \$136 billion in lost productivity.

Fatigue can be broadly defined as a feeling of weariness, tiredness or lack of energy. Fatigue is a common complaint but, medically speaking, it's recognized more as a symptom or cause of other conditions than as a condition itself. The best way to understand fatigue is along a continuum. On one end of the spectrum is the fatigue that most of us occasionally experience in the course of our lives when we get physically or mentally overburdened. This kind of fatigue isn't serious and can usually be resolved simply and quickly, such as by getting extra rest. On the other end is a less common but more serious form of fatigue that's symptomatic of a more chronic and disabling condition, such as major depressive disorder or chronic fatigue syndrome. This form of fatigue is an acute and/or ongoing state of tiredness that leads to mental or physical exhaustion and prevents people from functioning as usual.

Fatigue clearly impairs work ability. Studies have shown that workers with fatigue are significantly more likely to miss work and experience long-term work absences than workers without fatigue. But there were no studies on the prevalence of fatigue within the workforce (at least in the U.S.) and how fatigue affected productive work time.

THE FATIGUE STUDY

The JOEM fatigue study was the first to examine the relationship between fatigue and health-related lost productive work time (LPT) in U.S. workers. The researchers used data from the Caremark American Productivity Audit (the Audit), a random telephone survey of U.S. residents that measures the relation between health and productivity. The Audit used the Caremark Work and Health Interview (WHI) to gather information from workers about their:

- Self-reported employment status;
- Occupational characteristics;

- Health conditions and symptoms;
- Lifestyle factors;
- Health-related quality of life; and
- Demographic characteristics, such as annual salary.

The WHI measures LPT as the sum of self-reported hours per week absent from work for a health-related reason (absenteeism) and the hour-equivalent per week of self-reported health-related reduce performance while at work (presenteeism). The presenteeism analysis focused on 5 work behaviors:

- Loss of concentration;
- Repeating a job;
- Working more slowly than usual;
- Feeling fatigued at work; and
- Doing nothing at work.

The researchers interviewed a sample of 28,902 adults ages 18 to 65 who'd participated in the Audit and were employed in the week before the interview. To identify which individuals were suffering from fatigue, researchers posed the following question to participants: "Did you have low levels of energy, poor sleep or a feeling of fatigue in the past 2 weeks?"

THE STUDY RESULTS

Based on the information gathered on the participants through the WHI and from the researchers own interviews, they concluded the following:

- The estimated prevalence of fatigue in the U.S. workforce for a two-week period was 37.9%.
- Fatigue was more prevalent in women, workers under age 50, white workers and workers earning more than \$30,000 per year in "high control" positions—that is, jobs with a lot of latitude in making decisions.
- Overall, 9.2% of U.S. workers with fatigue reported LPT specifically due to fatigue in the previous two weeks. Such workers lost an average of 4.1 productive work hours per week, most of which was reflected in reduced performance at work rather than absence from work, i.e., presenteeism rather than absenteeism. For these workers, fatigue affected their work performance primarily by impairing their concentration and increasing the time it took them to complete tasks. And distracted workers are naturally more likely to have safety incidents.

Bottom line: The researchers estimated that workers with fatigue cost U.S. employers \$136.4 billion per year in health-related LPT—\$101 billion more than workers without fatigue.

Chemical & Liquid Gas Burns

What's At Stake

Chemicals can cause burns to eyes, skin, and internally if swallowed or inhaled. Chemical burns can be deceiving with some chemicals causing damage deep within body tissue. The amount of damage a chemical can cause depends on many factors including the chemical, its strength, whether it was inhaled or swallowed and the time it was in contact with body tissues.

A liquid gas burn is a cold contact or a cryogenic burn, that damages the skin and underlying tissues, by freezing them rather than overheating them. This is commonly known as frostbite.

Most liquid gases are colorless and/or odorless and stored in a pressurized environment. This increases the chances of leaking gas getting into your eyes, mouth and throat as well as on the skin. There is also a high chance of damage to underlying structures such as nerve, muscle and bone.

What's the Danger

The biggest danger of treating a chemical or liquid gas burn is using the wrong first aid approach. Prompt action to reduce the effect of the burn is also crucial. However, what this action is, depends on the chemical or gas and the route of exposure. In many cases, the person will be experiencing both internal and external damage. For this reason, most exposures to chemical or liquid gas do need medical help. First aid responders also run the risk of being exposed to the chemical or gas at the scene. It can be particularly dangerous because these hazards may not be obvious, visible, or detectable by smell.

How to Protect Yourself

First aid for chemical burns and liquid gas

1. Keep yourself safe

- Call 911.
- Put on gloves to avoid touching the chemical or gas.
- Check the container the chemical or gas was in for first aid advice.

2. General burn care

- **FOR ALL CHEMICAL OR LIQUID GAS BURNS - CALL 911 UNLESS:**
 - ♦ The chemical or liquid gas has touched only a small area of skin that is not the eyes, hands, feet, face, or genitals.
 - ♦ The chemical or gas has been quickly removed.
- If the person does not need medical help after providing first aid:
 - ♦ Don't break the blisters and cover the area with a sterile dressing.
 - ♦ Don't apply butters or ointments - these may cause

infections.

- ♦ A tetanus shot may be needed; booster shots are recommended every 10 years.

3. Signs and symptoms of chemical burns include the following:

- Redness, irritation, or burning where the chemical is in contact.
- Pain or numbness at the site.
- Blisters or black dead skin at the contact site.
- Vision changes.
- Cough or shortness of breath.
- Vomiting

In severe cases, or cases of hypersensitivity to the chemical, a person may develop any of the following symptoms:

- Low blood pressure
- Faintness, weakness, dizziness
- Shortness of breath or severe cough
- Headache
- Muscle twitching or seizures
- Cardiac arrest or irregular heartbeat

4. Treating a chemical burn

- Check the chemical container for first aid instructions.
- Brush off excess chemical if it reacts with water.

5. Treating a liquid gas burn/cryogenic burn

- Remove the person from the area if it is safe to do so.
- Remove clothing from affected area.
- DO NOT rinse the area with cool or cold water.
- Immerse the area in a bowl or tub of warm water.
- Keep the person warm with a blanket or similar.
- If eyes are affected, rinse under a warm running tap, with the eyelid open for at least 15 minutes.
- Do not give the person liquid to drink, unless you are told to do so by the 911 operative.

Final Word

Chemical and liquid gas burns may make only a small mark on the skin; however, they are very serious. The type of first aid given will depend on the type of chemical or gas involved and the extent of the injury.

As you walk past workplace restroom, you hear a scream. When you go in, you see the cleaner clutching her face. There is a bottle of bleach overturned on the floor. What would you do?

SAFETY TALK COLD WEATHER

Cold Weather Hazards

What's At Stake

Dealing with snow and ice removal are the prime hazards for custodian or maintenance workers in winter weather. Also, for those people who get caught up in snow removal on an ad hoc basis. Staying safe by using sound work practices in winter conditions, has its challenges.

What's the Danger

Workers working outside have to be reminded of the risk and dangers inherent in their work. Hypothermia, a dangerous lowering of the body's core temperature can occur if proper dress procedures are not observed. One has heard of stories of people suffering heart attacks and dying when shoveling snow and there are the usual back injuries because of ill-advised shoveling techniques.

How to Protect Yourself

What all winters workers need to know:

- Staying warm and dry are important for preventing hypothermia. Dress in layers of clothing, so you can remove outerwear if you get too warm. Keep dry by using waterproof footwear and clothing, and keep a change of socks and gloves handy in case yours get wet. In severely cold weather, protect your hands, toes and cheeks from freezing which will cause the tissue damage known as frostbite.
- Take it easy when you shovel snow by hand because of the possibilities of back injury and heart attack. Push, rather than lift, snow when possible. If the snow is wet and heavy, take smaller loads. Take frequent breaks, keep from getting too warm and drink water often to replace fluid and minerals lost by sweating.

Another important aspect of winter work is dealing with snow removal equipment.

- Check over equipment such as a snowblower before use to make sure it is functioning properly and safety guards are in place. Don't run gasoline-powered equipment indoors because of the danger of carbon monoxide exposure. Do a circle check of plows and other mobile equipment to look for problems and obstructions.
- Keep people away from the area where you start or operate the machine. Shift into neutral and make sure all clutches are disengaged before starting the motor.
- Walk slowly and carefully so you don't slip, and keep a firm hold on the machine. If you try to remove snow too quickly, you'll overload the machine. Stay away from the discharge opening to prevent entanglement or being struck by objects. Do not use a snowblowers on steep slopes. Make sure you

don't hit obstructions such as curbs or tree roots.

- Never put your hand in any part of the equipment while the machine is running. First turn off the engine, wait for all moving parts to stop and disconnect the spark plug wire so the machine can't accidentally start up. Use a tool, never your fingers, to remove any snow or ice buildup.

FINAL WORD

Before using heating devices such as torches for thawing frozen utilities make sure you understand and observe all safety precautions. Learn your employer's procedures for winter emergencies such as storms and power outages. You might have to assume extra duties in these situations but protect your own safety and health while helping others.

Quiz

- Hypothermia is defined as a dangerous lowering of the body's temperature that can have serious consequences.
 - True
 - False
- Frostbite occurs in severely cold weather when your hands, toes and cheeks can freeze.
 - True
 - False
- It is ok to lift heavy wet snow rather than push snow when shoveling.
 - True
 - False
- In case of emergency, it is safe to use gasoline-powered equipment indoors.
 - True
 - False

What Would You Do?

The regular maintenance worker called in sick. You are a replacement worker who has limited experience using snow removal equipment. There has been a heavy snowfall and your boss is demanding you use the equipment because the customers will be arriving soon. What would you do?

Chemical Burns and

SAFETY TALK NEAR MISSES

Danger that is Too Close for Comfort

What's At Stake

A near miss, or close call, is an event that almost results in an injury, illness or property damage. Think back to a close call you had. Was a split second, a few inches, or dumb luck the only thing between you and death?.

What's the Danger?

Near misses are red flags that something is dangerously wrong with a process, task, piece of equipment or tool, or something in the work environment. Too often these red flags are ignored, not reported or not corrected. This leaves room for the following to get too close to you and your co-workers:

- Catastrophic equipment failure.
- Fire and explosions.
- Chemical spills and other environmental disasters.
- Serious injury and death.

How to Protect Yourself

The best thing you can do to protect yourself and your co-workers is to speak up. Report near misses that you witness or that happen to you. This is easier said than done sometimes because you might:

- Fear getting in trouble or be embarrassed about your part in the incident.
- Not understand the importance near miss reporting plays in accident prevention.
- Be worried about breaking a safety or production record for so many days without an incident; or
- Be discouraged by the lack of action when similar issues have been reported.

While keeping silent may seem like the easy way out, think about how you would feel if a co-worker died because of a hazard that you knew existed but didn't report?

Some other ways you can protect yourself include:

- Be aware of how your co-workers conduct themselves and work together to prevent injury and safeguard one another from incidents. Compare your routines and habits with theirs and share tips.
- Take responsibility for the equipment or machinery you use. If equipment or machinery causes you problems or appears to be broken, stop using it and report it to your supervisor.
- Ensure you understand and follow all safety procedures. If you have questions or have ideas for a safer way to do something talk to your supervisor.

FINAL WORD

Don't give danger a second chance to get too close for comfort. Report all near misses immediately so they can be investigated and hazards can be corrected.

Quiz

- Near misses are red flags that something is dangerously wrong with a process, equipment or task.
 - True
 - False
- A near miss is an event that results in minor injury, illness or property damage.
 - True
 - False
- You should not report a near miss if you know it will break a safety or production record for days without an incident.
 - True
 - False
- Keeping silent about a near miss could lead to you or a co-worker being injured or killed.
 - True
 - False

What Would You Do?

You're walking in the warehouse and as you turn the corner of a main aisle you are almost hit by a forklift coming the other way. That's the second time in a month this has happened.

What's your next move? What are some safety measures that can be put in place to prevent this near miss from turning into something more serious?

Workplace Inspection

What's At Stake

Workplace inspections help prevent accidents, injuries and illness. Workplace inspections are a basic necessity of any safety program. A critical examination of the workplace will identify and record hazards for corrective action. Safe to say, workplace inspections serve the purpose of identifying hazards in the workplace.

What's the Danger?

Objects, equipment, people and even animals find their way into work areas. It is important to identify potential hazards.

Types of workplace Hazards:

- Safety hazards such as those caused by inadequate machine guards, unsafe workplace conditions, unsafe work practices.
- Biological hazards caused by organisms such as viruses, bacteria, fungi and parasites.
- Chemical hazards caused by a solid, liquid, vapour, gas, dust, fume or mist.
- Ergonomic hazards caused by physiological and psychological demands on the worker, such as repetitive and forceful movements, awkward postures arising from improper work methods, and improperly designed workstations, tools, and equipment.
- Physical hazards caused by noise, vibration, energy, weather, heat, cold, electricity, radiation and pressure.
- Psychosocial hazards that can affect mental health or well-being such as overwork, stress, bullying, or violence.

How to Protect Yourself

Planning is essential for effective inspection

- Every inspection must examine who, what, where, when and how. Pay particular attention to items that are most likely to develop into unsafe or unhealthy conditions because of stress, wear, impact, vibration, heat, corrosion, chemical reaction or misuse. Include areas where no work is done regularly, such as parking lots, rest areas, office, storage areas and locker rooms.
- Look at all workplace elements – the people, the environment, the equipment and the process. The environment includes such hazards as noise, vibration, lighting, temperature, and ventilation. Equipment includes materials, tools and apparatus for producing a product or a service. The process involves how the worker interacts with the other elements in a series of tasks or operations.

Three types of inspection reports:

1. Ongoing
2. Pre-operation
3. Periodic

Supervisors and workers continually conduct **ongoing** inspections as part of their job responsibilities. Such inspections identify hazardous conditions and either correct them immediately or report them for corrective action. The frequency of these inspections varies with the amount and conditions of equipment use. Daily checks by users assure that the equipment meets minimum acceptable safety requirements.

Pre-operation checks involve inspections of new or modified equipment or processes. Often these are done after workplace shutdowns.

Periodic inspections are regular, planned inspections of the critical components of equipment or systems that have a high potential for causing serious injury or illness. The inspections are often part of preventive maintenance procedures or hazard control programs. Laws and regulations may specify that qualified or competent persons must inspect certain types of equipment, such as elevators, boilers, pressure vessels, scaffolding, and fire extinguishers at determined points in the work process and at regular intervals.

Final Word

There can be a variety of issues in any single work area. It is important to take the time to thoroughly check your work area for hazards and take the steps to mitigate them. Eliminate as many hazards as you can before relying on a less efficient control to protect yourself such as PPE.

WHAT WOULD YOU DO?

You have noticed that in your work area that some co-workers leave clutter and debris on the plant floor that gets in the way of moving equipment. You have complained to the foreman but nothing changes.

What would you do?

RESPIRATORS: How to Demonstrate the Equipment

The focal point of training workers in proper use of respiratory equipment is to demonstrate all of the different forms of respiratory protection and the kinds of hazards each one is suited to protect against. Here are basic kinds of respiratory protection equipment in order of complexity, i.e., starting with the simplest and ending with the most complex. If you don't have actual pieces of the equipment, you can substitute photographs:

Dust Masks

Dust masks protect against dust and airborne particles. Masks are inexpensive, simple to use, minimally invasive and typically disposable. Limitation: The tradeoff is that they offer only limited protection and aren't appropriate for tasks that involve severe respiratory risks.

Air Purifying Types of Respirator

The next three forms of respirator are what are known as Air Purifying Types of Respirator. What they have in common is the use of a filter or cartridge to protect against airborne hazards. There are three types of Air Purifying Respirator:

Particulate Respirator

Particulate respirators use a filter and/or cartridge that captures particles in the air and prevents workers from breathing them in. Limitation: Filters and cartridges must be periodically cleaned and replaced in accordance with the manufacturer's instructions. Particulate respirators don't protect against gas or vapors.

Gas & Vapor Respirators

Gas and vapor respirators are designed to protect against hazardous gases and vapors in the air through use of a special chemical filter. Some gas and vapor respirators are designed to screen out specific types of gases and vapors. Limitation: Gas and vapor respirators don't protect against airborne particles.

Combination Respirators

The difference between particulate and gas and vapor respirators on the one hand and combination respirators on the other is that the latter protects against both airborne particles and gas vapors. That's because combination respirators include particulate and chemical gas vapor filters that need to be maintained and replaced according to the manufacturer's instructions.

Air Supplying Respirators

Now the respiratory equipment is becoming more complex. The next three kinds of respirator are what are known as Air Supplying Respirators. Such respirators aren't simply a head piece but a system of equipment containing four basic pieces:

- A hood;
- A helmet;
- A face piece; and
- A compressor or cylinder.

You should demonstrate how each system works including the component parts of the system. There are three basic systems:

Air Supplied Respirators

Air supplied respirators are a lightweight system that delivers clean air through a hose. They're normally used for extended work periods in environments that are low in oxygen content or contain non-immediately life threatening levels of gases or vapors. Limitation: Air supplied respirators aren't appropriate for work in atmospheres that are or may be immediately dangerous to life and health.

Combination Air Supplying Respirators

Combination air supplied respirators have an auxiliary self-contained air supply that workers can use if the primary supply source or system fails. They're normally used for extended work periods in environments that are or may be immediately dangerous to life and health such as work in confined spaces.

Self-Contained Apparatus (SCBA)

SCBA systems contain a wearable clean air supply pack and a hose connection that doesn't restrict movement. Closed circuit systems provide air for up to 4 hours. Open circuits provide air for a fraction of that time—typically up to 60 minutes. SCBA systems are normally used when there's a short time needed to enter and escape from atmospheres that are or may be immediately dangerous to life and health.



SAFETY IN YOUR ORGANIZATION: Safety Rewards and Incentives that Result in Safety Improvements

Used correctly, safety rewards and incentives can be very effective. Rewards foster accountability. Rewarding people for positive things gets them to do those things. It's basic human behavior. People want to get caught doing the right thing. These principles should be used to improve safety performance.

SELECTING THE RIGHT REWARDS

Different levels of an organization should be rewarded for different things. The reward should be tailored to the result the individual can control.

Thus, rewards for people at lower levels should be based primarily on activities rather than organizational results. It's pointless to base a front-line shiftworker's reward on the accident statistics of an entire organization because individual shiftworkers don't control organization-wide injury statistics.

It's equally pointless to reward front-line workers based on outcomes within their own small groups.

For instance, a group of 6 workers that experienced no lost-time injuries didn't necessarily work more safely than a similar-sized group that had one injury. Accident rates among small groups are statistically unreliable and should not be the basis for rewards.

By contrast, rewards for upper level managers should be based on organizational results. Still, even upper managers should have some part of their reward tied to activities.

For example, some companies base 80% of an executive's reward on results and 20% on activities. This acknowledges the symbolic value of upper management activity—upper management must be

seen doing things to promote health and safety if the rest of the organization is to believe that health and safety is really a priority.

The secret to giving safety rewards that really motivate is simple: ask people what they want. Find out what it's going to take to get them to do what you want. Try to tailor awards as much as possible so that you get maximum motivational effect for each individual.

SAFETY REWARDS ARE NOT ONE-SIZE-FITS-ALL

What's motivational to one individual might hold no allure for somebody else. So the hard part about individualizing awards is that it requires you to take the time to get to know each person.

But that's really not such a bad thing. As the baby boomers age, it will become harder to attract and retain good people. In our lifetime the day will come that workers will start interviewing us. This is going to place a premium on getting to know each one of your workers.

Consistency and treating everybody the same are often cited as worthy management qualities. And to a large extent they are. But not always. It's okay to treat people differently when you ask them what they want. Workers understand that you're making the effort to find out what's important to them. In fact, you can and should have fun with the process.

Of course, the reward system must also be perceived as (and actually be) fair and equitable. Keep in mind that money isn't necessarily the best incentive. Study after study demonstrates that the reward people tend to value most is private and personal recognition from their supervisors and peers.



INEFFECTIVE V. EFFECTIVE REWARDS

Ineffective rewards are generally characterized by the following qualities:

- Delays between earning and receiving;
 - Weak link between incentive and behavior; and
 - Lack value to the recipient.
- By contrast, effective rewards are usually:
- Reinforced frequently;
 - Provided immediately after they're earned;
 - Earned by safe behavior on a daily basis;
 - Of value to the recipient; and
 - Accompanied by some form of celebration.

Safety rewards can come in different shapes and sizes and don't need to have a huge monetary value.

There's a famous story about a Hewlett Packard employee who burst into his manager's office with the solution to a stubborn problem. The manager, desperate to acknowledge the achievement, awarded the employee with the only item at hand—a banana from the manager's lunch. Ever since, the Golden Banana has become a highly coveted award for HP employees.

EGO SAFETY REWARDS—RECOGNITION AND PRAISE

Be sure to praise people for a job well done. Just about everybody responds positively to praise. However, you need to vary how you deliver praise and recognition to get the most positive response from each individual. For one worker, a quiet word of acknowledgement works best; others want public recognition, like having their picture hung on the bulletin board.

When your company's safety culture is shaped right, the culture itself becomes the reward system and the reward people strive for is peer acceptance.

Reward with Opportunities

For highly motivated people, the reward that works best isn't money or a gift; it's opportunity.

One example of an effective reward for people in this group is allowing them to choose the projects they work on.

Tangible Rewards

Tangible rewards can include:

- Bonuses;
- Parties/celebrations;
- Points redeemable for a prize;
- Time off.

If you have only limited resources for rewards, you might be best served allowing individuals to select their own prize. The most successful tangible reward initiative I ever ran involved giving the winner \$20 to spend on whatever prize he wanted. The program was a huge hit!

Group Rewards

When rewards are by group performance, make the reward available to each member in the group. But availability isn't the same thing as receiving. To earn the reward, each person in the group must show what he or she did to help the group meet the objective.

This is called the participation criterion and it's a great way to eliminate stragglers and free riders and secure universal participation in the desired activity and outcome.

CONCLUSION

Whatever system you use, choose your rewards wisely. If you give away a car or truck this year, what will your reward be next year? That's one advantage of using celebrations or parties as rewards. In addition to being recyclable, the celebration reinforces the positive safety message.



PUZZLE

If you see something wrong, report it. Your comments could prevent injury or even save a life.

Place the letters in the correct box in their column to reveal an important safety message!

C	N	D	E	N	O	A	R	T	P	O	R	S	U	U	L	E	T	A	I	
G	I	S	E	N	T	W	F	T	E	P	O	Y	R	T	S	G	C	A	S	E
O	I	V			S			E	O	T		R	E	D	G	E		T	R	

What Can be Done to Control Exposure to Bloodborne Pathogens?

In order to reduce or eliminate the hazards of occupational exposure to bloodborne pathogens, an employer must implement an exposure control plan for the worksite with details on employee protection measures. The plan must also describe how an employer will use engineering and work practice controls, personal protective clothing and equipment, employee training, medical surveillance, hepatitis B vaccinations, and other provisions as required by OSHA's Bloodborne Pathogens Standard. Engineering controls are the primary means of eliminating or minimizing employee exposure and include the use of safer medical devices, such as needleless devices, shielded needle devices, and plastic capillary tubes.

In general, the standard requires employers to:

Establish an exposure control plan. This is a written plan to eliminate or minimize occupational exposures. The employer must prepare an exposure determination that contains a list of job classifications in which all workers have occupational exposure and a list of job classifications in which some workers have occupational exposure, along with a list of the tasks and procedures performed by those workers that result in their exposure.

Employers must update the plan annually to reflect changes in tasks, procedures, and positions that affect occupational exposure, and also technological changes that eliminate or reduce occupational exposure. In addition, employers must annually document in the plan that they have considered and begun using appropriate, commercially-available effective safer medical devices designed to eliminate or minimize occupational exposure. Employers must also document that they have solicited input from frontline workers in identifying, evaluating, and selecting effective engineering and work practice controls.

Implement the use of universal precautions (treating all human blood and OPIM as if known to be infectious for bloodborne pathogens).

Identify and use engineering controls. These are devices that isolate or remove the bloodborne pathogens hazard from the workplace. They include sharps disposal containers, self-sheathing needles, and safer medical devices, such as sharps with engineered sharps-injury protection and needleless systems.

Identify and ensure the use of work practice controls. These are practices that reduce the possibility of exposure by changing the way a task is performed, such as appropriate practices for handling and disposing of contaminated sharps, handling specimens, handling laundry, and cleaning contaminated surfaces and items.

Provide personal protective equipment (PPE), such as gloves, gowns, eye protection, and masks. Employers must clean, repair, and replace this equipment as needed. Provision, maintenance, repair and replacement are at no cost to the worker.

Make available hepatitis B vaccinations to all workers with occupational exposure. This vaccination must be offered after the worker has received the required bloodborne pathogens training and within 10 days of initial assignment to a job with occupational exposure.

Make available post-exposure evaluation and follow-up to any occupationally exposed worker who experiences an exposure incident. An exposure incident is a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or OPIM. This evaluation and follow-up must be at no cost to the worker and includes documenting the route(s) of exposure and the circumstances under which the exposure incident occurred; identifying and testing the source individual for HBV and HIV infectivity, if the source individual consents or the law does not require consent; collecting and testing the exposed worker's blood, if the worker consents; offering postexposure prophylaxis; offering counseling; and evaluating reported illnesses. The healthcare professional will provide a limited written opinion to the employer and all diagnoses must remain confidential.

Use labels and signs to communicate hazards. Warning labels must be affixed to containers of regulated waste; containers of contaminated reusable sharps; refrigerators and freezers containing blood or OPIM; other containers used to store, transport, or ship blood or OPIM; contaminated equipment that is being shipped or serviced; and bags or containers of contaminated laundry, except as provided in the standard. Facilities may use red bags or red containers instead of labels. In HIV and HBV research laboratories and production facilities, signs must be posted at all access doors when OPIM or infected animals are present in the work area or containment module.

Provide information and training to workers. Employers must ensure that their workers receive regular training that covers all elements of the standard including, but not limited to: information on bloodborne pathogens and diseases, methods used to control occupational exposure, hepatitis B vaccine, and medical evaluation and post-exposure follow-up procedures. Employers must offer this training on initial assignment, at least annually thereafter, and when new or modified tasks or procedures affect a worker's occupational exposure. Also, HIV and HBV laboratory and production facility workers must receive specialized initial training, in addition to the training provided to all workers with occupational exposure. Workers must have the opportunity to ask the trainer questions. Also, training must be presented at an educational level and in a language that workers understand.