

Hand and Power Tools Oil and Gas

WHAT'S AT STAKE?

There are a broad range of hand and power tools that exactly meet the requirements of the oil and gas rigorous industry applications. These tools are a common part of our lives but still pose hazards and dangers.

WHAT'S THE DANGER?

Hand Tools – Hazards

Hand tools are powered manually. Hand tools include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance.

Examples:

- If a chisel is used as a screwdriver, the tip of the chisel may break and fly off, hitting the user or other employees.
- If a wooden handle on a tool, such as a hammer or an axe, is loose, splintered, or cracked, the head of the tool may fly off and strike the user or other employees.
- If the jaws of a wrench are sprung, the wrench might slip.
- If impact tools such as chisels, wedges, or drift pins have mushroomed heads, the heads might shatter on impact, sending sharp fragments flying toward the user or other employees.

Power Tools – Hazards

A. Electric

Employees using electric tools must be aware of several dangers. Among the most serious hazards are **electrical burns and shocks**.

Electrical shocks, which can lead to injuries such as heart

failure and burns, are among the major hazards associated with electric-powered tools. Under certain conditions, even a small amount of electric current can result in fibrillation of the heart and death. An electric shock also can cause the user to fall off a ladder or other elevated work surface and be injured due to the fall.

B. Hydraulic

Hydraulic tools use pressurized fluid to generate force. Jacks are the most common example of hydraulic tool. Employees should always take care to select the proper type of fluid for a hydraulic tool.

C. Portable Abrasive Wheel Tools

Portable abrasive grinding, cutting, polishing, and wire buffing wheels create special safety problems because they may throw off flying fragments.

D. Liquid

Fuel-powered tools are usually operated with gasoline. The most serious hazard associated with the use of fuel-powered tools comes from fuel vapors that can burn or explode and also give off dangerous exhaust fumes. The worker must be careful to handle, transport, and store gas or fuel only in approved flammable liquid containers.

E. Pneumatic

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders.

There are **several dangers** associated with the use of pneumatic tools. First and foremost is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool.

F. Powder – Actuated

Powder-actuated tools operate like a loaded gun and must be treated with extreme caution. In fact, they are so dangerous that they must be operated only by specially trained employees.

HOW TO PROTECT YOURSELF

General

Five basic safety rules can help prevent hazards associated with the **use of hand and power tools**:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use and do not use damaged tools.
- Operate tools according to the manufacturers' instructions.
- Provide and use properly the right personal protective equipment.

Employees and employers should work together to establish safe working procedures. If a hazardous situation is encountered, it should be brought immediately to the attention of the proper individual for hazard abatement.

Employees who use **hand and power tools** and are exposed to the hazards of falling, flying, abrasive, and splashing objects, as to harmful fumes, mists, vapors, or gases must be provided with the appropriate personal protective equipment.

Employees should be trained in the proper use of all tools. Workers should be able to recognize the hazards associated with the different types of tools and the necessary safety precautions.

General Prevention – Hand Tools

Employees should be trained in the proper use and handling of tools and equipment.

Employees, when using saw blades, knives, or other tools, should direct the tools away from aisle areas and away from other employees working in close proximity. Knives and scissors must be sharp; dull tools can cause more hazards than sharp ones. Cracked saw blades must be removed from service.

Wrenches must not be used when jaws are sprung to the point that slippage occurs. Impact tools such as drift pins, wedges, and

chisels must be kept free of mushroomed heads. The wooden handles of tools must not be splintered.

Iron or steel hand tools may produce sparks that can be an ignition source around flammable substances. Where this hazard exists, spark-resistant tools made of non-ferrous materials should be used where flammable gases, highly volatile liquids, and other explosive substances are stored or used.

More Prevention:

- Appropriate personal protective equipment such as safety goggles and gloves must be worn to protect against hazards that may be encountered while using hand tools.
- Workplace floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.
- The employer is responsible for the safe condition of tools and equipment used by employees. Employers shall not issue or permit the use of unsafe hand tools.

General Prevention – Power Tools

Power tools are extremely dangerous when used improperly or not maintained on a regular and consistent basis. If not done, life threatening injuries and even death can result.

To prevent hazards associated with the use of **power tools**, workers should observe the following **general precautions**:

- Never carry a tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
- Keep all people not involved with the work at a safe distance from the work area.
- Secure work with clamps or a vise, freeing both hands to operate the tool.

- Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
- Maintain tools with care; keep them sharp and clean for best performance.
- Follow instructions in the user's manual for lubricating and changing accessories.
- Be sure to keep good footing and maintain good balance when operating power tools.
- Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
- Remove all damaged portable electric tools from use and tag them: "Do Not Use."

Specific Prevention – Power Tools

A. Guards

The exposed moving parts of power tools need to be safeguarded. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded.

Machine guards, as appropriate, must be provided to protect the operator and others from the following:

- Point of operation.
- In-running nip points.
- Rotating parts.
- Flying chips and sparks.

B. Electric

To protect the user from **shock and burns**, **electric tools** must have a three-wire cord with a ground and be plugged into a grounded receptacle, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors and a grounding conductor. Any time an adapter is used to accommodate a two-hole receptacle, the adapter wire must be attached to a known ground. The third prong must never be removed from the plug.

Double-insulated tools are available that provide protection against electrical shock without third-wire grounding. On double-insulated tools, an internal layer of protective insulation completely isolates the external housing of the tool.

The following general practices should be followed when using electric tools:

- Operate electric tools within their design limitations.
- Use gloves and appropriate safety footwear when using electric tools.
- Store electric tools in a dry place when not in use.
- Do not use electric tools in damp or wet locations unless they are approved for that purpose.
- Keep work areas well lighted when operating electric tools.
- Ensure that cords from electric tools do not present a tripping hazard.

C. Hydraulic

The fluid used in **hydraulic power tools** must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

All jacks including lever and ratchet jacks, screw jacks, and hydraulic jacks must have a stop indicator, and the stop limit must not be exceeded. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack, and the load limit must not be exceeded.

Proper maintenance of jacks is essential for safety. All jacks must be lubricated regularly. In addition, each jack must be inspected according to the following schedule: (1) for jacks used continuously or intermittently at one site inspected at least once every 6 months, (2) for jacks sent out of the shop for special work inspected when sent out and inspected when returned, and (3) for jacks subjected to abnormal loads or shock inspected before use and immediately thereafter.

D. Portable Abrasive Wheel Tools

Abrasive wheel tools must be equipped with guards that: (1) cover the spindle end, nut, and flange projections; (2) maintain proper alignment with the wheel; and (3) do not exceed the strength of the fastenings.

Before an abrasive wheel is mounted, it must be inspected closely for damage and should be sound- or ring-tested to ensure that it is free from cracks or defects. To test, wheels should be tapped gently with a light, non-metallic instrument. If the wheels sound cracked or dead, they must not be used because they could fly apart in operation. A stable and undamaged wheel, when tapped, will give a clear metallic tone or "ring."

An abrasive wheel may disintegrate or explode during start-up. Allow the tool to come up to operating speed prior to grinding or cutting. The employee should never stand in the plane of rotation of the wheel as it accelerates to full operating speed. Portable grinding tools need to be equipped with safety guards to protect workers not only from the moving wheel surface, but also from flying fragments in case of wheel breakage.

E. Liquid Powered

Before refilling a **fuel-powered tool** tank, the user must shut down the engine and allow it to cool to prevent accidental ignition of hazardous vapors. When a fuel-powered tool is used inside a closed area, effective ventilation and/or proper respirators such as atmosphere-supplying respirators must be utilized to avoid breathing carbon monoxide. Fire extinguishers must also be available in the area.

F. Pneumatic

Pneumatic tools must be checked to see that the tools are fastened securely to the air hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool must also be used and will serve as an added safeguard.

In general, the same precautions should be taken with an air hose that are recommended for electric cords, because the hose is

subject to the same kind of damage or accidental striking, and because it also presents tripping hazards.

When using pneumatic tools, a safety clip or retainer must be installed to prevent attachments such as chisels on a chipping hammer from being ejected during tool operation.

Pneumatic tools that shoot nails, rivets, staples, or similar fasteners and operate at pressures more than 100 pounds per square inch (6,890 kPa), must be equipped with a special device to keep fasteners from being ejected, unless the muzzle is pressed against the work surface.

Airless spray guns that atomize paints and fluids at pressures of 1,000 pounds or more per square inch (6,890 kPa) must be equipped with automatic or visible manual safety devices that will prevent pulling the trigger until the safety device is manually released.

Eye protection is required, and head and face protection is recommended for employees working with pneumatic tools.

Screens must also be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.

Compressed air guns should never be pointed toward anyone.

Use of heavy jackhammers can cause fatigue and strains. Heavy rubber grips reduce these effects by providing a secure handhold. Workers operating a jackhammer must wear safety glasses and safety shoes that protect them against injury if the jackhammer slips or falls. A face shield also should be used.

Working with noisy tools such as jackhammers requires proper, effective use of appropriate hearing protection.

G. Powder – Actuated

When using **powder-actuated tools**, an employee must wear suitable ear, eye, and face protection. The user must select a powder level high or low velocity that is appropriate for the powder-actuated tool and necessary to do the work without excessive force.

The muzzle end of the tool must have a protective shield or guard centered perpendicular to and concentric with the barrel to confine any fragments or particles that are projected when the tool is fired. A tool containing a high-velocity load must be designed not to fire unless it has this kind of safety device.

Safety precautions that must be followed when using powder-actuated tools include the following:

- Do not use a tool in an explosive or flammable atmosphere.
- Inspect the tool before using it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions and has the proper shield, guard, and attachments recommended by the manufacturer.
- Do not load the tool unless it is to be used immediately.
- Do not leave a loaded tool unattended, especially where it would be available to unauthorized persons.
- Keep hands clear of the barrel end.
- Never point the tool at anyone.

When using powder-actuated tools to apply fasteners, several additional procedures must be followed:

- Do not fire fasteners into material that would allow the fasteners to pass through to the other side.
- Do not drive fasteners into very hard or brittle material that might chip or splatter or make the fasteners ricochet.
- Always use an alignment guide when shooting fasteners into existing holes.
- When using a high-velocity tool, do not drive fasteners more than 3 inches (7.62 centimeters) from an unsupported edge or corner of material such as brick or concrete.
- When using a high velocity tool, do not place fasteners in steel any closer than 1/2-inch (1.27 centimeters) from an unsupported corner edge unless a special guard, fixture, or jig is used.

FINAL WORD

While hand and power tools can be dangerous, the majority of these injuries are caused by careless use or improper maintenance. With proper training, inspection and maintenance schedules, you can reduce the risk of tool-related injuries in your workplace.

HAZWOPER

WHAT'S AT STAKE?

HAZWOPER is not an acronym. It means Hazardous Waste Operations and Emergency Response. OSHA issued the HAZWOPER Standard Regulation in March 6 / 89 to protect workers in the handling of hazardous substances safely and effectively. The HAZWOPER standard is referenced as [29 CFR 1910.120](#).

WHAT'S THE DANGER?

How is the HAZWOPER Standard applied in the workplace and generally in our communities?

The HAZWOPER standard covers employers performing in three categories of work operations:

- Hazardous waste site cleanup operations.
- Operations involving hazardous waste that are conducted at treatment, storage, and disposal (TSD) facilities.
- Emergency response operations involving hazardous substance releases.

WHEN DOES HAZWOPER APPLY?

The term “emergency response” often applies generally to any activity requiring immediate attention. Under HAZWOPER, this term

applies specifically to response activities where there is an *uncontrolled release of a hazardous substance*, or where an *uncontrolled release* is likely.

EXAMPLES:

- Leaking of a hazardous substance from a storage tank or container.
- An overturned truck or railcar carrying hazardous materials.
- Chemical fires.
- Mechanical breakdown in a chemical process.
- Excavating/trenching buried contaminants or toxins.
- Site preparation uncovering buried hazardous waste, and
- Building earthen berms to contain hazardous waste runoff.

WHEN DOES HAZWOPER NOT APPLY?

HAZWOPER does not apply to the *accidental or foreseeable release of a hazardous substance that is limited in quantity, and poses no emergency or significant threat to the safety and health of workers in the immediate vicinity*. Such incidents, referred to as “incidental releases” in the definition of “emergency response or responding to emergencies” at 29 CFR 1910.120(a)(3), are limited in quantity, exposure potential, or toxicity, and have no potential of becoming emergencies within a short time frame.

The HAZWOPER Standard is applicable if workers are:

- Exposed to high concentrations of poisonous substances.
- Exposed to chemical conditions that pose a fire or explosion hazard.
- Entering sites with atmospheres at or above IDLH levels.
- Exposed to oxygen deficient atmospheres (less than 19.5% oxygen).
- Leading evacuations due to chemical atmospheres or oxygen deficient conditions.
- Performing confined space entry.
- Supervising workers exposed to any of the above dangers.

HOW TO PROTECT YOURSELF

There are five distinct operations within the scope of the HAZWOPER standard:

1. CLEANUP OPERATIONS

- Cleanup operations required by a governmental body or other operations involving hazardous substances conducted at uncontrolled hazardous waste sites.
- Voluntary cleanup operations at sites recognized by federal, state, local, or other governmental bodies as hazardous waste sites.

EXAMPLES Site characterization of hazardous waste site.

- Drum removal.
- Contaminated soil removal.
- Underground Storage Tank (UST) removal.

2. Corrective Actions

- Corrective actions involving cleanup operations at sites covered by Resource Conservation Recovery Act (RCRA).

3. OPERATIONS at TSD FACILITIES

- Operations involving hazardous waste conducted at TSD facilities regulated by 40 CFR 264 and 265 pursuant to RCRA or by agencies under agreement with EPA to implement RCRA regulations.

EXAMPLES

- Handling waste at RCRA landfill.

4. OPERATIONS that GENERATE HAZARDOUS WASTE but are *not* TSD FACILITIES

- Businesses generating hazardous waste as a by-product of their production operations, store it for a short time, and then send to a TSD facility.

EXAMPLES

- Response by facility's workers to leaking hazardous waste in storage area.
- Response by facility's workers to spill of hazardous substance in production area.

5. EMERGENCY RESPONSE OPERATIONS

- Emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazards.

EXAMPLES

- Response to a leaking storage tank.
- Response to an overturned truck carrying hazardous materials.
- Response to a chemical fire.
- Response to ruptured railroad tank car loaded with hazardous substance(s).

The first two **cleanup operations** describe environmental remediation activities planned at locations such as Superfund sites, Brownfield sites, abandoned industrial sites, and other similar locations. These are sites recognized by one or more governmental agencies as having the potential for worker exposure to hazardous substances.

The third operation covers **TSD facilities**, built and permitted to **receive, treat, store, and dispose of hazardous waste**. TSD employers with a RCRA permit or interim status must comply with HAZWOPER.

Operations that generate hazardous waste but are not TSD facilities are also covered by HAZWOPER. Manufacturing facilities that have the potential for an emergency to occur due to an uncontrolled release of hazardous substances. Conditionally-exempt small quantity generators and generators who store hazardous waste less than 90 days are covered by HAZWOPER standard.

Emergency response operations can occur at public and private

facilities, research laboratories, universities, chemical facilities, railroads, roads/highways, and any location with the potential for accidental releases of hazardous substances. Work to contain and control such hazardous substance releases on an emergency basis, when the exact nature and extent of the hazards are unknown, is regulated under the HAZWOPER standard. For such operations, employers must comply with HAZWOPER standard.

PREPARE AND TRAIN

Effective preparation is essential to conducting organized and thorough response operations in an emergency. Preparation before a potential hazardous substance release is critical to ensuring that employers and workers have the proper equipment, know where to go, and know how to stay safe and healthy in the event of an actual emergency. Employers with workers in operations subject to HAZWOPER must prepare and train their workers for hazardous substance emergencies and emergency response and cleanup activities.

OSHA's Role in Emergency Response

During the response to, and recovery from emergencies or disasters, OSHA helps protect the safety and health of response and recovery workers. In addition to enforcement and compliance assistance activities, OSHA can provide technical assistance and support to federal, state, local, tribal, territorial, and insular area agencies under the National Response Framework Worker Safety and Health Support Annex.

Summation:

The HAZWOPER standard provides employers, emergency response workers, and other workers potentially exposed to hazardous substances information and training criteria to improve workplace safety and health and reduce workplace injuries and illnesses that could occur from exposures to hazardous substances.

FINAL WORD

It is critical that employers and workers understand the scope and application of the HAZWOPER standard to determine which sections apply to their specific operations.

No Place At Work For Horseplay

INCIDENT

Workplace pranks: a history of violence

It has long been established that employers can avoid liability for practical jokes in the workplace if they can show that the jokers were acting on a “frolic of their own”, for example by doing something totally unconnected with work.

Two contrasting cases get out the principle:

Smith v Crossley Brothers (Court of Appeal, 1951)

As a “practical joke”, two mechanics removed a colleague’s trousers and inserted a rubber hose into his bottom. The rubber hose expelled compressed air, causing serious injury.

The Court of Appeal found that the employer was not liable for the resulting injuries as there was nothing that the employer could have done to prevent such unpredictable actions.

Hudson v Ridge Manufacturing Co Ltd (Court of Assizes, 1957)

An employee’s wrist was broken when a colleague wrestled him to the ground as a practical joke. The colleague was a known practical joker and had a reputation for playing pranks. The employer had been aware of this for years.

The employer was found to be liable for the injury because it was obvious that the joker posed a danger, but it had done nothing to prevent him from committing further pranks.

Male manager fairly dismissed for “attempting to touch a colleague’s testicles and bottom”

NEED TO KNOW

While horseplay and pranks in the workplace can be fun, they can also end up distracting workers to the point that major accidents and serious injuries can occur. Furthermore, as you will see from the examples described below, even the most innocent of activities can sometimes lead to unexpected injuries that may be serious enough to cause death. As a result, workplace safety should always remain your number one priority.

Horseplay is rough or boisterous play or pranks that occur at the workplace. Horseplay can be activities such as joking that includes physical contact, playing around, racing, grabbing, foolish vehicle operation, social pressure to participate in unsafe acts, harassment, and unauthorized contest. There is probably at least one on every job – the practical joker – the smart aleck who likes to make a bid for laughs and attention by playing jokes on fellow workers. Playing jokes and having fun with your coworkers may break up the day and make work more interesting, but it can lead to serious injuries and sometimes be deadly.

At one time or other friends play “Practical Jokes” on friends outside the workplace which are not harmful. There is a world of difference between practical joke outside the workplace and engaging in the definition of workplace horseplay described above.

Each year there are hundreds of injuries in the United States from pranks at work. Workplace horseplay incidents may lead to serious injuries at work, divide the workplace, and prevent employees from getting their jobs done. In some states, horseplay that results in injury can result in criminal prosecution. Courts have held that these injuries are not the result of an accident but are

deliberate acts.

Example of the Dangers of Horseplay

Did you know fooling around with air hoses has caused many cases of ruptured eardrums and ruptured bowels?

- A blast of air under 40 pounds per square inch (psi) of pressure from 4 inches away can rupture bowels or eardrums and cause brain damage.
- As little as 12 psi can pop an eyeball from its socket.
- Air can enter the navel, even through a layer of clothing, and inflate and rupture the intestines.
- If directed at the mouth, compressed air can rupture the lungs.

How Horseplay Affects the Workplace

When practical jokes are common in the workplace, it's hard to pay attention to your job because you're always on the lookout for the next joke. Horseplay is a safety hazard that can quickly get out of hand and lead to injury or death. If someone else gets hurt as a result of your horseplay or joke, you may be liable for damages and you'll risk losing your job. Even if a practical joke isn't dangerous in itself, it can result in humiliation, embarrassment, anger, hurt feelings, distrust and even a desire for revenge.

Employee Responsibility

- Do not engage or participate in any type of unsafe behavior or acts.
- Follow all regulations and work rules to ensure the safety of individuals or other employees.
- Ensure protective equipment is used properly and operating machinery is in good repair and does not present a hazard to employees

Supervisors and Management Responsibility – It is management's responsibility to ensure all employees have access to a safe, respectful, and harassment free place to work.

- Provide a safe and healthy work environment for all

employees.

- Take all precautions necessary to protect the safety and health of employees.
- Ensure that employees understand and follow company operating practices and safety procedures.

Employers Responsibility

Make it known that workers are responsible for each other's safety.

It should be clear to employees that they're to refrain from engaging in unsafe behaviors on the job, follow all workplace rules and regulations, and ensure equipment is used properly. Supervisors and managers have a responsibility to keep their employees' work environment safe and free of harassment by monitoring for and preventing horseplay.

BUSINESS / REGULATIONS

Most American employees are aware that the [workers' compensation](#) can help them recover after a [work-related injury](#) or illness, but what happens when employees cause harm to themselves due to recklessness or carelessness? If a worker suffers an injury due to worksite horseplay, then his or her deviation from job duties will likely influence a subsequent workers' compensation claim.

In the event that workers' compensation benefits do not fully cover the cost of a workplace injury, the employee may have grounds for a personal injury lawsuit against his or her employer if a known safety issue caused the injury. However, if the employee bears any responsibility for the injury, his or her negligence may influence a workers' compensation claim and a personal injury lawsuit in different ways.

WHEN DOES HORSEPLAY DISQUALIFY A WORKERS' COMPENSATION CLAIM?

The determining factor in most workers' compensation claims is whether the claimant suffered an injury during the course of performing work-related duties. If a worker suffers an injury due

to horseplay, this may seem to indicate a clear deviation from the worker's job duties. However, most courts acknowledge that some types of work inherently lead to waiting or idle time, and it can be reasonable to expect some level of horseplay from employees who have no current duties to perform.

A workers' compensation review board will likely use a four-step system to determine whether horseplay should disqualify a claim for workers' compensation benefits. First, the seriousness and duration of the horseplay is a major factor. Engaging in objectively dangerous behavior or deviating well outside the scope of the employee's job duties may disqualify a claim. Next, it's important to determine if the employee engaged in horseplay during work or if the employee completely abandoned his or her work to engage in horseplay. For example, a delivery crew must frequently wait for periods up to an hour between jobs. If they engage in horseplay during these times, they technically have no immediate job duties to abandon.

The workers' compensation board or judge reviewing a claim will also assess whether horseplay was an accepted part of the job. Following the previous example, the delivery crew may play innocent pranks on one another during their wait time between deliveries, and the investigation may include testimony from other employees who report that pranks and horseplay were common during these lulls in activity. The final determining factor is if the nature of the employment could reasonably lead to horseplay. If wait time is common, then whoever reviews the claim could assume that some horseplay is a reasonable expectation.

LEGAL OPTIONS BEYOND WORKERS' COMPENSATION

If an injured worker faces a denial of benefits from the workers' compensation board, he or she may try to appeal the decision to a higher court. This can lead to additional legal expense but may also work in the injured employee's favor. If the employee's injuries could have resulted from any type of employer negligence, this will strengthen the employee's workers' compensation claim. Even though the employee may have engaged in horseplay, the employer still had an obligation to ensure the worksite was

reasonably safe.

A plaintiff who decides to pursue a personal injury claim against a negligent employer after suffering a horseplay-related injury should expect to bear some liability for the damages. In states that follow comparative negligence laws, a plaintiff will lose a portion of his or her recovery equal to his or her degree of fault for the damages. If a judge determines an employee is 40% at fault due to his or her horseplay, the employee would lose 40% of the case award but still qualify for recovery. However, in states that follow contributory negligence laws like Alabama, any plaintiff negligence completely bars recovery.

WORKPLACE HORSEPLAY CAN CAUSE SERIOUS ISSUES FOR BOTH EMPLOYEES AND EMPLOYERS

Employee liability

It is a common misconception among employees that health and safety is the sole responsibility of the employer and that if an accident or incident were to occur (including one resulting from horseplay) that resulted in the injury of another person, it would be the employer that would have full responsibility.

However, pranks at work that injure or threaten to injure another person may be the subject for individual prosecution against the perpetrator.

Section 7 of the Health and Safety at Work, etc Act 1974 requires the employee to “take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions at work”.

Section 8 then requires that “no person shall intentionally interfere with or misuse anything provided in the interests of health, safety and welfare in pursuance of any of the relevant statutory provisions”.

These duties include avoiding obviously silly or reckless behaviour and employees who fail to comply with either of the duties described above make themselves liable to be prosecuted in

the courts.

As such, the prosecution of individuals does occur as a result of horseplay or practical jokes at work. The **Health and Safety Executive (HSE) Operational Circular OC130/8** states that “some acts of horseplay and violence against people will come within the scope of s.7 if they arise out of or in connection with work and put people’s health and safety at risk”.

Employer liability

Employers can be held vicariously liable for employees where it can be proven that the employer is aware of the horseplay taking place.

In one such case, a South Wales office furniture firm was fined a total of £10,000 following an incident in which a young employee was injured during leaving celebrations for another employee.

The employee leaving was tied up, placed on the forks of a lift truck and was driven around the site. This included passing through perspex doors. The driver of the fork-lift truck drove through these doors, striking another employee who was on his way to join in the celebrations. He suffered a broken ankle.

The subsequent investigation found that the employer had failed to ensure that its employees were properly supervised as both the works and production managers were aware of the goings-on, but failed to stop this from occurring. Indeed, supervisors were found to take part and instigate such activity in some cases.

Further, although the perspex doors were designed for use by the fork-lift trucks, they were regularly used by employees as a means of access and egress. The driver of the lift truck had received no training in its safe operation with untrained operatives/supervisors regularly operating the lift trucks.

The employer pleaded guilty, but stated that all of its employees had been instructed to use the pedestrian walkways at the site and that all acts of horseplay had been stopped. They were fined £7500 under the Health and Safety at Work, etc Act 1974 and £2500 under

RIDDOR for failing to report the incident.

In a more recent case, a waste management firm was fined £136,000 with £64,770 costs after an employee was crushed by a motorised shovel and subsequently died. The HSE Investigating Inspector said that there had been “extended, terrible horseplay” prior to the incident.

CCTV footage showed workers having to jump out of the way of vehicles and machinery being driven at somebody seated in a chair. The HSE’s investigation revealed a “litany” of unsafe practices in the 10 days prior to the employee’s death.

Sentencing, the judge stated that it was important to understand that the firm was not only prosecuted for the death, but for “consistent disregard of worker safety on the premises over a 10-day period”.

Civil claims

In addition to criminal prosecutions, employers may face civil claims arising due to injuries inflicted by horseplay or pranks at work.

However, case law suggests that if an employer can show that the employees undertaking the actions were acting on a “frolic of their own”, not connected to work, the employer would not be liable for damages.

The key case on this is *Smith v Crossley Brothers* (1951), where a practical joke involving inserting a rubber hose into the rectum of an employee by co-workers caused injury. The court found the employer could not have prevented such an unpredictable action.

In the more recent case of *Patel v Homerton University Hospital NHS Foundation Trust* (2017), the court found that the employer was not liable for injuries sustained when a co-worker pulled the claimant’s chair away as she was about to sit down, causing damage to her spine.

Dismissing the case, the court decided that the employee who

pulled the chair away was “acting in a purely private capacity, unconnected with his work” and therefore the employer could not be held responsible.

However, there are occasions when employers can be held liable. In the case of *Hudson v Ridge Manufacturing Co Ltd* (1957), an employee’s wrist was broken following a practical joke. The person responsible for the practical joke was known to be a “prankster” by his employer and as such the employer was liable as it was obvious, he posed a danger, but it did nothing to prevent the behaviour.

Conclusion

Employers cannot rule out the possibility that horseplay at work will result in harm being caused and that they can be held liable for the actions of their employees in such circumstances.

Employers should, therefore, put in place appropriate policies and procedures in relation to pranks, practical jokes and horseplay that inform employees of the consequences of inappropriate behaviour at work. It is important to strike a balance and not to discourage banter that can have a positive impact by setting out clearly what is deemed to be acceptable and unacceptable behaviour.

Where any activities take place that could constitute inappropriate horseplay, the employer, having been made aware of the activities, must take action to protect itself. Such actions should be discouraged and, where necessary, dealt with as a matter under organizational disciplinary procedures. When doing so, consideration should be given.

STATISTICS

Depending on the size of your organization and whether you rely on office workers, staff out in the field or manual laborers, your view of workplace injuries may vary. In fact, you may not even consider workers’ compensation preparation to be a priority for your company. However, when you dig into the hard numbers, it is

clear that preparing for an injury should be a top priority for any business.

Major investment

Workers' compensation insurance costs employers more than [\\$95 billion every year](#). Covering more than 140 million workers, this means that companies are investing, on average, more than \$678 per employee. Recent data shows that companies are paying around \$31.5 billion annually to cover medical and surgical expenses and around \$32 billion a year in lost wages.

When you consider that 3 to 4 percent of employees will suffer a workplace injury every year, the immediate financial impact for any company can be significant.

More physical activity, more risk

Data shows that jobs that involve more physical activity have a higher rate of workers' compensation claims. For example, 20 percent of cases that involved days away from work due to injury came from just five types of occupations: laborers; nursing aides, orderlies and attendants; janitors; tractor-trailer truck and heavy-truck drivers; and police and sheriff's patrol officers.

If your organization requires that employees engage in physical activity, it is in your best interest to ensure these staff members are properly trained in safety best practices to minimize injuries.

A grim outlook

Our society is focusing more and more on health and wellness, driven by behavior and attitudes adopted by the millennial generation. However, despite this attention to health, many young workers will face a debilitating injury or incident. According to the Social Security Administration, as many as one in four 20-year-olds will become disabled before they reach retirement.

The drivers behind this trend are still being studied, but lack of

proper treatment after a significant injury is one of the key factors. Ensuring that staff members receive the proper long-term care and guidance after an injury is one of the best ways to keep skilled employees in the workforce.

Injury outpacing illness

While the single largest driver of overall healthcare costs in the United States is chronic conditions and illness, when it comes to workplace issues, on-the-job injuries account for about 95 percent of all workers' compensation claims while on-the-job illnesses account for about 5 percent of costs.

Though on-the-job injuries may not seem like a pressing concern, these figures show that a single incident in the workplace can have a substantial impact on your organization's bottom line, not to mention the toll it can have on the employee. By arming employees with best practices and promoting a safe work environment, this risk can be mitigated.

PREVENTION

Here are 4 ways to prevent workplace horseplay.

1. Horseplay and Fooling Around Are the Opposites of Safe, Responsible Work

According to the dictionary:

- Horseplay means rough fun.
- Fooling around means doing foolish, useless things.
- Fool is a person with little or no judgment or common sense.

2. Workplace Rules Ban Horseplay Because It's Dangerous

Horseplay is usually a friendly, physical way to let off steam. But that type of fooling around is

dangerous on the job because:

- When you're fooling around, you're not concentrating on your work.

- Directing your horseplay at others is even more dangerous. They're not expecting the distraction and could easily have an accident such as falling into a moving machine part,
- slipping on the floor, or dropping a tool.
- Giving less than full concentration and attention to safety procedures makes you less likely to notice or account for hazards until it may be too late.
- Most accidents are caused by unsafe acts—and horseplay itself is an unsafe act.

3. Workplace Horseplay Creates Unnecessary Risks

You can prevent most workplace accidents by being alert to hazards and following safety rules.

You can't do either when you indulge in horseplay. Examples:

- Running, chasing, or pushing can cause slips, trips, falls, and other accidents. You may:
- Not notice spills or items lying on the floor.
- Crash into, or push someone else into, heavy equipment or moving parts.
- Knock boxes or materials onto a person.
- Knock over open containers of hazardous substances.
- Throwing tools is a frequent cause of injuries. They may:
- Stab someone with a sharp edge.
- Hit someone in the head, eye, foot, etc., and cause an injury.
- Fall from a height and hit a person below with tremendous impact.
- Fooling around with PPE can damage it and expose you or another worker to a hazardous substance.
- Speeding or stunt driving with a forklift can cause it to tip over or hit people or objects, possibly injuring the driver or pedestrians.
- Climbing on or under forklift forks or moving crane parts can cause you to get crushed or pushed. It's against the law.
- Running with a hand truck could spill the load on someone or run over feet.

- Pushing, teasing, or otherwise distracting people working with machinery could cause pinch point or other injuries.
- Take Your Job, Your Responsibilities, and Safety Seriously
- You're responsible for performing your job correctly, which includes safely.
- Safety rules and procedures are designed to protect you.
- Everyone must follow safety rules.
- Failure to follow the rules is dangerous—for you and for others.
- Horseplay and other safety rule violations can lead to disciplinary action.
- Don't indulge in horseplay or accuse those who won't go along of having "no sense of humor."
- Think how bad you would feel if your horseplay injured someone else.
- Don't allow other people to engage you in horseplay.

"Roughhousing" or "Horseplay" while on the job is counter to the behaviours and thinking we coach our teams to engaging in, to help create a safe workplace:

Be Responsible for the Safety of ourselves and others: Horseplay can result in an injury by accident, to the person engaging in it and to those who are by-standers. If employees are not in control of their emotions and the impact it has on other employees, it can lead to a physical confrontation and possibly violence.

Keep Alert for Potential Risks and Dangers: When employees are engaged in horseplay, often they are also not paying attention to other people and objects around they may make contact with. Engaging in this type of behavior can lead to the individual and other workers being distracted or providing less attention to their immediate environment.

Engage in Safety Best Practices and Behaviors: This is not only applicable to employees at inherently dangerous work-sites, where this type of behavior should already be prohibited. Tolerating horseplay will impact the safety culture of any workplace because it provides allowance, for those individuals who may find it harder to follow the safe rules or policies, to break

them on a continually basis without consequence. This behavior unnecessarily increases potential dangers and risk for other workers, who could also become distracted while engaging in their workplace tasks.

Awareness of Potential Risks and Dangers: Employees engaging in horseplay are not being safe or contingent of their surroundings which can increase their and co-worker's exposure to risk and dangers. As managers and safety leaders, we must coach employees to have fun while in the workplace in a safe and controlled manner. It is key to bring attention to our workers, especially new workers, the various hazards that exist in our work environments and why it is key not to add more unnecessary risks.

We all want our employees to be happy and productive while at work, however not at the expense of their or other people's safety. It is key to set clear boundaries for workplace behaviors and conduct at our work sites to help keep our people safe and proactive at identifying risks.

Contract Warehouse Worker Caught and Crushed

INCIDENT

Mr. Smith was caught in between and crushed by equipment according to the U.S. Occupational Safety and Health Administration (OSHA). The date of the tragedy was Dec 4/2013 and an investigation was launched by OSHA.

NEED TO KNOW

Ronald Smith was a 57 years old contract worker who was killed in

December of 2013 while working at a warehouse owned by on – line amazon retailer located about 20 miles from Manhattan.

BUSINESS / REGULATIONS

Large companies such as Amazon, which has \$60 billion a year in retail sales, frequently utilize temporary and contract employees to reduce costs and liabilities associated with full-time staff, including health insurance, retirement pay and workers' compensation.

STATISTICS

Just a few weeks after Ronald Smith died in New Jersey, ProPublica, an independent investigative news organization, released "Temporary Work, Lasting Harm," a study on safety hazards faced by Temporary workers.

Analyzing workers compensation records in five states, ProPublica found **the risk of on-the-job injury significantly higher for temporary workers than for permanent employees:**

- A 36 percent higher likelihood of injury for temp workers in Massachusetts
- 50 percent higher in California and Florida
- 66 percent higher in Oregon
- 72 percent higher in Minnesota

According to Bureau of Labor Statistics (B.L.S) in 2012, 708 contract workers died on the job in the United States, representing 16 percent of total workplace fatalities.

Due to reports of temporary workers suffer fatal injuries during the first days on the job, OSHA began to address who is responsible for safety conditions of temporary workers.

This initiative resulted in a correlated rise in inspections that examine how host employers treat temporary workers especially with regard to training.

Investigations have resulted from complaints about treatment of workers, both temporary and permanent at Amazon warehouses.

The safety concerns revealed at Amazon warehouses that there were long periods of work without adequate break time and requiring workers to stay on the job in extreme heat without proper ventilation.

All the fines and prosecutions will not bring back Mr. Smith. He left a family which included seven grandchildren. The grandchildren lost a loving grandfather.

There was no fanfare in his funeral but deep loss and pain for his family.

PREVENTION

The usual refrain is applicable in these situations. This “accident” was preventable. If it is preventable, then by logic, something was “not done” to prevent it from occurring.

In all these accident situations, there is a threefold test to meet the threshold of prevention:

- Proper and timely training of all employees, both temporary and permanent.
- Proper monitoring by supervisory staff if the workplace practices and protocols with respect to safety.
- Diligent record keeping of incidents, injuries and close calls / near misses in the workplace.

Forklift Worker Crushed Between Forklift and Material

INCIDENT

Fuyao forklift operator Ricky Patterson, 57, of Dayton died early

March 22 after he was trapped between his forklift and a pallet holding more than 2,000 pounds of glass, according to police.

Video at the West Stroop Road plant captured the moment.

The video shows the pallet of glass shifted forward, according to police records. "Patterson then walks in between the forklift and the glass, grabs a strip cutter, and cuts the west side strap, causing the glass to crush him in the forklift."

Multiple Fuyao employees assisted with containing the pallet of glass and extracting Patterson from the forklift.

NEED TO KNOW

It is an understatement to say a human being is not a match for 2000 pounds of glass in a confrontation.

BUSINESS / REGULATIONS

The Occupational Safety and Health Administration is investigating the events that led to Patterson's death and have not returned calls seeking comment since the fatal accident.

OSHA officials said they would not comment on the case until the investigation is complete. Fuyao officials released a statement following the accident, calling Patterson a "valued colleague and friend," vowing to work with federal and state officials while calling company safety "the top priority."

The data supports the motion where government oversight exists, workplaces tend to be safer.

Death rates are rising in sectors where OSHA doesn't have much presence, sector like transportation, utilities and hospitality.

With OSHA or agencies like it, oversight and standards address hazards. And standards force changes in workplace practices, which creates safer environments, OSHA needs a \$100 million boost in its budget, to keep pace with inflation and deal with staffing levels.

According to figures OSHA provided the AFL-CIO, in fiscal year

2001 OSHA had 1,001 compliance employees, both inspectors and supervisory personnel.

Today, 2016 that number is lower. OSHA has 974 compliance staff. Of those, just 764 people are inspectors.

Fuyao, Moraine's largest employer with about 2,000 workers, was fined \$100,000 by OSHA last year for "serious" safety violations. Employees have repeatedly expressed concern about workplace safety.

The United Auto Workers soundly lost a bid to organize the Fuyao plant last year. One concern the union and its local allies consistently expressed during a campaign to persuade workers to form a new bargaining unit was plant safety,

"We stand with the workers at Fuyao, who for some time now have been concerned about health and safety issues at the Moraine plant," replied the UAW.

Fuyao declined to comment citing the OSHA investigation.

STATISTICS

The number of fatal accidents in the nation are "quite disturbing," Seminario said. The rate of workplace deaths went up from 3.4 to 3.6 fatal incidents per 100,000 workers in 2016.

Safety enforcement agencies have gradually been "starved" of needed funds and staffing since 2001.

When companies are busier in a strong economy, accidents can happen, experts say. Workers can become tired and distracted.

A stronger economy means employers have "more resources to deal with the problems,"

About 40 percent of fatal workplace accidents involve some form of transportation, according to the government. Violence and injuries account for another 23 percent of deaths, the second most common cause. Exposure to harmful chemicals rose 22 percent in 2016 while fires and explosions declined 27 percent.

A stronger economy means more trucks on the road and busier distribution hubs. Factories and suppliers are busier. More demand is felt across industry.

In Ohio in 2016, private transportation and warehousing saw the highest number of on-the-job fatalities with 32, down by 4 from 2015.

Young Farmworker Dies of Heatstroke

INCIDENT

In Georgia, Miguel Angel Guzman Chavez, a 24-year-old farmworker, died of heatstroke while working the field last month when the heat index reached 105 degrees Fahrenheit. Earlier this month, 52-year-old Cruz Urias-Beltran was found dead in a cornfield in Nebraska after temperatures topped 100°F. Postal worker Peggy Frank died in her mail truck near Los Angeles on July 6, when the temperature reached 117°F. She was 63.

NEED TO KNOW

Any worker exposed to hot and humid conditions is at risk of heat illness, especially those doing heavy work tasks or using bulky protective clothing and equipment. Some workers might be at greater risk than others if they have not built up a tolerance to hot conditions, including new workers, temporary workers, or those returning to work after a week or more off. All workers are at risk during a heat wave.

The three main heat related illnesses are heat stroke, heat exhaustion, and heat cramps. Heat stroke can be fatal and heat exhaustion and heat cramps can quickly lead to heat stroke if left untreated.

Heat Rash. Heat rash is generally misunderstood to be an affliction for babies, but heat rash can affect adults, too, especially during hot, humid weather. Heat rash develops when blocked pores, or sweat ducts, trap perspiration under your skin.

Symptoms. Adults usually develop heat rash in skin folds where clothing causes friction. Symptoms include superficial blisters and can even present as deep, red lumps. Some forms of heat rash can feel extremely itchy.

Treatment. Heat rash will usually clear on its own by cooling the skin and avoiding exposure to the heat that caused it. If symptoms such as increased pain, swelling, redness, or warmth extend for longer than a few days reach out to a doctor for specialized treatment.²

Heat Cramps. Heat cramps are painful, brief muscle cramps where the muscles may spasm or jerk involuntarily. These cramps can begin during the activity in the heat, or may start several hours later. Muscles that are most susceptible to heat cramps are those that are usually fatigued by heavy work such as calves, thighs and shoulders.

The exact cause of heat cramps is unknown, but medical professionals are able to boil it down to a chemical imbalance in the muscles—usually related to electrolytes. Electrolytes include various essential minerals, such as sodium, potassium, calcium and magnesium. They are involved in the chemical reactions of your muscles, and an imbalance can cause issues.

Symptoms. Someone who is experiencing heat cramps will feel muscle spasms that are painful, involuntary, brief, intermittent and self-limited (meaning, they go away on their own).

Treatment. To treat heat cramps, begin with rest and a sports drink that includes electrolytes and salt or drink cool water. You can make your own salt solution by mixing a quarter to a half teaspoon of salt into a quart of water.³

Usually, heat cramps will dissipate on their own, but if you begin

to see conditions worsen and the patient becomes dizzy, nauseous, experiences shortness of breath and a fast heartbeat, you should see a doctor. Heat cramps often accompany a more serious heat-related illness: heat exhaustion.

Heat Exhaustion. Heat exhaustion is a result of your body overheating and can cause heavy sweating, rapid pulse, dizziness and low blood pressure upon standing. Causes of heat exhaustion include exposure to high temperatures, particularly when combined with high humidity and vigorous physical activity.

Symptoms. Without prompt treatment, heat exhaustion can quickly lead to heat stroke, a life-threatening condition, so it is important to know the signs of someone who is likely suffering from heat exhaustion. Signs and symptoms may develop suddenly or over time and include cool, moist skin with goose bumps in the heat, heavy sweating, faintness, dizziness, fatigue, weak and rapid pulse, low blood pressure upon standing, headache, nausea and muscle cramps.

Treatment. If you see someone who might be experiencing heat exhaustion, instruct them to halt all activity and rest, move to a cooler place and drink cool water or a sports drink.

A doctor should be contacted if signs and symptoms worsen or if they don't improve within one hour. A patient will need immediate cooling and urgent medical attention if their core body temperature reaches 104 Fahrenheit or higher. Those who exhibit confusion, agitation, loses consciousness or is unable to drink must also be taken to see a medical professional as soon as possible.⁴

Heat Stroke. Heat stroke is the most serious form of heat injury and can occur if your body temperature rises to 104 Fahrenheit or higher. Heat stroke requires emergency treatment, and if left untreated, can quickly damage the brain, heart, kidneys and muscles. Damage to internal organs worsens the longer treatment is delayed, increasing your risk of serious complications or death.

While anyone can develop heat stroke, there are several factors

that can increase the risk of illness such as age, exertion in hot weather, a lack of cool air or air conditioning, certain medications and certain health conditions.

Symptoms. Heat stroke symptoms include high body temperature, altered mental state or behavior, alteration in sweating, nausea and vomiting, flushed skin, rapid breathing, racing heart rate and headache.

Treatment. Someone who is suffering from a heat stroke must take immediate action to cool down their body while waiting for emergency treatment. To do this, move to shade or indoors, remove excess clothing and cool with whatever means available (put in a cool tub of water or a cool shower, spray with a garden hose, sponge with cool water, fan while misting with cool water, or place ice packs or cold, wet towels on the person's head, neck, armpits and groin).⁵

BUSINESS / REGULATIONS

There is a legal duty to guard workers against heat stress, even though OSHA doesn't have a specific standard on heat stress. The OSHA General Duty Clause (Section 5(a)(1) of the OSH Act) says that every employer must safeguard workers against "recognized hazards" that can cause great bodily harm or death. Heat stress can cause great bodily harm or death. And it's a recognized hazard. As a result, all employers must take steps to protect their workers against heat stress.

This isn't just abstract legal theory. **OSHA has Invoked the Duty to Protect Workers Against Heat Stress in Actual Cases.**

Example: An Ohio steel and iron castings manufacturer plant with 1,500 workers used molten metal containers that produced tremendous amounts of heat. During a heat wave, one of the workers who worked near a molten metal container collapsed twice from heat stress. After he passed out the first time, the employer tried to cool the work area with large fans and radiant heat shields. But the heat was still unbearable and workers complained to OSHA. An OSHA inspector took measurements and reported the temperature of

the worker's workstation as 95° F. That was just too high in OSHA's opinion. So it fined the employer for failing to take adequate measures to reduce heat stress hazards in violation of the **General Duty Clause** [Duriron Co. v. Secretary of Labor, 750 F.2d 28 (6th Cir. 1984)].

The Duriron case isn't the only source of authority to show that there's an OSHA duty to protect against heat stress. In a 2001 **Interpretation Letter**, OSHA stated that it has the right to prosecute employers for not taking measures to deal with heat stress hazards [OSHA Interpretation Letter, Oct. 17, 2001]. The Letter also lists specific steps that employers can take to reduce such hazards including:

- Letting workers drink as much water as they want whenever they want while working in hot conditions;
- Scheduling short shifts and frequent breaks to limit how long workers exert themselves in the heat; and
- Developing a heat stress program that includes specific procedures to be followed for heat-related emergency situations.

In addition to the General Duty Clause, the **OSHA Hazardous Waste Operations and Emergency Response Standard**, arguably requires prevention of heat stress hazards. For example, it requires employers to adopt personal protective equipment programs that limit workers' exposures to temperature extremes and heat stress.

The Law of Heat Stress in Canada

Canadian OHS laws are generally clearer and more specific than OSHA about heat stress. At least seven jurisdictions—BC, NB, NL, PEI, QC, SK and YT—include specific measures that employers must take to protect workers against heat stress in their OHS regulations. For example, Part 7 of the BC OHS Regulation requires employers to:

- Limit workers' exposure to excessive heat;
- Conduct heat stress assessments to determine workers' risk

of hazardous exposure;

- Put into place a heat stress exposure control plan; and
- Implement engineering and administrative controls.

The laws of the other provinces don't say anything specific about heat stress. But that doesn't mean employers in those provinces get a free ride. On the contrary, every province has a general duty clause that requires employers to take all reasonable precautions to protect workers against foreseeable risks that can cause death or great bodily harm like the U.S. OSHA statute.

Although the specifics vary slightly, all provinces require at a minimum that employers train employees about heat stress and adopt policies and procedures for working in high temperatures.

Some of the "general duty clause" provinces that don't spell out specific heat stress measures in their regulations do so in guidelines or special alerts. In essence, these guidelines explain what the General Duty Clause requires respecting heat stress. For example, the Ontario Ministry of Labour has issued guidelines stating that Section 25(2)(h) of the OHS Act—the Ontario version of the general duty clause (which requires employers to "take every precaution reasonable in the circumstances for the protection of a worker")—requires employers to "develop hot environment policies and procedures to protect workers in hot environments due to hot processes or hot weather."

Employers Fined for Lack of Heat Stress Protection

As in the U.S., Canadian employers have been prosecuted for not doing enough to protect workers against heat stress. Two examples:

Ontario: A worker at a national bakery and food store died on the job from heat stress. The incident occurred on August 6, 2001, when southern Ontario was in the middle of a heat wave. With outdoor temperatures of 34° C, the temperature inside the bakery was 36°. The worker overheated and collapsed. The MOL charged the employer with failing to implement a heat stress management plan in violation of Sec. 25(2)(h). The employer pleaded guilty and was fined \$215,000 [Weston Bakeries Limited, MOL News Release, Feb.

18, 2004].

New Brunswick: In 1992, a boilermaker who worked for a repair contractor collapsed and died after three days of repair work in a paper mill. The outside temperature was 30° C and the inside of the mill was even hotter. The contractor pleaded guilty to not instructing the worker how to deal with heat stress dangers (in violation of Sec. 23(1) of the NB OHS Regulations) and was fined \$7,500 [R. v. Lorneville Mechanical Contractors Ltd., [1993] N.B.J. No. 633].

STATISTICS

Hot weather is dangerous in more subtle ways, and is an ominous signal of what increasing average temperatures and climate change portend for some of the most vulnerable who must endure the heat to earn a living. **According to the Bureau of Labor Statistics, more than 15 million people in the United States have jobs that require them to be outdoors at some point**, and rising temperatures are proving dangerous for them.

Worker protections from high temperatures are sorely lacking

However, when we're talking about climate change, the financial impacts should be secondary to the consequences for human life. And millions of workers remain alarmingly vulnerable to high temperatures. The advocacy group Public Citizen reported that worker fatalities from heat stress show a close link to average annual temperatures in the United States:

States like Minnesota, California, and Washington do have some heat regulations in place. But according to Public Citizen, that still leaves 130 million workers across the country without these legal protections.

The group is trying to change that by cosigning with more than 130 environmental and labor groups. Public Citizen sent a [petition to the Occupational Safety and Health Administration](#) for a national workplace heat standard.

They're asking for provisions including heat stress thresholds,

mandatory rest breaks, protective equipment, and heat risk education programs.

If you're getting hot at work, stay hydrated, take breaks (or a nap), and avoid the sun. Your paycheck, and your life, may depend on it.

Between 1992 and 2017, more than 815 workers were killed and 70,000 were seriously injured by heat stress between 1992 and 2017, according to the Bureau of Labor Statistics. This begs the ever-important question: How can employers address heat dangers and keep workers safe?

In 2014 alone, 2,630 workers suffered from heat illness and 18 died from heat stroke and related causes on the job. Heat illnesses and deaths are preventable.

For farmworkers, delivery personnel, and construction crews, high temperatures can also mean [heat exhaustion and related maladies](#). Between 1992 and 2016, excessive heat killed 783 US workers and seriously injured 69,374, according to the BLS.

As the climate changes, [heat waves](#) are poised to get longer and more intense. That means more workers will face triple-digit temperatures, often for single-digit wages, threatening lives and livelihoods.

While much of the rest of the workforce is in air-conditioned offices and stores, they're not immune to the economic blows from climate change. By 2028, climate change will cost the US \$360 billion per year, about half the expected growth of the economy, according to the [Universal Ecological Fund](#). Much of this is due to health costs.

Researchers are starting to realize just how costly high temperatures are, and workers are now fighting back for cooler conditions.

Extreme heat is costly for workers and the economy as a whole

A huge slice of the US economy requires workers being outdoors and vulnerable to extreme temperatures. There are almost [5 million employed in transportation and logistics](#), more than [1.3 million farmworkers](#), more than [7 million working in construction](#), and more than [600,000 in mining](#). (Both open pit mines and [shaft mines](#) can get extremely hot.)

Rising temperatures have an impact on productivity well before they become dangerous. Economist [R. Jisung Park](#) reported that [worker productivity declines by 2 percent](#) for every degree Celsius above room temperature. It's a [worldwide phenomenon](#), with the hottest regions getting hit the hardest. The heat can dehydrate laborers, and higher temperatures demand more frequent breaks.

A 2014 study from the [Rhodium Group](#) found that the largest economic losses from climate change in the United States will come in the form of lost labor productivity.

According to the [Environmental Protection Agency](#), the United States will lose 1.8 billion labor hours across the workforce in the year 2100 due to extreme temperatures under a business-as-usual climate change scenario. That adds up to \$170 billion in lost wages.

But laborers aren't the only ones vulnerable to heat. Researchers at the [London School of Economics](#) found that urban areas also pay a price for high temperatures, even among indoor office workers. They found that in London, a warm year could cost the city's economy upward of 2.3 billion euros in productivity. Workers make more mistakes and [act more slowly](#) as temperatures rise above their optimal range. You can also see this effect in [factories](#).

RECOMMENDATIONS

OSHA has provided the following recommendations to prevent the ill – effects of heat stress.

- Protect new workers during the first tow weeks on the job. Make sure they take plenty of rest breaks and drink enough fluids.

- Never leave workers alone when they complain of heat-related symptoms. Their conditions can worsen quickly! Take them to a cool location and provide first aid. Even a brief delay in first aid can make the difference between life and death.
- Temperatures do not have to be extremely hot to cause heat stroke in workers. Remember, total heat stress is a combination of environmental heat and workload. Air temperatures in the 80s (°F) are high enough to result in a Heat Index value of 90°F. They are also high enough to kill some workers.
- Even experienced workers are vulnerable to heat-related illness when the weather becomes warmer. Throughout the first week of warmer conditions, treat all workers as if they need to adapt to working in the heat. Take extra precautions to protect them from heat-related illnesses.
- Make sure workers [drink enough fluids](#) during warm or hot weather.
- Heat-related illness can occur indoors. The risk is not limited to outdoor workers.
- Some types of work clothing prevent the release of heat from the body. Environmental heat measurements underestimate the risk of heat-related illness in these situations.
- Workers are at risk of heat-related illness when they are reassigned to warmer job tasks.

PREVENTION

Heat cramps are painful but not life-threatening: They most often occur in the leg and stomach muscles, and are caused by an imbalance of water and salt in the body. Water, rest and a lightly salted snack will help.

Heat exhaustion is more serious: It can be caused by either too little water or loss of salt through sweat. The first symptoms are dizziness, sweating, headache, weakness, tiredness and nausea. As this condition progresses, symptoms are reduced mental alertness, blurred vision, pale and wet skin and shallow rapid breathing.

If someone is suffering from heat exhaustion:

- Move the person to a cooler place.
- Loosen restrictive clothing.
- If the victim is conscious, have him drink a solution of one teaspoon of salt per pint of water.
- Lay the victim down.
- Raise the person's feet and legs slightly higher than his head.
- Fan the victim.
- Sponge with lukewarm water to encourage heat loss but don't chill the victim.
- Call for medical help.

Heat stroke is serious: Heat stroke is a life-threatening medical emergency. The body has lost its ability to sweat and the inner temperature has risen dangerously. The symptoms are similar to heat exhaustion but the skin will be hot and dry, and breathing will be deep and fast as if the victim has been running. He or she might complain that the muscles feel as if they are on fire. The person may collapse with little or no warning.

If someone is suffering from heat stroke:

- Call for medical assistance immediately.
- If the person is not breathing and you are properly trained, begin rescue breathing procedures.
- It is important to lower the inner body temperature rapidly because damage to the brain, kidneys and heart can occur. Remove the person's clothing and cover with a wet blanket or spray gently with water. Fan the person to increase heat loss.

These tips can help prevent heat stress in any form:

- Drink plenty of water or one of the commercially prepared drinks designed to replace fluids and minerals.
- Take rest breaks in a cooler area.
- Eat light, cool meals.
- Dress lightly, in layers, so that you can adjust as the temperature changes.
- Gradually get used to working in the heat.

Heat and humidity, either courtesy of mother nature or from man-made equipment and environments are hard on workers. Working in hot environments can easily fatigue workers and quickly lead to serious heat-related illness if not properly managed.

Step 1: Conduct Heat Stress Assessment

Are workers exposed to direct sunlight; is the humidity high along with the temperature; do workers wear PPE or protective clothing (respirators, fire-resistant clothing, and even hard hats); are there heat-producing equipment or processes?

Step 2: Measure Heat Exposure

The WetBulb Globe Temperature (WBGT) is a measure of the heat stress in direct sunlight, which considers temperature, humidity, wind speed, sun angle and cloud cover (solar radiation). This differs from the heat index, which takes into consideration temperature and humidity and is calculated for shady areas.

Step 3: Allow for Acclimatization

The body will get used to working in a hot environment gradually – it can take anywhere from 7-14 days. This is known as acclimatization or acclimating to the heat. What that means is the body becomes better at cooling itself down – it redirects blood to the skin's surface; the heart becomes more efficient; sweating starts sooner, there is more of it and the sweat contains less salt.

During this adjustment period, symptoms of fatigue, dizziness, heat rash, and stomach discomfort are common. Dehydration can cancel the benefits of acclimatization so providing and allowing for frequent intake of water and sports drinks is a must.

And while acclimatized workers will generally be able to work longer in a hot environment than unacclimated workers, caution must still be taken, and heat stress is still possible.

Step 4: Prevent Dehydration

Extreme temps and high humidity can make workers more susceptible

to becoming dehydrated. Symptoms of dehydration include thirst, fatigue, muscle cramps, nausea, dizziness or confusion, excessive perspiration, and hot, dry skin.

Provide water nearby on the job site and ensure everyone drinks ***even if they're not thirsty***. As a general guideline, the recommended amount of water intake is one quart per hour of active work or exercise for the average adult. That is the equivalent of 128 ounces (3.78 liters) every four hours at minimum. It is also suggested that the water intake be distributed over a period of time, such as every 15-30 minutes per shift.

Step 5: Manage Heat Exposure

In addition to allowing for acclimatization and preventing dehydration, there are other steps you can take to help workers manage heat exposure. Establish a first-aid response system with trained first-aid providers and a way to record and report heat stress incidents. Use the buddy system so workers can look out early signs of heat stress in each other. Provide shaded shelter and allow for frequent breaks.

Provide lift aids for material handling – dollies, carts, lifting devices – to reduce physical activity. Organize the work to reduce the pace of activity – if possible, postpone strenuous work until a cooler time of the day. Another option is to use job rotation and rotate workers in and out of hot areas.

Fans can be helpful under certain conditions – since fans do not cool the air, so air currents flowing over the body must be cooler than your body temperature to cool you down. So, provide fans when air temperature is below skin temperature (98.6°F/ 35°C) and the humidity is below 70%. Consider cooling or dehumidifying the workplace. When the temperature exceeds 98.6°F/ 35°C and the relative humidity is above 70%, the use of fans will increase worker's temperature because there will be little evaporation of sweat.

Step 6: Provide Training

Train workers on the different types of heat-related illnesses,

their signs and symptoms, and response and treatment. Educate them on the importance of staying hydrated and that thirst is not an indicator of hydration – which is why they must drink fluids regularly even if they aren't thirsty. Finally, make sure they understand that medications they take, and activities done outside of work, including drinking alcohol, can affect their response to heat.

Be on the Lookout

Before understanding the steps needed to address heat-related illnesses, you must first be aware of what kinds of injuries and illnesses can occur in the summers' extreme heat. Like mentioned before, the chances of a worker suffering from heat rash, heat cramps, heat exhaustion and heat stroke are significantly higher when the temperature begins to soar. Here are the most common heat illnesses, their symptoms and how to treat them.

Teacher Suffers Hearing Loss During Drill

INCIDENT

The Helena Police Department in Montana reached a \$100,000 settlement with [a Helena teacher who suffered hearing damage during an active shooter drill](#), and has since changed its training equipment to limit noise.

Lynn Trenary's lawsuit against the city was formally dismissed following the settlement. The city confirmed that it has revised its active shooter exercises to use quieter Airsoft firearms and training to not fire close to participants.

Trenary participated in active shooter training on June 10, 2016, at the Project for Alternative Learning in Helena. The exercise

was intended to train teachers how to respond to a school shooting.

Trenary was 20 feet away from an officer shooting blank ammunition as part of the drill. She believed the officer was giving instructions and was trying to understand what he was saying when he fired, the lawsuit says.

Trenary experienced hearing loss and a permanent ringing in her ears called tinnitus. She was not given hearing protection or warned that shots would be fired near her and her husband. Hearing protection was later provided at her request.

The lawsuit alleged negligence on the part of the city for failing to provide hearing protection or warn participants and failing to properly train employees to safely conduct the exercise.

In response to the lawsuit, [attorneys for the city of Helena acknowledge](#) that a Helena police officer fired the blanks, but said Trenary was warned to cover her ears with her hands before the shots were fired. The city contended in court filings that the Helena Police Department was not negligent and had followed procedures and standards of care. The city also stated that it was possible Trenary's hearing loss could have come from a prior incident.

Trenary's attorney issued a statement in response.

"The two blank gunshots fired from the policeman's pistol at the active shooter training caused serious permanent tinnitus and hearing loss. This has caused difficult communication problems for Lynn at work, home and socially," he said. "Lynn's family and friends are very aware of the new problems which her doctors said were directly caused by the gunshots being fired too close to her from a revolver.

"The city now uses 'airsoft' guns and bullets which when fired don't have the explosive danger of the blank bullets fired from a revolver. This change and the added care to not fire guns in close proximity to participants were positive results of this lawsuit."

The city continues to conduct active shooter exercises following the settlement.

“Active shooter trainings simulate real scenarios to help prepare individuals for the worst,” public information officer Rebecca Connors said in a statement. “The city has adapted the program to both accommodate the safety of attendees while balancing the realism of the training.”

NEED TO KNOW

Health Effects

Exposure to loud noise kills the nerve endings in our inner ear. More exposure will result in more dead nerve endings. The [result is permanent hearing loss](#) that cannot be corrected through surgery or with medicine. Noise-induced hearing loss limits your ability to hear high frequency sounds and understand speech, which seriously impairs your ability to communicate. Hearing aids may help, but they do not restore your hearing to normal.

HEARING LOSS OCCURS

Hearing loss occurs when workers are exposed to high levels of noise, whether suddenly or on an ongoing basis. Sadly, this type of hearing loss cannot be corrected medically – neither surgery nor hearing aids are effective if hearing has been significantly damaged by hazardous noise. In some cases, the hearing loss is temporary. After leaving work, you may notice a reduced ability to hear, which returns after a few minutes or several hours. Unfortunately, constant exposure will eventually lead to permanent tinnitus (ringing in the ears) or permanent, significant hearing loss. The temporary hearing loss is merely the first stage of permanent damage.

SIGNS OF WORK-RELATED HEARING LOSS

The signs of a worker’s exposure to dangerous, potentially permanently damaging noise levels include the following symptoms:

- Ringing in the ears (tinnitus)

- Buzzing sound in ears
- Roaring sound in head or ears
- Difficulty hearing the words of a person close to you at normal volume
- Indistinct sounds at higher ranges

Workers can experience these symptoms after leaving the place of employment, and as the hours pass, the effect reduces and regular hearing appears to be restored. In fact, if you are experiencing any of these symptoms, you may be in the early stages of permanent hearing loss.

Hearing Loss in the Manufacturing Industry

For workers in the manufacturing industry, hearing loss is the most commonly recorded occupational injury. Between compressed air, which is an estimated 92 dB, and loud machinery like grinders, drills and milling machines, which typically hit dB levels 95 and above, it's important for employers to take extra care to protect workers' hearing.

Hearing Loss in the Construction, Carpentry and Mining Industries

Loud power tools also make workers in construction, carpentry and mining industries particularly susceptible to hearing loss. In fact, some tools, like a jackhammer, can reach up to 130 dB—more than 45 dB above the recommended limit. When exposed to these sounds for extended periods of time during a shift, the risk of hearing damage increases.

Likewise, miners are regularly exposed to sounds related to drilling into rock in a confined work environment, and as a result most miners have some form of hearing loss by the time they retire, according to the CDC.

Other industries most commonly affected by hearing loss include entertainment and nightlife, military, agriculture and farming.

WORKPLACE RISKS ASSOCIATED WITH HEARING LOSS

Hearing is the body's built-in alarm system and plays a vital role

in protecting a person from physical harm. Hearing picks up on possible dangers that may not be visible yet, like the sound of an approaching truck or the clanging of a broken machine. However, when hearing is compromised, the built-in alarm system isn't as effective and may not pick up on incoming dangers as quickly, putting workers at risk.

Workplace accidents are common among workers with hearing damage due to reduced situational awareness or the inability to hear a warning siren or signal.

The risks associated with hearing loss don't stop there. Not only does hearing loss contribute to workplace-related issues, it can also take a toll on an employee's quality of life. Hearing loss is permanent, and as it worsens, it can make interpersonal communication difficult and frustrating, putting a strain on relationships. In addition, ringing in the ears associated with hearing loss can be disruptive to normal sleep patterns and concentration, which sometimes can increase the risk of depression, anxiety and stress. All of these factors may contribute to underperformance or dissatisfaction at work.

BUSINESS/REGULATION

[OSHA requires](#) employers to implement a hearing conservation program when noise exposure is at or above 85 decibels averaged over 8 working hours, or an 8-hour time-weighted average (TWA). Hearing conservation programs strive to prevent initial occupational hearing loss, preserve and protect remaining hearing, and equip workers with the knowledge and hearing protection devices necessary to safeguard themselves.

Under **OSHA's Noise Standard**, the employer must reduce noise exposure through [engineering controls, administrative controls, or Hearing Protection Devices \(HPDs\)](#) to attenuate the occupational noise received by the employee's ears to within levels specified in Table G-16 and Table G-16A of 29 CFR 1910.95(b)(1).

Know Your Workplace Noise Levels!

If you need to raise your voice to speak to someone 3 feet away,

noise levels might be over 85 decibels. Several sound-measuring instruments are available to measure the noise levels in a workspace. These include sound level meters, noise dosimeters, and octave band analyzers.

Noise may be a problem in your workplace if you:

- Hear ringing or humming in your ears when you leave work.
- Have to shout to be heard by a coworker an arm's length away.
- Experience temporary hearing loss when leaving work.

STATISTICS

- The Center for Disease Control (CDC) estimates that 22 million workers are exposed to potentially damaging noise at work each year. Whether you work at a sports venue, on a tarmac, or operate a jackhammer—hearing loss is preventable.
- Some of the most prevalent workplace hazards aren't seen—they're heard. The National Institute for Occupational Safety and Health (NIOSH) reports that 22 million U.S. workers are exposed to damaging noise levels at work, and according to the Centers for Disease Control and Prevention (CDC), workplace-related hearing loss is the most commonly reported injury.
- It's not surprising, then, that hearing loss disability accounts for an estimated \$242 million in workers' compensation payments each year, according to the Department of Labor.
- Approximately 48 million Americans have some degree of hearing loss, according to the Hearing Loss Association of America. The National Institutes of Health estimates that 15% of those aged 20 to 65 are living with some level of noise-induced hearing loss.
- Noises over 85 decibels (dB) warrant the use of protection. For reference, normal talking is 60 dB, city traffic is 85 dB and a rock concert or a tractor is about 100-115 dB. Without proper protection, prolonged noise exposure in a factory setting can compound the hearing loss incurred from every day noises.

PREVENTION

Steps to reduce the hazard from noise

Noise controls are the first line of defense against excessive noise exposure. The use of these controls should aim to reduce the hazardous exposure to the point where the risk to hearing is eliminated or minimized. With the reduction of even a few decibels, the hazard to hearing is reduced, communication is improved, and noise-related annoyance is reduced. There are several ways to control and reduce worker exposure to noise in a workplace.

Engineering controls that reduce sound exposure levels are available and technologically feasible for most noise sources. Engineering controls involve modifying or replacing equipment, or making related physical changes at the noise source or along the transmission path to reduce the noise level at the worker's ear. In some instances the application of a relatively simple engineering noise control solution reduces the noise hazard to the extent that further requirements of the [OSHA Noise standard](#) (e.g., audiometric testing (hearing tests), hearing conservation program, provision of hearing protectors, etc...) are not necessary. Examples of inexpensive, effective engineering controls include some of the following:

- Choose low-noise tools and machinery (e.g., [Buy Quiet Roadmap \(NASA\)](#)).
- Maintain and lubricate machinery and equipment (e.g., oil bearings).
- Place a barrier between the noise source and employee (e.g., sound walls or curtains).
- Enclose or isolate the noise source.

Administrative controls are changes in the workplace that reduce or eliminate the worker exposure to noise. Examples include:

- Operating noisy machines during shifts when fewer people are exposed.
- Limiting the amount of time a person spends at a noise

source.

- Providing quiet areas where workers can gain relief from hazardous noise sources (e.g., construct a sound proof room where workers' hearing can recover – depending upon their individual noise level and duration of exposure, and time spent in the quiet area).
- Restricting worker presence to a suitable distance away from noisy equipment.

Controlling noise exposure through distance is often an effective, yet simple and inexpensive administrative control. This control may be applicable when workers are present but are not actually working with a noise source or equipment. Increasing the distance between the noise source and the worker, reduces their exposure. In open space, for every doubling of the distance between the source of noise and the worker, the noise is decreased by 6 dBA.

Hearing protection devices (HPDs), such as earmuffs and plugs, are considered an acceptable but less desirable option to control exposures to noise and are generally used during the time necessary to implement engineering or administrative controls, when such controls are not feasible, or when worker's hearing tests indicate significant hearing damage.

An **effective program** must be implemented by employers in general industry whenever worker noise exposure is equal to or greater than 85 dBA for an 8 hour exposure or in the construction industry when exposures exceed 90 dBA for an 8 hour exposure. This program strives to prevent initial occupational hearing loss, preserve and protect remaining hearing, and equip workers with the knowledge and hearing protection devices necessary to protect them. Key elements of an [effective hearing conservation program](#) include:

- Workplace noise sampling including personal noise monitoring which identifies which employees are at risk from hazardous levels of noise.
- Informing workers at risk from hazardous levels of noise exposure of the results of their noise monitoring.
- Providing affected workers or their authorized representatives with an opportunity to observe any noise

measurements conducted.

- Maintaining a worker audiometric testing program (hearing tests) which is a professional evaluation of the health effects of noise upon individual worker's hearing.
- Implementing comprehensive hearing protection follow-up procedures for workers who show a loss of hearing (standard threshold shift) after completing baseline (first) and yearly audiometric testing.
- Proper selection of hearing protection based upon individual fit and manufacturer's quality testing indicating the likely protection that they will provide to a properly trained wearer.
- Evaluate the hearing protectors attenuation and effectiveness for the specific workplace noise.
- Training and information that ensures the workers are aware of the hazard from excessive noise exposures and how to properly use the protective equipment that has been provided.
- Data management of and worker access to records regarding monitoring and noise sampling.

How to Improve Hearing Conservation Program

When it comes to hearing loss, prevention is key. Almost all work-related hearing loss is cumulative and permanent, so it's important for employers to take steps to prevent damage before it happens.

A great step in preventing work-related hearing damage is to implement a **Hearing Conservation Program**. Not only do these programs protect workers from occupational hearing loss, but they can also play a role in increasing employees' sense of well-being and reduce the incidence of stress-related disease. Stress decreases blood flow that helps hair cells within the ear work properly. Therefore, reducing workers' stress can help maintain the overall health of the ear.

Hearing conservation is an OSHA mandate that requires companies to take action and institute occupational noise and hearing

conservation programs for employees who work in areas where the probable exposure to noise equals or exceeds an eight-hour time-weighted average (TWA) sound level of 85 dB.

An effective hearing conservation program includes regular, ongoing sound monitoring, audiograms, employee training and protective equipment.

Regular, Ongoing Sound Monitoring

Sound level meters and dosimeters are two important elements of an effective hearing conservation program. Sound level meters measure sound intensity at a specific moment, while dosimeters measure a person's average exposure to noise over a period of a time. Employers can monitor and record sound levels throughout the workplace to help employees understand areas where the risk of hearing loss may be higher.

Audiograms

An effective hearing conservation program includes taking a baseline audiogram, which takes place 14 hours or more after the employee was last exposed to occupational noise. Following the baseline audiogram, annual audiograms should be performed to record any changes. These results should be analyzed and compared to previous tests to provide insights into how an employee's hearing has changed. These changes are recorded as a Standard Threshold Shift (STS) if the loss is greater than a certain level.

An STS is a detectable change in hearing when compared to the baseline audiogram. If a shift is identified, an employer is required to inform the employee within 21 days and refer them to an audiologist for follow-up testing and possible treatment. This also is a good opportunity for both employers and employees to assess hearing protection methods and make any needed changes.

Employee Training

Training workers is another essential step to educating a workforce about the risks associated with hearing loss and the importance of prevention. At a minimum, employers should conduct

an annual noise training with all employees, but regular reminders throughout the year are also recommended. For example, hanging educational posters and noise maps, which highlight decibel levels throughout the workplace, is a great way to remind employees throughout the year to take steps to mitigate hearing damage.

It can also be helpful to offer one-on-one educational sessions with individual employees who may be exposed to louder noises on a regular basis.

Protective Equipment

In addition to monitoring and training, employers must also provide workers with suitable equipment to protect hearing while at work. In fact, this is an OSHA requirement for workplaces where the noise levels meet or exceed 85 dB.

There are a wide variety of options when it comes to hearing protective devices and employers can often find several appropriate options that fit the needs of employees and the workplace. Examples include earplugs and earmuffs that come in a wide variety of different styles, like disposable and reusable, to fit employers' and employees' preferences.

Toxic Fumes Kills Worker During Cleanup

INCIDENT

Firefighters responded to a call from the location, which reported a chemical reaction in the kitchen area and evacuated the establishment after declaring a Tier 1 (lowest response level) hazmat incident. Investigators from the Occupational Safety and Health Administration (OSHA) arrived later and through a joint investigation with the fire department revealed the cause of the

chemical reaction to be the interaction between two cleaning agents, Super 8 and Scale Kleen, used together to clean the kitchen floor.

A 32-year-old worker died after inhaling cleaning chemical fumes at a Buffalo Wild Wings restaurant and sports bar in Burlington, Massachusetts. The worker was identified as Ryan Baldera by interim Burlington Fire Department Chief Michael Patterson. Baldera was the restaurant's general manager.

Baldera instructed his fellow workers to leave the area and tried to clean up the chemicals himself. He became nauseated after inhaling the toxic fumes and died after being rushed to the hospital. Eight workers and two patrons were also taken to hospitals after feeling ill, but none are known to have been seriously injured by the fumes.

NEED TO KNOW

Proper ventilation, access or knowledge of Safety Data Sheet for cleaning chemicals, proper training, lax regulation enforcement are all factors in the tragedy that unfolded in a Buffalo Wild Wings restaurant.

BUSINESS / REGULATIONS

It is not clear whether the area was properly ventilated, if workers at the Buffalo Wild Wings location had access or knowledge of Safety Data Sheets (SDS) for the cleaning chemicals used at the restaurant, if they had the proper safety training to deal with these chemicals, or if they had safety equipment available in the establishment to protect themselves from injury. If so, did they have enough time or staff levels to access needed safety equipment?

These standards for employers are not laws, however, and are hardly enforceable. Furthermore, the standards themselves allow the chemical corporations themselves, to create the SDS for the chemicals they make and sell.

SDS put out by manufacturer Auto-Chlor for Super 8 (which contains

sodium hypochlorite, a highly concentrated form of chlorine) warn against reactions with strong acids, of which Scale Kleen, also made by Auto-Chlor, is composed. However, nowhere in the SDS put out by Auto-Chlor does the manufacturer name specific products it manufactures that should not be used together without the risk of serious harm.

Workers at Buffalo Wild Wings across the US have reported stressful working conditions including short staffing during busy times of day, being forced to work far longer hours than originally scheduled, and complain of being insufficiently trained. All of these conditions are faced by workers across all industries and have contributed to increasing numbers of workplace deaths and injuries over the past decade.

The Buffalo Wild Wings restaurant chain is owned by private holding company Inspire Brands, formerly Arby's Restaurant Group, which owns Buffalo Wild Wings, Arby's, Jimmy John's, Sonic, and Rusty Taco fast food restaurants.

Inspire is not required to publicly report its annual profits, but its global operations bring in billions of dollars of revenue each year off the backs of low wage earner workforce. Its CEO Paul J. Brown is most recently estimated to have a net worth of nearly \$2 million as of 2017, exponentially higher than any of the employees at Inspire's restaurants, who toil at minimal wages for long hours in part-time jobs.

There is more than enough wealth held by this global corporation to ensure that workers have access to a safe workplace with adequate safety training and staff levels.

Baldera was a new father. Friends and family showed an out pouring of support on social media following the news of his death.

Massachusetts Democratic State Representative Kenneth Gordon wrote on Facebook of Balderas's death: "RIP Ryan Baldera. Who died cleaning up a toxic chemical incident himself while ushering his employees away from the dangerous area. Such a tragedy."

STATISTICS

Workers in the service industry, such as retail and restaurant workers, are some of the lowest-paid workers in the US and in many other countries, with few benefits and job protections.

Service workers are part of a growing wave of workers fighting for better working and living conditions.

The Bureau of Labour Statistic (B. L. S.) data for 2002 – 2005 indicates that fatal workplace injuries were on the rise in both wholesale and retail trades. From 2003 – 2005, fatalities resulting from traumatic injuries increased by 16.3 % in retail trade and 9,4 % in wholesale trade.

In 2005 WRT fatalities represented nearly 12% of all workers deaths from traumatic injury in private industry. Of these 609 deaths, 400 occurred in retail trade and 209 occurred in wholesale trade. Statistically, 3% of the 400 fatalities resulted from exposure to harmful substance / environments such as the tragedy with Mr. Baldera.

PREVENTION

It has been noted that the Trump administration has cut regulation significantly. This is applicable to OSHA regulation dealing with issues relevant to the death of Mr. Baldera. For every regulation added, two regulations must be discarded and removed. The Trump mantra. Cutting back workplace safety and health programs has been done through decades of relaxing safety regulations.

The answer for prevention lays with Osha's 2012 Safety Hazard Communication Standard.

OSHA's 2012 Safety Hazard Communication standard requires that a chemical's manufacturer, distributor or importer provide Safety Data Sheets (SDS) and that employers "must ensure that the SDSs are readily accessible to employees for all hazardous chemicals in their workplace. This may be done in many ways. For example, employers may keep the SDSs in a binder or on computers as long as the employees have immediate access to the information without leaving their work area when needed."

Construction Suffers Auditory Damage

INCIDENT

In 2008, Jeff Ammon, 55, began noticing a feeling of pressure in his ears every day after work.

Over the next months, when his symptoms progressed into a slight loss of hearing and sensitivity to noise, he became worried. Ammon, a construction worker for 32 years, eventually started wearing ear protection hoping this would address these complaints – but it was too late.

From that point on, sounds ranging from the hum of a lawnmower to normal tones of conversation caused a piercing, jabbing pain in his inner ear. He stopped working in 2011, when the pain became unbearable. He also hears ringing in his ears and experiences dizziness, both side effects of the auditory damage.

“It’s debilitating ... completely,” he said.

Ammon spent almost all of his working life surrounded by the loud noises of jackhammers, saws and air compressors.

Ammon worked for several small construction companies building houses. He said he was never told to wear ear protection. His colleagues didn’t wear it either. No one talked about it and, even when he worked with loud equipment, he wasn’t aware of the need for ear protection.

He applied for Social Security disability benefits but was rejected because his condition was not on the Social Security Administration’s list of medical diseases considered disabling. When he first experienced his symptoms, he visited dozens of audiologists who only told him he had slight hearing loss.

Research linking hyperacusis – unusual tolerance toward ordinary sounds – and pain was only at its infancy. Specific treatments still are not available for people with this type of hearing damage.

These days, he experiments with new medications or therapies, hoping for more awareness about the illness – and about protecting hearing at the workplace. He is waiting for the third appeal for Social Security disability benefits.

“I’m hearing a little more about it, but not nearly enough,” he said. “And it needs to start at the workplace.”

Now he avoids going outdoors, choosing instead to stay in his soundproof basement in Lebanon, Pa., and communicate with his doctor mostly through an online patient portal.

“The medication to address pain has not been very successful at all. ... I’m also on some medication for stress, anxiety and depression,” he said. “It has isolated me from society.”

NEED TO KNOW

Noise, or unwanted sound, is one of the most pervasive occupational health problems. It is a by-product of many industrial processes. Sound consists of pressure changes in a medium (usually air), caused by vibration or turbulence. These pressure changes produce waves emanating away from the turbulent or vibrating source. Exposure to high levels of noise causes hearing loss and may cause other harmful health effects as well. The extent of damage depends primarily on the intensity of the noise and the duration of the exposure.

Noise-induced hearing loss can be temporary or permanent. Temporary hearing loss results from short-term exposures to noise, with normal hearing returning after period of rest. Generally, prolonged exposure to high noise levels over a period of time gradually causes permanent damage.

OSHA’s Hearing Conservation Program is designed to protect workers with significant occupational noise exposures from hearing impairment even if they are subject to such noise exposures over

their entire working lifetimes.

What monitoring is required?

The **Hearing Conservation Program** requires employers to monitor noise exposure levels in a way that accurately identifies employees exposed to noise at or above 85 decibels (dB) averaged over 8 working hours, or an 8-hour time-weighted average (TWA). Employers must monitor all employees whose noise exposure is equivalent to or greater than a noise exposure received in 8 hours where the noise level is constantly 85 dB. The exposure measurement must include all continuous, intermittent, and impulsive noise within an 80 dB to 130 dB range and must be taken during a typical work situation. This requirement is performance-oriented because it allows employers to choose the monitoring method that best suits each individual situation.

Employers must repeat monitoring whenever changes in production, process, or controls increase noise exposure.

Employees are entitled to observe monitoring procedures and must receive notification of the results of exposure monitoring. The method used to notify employees is left to the employer's discretion.

Employers must carefully check or calibrate instruments used for monitoring employee exposures to ensure that the measurements are accurate. Calibration procedures are unique to specific instruments. Employers should follow the manufacturer's instructions to determine when and how extensively to calibrate the instrument.

What is audiometric testing?

The employer must establish and maintain an audiometric testing program. The important elements of the program include baseline audiograms, annual audiograms, training, and follow-up procedures. Employers must make audiometric testing available at no cost to all employees who are exposed to an action level of 85 dB or above, measured as an 8-hour TWA.

The audiometric testing program follow-up should indicate whether the employer's hearing conservation program is preventing hearing loss. A licensed or certified audiologist, otolaryngologist, or another physician must be responsible for the program. Both professionals and trained technicians may conduct audiometric testing.

What is a baseline audiogram?

The baseline audiogram is the reference audiogram against which future audiograms are compared. Employers must provide baseline audiograms within 6 months of an employee's first exposure at or above an 8-hour TWA of 85 dB. An exception is allowed when the employer uses a mobile test van for audiograms. In these instances, baseline audiograms must be completed within 1 year after an employee's first exposure to workplace noise at or above a TWA of 85 dB. Employees, however, must be fitted with, issued, and required to wear hearing protectors whenever they are exposed to noise levels above a TWA of 85 dB for any period exceeding 6 months after their first exposure until the baseline audiogram is conducted.

What are annual audiograms?

Employers must provide annual audiograms within 1 year of the baseline. It is important to test workers' hearing annually to identify deterioration in their hearing ability as early as possible. This enables employers to initiate protective follow-up measures before hearing loss progresses. Employers must compare annual audiograms to baseline audiograms to determine whether the audiogram is valid and whether the employee has lost hearing ability or experienced a standard threshold shift (STS). An STS is an average shift in either ear of 10 dB or more at 2,000, 3,000, and 4,000 hertz.

What is an employer required to do following an audiogram evaluation?

The employer must fit or refit any employee showing an STS with adequate hearing protectors, show the employee how to use them,

and require the employee to wear them. Employers must notify employees within 21 days after the determination that their audiometric test results show an STS. Some employees with an STS may need further testing if the professional determines that their test results are questionable or if they have an ear problem thought to be caused or aggravated by wearing hearing protectors. If the suspected medical problem is not thought to be related to wearing hearing protection, the employer must advise the employee to see a physician. If subsequent audiometric tests show that the STS identified on a previous audiogram is not persistent, employees whose exposure to noise is less than a TWA of 90 dB may stop wearing hearing protectors.

The employer may substitute an annual audiogram for the original baseline audiogram if the professional supervising the audiometric program determines that the employee's STS is persistent. The employer must retain the original baseline audiogram, however, for the length of the employee's employment. This substitution will ensure that the same shift is not repeatedly identified. The professional also may decide to revise the baseline audiogram if the employee's hearing improves. This will ensure that the baseline reflects actual hearing thresholds to the extent possible. Employers must conduct audiometric tests in a room meeting specific background levels and with calibrated audiometers that meet American National Standard Institute (ANSI) specifications of SC-1969.

When is an employer required to provide hearing protectors?

Employers must provide hearing protectors to all workers exposed to 8-hour TWA noise levels of 85 dB or above. This requirement ensures that employees have access to protectors before they experience any hearing loss.

Employees must wear hearing protectors:

- For any period exceeding 6 months from the time they are first exposed to 8-hour TWA noise levels of 85 dB or above, until they receive their baseline audiograms if these tests are delayed due to mobile test van scheduling;

- If they have incurred standard threshold shifts that demonstrate they are susceptible to noise; and
- If they are exposed to noise over the permissible exposure limit of 90 dB over an 8-hour TWA.

Employers must provide employees with a selection of at least one variety of hearing plug and one variety of hearing muff. Employees should decide, with the help of a person trained to fit hearing protectors, which size and type protector is most suitable for the working environment. The protector selected should be comfortable to wear and offer sufficient protection to prevent hearing loss.

Hearing protectors must adequately reduce the noise level for each employee's work environment. Most employers use the Noise Reduction Rating (NRR) that represents the protector's ability to reduce noise under ideal laboratory conditions. The employer then adjusts the NRR to reflect noise reduction in the actual working environment.

The employer must reevaluate the suitability of the employee's hearing protector whenever a change in working conditions may make it inadequate. If workplace noise levels increase, employees must give employees more effective protectors. The protector must reduce employee exposures to at least 90 dB and to 85 dB when an STS already has occurred in the worker's hearing. Employers must show employees how to use and care for their protectors and supervise them on the job to ensure that they continue to wear them correctly.

Training

Employee training is very important. Workers who understand the reasons for the hearing conservation programs and the need to protect their hearing will be more motivated to wear their protectors and take audiometric tests. Employers must train employees exposed to TWAs of 85 dB and above at least annually in the effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; the selection, fit, and care of protectors; and the purpose and procedures of audiometric testing.

BUSINESS / REGULATION

OSHA adopted regulations requiring employers to create a **Hearing Conservation Program** in situations where workers are exposed to a time-weighted average noise level of 85 A-weighted decibels (dBA) or higher throughout an eight-hour shift.

These **Hearing Conservation Programs** require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protection equipment unless changes to tools, equipment and schedules are made to reduce exposure below the 85-dBA level.

OSHA's maximum permissible (as opposed to day-long average) exposure limit is 90 dBA for all workers for an eight-hour day. In addition, the OSHA standard employs a 5-dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half.

Federal regulations require employers to operate an effective **Hearing Conservation Program** (HCP) for people working in hazardous noise. However, even with specific rules and recommendations to guide them, employers may struggle to be pro-active and able to prevent occurrences of noise-induced hearing loss. This webinar will address some common reasons for HCP ineffectiveness and offer tools and recommendations for improving the management of HCPs. This webinar is designed for all persons who play a role in delivering hearing loss prevention services in the workplace.

The **Labor Department** launched a challenge called "Hear and Now," in which it is soliciting pitches for innovative ideas and technology to better alert workers of hazardous noise levels.

But critics say that while these efforts might help, technology to reduce hearing injuries already exists. They contend that the maximum level of noise exposure allowed before employers are required to provide sound-protection equipment is too low, and the regulations developed by **the Occupational Safety and Health**

Administration are outdated. For example, those regulations use sound level limits that don't factor in the noise exposures that occur beyond the workplace – at restaurants, concerts and sporting venues, for instance – that can add to workers' cumulative risks of harm.

According to **OSHA officials**, the agency will issue a request for information about current regulations at construction sites to figure out if more stringent protections are needed and how companies are complying.

Employers may also have to shoulder the responsibility of instilling more awareness and education among their workers. For example, workers sometimes choose not to wear hearing protection at work sites because they are not aware of their risks – especially when they are not operating loud equipment.

Mark Cullen, a professor at Stanford University who explores workplace hazards, found in a study that “at very high noise exposures, people very faithfully wear hearing protection and at low noise situations, people don't.

For general industry workers who are exposed to noise for eight hours a day at or above a time-weighted average of 85 decibels, **OSHA** requires employers to provide notification, audiometric testing and free hearing protectors. Employers also have to offer training programs for affected workers. The limit is 90 decibels for an eight-hour exposure for construction industry workers.

Cullen said employers could build noise barriers or eliminate noisy equipment, but old factories often choose to just offer hearing protection gear.

STATISTICS

Noise-induced hearing loss is a serious and preventable workplace and off-the-job hazard. Here are seven statistics relating to this problem.

1. Four million American workers who go to work each day are exposed to damaging noise levels. (NIOSH)

2. A WorkSafeBC study found that 25 percent of young people entering the workforce showed early signs of hearing loss, with a further 4.6 percent showing abnormal hearing test results.
3. In 2007, approximately 82 percent of occupational hearing loss cases were reported among workers in the manufacturing sector. (NIOSH)
4. The two most common causes of hearing loss are noise-induced hearing loss and age-related hearing loss.
5. Noise-induced hearing loss is the number one occupational disease in North America. (Workplace Medical Corp.)
6. **A Comprehensive Hearing Conservation program** consists of these seven elements: noise measurement; education and training; engineered noise control; hearing protection devices; the posting of signs warning of noise hazards and the need for hearing PPE; annual hearing tests; and an annual program review.
7. Noise above 90 decibels (dBs) can cause hearing loss, especially when the exposure lasts for an extended period of time. (Bureau of Labor Statistics).

Occupational Hearing Loss

- The National Institute for Occupational Safety and Health (NIOSH) recommends that workers are not exposed to noise at a level that amounts to more than 85 decibels (dBA) over 8 continuous hours.
- NIOSH estimates that 30 million U.S. workers are exposed to noise levels high enough to cause irreversible hearing loss.
- According to the U.S. Bureau of Labor Statistics, more than 20,000 workplace hearing loss cases occur annually, many resulting in permanent hearing loss.
- An estimated 24% of hearing loss in the United States has been attributed to workplace exposure, according to the Centers for Disease Control

Employment and Economic Costs

- 48% of people who have hearing loss were employed in 2014, but about the same amount (47%) are not in the labor force.

- Adults with hearing loss are more likely to have lower education, lower income, and be unemployment or underemployment, compared with their typical-hearing peers.
- Individuals with hearing loss also experience greater difficulties in employment transition and career development, compared with those with typical hearing.
- Untreated hearing loss can decrease one's annual income by as much as \$30,000. The yearly cost to society is estimated to be as high as \$26 billion in unrealized federal taxes; and an estimated aggregate yearly income loss of \$176 billion due to underemployment.
- For those who did collect an income, individuals with hearing loss made about 25% less; their mean wage was \$23,481, compared with \$31,272 for typical-hearing peers.
- Hearing aids were shown to reduce the risk of income loss by 90 to 100% for those with milder hearing loss, and from 65 to 77% for those with moderate to severe hearing loss.

Untreated hearing loss shows a higher rate of unemployment:

- Those with severe hearing loss had an unemployment rate (15.6%) double that of the typical-hearing population (7.8%), and nearly double that of their peers (8.3%) who use hearing aids. (BHI)

PREVENTION

1. The essential parts of a Hearing Conservation Program are as follows:

- Identify and assess areas and activities where employees may be exposed to:
 - high noise levels that may exceed 85 decibels (dBA) averaged over an eight-hour period,
 - extreme noise levels of 115 dBA at any time (greater than one second)
 - extreme impact noise levels of 140 dBC (less than one second)
- Reduce or control noise using engineering and administrative controls, where feasible.

- Post signs at noisy areas and require hearing protectors.
- Identify employees who need hearing protection.
- Provide hearing protectors to employees and train them in their use.
- Provide baseline and annual audiometric hearing exams to employees.

1. Responsibilities of Managers, Supervisors and Investigators

- Identify areas of excessive noise and affected employees.
- Coordinate sound level surveys and personnel monitoring for noise exposure, conducted by EH&S, to provide a quantitative assessment of noise hazards in your workplace.
- If employees are exposed to noise above 90 dBA averaged over the work shift, implement engineering or administrative controls. See the L&I Hearing Loss Prevention (Noise) webpage and Reducing Hazards from Noise (OSHA).
- Ensure individuals exposed to noise levels at or above 85 dBA averaged over an 8-hour work shift are enrolled in the Hearing Loss Prevention Program, receive training and medical surveillance.
- Ensure employees are provided with baseline and annual audiometric exams at the [UW Speech and Hearing Clinic](#), or equivalent, through EH&S.
- Ensure staff has taken the [Hearing Conservation training](#).
- Provide at least two types of hearing protectors to employees if controls cannot be implemented, and for all employees exposed to noise levels at or over 85 dBA averaged over an 8-hour work shift, greater than 115 dBA any time and 140 dBC impact noise any time.
- Ensure hearing protectors are worn properly.
- Post caution signs where noise may exceed 85 dBA averaged over an 8-hour work shift.
- Post danger signs where noise may exceed 115 dBA, even intermittently.
- Ensure that reports of high noise are investigated.
- Maintain records as required.

Responsibilities of Employees

- Report elevated noise levels, noisy equipment and hearing protector problems to supervisor.
 - Take training on Hearing Conservation.
 - Choose the most comfortable, effective hearing protection devices that fit well. Remember that the BEST protector is one you'll wear. Earplugs are available in different sizes and shapes to fit different ear canals; earmuffs are easy to put on and take off for short-term loud noise exposure. A combination of earmuffs and earplugs may be needed.
 - Wear hearing protectors in posted noise areas.
 - Keep hearing protectors clean and replace when necessary.
 - Take baseline and annual audiogram tests.
-

Technician Has Heart Attack on the Job

INCIDENT

Heart attacks can be covered by workers' compensation insurance depending on the circumstances. Witness and expert medical testimony swayed the court in this case.

Martan Kelly Jr. was a technician for Card Heating & Air Conditioning in Pennsylvania. One morning, he reported to work at a funeral home where the company was installing heating and air conditioning equipment. He told his foreman that he felt weak, tired and had a kink in his neck from sleeping poorly the night before. Kelly declined an offer to go home and was given a light-duty assignment of running thermostat wire.

Feeling better around noon, Kelly decided to run wire in the attic of the one-story building by climbing a 12-15-foot ladder. A short time later, employees heard moaning coming from the attic and found Kelly lying incoherent on the floor, bleeding from his head, face and leg.

Kelly was pronounced dead at a local hospital a short time later.

An autopsy revealed coronary artery and heart disease, three heart arteries significantly blocked (60-90%), and 90% stenosis of the left main descending coronary artery. The cause of death was a [heart attack](#).

Kelly's widow filed a workers' compensation claim for survivors' benefits, claiming his [heart attack](#) occurred as a result of his employment. Card denied the claim, and the case went before a workers' comp judge (WCJ).

Kelly's widow testified he didn't have any health problems, didn't complain about chest pain, never saw a heart doctor and wasn't on any medications. She acknowledged her husband [smoked a pack of cigarettes a day](#) for the last 30 years.

Card's foreman also testified about how Kelly said he felt when he arrived for work the day he died. The foreman said he would not consider running wire to be physical labor, rather it was light duty work. A Card supervisor agreed running wire was a "pretty low strenuous job."

A board-certified cardiologist testified for Kelly's widow that Kelly's heart attack occurred because he exerted himself by climbing the ladder that could have led to a plaque rupture and his heart attack. The doctor also said it was likely Kelly fell because of his bleeding when found by co-workers. A fall also could have caused a plaque rupture. The doctor acknowledged he couldn't be certain when the plaque ruptured and that Kelly had other risk factors, including smoking, a family history of coronary artery disease (his mother died of it at age 59) and untreated high cholesterol.

When he was cross-examined, the doctor said his statement that Kelly "likely fell and hit his head" "should probably be changed to 'potentially.'"

Card also had a doctor board certified in cardiovascular disease testify. The company's doctor didn't believe Kelly's heart attack was work-related. The company's doctor said Kelly's pre-existing

coronary artery disease put him at a high risk for a sudden cardiac death. Since three of his arteries were so severely blocked, he was an imminent risk for a heart attack whether he was working or not.

The company doctor also said Kelly had been suffering from insufficient blood flow to the heart for 8 to 12 hours before coming to work. The doctor noted Kelly slept in a recliner chair the previous night because he wasn't able to lie flat in bed due to his cardiac symptoms. The doctor also said Kelly's duties the day he died were insufficient to cause the heart attack. Climbing the ladder wouldn't have elevated Kelly's heart rate enough to cause a cardiac event unless he had done it quickly or repeatedly and for more than nine minutes.

The WCJ ruled in favor of the company. The judge found the company doctor's testimony to be more credible and agreed with the foreman that the work Kelly was doing wasn't strenuous. The judge also noted Kelly's pre-existing blockages that put him at risk of an imminent heart attack with or without physical exertion.

Kelly's widow appealed, and the Pennsylvania Workers' Compensation Appeal Board affirmed the WCJ's ruling. She took her case to a state court

Not enough proof it was work-related

The burden is on the claimant (in this case Kelly's widow) to show that a fatal heart attack is work-related. Specifically, the claimant must show the heart attack:

- arose in the course of employment, and
- was related to employment.

Kelly's heart attack happened at work, so there's no question it arose in the course of employment. The question is whether it was related to employment.

If a worker's sudden cardiac death isn't obviously caused by work, a connection must be established by "unequivocal medical testimony."

Kelly's widow argued the Board erred because there wasn't proof, he was having symptoms 8 to 12 hours before the heart attack as the company doctor said.

Kelly's widow would not receive workers' comp survivor benefits for her husband's at-work heart attack.

NEED TO KNOW

Many people live sedentary lives. We spend most of our waking hours at work sitting behind a desk, behind the wheel, or behind a counter. Then we plop down on the couch and relax in front of the TV when we get home. Even those of us who have more active jobs likely don't get enough exercise. A lack of physical activity is hazardous to your overall health and wellness.

Workers who are depressed often feel tired, unmotivated and have difficulty concentrating. Depression can cause problems with decision-making abilities and an increase in errors and accidents.

Workers with depression also miss work more often and experience a higher level of presenteeism, where a worker is present at work but less focused and productive than workers without depression.

Due to the stigma of mental illness, many people find it hard to talk about their depression and seek help for it. Getting help is important, because if left untreated, depression can lead to job loss, damaged relationships, substance abuse and suicide.

What's the danger?

Too little activity has been shown to increase the likelihood of:

- Heart attack and heart disease.
- Diabetes and obesity.
- Without enough exercise you lose muscle mass, strength and flexibility, and bone loss progresses faster in people who aren't active. These factors can lead to falls, broken bones and mobility issues.
- Lack of regular exercise has also been linked to an increased risk of dementia, mood swings and depression.
- Lastly, a sedentary existence can leave you with a weakened

immune system and make you more susceptible to illnesses such as colds and the flu.

BUSINESS/REGULATION

The **Patient Protection and Affordable Care Act**, [Pub. L. 111-148](#), was enacted on March 23, 2010; the Health Care and Education Reconciliation Act, [Pub. L. 111-152](#), was enacted on March 30, 2010 (these are collectively known as the “Affordable Care Act”). The **Affordable Care Act** reorganizes, amends, and adds to the provisions of part A of title XXVII of the Public Health Service Act (PHS Act) relating to group health plans and health insurance issuers in the group and individual markets. The term “group health plan” includes both insured and self-insured group health plans. The Affordable Care Act adds section 715(a)(1) to the Employee Retirement Income Security Act (ERISA) and section 9815(a)(1) to the Internal Revenue Code (the Code) to incorporate the provisions of part A of title XXVII of the PHS Act into ERISA and the Code, and to make them applicable to group health plans and health insurance issuers providing health insurance coverage in connection with group health plans. The PHS Act sections incorporated by these references are sections 2701 through 2728.

B. Wellness Exception to HIPAA Nondiscrimination Provisions

Prior to the enactment of the Affordable Care Act, titles I and IV of the Health Insurance Portability and Accountability Act of 1996 (HIPAA), [Pub. L. 104-191](#), added section 9802 of the Code, section 702 of ERISA, and section 2702 of the PHS Act (HIPAA nondiscrimination and wellness provisions). These provisions generally prohibit group health plans and group health insurance issuers from discriminating against individual participants and beneficiaries in eligibility, benefits, or premiums based on a health factor. An exception to the general rule allows premium discounts or rebates or modification to otherwise applicable cost sharing (including copayments, deductibles, or coinsurance) in return for adherence to certain programs of health promotion and disease prevention.

The Departments of Labor, Health and Human Services (HHS), and the Treasury (collectively, the Departments ^[3]) published joint final regulations implementing the HIPAA nondiscrimination and wellness provisions on December 13, 2006 at [71 FR 75014](#) (the 2006 regulations). The 2006 regulations divided wellness programs into two general categories: Participatory wellness programs and health-contingent wellness programs. Under the 2006 regulations, participatory wellness programs are considered to comply with the HIPAA nondiscrimination requirements Start Printed Page 33159 without having to satisfy any additional standards if participation in the program is made available to all similarly situated individuals, regardless of health status. Paragraph (d) of the 2006 regulations provided that, generally, distinctions among groups of similarly situated participants in a health plan must be based on bona fide employment-based classifications consistent with the employer's usual business practice. A plan may also distinguish between beneficiaries based on, for example, their relationship to the plan participant (such as spouse or dependent child) or based on the age of dependent children. Distinctions are not permitted to be based on any of the health factors listed in the 2006 regulations.

Under the 2006 regulations, plans and issuers with health-contingent wellness programs ^[6] were permitted to vary benefits (including cost-sharing mechanisms), premiums, or contributions based on whether an individual has met the standards of a wellness program that meets the requirements of paragraph (f)(2), which outlined five specific criteria.

C. Amendments Made by the Affordable Care Act

The Affordable Care Act (section 1201) amended the HIPAA nondiscrimination and wellness provisions of the PHS Act (but not of ERISA section 702 or Code section 9802). (Affordable Care Act section 1201 also moved those provisions from PHS Act section 2702 to PHS Act section 2705.) As amended by the Affordable Care Act, the nondiscrimination and wellness provisions of PHS Act section

2705 largely reflect the 2006 regulations (except as discussed later in this preamble), and extend the HIPAA nondiscrimination protections to the individual market.^[7] The wellness program exception to the prohibition on discrimination under PHS Act section 2705 applies with respect to group health plans (and any health insurance coverage offered in connection with such plans), but does not apply to coverage in the individual market.

D. Proposed Regulations Implementing PHS Act Section 2705 and Amending the 2006 Regulations

On November 26, 2012, the Departments published proposed regulations at [77 FR 70620](#), to implement PHS Act section 2705 and amend the 2006 regulations regarding nondiscriminatory wellness programs in group health coverage. Like the 2006 regulations, the proposed regulations continued to divide wellness programs into participatory wellness programs and health-contingent wellness programs. Examples of participatory wellness programs provided in the proposed regulations included a program that reimburses for all or part of the cost of membership in a fitness center; a diagnostic testing program that provides a reward for participation and does not base any part of the reward on outcomes; and a program that provides a reward to employees for attending a monthly, no-cost health education seminar. Examples of health-contingent wellness programs in the proposed regulations included a program that imposes a premium surcharge based on tobacco use; and a program that uses a biometric screening or a health risk assessment to identify employees with specified medical conditions or risk factors (such as high cholesterol, high blood pressure, abnormal body mass index, or high glucose level) and provides a reward to employees identified as within a normal or healthy range (or at low risk for certain medical conditions), while requiring employees who are identified as outside the normal or healthy range (or at risk) to take additional steps (such as meeting with a health coach, taking a health or fitness course, adhering to a health improvement action plan, or complying with a health care provider's plan of care) to obtain the same reward.

The proposed regulations re-stated that participatory wellness programs are not required to meet the five requirements applicable to health-contingent wellness programs. The proposed regulations also outlined the conditions for health-contingent wellness programs, as follows:

1. The program must give eligible individuals an opportunity to qualify for the reward at least once per year.
2. The reward for a health-contingent wellness program, together with the reward for other health-contingent wellness programs with respect to the plan, must not exceed 30 percent of the total cost of employee-only coverage under the plan, or 50 percent to the extent the program is designed to prevent or reduce tobacco use.
3. The reward must be available to all similarly situated individuals. For this purpose, a reasonable alternative standard (or waiver of the otherwise applicable standard) must be made available to any individual for whom, during that period, it is unreasonably difficult due to a medical condition to satisfy the otherwise applicable standard (or for whom it is medically inadvisable to attempt to satisfy the otherwise applicable standard).
4. The program must be reasonably designed to promote health or prevent disease. For this purpose, it must have a reasonable chance of improving the health of, or preventing disease in, participating individuals, and not be overly burdensome, not be a subterfuge for discriminating based on a health factor, and not be highly suspect in the method chosen to promote health or prevent disease. The proposed regulations also stated that, to the extent a plan's initial standard for obtaining a reward (or a portion of a reward) is based on results of a measurement, test, or screening that is related to a health factor (such as a biometric examination or a health risk assessment), the plan is not reasonably designed unless it makes available to all individuals who do not meet the standard based on the measurement, test, or screening, a different, reasonable means of qualifying for the reward.
5. The plan must disclose in all plan materials describing the terms of the program the availability of other means of

qualifying for the reward or the possibility of waiver of the otherwise applicable standard.

STATISTICS

5 lifestyle behaviors (physical inactivity, poor nutrition, smoking, alcohol use, and non-adherence to medications) and five chronic medical conditions (diabetes, heart disease, lung disease, mental illness, and cancer) drive 75% of all deaths worldwide.

More than 60% of survey respondents in a RAND report, reported that workplace wellness programs reduced their organizations' health care costs. Soeren Mattke et al., RAND Inc. Workplace Wellness Programs Study: Final Report (Santa Monica, CA: RAND Health, 2013).

Michael Roizen, M.D., chair of the Cleveland Clinic Wellness Institute, has determined there are **five behaviors that mitigate chronic disease**:

- Walking 30 minutes a day
- Eating healthy
- Not smoking
- Having a waist size that is less than half of your height
- Drinking alcohol only in moderation.
- If an individual engages in these five behaviors, they typically spend 33% to 50% less on health care costs compared with people who have health risks.

Multiple authors published an article in the Journal of Occupational and Environmental Medicine that asked the question, "Do Workplace Health Promotion (Wellness) Programs Work?" The authors concluded that programs using evidence-based strategies produced a ROI between \$2 and \$3.60. Employees adopted healthy habits, less time away from work, and lower medical and pharmacy costs.

PREVENTION

Get Moving!

- Research consistently shows that engaging in three days of

physical activity per week, totaling 150 minutes or 50 minutes per session, produces health benefits.

- Brisk walking, running, bicycling, jumping rope, and swimming are all great examples of cardio exercises.
- Start with light or moderate aerobic exercise, for short periods of time (10 to 15 minutes) with sessions spread throughout the week to reduce your risk of injury and fatigue. Gradually build up to 50-minute sessions as your level of fitness improves.

Pump it up!

- Strength training, including lifting weights or resistance training, improves bone density and helps slow bone loss as you age.
- Weight training strengthens connective tissue, muscles and tendons. This decreases your risk of falls, sprains and strains.
- Strength training also helps prevent loss of muscle mass.
- Remember to start slowly to reduce the risk of injury and give your muscles time to rest and recover. Wait at least 48 hours before you train the same muscle group again.

Talk to your doctor before beginning a workout routine to make sure you are healthy enough for physical activity.

Talk to your doctor before beginning a workout routine to make sure you are healthy enough for physical activity. Talk to your doctor before beginning a workout routine to make sure you are healthy enough for physical activity.

Know What Chemical Hazards You

Face

INCIDENT

Global Manufacturing reports that Apple is eliminating use of two particularly toxic chemicals, benzene and n-hexane, from its manufacturing assembly process. The move follows on the heels of a joint publicity campaign by Green America and China Labor Watch (CLW), as reported by [Manufacturing Weekly](#), to pressure Apple into removing the toxins from the manufacturing process.

In making the move, Apple stated there was no evidence of workers being at risk in any of the 22 factories where assembly takes place by over 500,000 employees. Still, the company ordered the testing of substances at the ingredient level to ensure the two toxins are rooted out from the facilities.

Saferchemicals.org reports that Green America and CLW used petitions, with 23,000 signatures, to call attention to the issue. These petitions, along with stories by a variety of news outlets about an Apple boycott called for by Green America and CLW put the spotlight squarely on Apple.

Apple for its part, along with the announcement of banning the two toxins, released the [Apple Regulated Substances Specification](#), a guide to the chemicals the company has on its watch list.

It would be easy to look at Apple's predicament and believe the pressure it feels is something only bigger companies have to worry about; nonetheless, the introduction to Apple's specifications document provides an important lesson to every company in the hazardous chemical supply chain, especially vendors selling to larger consumer facing companies. It reads in part:

"We require our suppliers to adhere to this Regulated Substances Specification, which describes Apple's global restrictions on the use of certain chemical substances or materials in our products, accessories, manufacturing processes, and packaging used for shipping products to Apple's customers. We derive these restrictions from international laws or directives, agency or eco-

label requirements, and Apple policies—but in many cases, they go beyond the minimum required by law. And we hold our suppliers accountable by conducting factory audits, testing components with independent laboratories, and verifying the results in a lab we built at our headquarters in Cupertino, California.

“Taking precautions against or screening out chemicals of concern listed in this specification should merely be a first step. We expect our suppliers to take their own actions to understand the human health and environmental impacts of all chemicals that are used in the manufacturing process and present in materials supplied to Apple.”

Essentially, Apple is saying that it’s not just their responsibility to improve the chemical footprint of its products, but that it calls on and expects its vendors to be proactive in reducing the hazards posed by chemicals in the products supplied to them.

And it’s not just Apple, across all industries, larger companies in the crosshairs of industry regulators and consumer groups are starting to pressure smaller companies up the supply chain to be just as attentive to chemical concerns.

In the end, it’s a business decision. Not only is it bad for business to have headlines about employees exposed to, or injured by, toxic workplace chemicals, it is unproductive, less efficient, and in the end more costly to use highly hazardous chemicals when safer alternatives are available.

Furthermore, those companies that are taking an aggressive approach to sustainability and greener products are being rewarded by consumers in the marketplace.

NEED TO KNOW

You work with chemicals that are hazardous and harmful to your overall – health. But you must be protected from injury or illness along with your co-workers.

The chemical manufacturer or importer prepares Material Safety

Data Sheets (MSDs) to enable you to know how to handle chemicals, what protective equipment you need to use and, finally, what to do if something goes wrong.

WHAT'S THE DANGER?

Exposure to chemicals in your work can have the following effects:

- Cause illness / injuries
- Toxic effects on a long-term impact basis.
- Negatively limit your ability to work.

There can be even environmental problems with chemicals like solvents. Solvents can cause fires and explosions if not handled properly.

BUSINESS / REGULATION

In many work environments, dangerous chemicals are constantly present to allow the completion of different types of tasks. To help ensure that the chemicals are able to be used safely for the facility, employees, and surrounding environment, **a set of hazardous communication standards were established.**

The [Hazard Communication Standards](#) (HCS), or HAZCOM for short were made to make it faster and easier for people to get the information they need about specific chemicals. This is critical because when there is a leak or other issue, being able to take the right action, and being able to take it quickly, is critical for everyone's safety.

All companies that use dangerous chemicals need to make sure that the HAZCOM standards are followed by employees, contractors, and anyone else working in the area.

Global Recognition

The HAZCOM requirements have been developed over the course of many years to help improve workplace safety. Today, the standards that are in place have been adopted by many countries around the world. In the United States, OSHA has aligned their communication

standards with the **Globally Harmonized System of Classification and Labeling of Chemicals** ([GHS](#)).

In Canada, the Workplace Hazardous Materials Information System is used, and in Europe, the European Agency for Safety and Health at Work focuses on ensuring clear communications are used at all facilities. Having as many facilities around the world following the same type of communications is essential for keeping everyone safe at work.

OSHA's HAZCOM Requirements

OSHA has made the HAZCOM standards mandatory for just about all types of businesses that exist in the United States. There are a number of different requirements that need to be followed in order to avoid citations.

Scope

OSHA identifies exactly which companies must incorporate these standards, and to what extent. Due to the nature of the standards, and the differences in types of facilities, only certain aspects will be applicable in each situation.

Chemical manufacturers and importers need to classify the specific hazards of all the chemicals that they produce or import. All of the employees who work with or around these chemicals also need to be informed about the risks associated with exposure.

In situations where employees are only responsible for transporting or storing chemicals, the requirements are less strict. This is because the containers holding the chemicals are never opened, which greatly reduces the overall risk associated with working with them. Employees still must be trained sufficiently on how to respond to an accidental spill.

Following OSHA Standards

For businesses operating in the United States, it is important to comply with **OSHA's [standards related to HAZCOM](#)**. **OSHA** works hard to make sure all companies have everything they need to remain in

compliance, as this will help to improve workplace safety.

Companies that need to become compliant can find resources available from **OSHA**, and depending on the situation, can often get direct help and support from **OSHA**. They offer a variety of **HAZCOM** solutions, most of them free of charge, to help improve safety and ensure compliance with all applicable laws and regulations.

Making the effort necessary to become, or remain, compliant is not only important for avoiding penalties, but also for ensuring everyone in the facility is safe. Programs such as this one from OSHA have helped to dramatically reduce the number of workplace accidents, injuries, and fatalities associated with exposure to chemicals over the years.

Reducing or eliminating these issues helps to ensure that a facility is able to remain up and operational as much as possible, and reduces the expenses associated with an unsafe work environment.

STATISTICS

The new standard covers over 43 million workers who produce or handle hazardous chemicals in more than five million workplaces across the country. The modification is expected to prevent over 500 workplace injuries and illnesses and 43 fatalities annually.

Hazards

The **OSHA Hazard Communication Standard (HCS)** is intended to ensure exposed these workers and their employers are informed of the identities of these hazardous chemicals, associated health and safety hazards, and appropriate protective measures. The HCS covers some 650,000 hazardous chemical products.

Over 30 million American workers are exposed to hazardous chemicals in their workplaces. **The Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (HCS)** is intended to ensure that these workers and their employers are informed of the identities of these hazardous chemicals, associated health and safety hazards, and appropriate protective

measures. The HCS covers some 650,000 hazardous chemical products found in over three million establishments.

Since the HCS was adopted 20 years ago, the availability of chemical information in workplaces has increased dramatically, and the provision of labels and MSDSs with products has become a standard business practice. Surveys have shown that employers rely on MSDSs to select less hazardous substitutes, as well as to help them identify appropriate protective measures. In addition to these workplace uses of hazard information, MSDSs have evolved into sources of information on other aspects of chemical use.

PREVENTION

Written Program

Companies that have dangerous chemicals stored and/or used on site also need to create a written hazard communication program. This program needs to be customized to the specific facility and should include information such as:

- **Chemicals**– Identify which chemicals are used in the facility. This would include any chemicals that are present at any time, even if they aren't always being used.
- **Safety Data Sheets**– The program has to have safety data sheets (SDS) on each of the chemicals listed.
- **Warnings**– Warning information about all of the chemicals so that employees can quickly see what risks are associated with exposure.
- **Response Plans**– Instructions on what should be done in the event of exposure or an accident. This would include details on what to do for anything ranging from basic skin exposure to a full chemical spill or any other possible situation.

Labels

Any containers or machines that use chemicals need to be labeled with specific information about the chemicals being used. In America, these labels must be written in English with clear fonts. Employers may add additional labels in other languages as

appropriate for their work environment.

The labels can either be pre-printed and applied to the containers that are delivered to the facility, or printed on an [industrial label printer](#) in the facility itself. The labels must be applied to the containers as soon as is reasonably possible.

HAZCOM Training

Having the information available in the facility is not sufficient for OSHA compliance. Facilities must also provide all employees with training that covers the safety hazards, and responses necessary if there is a spill or other accident.

This training should also explain how to read warning labels, safety data sheets, and any other information that is on site and part of the hazardous communication standards. If there are any additions or changes to the type of chemicals used on site, employees should be trained on those specific chemicals prior to their arrival if possible.

Providing annual refresher training will also help to ensure the facility is kept as safe as possible. These annual trainings can be conducted as one large group, or given to individual employees by their direct supervisors. Tracking the training as it is given is important for OSHA compliance as well.

Prevention Reminders / Overview

- Determine which employees are affected. Clerical workers, for example, need to know that a hazard communication program is in place, but since they do not use the chemicals directly, they may not need to know the details of the hazards associated with chemicals in use.
- Review the requirements of OSHA's Hazard Communication Standard (or applicable Canadian law). Become familiar with the key elements of the standard, so that you can explain why this program is necessary and useful.
- Review the inventory of hazardous chemicals in your facility. Be able to explain the hazards of chemicals to the

employees who use them. If you have several chemicals of the same class, such as solvents or corrosives, explain the hazards of these materials by class.

- Review the labels on the chemical containers in use in your facility. Be sure that they contain the proper information such as the name of the chemical, the generic name of the chemical, the hazards of the chemical and, if required, the target organ affected.
- Make sure that you can tell your employees where they can readily find a copy of your company's written hazard communication program. Also, make sure they know how to find a material safety data sheet. If your material safety data sheets are online, make sure employees know how to access them this way, as well.
- Use this training opportunity to reinforce the use of required personal protective equipment (PPE). Reinforce your company's policies about personal protective equipment, and let employees know about the next training session on the use of PPE.
- Review your company's emergency procedures. Although you are trying to prevent injuries and incidents, you want your employees to be ready just in case the unexpected happens. Make sure they know how to locate emergency contact numbers, as well.

Most Frequently Cited Provisions

- Employers shall maintain any safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible during each work shift to laboratory employees when they are in their work areas.
- Chemical manufacturers and importers are required to evaluate the hazards of the chemicals they produce or import, and prepare labels and safety data sheets to convey the hazard information to their downstream customers.
- All employers with hazardous chemicals in their workplaces must have labels and safety data sheets for their exposed workers, and train them to handle the chemicals

appropriately.

- Chemical manufacturers and importers are required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided.
-

Migrant Worker Struck By Farm Vehicle

INCIDENT

Ana Maria Barrera-Bogarin, aged either 60 or 61, had been working on a lettuce farm in Somerton, Arizona for just two weeks when she went to work on November 26, 2013. She never returned. Barrera-Bogarin was fatally struck by a farm vehicle while walking to her break area. She died, according to the Yuma County Sheriff's office, after pushing a co-worker out of the way of an oncoming tractor.

Barrera-Bogarin and a witness were walking to their break area and did not notice a tractor was backing up with a produce trailer. They attempted to beat the trailer, but were unable to and Barrera-Bogarin pushed the witness out of harm's way... Barrera-Bogarin was struck by the trailer, causing her to fall. She then was run over by the trailer.

Barrera-Bogarin, who lived in San Luis, Arizona, was taken to the Yuma Regional Medical Center, and pronounced dead on arrival. Her co-worker, identified only as Hohana N., returned to work the next day. She appeared on KYMA-TV to describe her deceased co-worker as "an angel." "I keep thinking if she hadn't pulled me away, I would've been the one to die," Hohana said.

Not surprisingly, there were no pictures, acknowledgments or tributes provided or given for Ana Maria Barrera-Bogarin. She died

as she lived and worked in the shadows of a billion-dollar country wide business. But Hohana assuredly met an angel on earth.

NEED TO KNOW

Ana Maria Barrera-Bogarin was among the often invisible seasonal and migrant workforce who pluck and peck fruits and vegetables in the fields of America. She died while working in these produce fields.

BUSINESS / REGULATIONS

Hohana N and Barrera-Bogarin were both working for a California-based produce firm at the time of the tragically.

The company inexplicably was not identified in the news accounts of the incident. The industry that Hohana N and Barrera-Bogarin work in supply America with fruits and vegetables on a daily basis. An industry that garners upwards of 30 billion dollars annually.

There are more than three million seasonal and migrant farm workers in the United States, according to the National Agricultural Worker Survey, conducted by JBS international for the U.S. Department of Labor. Seventy-two percent are foreign born, with 68 percent coming from Mexico. One third are U.S citizens, and nearly half are working without legal authorization.

STATISTICS

Farming, ranching and agricultural management are among the ten most dangerous occupations in the United States, according to the U.S. Bureau of Labor Statistics (BLS), with a fatality rate of 21.3 deaths per 100,000 workers in 2012. The fatality rate for all U.S. workers, reports the BLS, is 3.2 deaths per 100,000 workers.

In 2012, reports the BLS, there were 204 deaths in the United States among workers engaged in crop production.

PREVENTION

The procedure industry has many safety challenges that need to be

addressed, identified and solved. The death of Ana Maria Barrera-Bogarin was caused by a vehicle/pedestrian accident. But the most serious workplace hazards involve the exposure of workers to heat stroke. It is a significant risk for crop workers.

The U.S. Centers for Disease Control reports that 68 crop production workers died from exposure to environmental heat between 1992 and 2006, with a fatality rate from this condition that is 20 times greater than the rest of the U.S. workforce.

Despite the risks of working outdoors – often in summer months and at high temperatures – California is the only state in the U.S. that requires employers to provide water and shade breaks to crop workers. California and Minnesota are the only states that have specific standards covering occupational heat exposure.

Asbestos Effects Reaches More Than Workers

INCIDENT

Heather's doctor asked the questions – “was your dad a miner or did he work in construction of any kind.” Answer – yes. She was exposed to asbestos through the dust that permeated his clothing and his car. As a construction worker. Her father was involved in dry wall clean – up and demolition. Much of the dry-wall joint compound he worked on contained asbestos.

Most of the buildings he worked in doing demolition contained asbestos tiles in the floors and in the ceiling.

The insulation around pipes and boilers that he tore out had asbestos insulation.

He would come home from work many days covered in dust, a thick,

greyish-white crust covering his work jacket. A jacket she would wear to do her outside chores. A jacket she would put on to go out to the rabbit hutch in the back shed to feed and play with her rabbits. A jacket she would wear because it didn't matter if it got dirty.

This jacket had asbestos dust all over it. His car had the same dust in it. The dust was just part of her childhood. This dust caused her illness.

NEED TO KNOW

Heather Von St. James was diagnosed with mesothelioma a rare cancer most closely associated with exposure to asbestos. Her father who worked with asbestos was diagnosed with clear cell renal carcinoma and passed away after a short-term battle.

BUSINESS / REGULATIONS

At the end of 2016, the EPA named asbestos as one of the top 10 chemicals that pose a health and environmental risk. It is the first step in getting a full ban on asbestos.

But there was the game-changing election in November 9/16, and subsequent [appointment of Scott Pruitt to oversee the EPA](#). The very man chosen to run the EPA also sued the E.P.A

Pruitt has said he remains unconvinced of the dangers of asbestos. Mr. Pruitt's tenure or head of the E.P.A was cut short and resigned his position amidst swirling controversies. But Pruitt's departure does not signal the end of problems at the E.P.A. The Trump administration has proposed significant cuts to the E.P.A.

The E.P.A is the principal agency in charge of superfund sites all over the U.S many of which are contaminated with asbestos and other deadly chemicals.

OSHA estimates that over 500,000 employees work with asbestos products. Millions more are exposed because they work near or around work areas where asbestos products are used. Many thousands of members work on jobs which expose them to asbestos. Such

members work with or around insulation materials or friction products like clutch facings and brake linings. In addition, many members who work at manufacturing, construction or renovation sites or perform telecommunications installation and service work in office buildings and private residences may be exposed to asbestos fibers released from building insulation.

Exposure can also occur in families of workers as in Heather Von St James case. Asbestos fibers can be carried into the home on the workers' bodies or clothing. Asbestos-related diseases have afflicted workers' families as a result of such exposure.

Heather Von St James was 36 years old, a new mom with a 3.5 years old baby at home, and she was told she had 15 months to live if she didn't do something drastic.

Her doctor laid out some options for her. The first was do nothing and maybe live 15 months, which was not an option with a new baby. The second option given was chemo and radiation, and hopefully make it 5 years.

The third option was an incredibly invasive surgery called an extra pleural pneumonectomy. This surgery entailed the removal of her entire left lung that was affected by the cancer, the lining of the lung, the left half of her diaphragm, the lining of her heart – both of which would be replaced with Gore-Tex – and then the removal of one or two ribs. This option afforded her the best prognosis: 7-10 years of survival, more if she was one of the lucky ones. Knowing now that mesothelioma usually kills its victims within the first 5 years, this option was the best option for her.

She traveled to Boston and had the surgery, which saved her life. She followed it up with four sessions of chemo and 30 sessions of radiation to completely eradicate any remaining cells they couldn't get with surgery. She celebrated 11 years since her surgery on Feb. 2, which marked officially one year beyond her best-case scenario.

Her battle has taken its toll on her body. Losing her lung has

caused her spine to curve, her shoulders to hunch and live in constant pain.

Her left arm and hand are numb and damaged from the combination of the surgery and extensive radiation. The entire left side of her body is frail and atrophied from the effects of the surgery and treatments. She has memory and concentration problems due to the chemo, affectionately called “chemo brain.”

Her hearing is shot from the cisplatin, one of the chemo drugs. It gives people chronic tinnitus. She had to give up her career as a stylist and co-owner of a busy salon/spa, as she is not able to be around all the chemicals with one lung and she does not have the stamina to stand behind the chair for 8 hours a day.

STATISTICS

Nearly 3,000 people are diagnosed with mesothelioma each year in the United States. That represents 0.02 percent of all U.S. cancer cases. A 2017 [report from the CDC](#) shows the death rate in the United States from 1999 to 2015 was around 8 deaths per million people.

Disease specialists did not track the death rates from asbestos cancers over a long period of time. It wasn't until 1999 that the U.S. government began classifying the diseases as a cause of death. This was mostly because doctors rarely discovered them until a post-mortem examination. Thus, a latency period between the first exposure to asbestos and the diagnosis of a related cancer is usually between 25 and 50 years.

- The mesothelioma death rate is much higher among men. From 1999 to 2010, the age-adjusted death rate for men was 24.6 deaths per million, compared with 4.5 deaths per million for women.
- The rate for whites is more than double that of any other race. From 1999 to 2010, the age-adjusted death rate among whites was 13.9 deaths per million. The second highest rate was observed in American Indians or Alaska Natives (5.6 deaths per million), followed by Blacks or African Americans

(5.4 deaths per million) and Asians or Pacific Islanders (3.3 deaths per million).

- The prevalence of asbestos use during the 20th century now poses serious risks, including death, for 1.3 million U.S. construction and general industry workers. The five most at-risk industries are ship and boat building and repairing, industrial and miscellaneous chemicals, petroleum refining, electric light and power and construction. Occupations such as plumbers, pipefitters and boiler makers, mechanical engineers, electricians and elementary school teachers are also at high risk.
- Research shows that the incidence of asbestos cancer in the United States likely peaked in 2010. People exposed to asbestos in the 1970s, when the U.S. government first began restricting asbestos use, continue to develop mesothelioma because of the disease's decades-long latency period.
- Asbestos cancer cases among males peaked from 2008 to 2010, with more than 2,000 cases reported per year. The CDC predicts the number of cases should be on the decline, with an expected return to background levels by 2055. Mesothelioma cases among women are expected to increase slightly.

PREVENTION

The questions rage on ...

It is the "what to do" and "what can be done" scenario. There are four principal areas that encapsulate prevention:

- **Work Practices and Procedures**— In order that asbestos exposure is minimized/eliminated, the employer must develop and use appropriate, protective work practices and procedures. Issues of concern would include housekeeping procedures, wet-cleaning and vacuuming asbestos-containing waste and debris, and disposal of asbestos waste. Adherence to protective work practices and procedures is extremely important and necessary.
- **Monitoring**— The employer must conduct air monitoring sampling or tests to determine levels of airborne asbestos

in all workplaces that contain either asbestos-containing products or presumed asbestos-containing products. In addition, the employer must notify the affected workers in writing or by posting the monitoring results in an appropriate and accessible location (e.g., an employee bulletin board) within fifteen days of receipt of the results. Workers must be allowed access to any record concerning their exposure to asbestos. The employer must keep records of asbestos exposures for at least 30 years.

- **Medical Surveillance**— Employers must institute a medical surveillance program for all workers who are exposed to airborne asbestos concentrations at or above either the standard's time-weighted average (TWA) or excursion limits. Pre-placement medical exams must be provided affected workers before they are assigned to perform work in areas where levels of airborne asbestos fibers have been identified at or above the standard's TWA or excursion limits. In addition, follow-up medical examination must be provided annually. Medical examinations must also be provided affected workers within 30 calendar days before or after the termination of employment. The above asbestos medical exams must include a medical and work history, chest x-ray, and lung function tests.

Further, employers must keep workers' medical records for at least 30 years. Employees or former employees have the right to request that her/his medical records be made available to other doctors. Workers who change jobs should inform their doctor about their exposure to asbestos.

- **Personal Protective Equipment** — When airborne asbestos exceeds the OSHA standard or excursion limit, the employer must provide workers with personal protective equipment such as clothing, gloves, gauntlets, boots, head and foot coverings, and, where necessary, air-supplied respirators. The employer is also responsible for cleaning, maintaining, and disposing of all personal protective equipment. CWA members who regularly work at a single location where they are exposed to excessive amounts of asbestos must be

provided with change rooms. These must have two separated lockers or containers – one for street clothes and one for protective clothes for each worker. Shower facilities must also be provided. Workers should shower at the end of each shift.

- **Training and Information**-Employers must develop and provide an asbestos training and information program to all workers who are exposed at or above the Asbestos Standard's permissible exposure and/or excursion limits. This program should include the toxicity of and health effects related to asbestos exposure; engineering controls and work practices; protective measures such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment; the medical surveillance program; and a copy of the OSHA Asbestos Standard.

By adopting and following these four measures, asbestos exposure will be minimized and hopefully eliminated.

"On ounce of prevention will fetch you a pound of cure."

Radiation Causes Cancer Among Nuclear Workers

INCIDENT

The evidence from a study conducted from International Nuclear Workers Study (INWORKS) suggests the following: "a positive association between ionizing radiation exposure and death from solid cancer, all cancer, and all cancer excluding leukemia among more than 300,000 nuclear workers."

NEED TO KNOW

Although previous studies suggested exposure to high doses of

ionizing radiation may cause solid cancer, it was unclear if prolonged low doses of ionizing radiation, which are common in some workplaces, also cause solid cancer.

BUSINESS / REGULATIONS

INWORKS STUDY

A group of nuclear workers were tracked over time to find out how long workers lived and what their causes of death were. Using the Radiation Dosimetry Information that had been collected by personal badge dosimeters in the workplace, we estimated a worker's excess relative rate, or ERR (that is, the relative rate minus 1) of death from cancer. The relative rate compares the mortality rate in an exposed group to the mortality rate (for the same cause) in an unexposed group. For example, an ERR of 0.5 means that the cancer rate among exposed people was 50% higher than the rate among without exposure. The methodology of the study had four steps.

1. The following was assembled.

Employment records were used to identify 308,297 workers from France, the United Kingdom and the United States of America who worked in the nuclear industry for at least one year and were monitored for radiation exposure. The period of risk observation (sometimes referred to as follow-up) varied by country. The French, British, and American worker subgroups were followed between 1968-2004, 1946-2001, and 1944-2005, respectively.

2. Each worker's potential job-related exposures were evaluated.

Ionizing radiation received in the workplace was our exposure of interest. Historical records maintained by dose registries, governments, and employers were thoroughly searched for information on the radiation dose for each worker. Recorded doses were adjusted to account for measurement practices that differed by exposure location and time period. Colon dose was preferred for comparison of findings to other studies.

3. Death information was obtained.

We used national death databases and other record sources in each country to determine if a worker was alive or deceased and, if deceased, his or her underlying cause of death. We studied deaths from all cancer, as well as deaths from cancer excluding leukemia, and solid cancer (cancer excluding leukemia and lymphoma).

4. The relationship between radiation dose and these cancers was examined.

Using standard methods of statistical modeling, we assessed the dose-response relation between ionizing radiation exposure and each cancer outcome of interest. For consistency with other studies, the estimated risk was reported as an ERR per gray (Gy) of radiation exposure. However, typical occupational exposures are far less than that amount.

Limitations of the study findings

Study limitations

There are a number of limitations including incomplete or imperfect information on radiation doses and other risk factors, such as, asbestos exposure and tobacco use. But the impact from these limitations is believed to be small and unlikely to change study conclusions.

Takeaways:

Exposure to ionizing radiation cannot be avoided completely. According to the National Council on Radiation Protection & Measurements, on average persons in the U.S. receive an effective dose of about 6.0 mSv, or 0.006 Sieverts (Sv) each year from natural and man-made radiation sources.

The link between ionizing radiation exposure and some cancers is well known. However, much of this knowledge comes from studies of acutely exposed people, such as Japanese atomic bomb survivors and radiation therapy patients. Questions remain about using information from these studies to describe risks under much different (**usually much lower**) exposure conditions, such as those

experienced by nuclear workers.

This study supports previous findings and strengthens the evidence of a relationship between cancer and ionizing radiation. This relationship is observed not only at high doses following acute exposure, but also from prolonged, low exposures found in the workplace.

STATISTICS

As stated, prior, among more than 300,000 nuclear workers the following was determined.

- The rate of death from cancer increased with radiation dose.
- The risk of solid cancer increased by about 5% per 100 millisieverts (mSv) (10 rem).
- The average dose of the group of workers in the study was 21 mSv (2.1 rem).
- Within the group of workers about 2 in every 200 deaths from cancer (other than leukemia) were due to their workplace radiation exposure.
- Among the members who received at least 5 mSv of radiation dose in the workplace out of every 200 deaths from cancer other than leukemia, about 5 were due to their workplace radiation exposure.

PREVENTION

Ionizing radiation is deadly if not properly controlled and monitored. Use the following three step prevention protocol to avoid possible disaster and prevent damages.

1. HAZARD IDENTIFICATION

- The employer must identify all sources of ionizing.
- The employer must monitor all workers who may be exposed to ionizing radiation using a dosimeter, which is worn as a badge attached to clothing. At monthly intervals the dosimeter must be sent to a laboratory where the radiation exposure can be read.
- The employer will need to employ someone with the relevant

expertise to oversee and monitor the regulation of a dosimeter operation.

- Talk to members of your work group about the hazards of radiation and their control, and any effects they may be experiencing on a regular basis.
- Investigate any past incidents.

2. RISK ASSESSMENT

- Ensure the employer assesses results of monitoring – keep a check on results.
- Ensure your employer has an effective incident reporting procedure in place to record actual and potential exposure to radiation and unsafe conditions.

3. RISK ELIMINATION/REDUCTION

Ensure your employer controls the risk of radiation following the preferred order of control methods:

- Takes all measures possible to avoid exposure.
- Isolates all sources of radiation by shielding, containment or remote handling.
- Maintains all radiation generating equipment in good order to minimize radiation emitted and prevent any “leakages”
- Implements engineering controls to reduce radiation levels.
- Develop safe practices work practices and procedures, and ensures they are followed.
- Provides suitable protective clothing and administrative controls, including job rotation and rest breaks, to limit the amount of time employees are exposed, where engineering controls are unavailable or ineffective to reduce exposure levels.
- Provides adequate information and training on any radiation hazards in the workplace. Training should include information on the sources of the radiation, the health effects, the control procedures in place and how they are monitored, safe work practices, personal protective equipment (PPE), emergency procedures and radiation monitoring programs where appropriate.

- Maintain all controls implemented.
 - Develop back up option emergency procedures in the case of control measures failure.
-

Truck Driver Killed While Inflating Tire

INCIDENT

A truck driver was killed while he was inflating a tire. Preliminary investigations point to the employee sustained fatal injuries when the tire he was inflating, exploded.

NEED TO KNOW

Inflating a tire in the workplace sound likes a routine function without a great deal of danger. But this perception is illusory because the hazards of the task can be deadly.

BUSINESS / REGULATIONS

Inflated tires, particularly truck tires, contain a large amount of stored energy. Tires are designed to withstand this, but if they are damaged or have been used while flat (or significantly underinflated), they may fail. Tire damage due to underinflation cannot always be detected by external inspection. If a tire fails during inflation, the explosive force can be released resulting in a destructive air blast and the ejection of high-speed particles. If the wheel is not restrained, it can fly through the air. The rapid release of this explosive force from a ruptured tire can result in serious injuries or even death.

Prosecutions and compliance

In 2014, a company accepted an enforceable undertaking with a total minimum expenditure of \$207,401 as an alternative to

prosecution. This was after a worker received serious facial fractures and another minor leg injury when they attempted to fit and inflate a tire to a damaged truck rim. The tire exploded as it was being inflated.

STATISTICS

On average each year there are 36 workers' compensation claims accepted for injuries relating to being hit or trapped or by an explosion involving vehicle wheels and tires.

From 2013 to May 2019, WHSQ has been notified of 23 events involving exploding tires and issued seven statutory notices relating to the risk of tire explosions.

PREVENTION

Health and safety risks must be managed to eliminate danger. However, if it's not reasonably practicable to eliminate the risk, then it should be minimized using the hierarchy of controls. This can be achieved by doing one or more of the following:

- Substituting the hazard with one that is of lesser risk – for example, if a truck tire has been identified as underinflated while in use, do not immediately re-inflate the tire. Instead, fully deflate the tire and replace the wheel with a spare and have the tire inspected by a competent person to determine if it is safe to put back into service.
- Isolating the hazard from workers:
- deflating tires prior to them being removed from the machinery or vehicle and inflating tires in a safety cage or other portable restraint device.
- never reach into the cage during inflation or deflation and always position the body to one side of it.
- Implementing engineering controls – for example, by fitting:
- a long enough air hose with a clip-on valve nozzle and remote pressure gauge for workers to stay outside of an exclusion zone (i.e. the potential trajectory or explosion zone), and

- a remote dump valve that is capable of rapidly deflating the tire in an emergency.
- Any remaining risk must then be minimized by using administrative controls. For example:
- have a regular tire maintenance schedule which checks tires for condition, matching, pressure, tread depth and wear patterns, as well as rims for corrosion or cracking.
- always follow the recommended tire servicing procedures and ensure all workers undertaking these procedures are trained and follow them.
- inform, train and supervise staff in safe personal positioning and safe procedures during tire inflation including actions when a potential tire failure is identified.
- potential trajectory paths from a failure and exclusion zones have been identified.
- the wheel is inspected for damage and corrosion prior to the refitting of tires.
- tires (new or used) are inspected for defects.
- workers stand outside of any exclusion zones.
- tires are only inflated to the recommended pressure.
- all safety cages, air-lines and associated equipment are suitable for the task and maintained in a safe working condition.

If a residual risk remains, it must be minimized so far as reasonably practicable by using personal protective equipment (PPE). For example, wearing protective goggles or face shields when working on wheels or tires.

SAFE TIRE INFLATION – Do's and Don'ts

- DON'T lean over the assembly during inflation.
- DON'T sit or stand near the assembly.
- DON'T use valve connectors that require the operator to hold them in place.
- DON'T exceed the manufacturer's recommended tire pressure for the size and rating of the tire.
- DON'T use airlines not fitted with either a pressure gauge

or pressure control device.

- DON'T allow the control valve to be jammed open (which would allow the operator to leave the inflating tire unattended).
 - DO use a clip-on chuck to connect the airline with a quick release valve (i.e. dump valve) at the operator's end (this allows tire deflation from a safe distance if problems occur)
 - DO ensure the airline hose is long enough to allow the operator to stay outside the likely explosion trajectory during inflation.
 - DO use enough bead lubricant when seating the tire.
-

Airport Worker Killed By Moving Vehicle

INCIDENT

In the pre-dawn hours of February 21st 2014, Cesar Augusto Valenzuela, 51, was driving a luggage cart on a service road at Los Angeles International Airport, commonly known as LAX. Valenzuela was apparently thrown from the cart he was driving and struck by another vehicle. He did not survive the collision.

NEED TO KNOW

A worker was killed in 2006 in Los Angeles International Airport (LAX). A strike occurred at LAX in 2012 over the issues of health and safety risks in the job. Then the death of Cesar Augusto Valenzuela in 2014 while he was working at LAX.

BUSINESS / REGULATIONS

Valenzuela worked for Menzies Aviation USA Inc., a company that contracts baggage handling and other services to major airlines. In 2013, Menzies was fined nearly \$95,000 by Cal/OSHA for serious

safety violations, including failure to meet standards for operation of power vehicles.

Workers at the company have been advocating for safer working conditions for several years. More than 100 workers went on strike in 2012 due to “concerns about the serious health and safety risks they faced on the job,” reports United Service Workers West, a division of the Service Employees International Union (SEIU).

Valenzuela’s death was not the first fatality at Menzies Aviation’s LAX operations. In 2006, a worker was killed at the airport after being struck by a warehouse transport vehicle.

Following this most recent incident, California legislators called for an investigation into safety conditions in the airline industry. “This is a horrible tragedy and we must find out if this could have been prevented,” said state Sen. Ted Lieu, whose district includes LAX. “But we need to have hearings on airports statewide to see if there is a systematic problem.”

“Course Correction,” a study published in November 2013 by the University of California, Berkeley Center for Labor Research found that a decades-long trend of outsourcing airline industry jobs to third-party contractors – such as Menzies Aviation – has caused a steady erosion in wages and working standards for airport workers. According to the report’s executive summary:

The transformation of self-sustaining middle-class airline careers to low-wage outsourced jobs not only hurts workers and their communities, but also may negatively affect the safety, security, and efficiency of airports.

Workers rallied at LAX on March 6, protesting “lax enforcement of safety standards” by airport contractors, reported EFE, the Spanish language news agency.

Family members, friends and co-workers held a vigil in Valenzuela’s honor on February 25th.

His widow, Ulvita Ramirez told KCAL-TV that her husband had been in good health at the time of the incident. But after 17 years as

an airport worker, she said, Valenzuela had grown concerned about safety conditions on the job.

STATISTICS

Transportation incidents, such as the event that claimed the life of Cesar Valenzuela, accounted for 41 percent of all workplace deaths in 2012, the most recent year for which data is available.

PREVENTION

We know that employer is required under law to provide a safe way environment for workers. There is no one “panacea” to avoid workplace injuries and facilities. Vigilance and awareness of hazards and dangers in the workplace is the first step towards “preventing” accidents. A safe workplace is the result of cooperation between employees and employers.

To prevent injuries and death the following must be implemented:

- Provide workers training on hazard awareness.
- Conduct periodic safety inspections.
- Implement safety measures.
- Instill a mentality of vigilance in the mindset of the workplace.

Silica Dangers

INCIDENT

Many workers have contracted silicosis. This is the reality that workers face who have contracted silicosis in their employment. These workers in the course of their work had to breath dangerous silica particles in the dusts from concrete and other stone products.

Silicosis is not the only respiratory disease that workers are

exposed to, either. Asbestos exposures can lead to lung cancer and mesothelioma, and other inhaled particulates can lead to additional medical issues. Even chemical fumes and vapors can cause respiratory damage and disease. No one deserves to have this happen. The duty is to ensure that workers are properly protected from respiratory hazards.

NEED TO KNOW

How would you feel if you could never catch your breath? What would your life be like?

Imagine having these symptoms and you never smoke tobacco in your life.

BUSINESS / REGULATIONS

At the end of 2016, EPA named asbestos as one of the top 10 chemicals that pose a health and environmental risk.

But there was the game-changing election in November 9/16, and subsequent [appointment of Scott Pruitt to oversee the EPA](#). The very man chosen to run the EPA also sued the E.P.A.

Mr. Pruitt's tenure as head of the E.P.A was cut short and resigned his position amidst swirling controversies. But Pruitt's departure does not signal the end of problems at the E.P.A.

The E.P.A is the principal agency in charge of superfund sites all over the U.S many of which are contaminated with asbestos and other deadly chemicals.

OSHA estimates that over 500,000 employees work with asbestos products. Millions more are exposed because they work near or around work areas where asbestos products are used. Many thousands of members work on jobs which expose them to asbestos. Such members work with or around insulation materials or friction products like clutch facings and brake linings. In addition, many members who work at manufacturing, construction or renovation sites or perform telecommunications installation and service work in office buildings and private residences may be exposed to

asbestos fibers released from building insulation.

In the U.S, 2.3 million people are exposed to silica while they work.

STATISTICS

Nearly 3,000 people are diagnosed with mesothelioma each year in the United States. That represents 0.02 percent of all U.S. cancer cases. A 2017 [report from the CDC](#) shows the death rate in the United States from 1999 to 2015 was around 8 deaths per million people.

Disease specialists did not track the death rates from asbestos cancers over a long period of time.

The latency period between the first exposure to asbestos and the diagnosis of a related cancer is usually between 25 and 50 years.

- The mesothelioma death rate is much higher among men. From 1999 to 2010, the age-adjusted death rate for men was 24.6 deaths per million, compared with 4.5 deaths per million for women.
- The rate for whites is more than double that of any other race. From 1999 to 2010, the age-adjusted death rate among whites was 13.9 deaths per million. The second highest rate was observed in American Indians or Alaska Natives (5.6 deaths per million), followed by Blacks or African Americans (5.4 deaths per million) and Asians or Pacific Islanders (3.3 deaths per million).
- The prevalence of asbestos use during the 20th century now poses serious risks, including death, for 1.3 million U.S. construction and general industry workers. Occupations such as plumbers, pipefitters and boiler makers, mechanical engineers, electricians and elementary school teachers are also at high risk.
- Research shows that the incidence of asbestos cancer in the United States likely peaked in 2010. People exposed to asbestos in the 1970s, when the U.S. government first began restricting asbestos use, continue to develop mesothelioma

because of the disease's decades-long latency period.

- Asbestos cancer cases among males peaked from 2008 to 2010, with more than 2,000 cases reported per year. The CDC predicts the number of cases should be on the decline, with an expected return to background levels by 2055. Mesothelioma cases among women are expected to increase slightly.

PREVENTION

Understanding Respiratory Hazards

It is not easy to tell when a person might be exposed to dangerous amounts of a respirable hazard. We can't look at a cloud of dust and know whether it exceeds the permissible exposure limit (PEL) established by OSHA. The exposure can only be measured through air sampling and laboratory testing.

Workplace Safety Management Programs to Protect Against Respiratory Hazards

What can employers do to protect their employees from respiratory hazards? The first line of protection should be to eliminate or minimize exposure to the hazard through engineering and administrative controls. For example, the recent Silica standards include specific engineering controls based on tasks performed to eliminate or reduce exposures.

Administrative controls also provide ways to minimize an employee's exposure through employee scheduling and operational procedures. The last line of defense, as always, is personal protective equipment (PPE). PPE includes a variety of respirators that need to be specifically selected based on the exposures that employees will face.

When employees are required to wear respirators, either due to employer policy or to exposures exceeding the PELs, a written respiratory protection program must be in place. Workers must then be trained on the plan and the respirator, including proper use, limitations, and proper maintenance of the respirator. A

designated and qualified program administrator must oversee the respiratory protection program, and is responsible for evaluating the program's effectiveness. All of this is to ensure the safety of our workers when they are exposed to potentially life-threatening respirable substances.

Choosing the Proper Respiratory Equipment for Workplace Injury Prevention

1. The **Filtering Facepiece Respirator**, also known as the dust mask, is the most basic form of respiratory protection. It provides the least amount of protection of all the respirators and protects employees from particulate exposures and nuisance dusts. If these are required, employees need to be trained to properly wear them and to check the fit of the masks. It's also imperative that employees are provided with, and know to use, the correct type of dust mask. They need to have a NIOSH label, and must have two straps; the single strap varieties are not adequate.
2. The next level of respirator is the **Air Purifying Face Fitting Respirator**. These form a seal with the user's face, only allowing the user to breathe air that has passed through the respirator's filters. Because of this, it provides considerably more protection than the dust mask. It can only filter out the particulates and substances that the filter is rated for. Before wearing this type of respirator, employees need to be medically cleared by a doctor, and need to be fit tested for the respirator before using it on the job. Fit testing needs to be re-evaluated annually, as well.
3. The most protective type of respirator is the **Air Supplying Variety**. Instead of filtering the contaminants from the air, these respirators provide air to the user from a cylinder, tank, or pump. Because of this, employees are not exposed to the hazardous air at all, and only to the controlled air source. While they greatly increase the amount of protection they provide to workers, they also require the most training, the most maintenance, and are the most expensive. They are usually very bulky and awkward, too, which makes

some types of work even more difficult for an employee to perform.

Storage Tank Gas Kills Worker

INCIDENT

Workers in the oilfield face existential hazards when working several stories off the ground on an oil derrick or working around spinning equipment like cranes and forklifts.

Toxic gas notable H_2S hydrogen sulfide, a component of crude oil that carries a distinctive rotten – egg odor can be lethal and deadly.

It was hydrogen sulfide, that took the life of Gregory Claxton, an Iraq War veteran and the father of a 3-year-old boy, in Montague County, Texas, on February 14, 2015. Claxton, 29, was a crude hauler for Twin Eagle Transport LLC of Houston. Twin Eagle was a contractor for EOG Resources, a large exploration and production company also based in Houston.

Claxton moved oil by truck from a battery of storage tanks at EOG's Cooper B Unit, near the town of Forest burg, to a pipeline in Wichita Falls some 70 miles away. It was part of his job to dip a bottle on a rope, known as a thief, into the tanks to collect a sample so the oil's consistency, or specific gravity, could be ascertained. (The lighter the oil, the more it is worth). He also was to measure the oil's depth and temperature to calculate the volume in the tank.

On the morning of his death, Claxton climbed onto a catwalk above a tank holding crude from Well 1H. Opening the hatch, he was hit with a wave of H_2S . He died so suddenly that his body was found upright, as if frozen in place. After performing an autopsy, a pathologist with the Dallas County medical examiner's office

listed the cause of death as “Toxic effects of hydrogen sulfide.”

Randall and Shellye Claxton of Nocona, Texas, believe the death of their son, Gregory, from hydrogen sulfide exposure was preventable.

NEED TO KNOW

Oil field work – it’s among the most dangerous industries in America says the Governor of South Dakota.

From 2008 through 2017, 1,566 workers died from injuries in the oil-and-gas drilling industry and related fields, according to data from the U.S. Department of labor’s Bureau of Labor Statistics. That’s almost exactly the number of U.S troops who were killed in Afghanistan during the same period.

BUSINESS / REGULATIONS

EOG, the big oil production company based out of Houston and twin Eagle, the long-distance hauler of the crude declined to comment.

EOG denied the family allegations in a lawsuit while twin Eagle reached a settlement out of court with the Claxton family.

Randall, who was hauling crude for Twin Eagle from a different location the day Gregory died, left the oil business after the accident. Now a long-distance truck driver, he said there is a culture of denial on H₂S that extends to the Texas Railroad Commission – which, despite its name, regulates oil and gas drilling in the state. “I’ve got a lot of friends who work in the oilfield,” Randall said. “Every one of them told me there is no H₂S in Montague County. They’ve been lied to.”

The Texas railroad commission pushed back in the issues and the Claxton’s. They conducted “tests” 5 days after the tragedy.

The commission delivered a fatuous report saying there are no H₂S – designated fields of H₂S in Montague county with levels of 100 ppm or above.

The key to understanding the issue of H₂S field is to understand that hydrogen sulfide levels drop precipitously and effectively disperse within a few minutes after the “hatch” is opened by the operator.

Unfortunately, in this case Greg opened the “hatch” and was dead in a few minutes after inhaling the H₂S.

OSHA says it takes [at least 700 ppm](#) of the gas to cause “rapid unconsciousness [and] ‘knockdown’ or immediate collapse within 1 to 2 breaths,” as apparently happened with Claxton.

QUESTION?

Why would a regulatory agency insist there was no problem in Montague County with hydrogen sulfide or H₂S?

“They don’t want to document it, because once they document it these companies will have to put procedures in place, that will cost them money they don’t want to spend says Greg’s parents.”

In sum, the commission does not want to find out what really happened.

In Shellye Claxton’s view, however, there is no substitute for the strict policing of companies bent on making as much money as quickly as possible.

“There are little things they can do” to enhance safety, she said, “but they don’t want to spend the extra dollars.”

STATISTICS

The National Institute for Occupational Safety and Health (NIOSH) provides data to high-lite that a worker in the oil and gas industry is 6 times more likely to die on the job than the average American work.

The fracking boom in the U.S. in the years 2001 to 2012 reported 663 worker deaths.

Oilfield work often appears on lists of the most dangerous

professions. As the oil and gas industry boomed from an average of 800 active drilling rigs in the 1990s to approximately 1,300 in the time period from 2003 to 2006, the worker fatality rate increased, with over 400 workers losing their lives on the job. The Centers for Disease Control found that the [annual fatality rate climbed](#) to 30.5 per 100,000 workers over those four years alone.

In addition to an alarming high worker death rate in the oil and gas industry, [life-altering injuries](#) can also occur. In 2016 alone, at least 20 workers a month were hospitalized or lost a body part while on the job. Oilfield workers can also experience major burns and fractures, among other injuries. The Labor Department speculates that employers under report injuries by as much as 60 percent. The former head of the Occupational Health and Safety Administration (OSHA) pointed out that a culture of not reporting these incidents in the oil and gas industry is common, so even more workers are probably hurt or injured on the job.

Global demand for oil continues to increase. In the United States alone, over [7.2 billion barrels of petroleum products](#) were consumed in 2016—an average of almost 20 million barrels a day. Almost 40 percent of employers in the oil and gas industry plan to [increase their workforce by at least 5 percent](#) over the next year to expand production. This poses a regulatory problem in safeguarding a workforce already under great peril to remain safe.

Production pressures and the temptation to cut corners intensify during boom times as America is experiencing now due to a rush of fossil fuels exports.

PREVENTION

There is no more dramatic example of ounce of prevention fetches a pound of cure than to implement improved safety measures in the most dangerous industry in America. Dangers in the workplace are going to get worse based on industry projections to increase productivity by 5%.

Here are the best prevention practices:

- Tighter safety precautions by regulators.
 - More oversight of oil operations can help spot potential problems to curb the number and severity of oil field accidents.
 - Active monitoring for hydrogen sulfide.
 - Enable OSHA to investigate accidents other than fatalities or require hospitalization.
 - Make sure all workers have proper protective equipment and receive proper training.
 - Ensure existing safety measures are rigorously and correctly followed.
-

Worker Dies in Long Haul Tanker Trailer

INCIDENT

He entered the trailer on his own power. Garcia was found without a respirator, a safety harness and any protective clothing. He died soon after he was pulled from the tank, asphyxiated by the Alpha-Pinene 99.2 percent vapors inside the tanker truck, according to the OSHA investigation summary. Alpha-Pinene is a pine tree solvent used to give bathroom cleansers a fresh, “piney” smell.

Garcia was still alive when he was pulled from the truck, but died shortly after in hospital. The OSHA investigation summary lists asphyxiation as the cause of death.

No one knows how long Garcia was inside the truck, but it was probably a matter of minutes before he was found. What happened next likely qualifies as a near-miss confined space fatality.

“A guy jumped in the truck without a respirator or a harness and pulled him out,” a company source said. Fortunately, the pine

solvent did not overcome the rescuer.

This part of the Garcia case illustrates one reason why multiple fatality confined space incidents often occur. Even if they have been properly trained, workers may forget their training and the proper entry procedures, and jump into the confined space without PPE because they are overcome by the natural emotion to rescue a co-worker. All too often, the would-be rescuer is overcome by the same hazard that knocked out the person he was trying to rescue.

NEED TO KNOW

Ricardo Garcia a Mexican national was working in Laredo Texas one day in March 2000 as a contract employee. He decided to clean the inside of a long-haul, 7,000-gallon tanker trailer.

BUSINESS / REGULATIONS

We can see Regulatory, Business and Family intercepts in the sad narrative of Ricardo Garcia. OSHA in 1993 issued its confined space regulation 29 C.F.R. 1910.146. but in 2000 OSHA investigated 28 cases of confined space fatalities. One of those cases was Ricardo Garcia.

Training

The heart of the matter appears to be whether the owner of the confined space, Reynolds Nationwide, had trained Garcia in permit-required confined space entry, as OSHA regulations require. Reynolds is a trucking company with operations in Laredo, Texas.

Experts and OSHA investigators say inadequate training in permit-required confined space programs is frequently a contributing factor in fatal incidents.

Training failures are often the cause of confined space fatalities. They gave him a job to do, one that involved cleaning a confined space, but they did not make it clear he shouldn't go in.

Contract workers

Training and disciplining contract workers in confined space programs can pose challenges for employers, but the Garcia case illustrates that, as far as OSHA is concerned, employers are just as responsible for the safety of contract workers as they are for their regular employees.

Reynolds owned the trailer and contracted with Estrella to clean it.

“The Mexican company billed Reynolds for Garcia’s time; it’s like he was leased to them,” said OSHA after the citations were issued.

Reynolds maintains it had a written permit-required confined space program, but OSHA cited the firm for failure to comply with this part of the rule. On the day OSHA arrived to investigate, the manager of Reynolds on duty “couldn’t find the written program.”

“The fact that employees could go into a permit-required confined space was not recognized or addressed by the employer,” according to OSHA. “If you’ve got a permit-required confined space, you must either look at the possibility an employee will enter or make sure they can’t get in.”

Employee misconduct

Reynolds says there was employee misconduct. But OSHA cited Reynolds for failure to comply with the training component of the regulations.

The “employee misconduct defense” is frequently used by employers in confined space cases, but it is valid only if employers can prove:

- They provided the equipment;
- Established a work rule or policy;
- Communicated it effectively to employees;
- There is an enforcement procedure;
- The misconduct is an isolated incident; and
- The worker completed the training.

This admittedly is a high bar for any company to prove.

The victim's family is suing the owner of the space. In its original petition, the family seeks unspecified monetary damages and alleges three negligent acts or omissions by Reynolds.

The family also alleges failure to provide the plaintiff with a reasonably safe place to work, breathing safety gear and safety clothing. The petition also states that Garcia was the sole financial support of his parents.

STATISTICS

About 2.1 million workers enter permit confined spaces annually. According to the National Institute for Occupational Safety and Health (NIOSH), approximately 60 percent of confined-space fatalities are rescuers, and the Occupational Safety and Health Administration reported that when multiple deaths occur during a rescue, the majority of the victims are "would-be" rescuers.

Here are some findings of the NIOSH investigations of confined space incidents:

- 85% of the time a SUPERVISOR was present.
- 29% of the dead were SUPERVISORS.
- 31% had WRITTEN Confined Space Entry PROCEDURES.
- 0% used the WRITTEN PROCEDURES.
- 15% had Confined Space TRAINING.
- 0% had a RESCUE PLAN.
- 60% of "WOULD-BE" RESCUERS died.
- 95% were AUTHORIZED by supervision.
- 0% of the spaces were TESTED prior to entry.
- 0% were VENTILATED.

Out of 100 deaths that were investigated, the main reasons the workers entered the confined space were to perform their work functions of routine maintenance, repairs, and inspections of the confined space.

Out of 670 confined space deaths, the most common types of hazards were atmospheric hazards and loose materials.

And out of 217 confined space deaths that were investigated, the

two most common types of gases in confined were spaces, hydrogen sulfide and carbon monoxide.

PREVENTION

The object or goal of prevention is to mitigate and eliminate the risk of confined space injuries and fatalities.

Every worker has the legal right to ensure his or her safety.

Question.

What should a worker do before enter a confined space?

The worker should determine if that work space is considered a confined space. Be sure the confined space hazard assessment and control program has been followed.

The next question to ask is – Is it absolutely necessary that the work be carried out inside the confined space? In many cases where there have been deaths in confined spaces, the work could have been done outside the confined space!

Before entering any confined space, a trained and experienced person should identify and evaluate all the existing and potential hazards within the confined space. Evaluate activities both inside and outside the confined space.

Air quality testing: The air within the confined space should be tested from outside of the confined space before entry into the confined space. Care should be taken to ensure that air is tested throughout the confined space – side-to-side and top to bottom. Continuous monitoring should be considered in situations where a worker is in a space where atmospheric conditions have the potential to change (e.g., broken or leaking pipes or vessels, work activities create a hazardous environment, isolation of a substance is not possible). A trained worker using detection equipment which has remote probes and sampling lines should do the air quality testing. Always ensure the testing equipment is properly calibrated and maintained. The sampling should show that:

- The oxygen content is within safe limits – not too little

and not too much.

- A hazardous atmosphere (toxic gases, flammable atmosphere) is not present.
- Ventilation equipment is operating properly.

Question.

What are the means to control hazards in confined space?

The traditional hazard control methods found in regular worksites can be effective in a confined space. These include engineering controls, administrative controls and personal protective equipment. Engineering controls are designed to remove the hazard while administrative controls and personal protective equipment try to minimize the contact with the hazard.

However, often because of the nature of the confined space and depending on the hazard, special precautions not normally required in a regular worksite may also need to be taken. The engineering control commonly used in confined spaces is mechanical ventilation. The Entry Permit system is an example of an administrative control used in confined spaces. Personal protective equipment (respirators, gloves, ear plugs) is commonly used in confined spaces as well. However, wearing of PPE sometimes may increase heat and loss of mobility. Those situations should be carefully evaluated. When using PPE be sure to evaluate all possible hazards and risks associated with PPE use.

“An ounce of prevention fetches a pound of cure.” A scrupulous approach to dealing with confined space permit issues is the best way to try to minimize, mitigate and possibly eliminate problems.

Younger Worker Electrocuted On

Ladder

INCIDENT

At approximately 12:00 p.m., the 16-year-old victim gathered a model D1828-2EQ Werner aluminum extension ladder and moved to the front of the house to begin work there while three other workers moved on to the side of the house. At the front of the house, there were two 4 ft. x 4 ft. boxwood bushes planted 3 feet from the home's exterior wall at the point where the victim was attempting to access the roof.

There were no witnesses, but it is believed that because of the bushes, the victim was having trouble accessing the roof. With the ladder still fully extended, the victim attempted to move it closer by lifting the ladder and walking between the bushes to find a suitable base. The ladder became unstable, causing the victim to lose his balance falling backwards.

As the victim and ladder were falling, the ladder fell into a top phase power line carrying 7.2 kilovolts (7,200 volts). Because the victim was still in contact with the highly conductive aluminum ladder when it struck the power line, electricity was able to travel through the metal and into the young worker. He was immediately electrocuted.

After hearing a noise from the front of the home, the owner of the subcontracting company went to investigate and found the victim lying unresponsive on the ground. He immediately knocked on the home's front door and frantically tried to communicate to the wife what had happened and asked for help. The homeowner called 911 at 12:15 p.m. When EMS arrived eight minutes later, they observed the victim lying on the ground facing upwards. Both of the worker's boots had burn holes near the fifth toe; burn marks were also present on the stomach area. He was pronounced dead by the county coroner minutes later with electrocution as the cause of death.

In an interview with the county sheriff's office with the help of a translator, the coworkers stated that they were on the side of

the home and did not observe this incident. The owner of the subcontracting company acknowledged that he had instructed the victim to move to the front of the house to continue work there. Both coworkers were aware that the victim was putting up a ladder to access the front roof and that the victim had not asked for assistance.

NEED TO KNOW

On Monday, Sept. 10, 2018, at 8.00 a.m., a 16-year-old male roofer arrived at the worksite to begin work on a private residential home to replace the roof.

The owner of the general contracting company hired a subcontractor to perform the work, a process he informed authorities that he does regularly.

BUSINESS / REGULATIONS

This preventable “accident” is being investigated by the Kentucky Fatality Assessment and Central Evaluation (FACE) program for the purpose of making recommendation to ensure these fatalities do not occur again.

The National Institute Occupational Safety and Health (NIOSH) investigators underscore that occupational fatalities and injuries are often the result of one or more contributing factors that ultimately result in death as in this case.

The investigators identified unrecognized hazards as key contributing factors in this case.

- Work performed outside youth employment regulations
- Lack of hazard recognition and safety training
- Use of a conductive ladder around high voltage lines
- Transporting an extension ladder in the vertical position

STATISTICS

CF0I (Census of Fatal and Occupational)

Compiled data on electrocutions in the US since 1992 from diverse

state and federal source documents, including deaths certificates, workers compensation reports, OSHA reports and medical examiner reports. It is widely regarded as more complete than any source of data on Occupational Injury fatalities.

TAKE – AWAYS FROM THE DATA

Key Points

- Electrocution is the fifth leading cause of occupational injury death in the United States.
- The highest rates of death occurred in males, those aged 20-34, and among whites and American Indians.
- Rates of death were highest during the summer months, in the South, and in smaller business.
- Rates by industry were highest in construction, in mining, and agriculture, forestry, and fishing.

PREVENTION

“An ounce of prevention gives you a pound of cure.” This refrain is true literally and figuratively. We know that employer is required under law to provide a safe work environment for workers.

But there is no one “panacea” to avoid workplace injuries and fatalities. Vigilance and awareness of hazards and dangers in the workplace is the first step towards preventing “accidents.” A safe workplace is the result of cooperation between employers and employees.

Preventing an incident like the one at hand takes the following form:

- 1. Conduct a job hazard analysis prior to performing a new task.**

In this incident employees were exposed to working at heights, working from ladders, and close proximity to high voltage power lines.

- 1. Full compliance with all federal, state and local regulations associated with youth employment.**

In this incident The Kentucky Labor Cabinet lists 19 occupations that are prohibited for minors, including #16: "Roofing operations and all work on or about a roof." Subcontractors and contractors should familiarize themselves with Kentucky child labor laws and Federal child labor laws before employing youths in specific occupations. In addition, federal laws apply Hazardous Occupations from the US department of labor: Eighteen is the minimum age for employment in non-agricultural occupations declared hazardous by the Secretary of Labor. The rules prohibiting working in hazardous occupations apply either on an industry basis, or on an occupational basis no matter what industry the job is in. Parents employing their own children are subject to these same rules. General exemptions apply to all of these occupations.

These rules prohibit work in, or with the following:

H0 16.

Roofing operations and all work on or about a roof.

1. Use of conductive ladders around high voltage electrical lines.

At the time of the incident, the victim was using an aluminum ladder to access the roof. Because of its extremely low resistivity and extremely high conductivity, aluminum is one of the best electrical conducting metals, behind only silver, copper, annealed copper, and gold. As the ladder contacted the overhead power line, 7,200 volts and 16 amperes (amps) travelled through ladder, into the victim, and exited his body via the stomach and each foot's fifth (pinky) toe. At values as low as 100 milliamps (.1 amps), death can occur. Due to the high number of amperes that entered the victim's body, cardiac arrest occurred instantly.

In order to prevent similar incidents, the employer should consider using a non-conductive ladder, such as those made of a fiberglass-reinforced polymer, when working around live power lines. Due to its low electrical conductivity and high resistance to corrosion, these ladders would make a safe and practical choice

when working outdoors around electricity. However, employers should ensure that these fiberglass ladders are maintained properly as required by 29 CFR 1926.1053. Unmaintained ladders may accumulate excess dirt or moisture that can conduct electricity in the event it encounters a high voltage line.

1. Proper instruction in the transport of ladders.

The victim was moving a model D1828-2EQ Werner aluminum extension ladder that weighed approximately 56 lbs. When collapsed, the ladder was 14 feet tall and had a maximum open extended length of 25 feet. At the time of the incident, the victim, who measured 5'10" tall and weighed 165 lbs., was moving the ladder, which was extended to the maximum length of 25 ft. As the ladder became unstable and began to fall, the victim may have been unable to support the ladder's top-heavy design while standing on uneven terrain, which allowed it to contact the power line.

In instances where an extension ladder needs to be relocated, employees should lower the extended portion of the ladder until it is appropriately collapsed, carefully lay the ladder down, and transport it horizontally while grasping the ladder's middle section with both hands in order to safely manage its weight. Once the ladder is placed in the necessary area, ensure the base is secure and re-extend the ladder to the appropriate height. Had the ladder been lowered and transported horizontally, the high voltage line could have been avoided including the death of this key old.

Stamping Press Crushes Young Worker

INCIDENT

At about 6 am on March 5/2014, Erik Deighton, aged 23, was operating a stamping machine when it became jammed. He tried to clear the obstructions when the machine cycled to stamp a part and crushed the victim to death.

Erik was working a 12-hour shift starting at midnights at Colonial Plastics, a factory in Shelby Township, Michigan that supplies parts to auto, aerospace and appliance manufacturers.

NEED TO KNOW

A young shift worker was just getting his life going when his life was taken away from him while he was working.

BUSINESS / REGULATIONS

Was Deighton's tragic death an accident? Or could it have been prevented? The truth is that in most cases local law enforcement agencies are not trained to recognize work-related safety-issues-including preventable tragedies that are not "accidents". In this case, a local law official actual description of the event said that this accident was "preventable". The official said the stamping press was a large machine with doors on two sides. The official went on to say that "So even though the guy was leaning through an open door," "the machine thought both doors were closed and that's why the guy on the other side couldn't see him [the victim] and was able to start the machine or cycle it."

A stamping press, slamming down tons of metal with brute force, can be incredibly dangerous. Accepted industry practice requires this equipment to be designed so that it cannot operate when a worker is inside or anywhere near the dangerous parts of the machine. If Colonial Plastics had invested in modern machine guarding technology, along with other safety precautions, the incident could not have taken place as described – and Erik Deighton would probably still be alive.

Michigan OSHA, after investigating the incident, charged Colonial Plastics with seven serious health and safety violations. The agency proposed a \$20,850 penalty, which was eventually reduced to \$8,400. Among other failings, the company didn't provide proper

training, lockout procedures or machine guarding.

Victims in these tragic cases are often soon forgotten. But the families are the one who suffer and endure the pain of losing a loved one. Erik's sister Lauren Deighton had moving and heartfelt comments about the loss of her brother.

"He was my brother, and one of the kindest, deepest souls on Earth. He was so creative. He drew, read, and sang at the top of his lungs. He was my mom and dad's only son, and she worked so hard to make sure he graduated high school and was on the path to success. He got this job after having a misguided period in his youth where he, like other boys, was rowdy and challenged authority."

"However, he finally was on the right track and working hard at a job that made decent money, which he was so proud of. He worked midnights, 12 hours straight, 5 to 6 days a week, and the factory he worked at was understaffed. His death was most certainly preventable. And now I and my family have to live out the rest of our lives without him. And truly, he was the only one who insisted upon making life joyful. I won't ever forget him and I won't ever forgive this."

STATISTICS

Erik Deighton was "crushed" to death. There was an incident where a worker, was crushed to death whereby there a huge fine was leaved in the sum of 2,6 million in 2018. This latter person was crushed while cleaning a sensor fault in a robotic conveyor halt.

The most recent Bureau of Labor Statistics (B.L.S) data, manufacturing plants reported approximately 2,000 accidents that led to workers suffering crushed fingers or hands, or had limbs amputated in machine related accidents.

The rate of amputations in manufacturing was more than twice as much (1.7 per 10,000 full time employees) as that of all private industry (0.7).

PREVENTION

Every worker has the legal right to be provided a safe work place. Every employer has the legal obligation to provide workers with a safe working environment.

In this particular case, if Colonial Plastics had invested in modern machine guarding technology, the incident could not have taken place as described, and, Erik would probably still be alive. But apart from investing in more modern technology, Colonial Plastics should have implemented better safety precautions including proper training and lockout procedures.

Had these two procedures been implemented, this “accident” would likely have been prevented.

Oil Field Worker Killed By Toxic Fumes

INCIDENT

Fabian Martinez of Hobbs, New Mexico, died on July 30, 2014. He was working in an oilfield pit in nearby Artesia, cutting pipe and capping lines, when there was an explosion. His three co-workers managed to escape, but Fabian was pinned by the pipe, and succumbed to hydrogen sulfide gas.

NEED TO KNOW

In the hierarchy of oil field work, it is the youngest workers who get assigned the most dangerous jobs. Fabian was only 21 – too young to be exposed to dangerous hazards and too young to die.

BUSINESS / REGULATIONS

Workers in this industry are exposed to great risks to keep our homes and businesses supplied with reliable energy, yet they seem invisible.

In fact, the Governor of North Dakota opined that the oil industry is among the most dangerous industries in the U.S.A.

OSHA did pursue an [investigation](#), finding Fabian's employer – Diversified Oil Field Services – guilty of eight serious safety violations, fining the company \$28,000.

Such fines, however, are not sufficient to rein in the hazards common in this deadly industry. A drop-in oil prices has prompted widespread cost cutting, which lowered the level and adequate protection of workers.

OSHA is only required to investigate accidents that are fatal and/or require hospitalization, many unsafe practices continue until irrevocable tragedies occur.

You will find no obituary for Fabian. No memorial. No remembrances on Facebook. After the initial reports of the accident on local New Mexico TV and in the press, there was no follow-up. Fabian was too young to make his mark when he died young.

Indeed, TV reporters found that Fabian's employer "held a series of safety meetings" ... the day *after* he died.

STATISTICS

The Wall Street Journal documents 38 oil field deaths in from October through February in 2015/14.

The Houston Chronicle also has reveling statistics. The paper documents, on a nation-wide basis 663 workers in oil field – related industries were reported killed in the drilling and fracking boom from 2007 to 2012.

PREVENTION

It is not difficult to come up with ways to prevent injury and death even in the macho and rough and tumble mantra in oil field work.

OSHA's Hazard alert on hydrogen sulfide encapsulates three best practices, such as.

- Active monitoring for hydrogen – sulfide gas
- Good planning
- Training programs

It sounds simple. But the test is the willingness of the industry to buy into the oil program. Cost – cutting in times of low oil prices often interjects resulting in few training and less effective safety programs.

OSHA, in its own right, plays a key role to keep the oil – industry accountable through rigorous safety protocols.

Automobile Worker Asphyxiated By Metal Plates

INCIDENT

The tragedy unfolded on the morning of Tuesday, October 7th, 2014. Incident reports said that “Dunnivant was working in the metal stamping section of the plant when some stacked metal framework stamping plates shifted, slid and fell on Dunnivant.”

It took two hours for crane to arrive and pull the heavy metal plates off of him. Troup County Coroner Jeffrey Cook found that Dunnivant died of asphyxiation. The Coroner diagnosed his death to compression asphyxia due to the weight that was on him.

NEED TO KNOW

Since 2009, John Edd Dunnivant worked at the KIA Motors West Point, Georgia. Where he toiled in the manufacture of Sorento and Santa Fe sport utility vehicles and sedans. But on October 7 / 2014, would be his last day.

BUSINESS / REGULATIONS

An Osha investigation was conducted. (B.L.S) data shows that 312 workers died in the overall manufactory industry in 2013.

Dunnivant's death was the first inside the Kia plant since it began operations in 2009, but it is not the first fatality linked to the operations of the 2,200-acre, \$1 billion facility, which now employs more than 3,000 people.

- Ollie Tate, a construction worker for subcontractor Superior Rigging & Erecting Co., was killed in January 2008, when a beam fell on his head while the Kia plant was under construction. OSHA found three serious health and safety violations and fined Superior Rigging \$13,200 for failure to properly secure steel beams.
- Teresa Pickard worked on the welding line at Sewon America, a LaGrange, Georgia plant that makes chassis, body and trim parts for the West Point Kia plant. She died of an on-the-job heart attack in May 2013 after reports of excessive heat in the facility.

Sadly, the family of the deceased always feel the agonizing feeling of loss of loved ones. The swath of Mr. Dunnivant's reach was extensive leaving behind a wife, a daughter, two stepchildren and twelve grandchildren.

STATISTICS

Most workplace "accidents" are not accidents but caused through and by human error and lack of action.

Mr. Dunnivant's "accident" could have had been prevented with correct workplace practices and policies. Mr. Dunnivant was "crashed" to death. In 2018, a worker was crushed to death resulting from a largest proposed monetary penalty of 2.6 million (USD).

Despite these headline fines, the repercussions for employers putting workers in harm's way remain small under the 1970 Occupational Safety and Health Act. The average federal fine for a serious workplace safety violation was \$2,402 in fiscal year 2016, according to the most recent report by the AFL-CIO. And the median

penalty for killing a worker was \$6,500.

According to the most recent Bureau of Labor Statistics data, manufacturing plants reported approximately 2,000 accidents that led to workers suffering crushed fingers or hands, or had a limb amputated in machine-related accidents. The rate of amputations in manufacturing was more than twice as much (1.7 per 10,000 full-time employees) as that of all private industry (0.7).

PREVENTION

These deaths, like most workplace fatalities, are preventable. Steel beams, plates and other heavy equipment can be secured to prevent shifting, falling and other events that can endanger the lives of workers.

Prevention in these situations include:

- Proper cooling
- Adequate ventilation
- Rest breaks
- Regular access to fresh water to reduce the risk of heat exposure

Administration Issues:

Employees are safer on the job when they have a voice to advocate for improvements in their own working conditions. Studies have demonstrably showed that for example in the mining industry fatalities and traumatic injuries decreased with unionization.

In the West Point plant where Mr. Dunnivant worked and its Sewon supplier are non-union facilities. Prospective workers sued KIA in 2011, says applicants with union backgrounds had been systematically rejected for employment at the plant.

Training:

Studies have also shown that fatalities and injuries are reduced when employees are properly trained for the job they are paid to do. That includes the proviso that they can identify and neutralize hazards before someone gets killed or injured.

Worker Dies After Fall From Four Floors

INCIDENT

Juan Carlos Reyes was found unresponsive and not breathing after his fall from four floors. He was trying to put wire spools inside the fourth floor of the building where he was working from a scaffold. The scaffold became unstable, it was not secure to the wall and ultimately gave way.

NEED TO KNOW

Juan Carlos Reyes, had his last fatal day of work on May 24th / 2014. Juan Carlos Reyes, a construction worker fell four floors at the site of a Marriott Hotel under construction in Texas.

He was pronounced dead on arrival by emergency crews.

BUSINESS / REGULATIONS

OSHA's Corpus Christi Texas office investigated this incident and found that Mr. Reyes employer, Angel Electric had committed six violations of which five were serious and one was "willful". OSHA recommended that fines of \$ 35,400.00 for failure to ensure that the scaffold he fell from was erected by a qualified person and for failure to put a fall arrest system in place.

Mr. Reyes left behind a wife and three children for an "accident" that was preventable.

STATISTICS

It has been documented that falls are not the exception but are the most common causes of worker fatalities in the United States and Canada. In 2013, there were 574 workers deaths from falls. By 2017, the Census of Fatal Occupational Injuries (C.F.O.I), 887

fatal falls occur, the most reported since the Census data began in 1992.

Hispanic workers are particularly vulnerable to risks in the workplace. According to data from the U.S Bureau of Labor Statistics (B.L.S), 817 Hispanic or Latino workers died on the job in 2013, the highest figure recorded since 2008. On the job deaths for Hispanic or Latino workers increased by nine percent from 2012, while fatalities decreased for white, African American and Asian workers in the same period.

Constructions sites and other workplaces in Texas are under the jurisdiction of federal OSHA, but U.S. OSHA has just ninety-eight inspectors to cover the entire state of Texas: 268,580 square miles, more than 10 million workers and over 500,000 employers. **The AFL-CIO estimates it would take this team of less than 100 people approximately 136 years to perform just one inspection of every workplace in Texas.** These inspections would be in addition to responding to workplace – related injuries, illness and deaths like the tragic – and preventable loss of Juan Carlos Reyes.

PREVENTION

There is a well- worn phrase that an “ounce of prevention fetches a pound of cure.” Most workplaces “accidents” are not accidents but caused through and by human error and lack of action. Juan Carlos Reyes “accident” could had been prevented with the correct workplace practices and policies. An effective and proper prevention strategy would have saved his life. This strategy includes the following:

- Secure ladders
 - Secure scaffolds
 - Install guardrails employ safety harness
 - PROPER TRAINING of P.P.E
-

Plumber Buried In Trench

INCIDENT

Mr. MCCruter was known for his plumbing skills. He was attempting to connect the plumbing for a new house to a main city sewer line. He was buried when the unprotected trench around him collapsed leaving him in dirt and unable to breathe.

Rescuers tried in vain for hours to save his life, but there was too much dirt and too little time. He died.

A preventable death.

NEED TO KNOW

Ladonte MCCruter age 30 was a day laborer hired by a subcontractor at a construction site in Birmingham Alabama on August 31st / 2014. He was working in a 12-foot unprotected trench when it collapsed on him.

BUSINESS / REGULATIONS

The impact of a single fatality in the workplace has three-fold progression. Mr. MCCruter's subcontractor who hired him as a day laborer was charged with "willful and serious" safety violations following an OSHA investigation. Bates construction, the prime contractor who hired the subcontractor was also charged with a serious violation.

OSHA safety regulations required specific protections for any trench or excavation site deeper than five feet: either sloping of trench walls, shoring up the trench with aluminum hydraulics or other support, or shielding workers with protective trench box.

Regulators can make all the pronouncements about lack of safety and resources dedicated to a safe work environment by employers. But the real tragedy is the personal and family devastation impact of a workplace fatality that could have been prevented. Mr. MCCruter was a young man when he died at work. His family and

friends who knew him will never see and enjoy this “Kind man with a quick smile”

STATISTICS

Excavation is one of the most hazardous operations in the construction business claiming an average of 2 death per month. Between 2011 and 2015 according to Bureau of Labor Statistic (B.L.S.), 94 American workers were killed in trench collapses. In 2016, 23 US workers died in the trench collapses. In 2017, for the first 5 months, 15 workers died in trench collapses.

Temporary workers need to be scrutinized as well.

Temporary workers like MCCruter are often assigned to work in hazardous conditions with little or no training.

“Temporary Work, Lasting Harm,” a 2013 investigation by ProPublica analyzed millions of workers’ compensation claims in five states and found that “tempers face a significantly greater risk of getting injured on the job than permanent employees”

The U.S. Bureau of Labor Statistics began tracking fatalities involving temporary or contract workers in 2011. In 2013, 749 temp workers died on the job representing sixteen percent of all fatalities, an increase from 715 temp worker deaths reported in 2012.

PREVENTION

There is well-worn refrain that an “ounce of prevention fetches a pound of cure.” The employer has the primary responsibility to provide a safe workplace. Trench workers should never enter a trench unless:

UNLESS:

- A proper inspection by been done by a competent person.
- Cave-in protection measures are in place.
- There is a safe way to enter and exit.
- Equipment and materials are away from the edge.
- It is free of standing water and atmospheric hazards.

Workers are knowledgeable about trench sizes

- Trenches 5 feet deep or greater require a protective system.
- Trenches 20 feet deep or greater require a protective system designed by a registered professional engineer.

Workers know protective system for trenches

- SLOPE or bench trench walls by cutting back the trench wall at an angle inclined away from excavation.
- SHORE trench walls by installing aluminum hydraulic or other types of supports to prevent soil movement.
- SHIELD trench walls by using trench boxes or other types of supports to prevent soil cave-ins.