The Safety & Health Advisor

Fall 2018

ATLANTIC CHARTER INSURANCE COMPANY

Hand and Power Tool Selection

There have been many changes in hand and power tool design that have resulted in positive impacts in efficiency, ergonomics, and safety. The range and availability of ergonomically-designed tools are a long distance from the 'one size fits all' approach often seen in the past. Even with these improvements, however, improper selection, maintenance, and use of these tools can contribute to significant injuries (both at work and home). Injury statistics indicate that large numbers of workplace injuries, including musculoskeletal disorders, lacerations, and crushing injuries, are attributable to incorrect tool selection and use.

With so many options available, how should employers make the safest selections for their workforce? This overview can help you establish a process and policy for determining the best tools for specific tasks.

How important is hand and power tool safety?

When you're weighing the importance of dedicating time and resources to implementing a Hand and Power Tool safety policy, along with employee safety training and education, consider these statistics:

Power tool injuries account for as many as 400,000 annual emergency room visits. Among the most common tools responsible for the largest number of visits are (1):

- Power nailers or nail guns: **37,000** emergency room visits/year

Highlights in this Issue

- John Deere-type Riding Lawn Mowers: **37,000** hospital visits a year
- Chain Saws: **36,000** ER visits/year
- Stationary Table Saws: **29,000** ER visits/year
- Snowblowers: **5,7000** ER Visits per year; **19** deaths recorded since 1992
- Circular or Rotary Saws: **10,600** ER cases/year
- Power Drills: **5,800**

Source:

1 "The Most Dangerous Power Tools," Forbes.com, December 2009.

https://www.forbes.com/2009/12/21/most-dangerous-tools-business-healthcare-tools_slide.html

Hand Tools

The benefits to selecting hand tools include simplicity, lower cost, (generally) and a perception that they are safer than power tools. In addition, they are quieter, and often require less employee training for selection and use. However, hand tools can often extend the time required to complete tasks as well as require excessive repetitive and forceful actions. This can lead to cumulative injuries to fingers, hands, and wrists. Hand tools use is often a contributing factor to hand injury, particularly if the wrong tool is used.

Hand Tools-Selection

The variety of hand tools seems almost limitless, from everything from screwdrivers to axes. Choosing the right tool for the particular tasks is the first step. Not having the correct tool can too often lead to shortcuts, contributing to significant injury, and damaged equipment and materials. Chisels used as screwdrivers, hammers used as wrenches, and screwdrivers used as pry bars all come to mind.

This guide from NIOSH/CDC and Cal/OSHA is an excellent resource for determining ergonomic considerations when selection tools:

https://www.cdc.gov/niosh/docs/2004-164/pdfs/2004-164.pdf

Safety assessment surveys, including job hazard analysis (JHA), employee surveys, reviews of workers' compensation claims and OSHA recordable incidents can be used to help identify tasks where tools are used incorrectly. Employee feedback should be encouraged, and be part of the selection process, for both hand and power tools.

Power Tools

Power tools can be used to perform tasks or produce products much faster than hand tools. They can allow employees to produce more consistent results, adding to the efficiency and productivity of operations. However, these benefits can also come with costs such as additional hazards and greater risk of injury. Power tools can be extremely noisy and create uncomfortable vibrations when in use. Employees exposed to noise levels at or above 85 dBA should wear hearing protection.

Power Tools-Selection

The energy created by power tools requires the consideration of many factors in selecting options. Do employees have the demonstrated experience and skill needed to operate power tools? What additional training may be required? Will new employees be allowed to operate power tools? Musculoskeletal injuries can result from improper power tool use, and the extra weight and vibration can often compound the problem. The OSHA ***Hand and Power Tool- Hazards and Solutions*** module provides guidance on identifying these hazards, and methods employers can use to determine the safest options for their workforce:

https://www.osha.gov/SLTC/handpowertools/hazards.html

Additional information addressing power tool safety inspections, including a useful checklist are available through this link:

https://www.cdc.gov/niosh/docs/2004-101/chklists/r1n50p~1.htm

Tool Safety Policy

Basic tool use procedures may appear to be common sense, yet accidents continue to occur. In addition to improper tool selection, additional factors may include lack of training, change in work requirements/tasks, broken or missing tools, and non-routine tasks. Establishing specific tool use guidelines, including safety requirements, can improve performance. Basic employee safety provisions should always be required, including:

- Inspect all tools prior to use, to assure no damage has occurred.
- Use tools only for intended purposes.
- Always wear appropriate personal protective equipment (PPE).
- Follow manufacturer's recommendation on tool use.
- Keeping your wrists straight while working with hand and power tools is crucial. Do not bend or rotate your wrists. Instead, bend the tool. There are a variety of tools that come with bent-handle features.
- Do not stand still in one place for too long while working with a heavy tool. To avoid problems such as neck strain, reduce the weight of your tool and keep your elbows low and slightly bent.
- Some tools can create pressure on the base of your palm, which interrupts circulation and nerve function. Avoid stressing these soft tissue areas.
- Avoid using tools that need a lot of grip force. Some tools are made with a compressible gripping surface that is usually better than plastic for gripping.
- Do not use tools that require finger grip. Instead, choose tools that require a full-hand power grip.
- Do not use tools that have pinch points and sharp edges. Tools that do not pinch or cut your fingers (even while wearing gloves) are the better choice.
- Avoid using tools that create excessive vibration. This vibration can have negative effects on your circulation. Instead, choose tools that limit the amount of vibration by effectively absorbing it.

- Wear well-fitting gloves when you use tools. Loose-fitting gloves can be hazardous and reduce your grip-strength.

Additional tips for power tool use can be found through this link:

https://vividlearningsystems.com/blog/30-tips-for-hand-and-power-tool-safety

For information on job hazard analysis (JHA):

https://www.lni.wa.gov/Safety/Topics/AToZ/JHA/

https://www.osha.gov/Publications/osha3071.pdf

https://www.safetyandhealthmagazine.com/articles/14386-job-hazard-analysis

Occupational Noise

Approximately twenty-two million workers are exposed to potentially damaging noise each year and thousands of workers every year suffer from preventable hearing loss due to high workplace noise levels. In 2015, the Bureau of Labor Statistics (BLS) reported more than 20,000 cases of work-related hearing loss (BLS, 2015). Exposure to high noise levels can cause permanent hearing loss that cannot be corrected through surgery. High noise levels also cause temporary loss in hearing sensitivity, tinnitus, and acoustical trauma. Tinnitus is a condition in which people complain of a sound in the ear such as a hum, buzz, ring, or whistle.

There is an OSHA Local Emphasis Program (LEP) in the New England Region for Noise in the Workplace. It provides a comprehensive framework of guidance and direction to ensure effective targeting, enforcement and outreach regarding hazards associated with workers that are exposed to high noise levels in certain industries and are at risk for developing occupational noise-induced hearing loss at workplaces in Region I, New England. See the Region I LEP for Noise in the Workplace - https://www.osha.gov/sites/default/files/enforcement/directives/reg1_fy2018_CPL-04-00-024E.pdf.

OSHA has two regulations for noise – one for construction worksites (29 CFR 1926.52) and one for general industry worksites (29 CFR 1910.95). OSHA's current Permissible Exposure Limits (PELs) are based on a 5 decibel (5 dB) exchange rate. That means, when the duration of noise exposure is cut in half, the allowable noise exposure is increased by 5 dB. OSHA's PELs for noise is listed in the following table:

OSHA PELs for Noise

Duration	PEL
8 hours	90 dB
4 hours	95 dB
2 hours	100 dB
1 hour	105 dB
1/2 hour	110 dB
15 minutes	115 dB

Sound level meters (SLM) provide instantaneous sound level readings. Some SLMs will data log the different readings that were taken during a sampling period. SLMs are used mostly for area monitoring and are used for these five purposes:

1. To spot-check noise dosimeter performance;
2. To determine an employee's noise dose whenever a noise dosimeter is unavailable or inappropriate;
3. To identify and evaluate individual noise sources for abatement purposes;
4. To aid in the determination of the feasibility of engineering controls for individual noise sources for abatement purposes; and/or
5. To evaluate hearing protectors.

The current OSHA standard for noise at general industry worksites stipulates that employees exposed to 85 dBA for an 8-hour work shift be included in an effective Hearing Conservation Program (HCP). Employees with a time-weighted average noise exposure above OSHA's Action Level must be included in an effective Hearing Conservation Program (HCP), which includes the following elements:

- Hearing protection must be available but is **not** mandatory to use.
- Audiometric tests must be performed annually and employees informed of the results.
- Employees who have not yet had their baseline (initial) audiogram must wear hearing protection until their baseline audiogram has been evaluated.
- Employees whose audiograms indicate that a standard threshold shift (of 10 dB or more at 2000, 3000, and 4000 hertz in either ear) has occurred must wear hearing protection.

One can use the NIOSH Hierarchy of Controls to reduce workplace noise to below the OSHA PEL whenever possible. Use hearing protection when hazardous noise levels cannot be adequately reduced.

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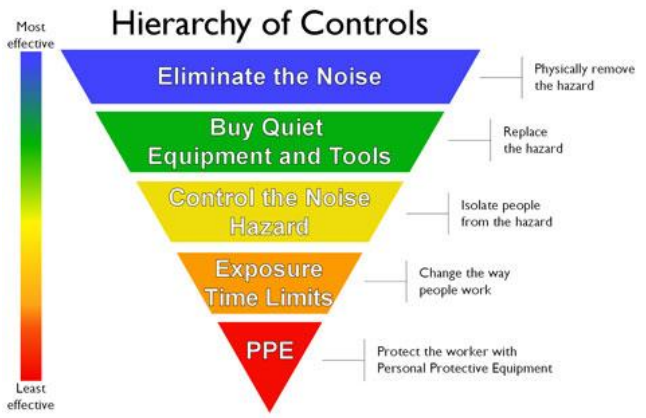

Atlantic Charter's Safety and Health Consultants can conduct noise level surveys at your facility using an integrated sound level meter. Noise level readings can be compared to the aforementioned permissible exposure limits for noise to determine if a hearing conservation program is required.

New Ergonomics Tool to Assess Push/Pull Tasks

The pushing and pulling of carts, baskets, boxes and other containers is a common activity performed across many industries. In fact, manual materials handling tasks appear to be shifting away from lifting and *towards pushing and pulling*. It has been estimated that up to 20% of low-back disorders are linked to push/pull activities in the United States. *Al-Eisawi et al. (1999) and Hoozemans et al. (2004).*

Until recently, guidelines for safe pushing and pulling frequently used by were developed using subjective methods, which may underestimate injury risk to the lower back and shoulders. Now, guidelines have been developed based on biomechanical tolerances, using sophisticated modeling techniques. These limits are based on research conducted by The Ohio State University's Spine Research Institute.

The guidelines are accessible free online. Users can evaluate pushing and pulling activities that are done with one or two hands, as well as those performed along a straight or a curved path. The only equipment needed to use this tool is a tape measure and a force gauge. Portable force gauges (both analog and digital) are available at various price points from suppliers such as Grainger and Amazon to name a couple.

Results are provided using a "red/yellow/green" format, indicating the percentage of the workforce (less than 50%, 50-80%, at least 80%) that is believed would be protected from injury performing the task, given the inputs entered.

The direct link to the tool is:
https://www.bwc.ohio.gov/employer/programs/safety/PushPullGuide/PushPullGuide.aspx

Workplace Violence Prevention

The prevalence of workplace violence and "active threat" situations continues to increase as reflected by frequent news stories about incidents. The variety of settings where these incidents occur demonstrates that no place is immune, including the workplace.

OSHA recognized that this is a significant concern and over the past few years has brought additional emphasis during inspections for evaluating an employer's readiness to address this topic through policy, procedures and training. While there is no specific OSHA standard about this subject there is an OSHA compliance directive (CPL 02-01-052) that utilizes the "General Duty Clause" to cite and penalize employer's where a workplace violence prevention program is either non-existent or inadequate in a setting where it could be expected that employees could be exposed to potential violence based on certain risk factors. There is a particular focus on the healthcare and retail industries.

The General Duty Clause states "Each Employer - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

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To help reduce the potential for violence in the workplace, insofar as possible, every organization should have a written policy for this topic as a foundation for a complete program with additional procedures (including a multiple path reporting process) as well as documented employee training.

One accepted definition of workplace violence is "any physical assault, threatening behavior (including gestures) or verbal abuse (including harassment) occurring in a work setting. It includes "bullying" and can even extend to electronic communication and/or social media. A workplace (not all inclusive) may be any location either permanent or temporary where an employee performs any work-related duty including, buildings or surrounding areas, the street, parking lots, client homes or traveling to and from work assignments."

The four types of potential violence that should be addressed in a formal program include: **Criminal Intent** which includes violent acts by people who enter the workplace to commit a robbery or other crime – or current or former employees who enter the workplace with the intent to commit a crime. **Client/Patient/Resident** includes violence directed at employees by customers, clients, patients, residents, students or any others to who the employer provides a service. **Co-Workers** includes violence against co-workers, supervisors or managers by a current or former employee, supervisor or manager. **Personal Relation** (commonly known as domestic violence) includes violence in the workplace by someone who does not work there, but is known to, or has a personal relationship with an employee.

Every workplace violence prevention program should include the following major elements.

- Management Commitment, Policy and Employee Involvement
- Worksite Analysis/Exposures
- Hazard Prevention and Control
- Training and Education
- Recordkeeping and Evaluation

Consequences for violation of the workplace violence policy should be tied to the organization's progressive discipline policy.

Training should include the organization's policy, risk factors, ways to recognize and prevent potential violence situations, location or organization specific procedures, the reporting process, the response plan in the event of incident and resources that are available to employees.

A **free** 60-minute webinar on preventing workplace violence in **healthcare settings** is available from The Joint Commission, a long-standing OSHA national alliance partner. The webinar includes an overview of OSHA's *Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers*, as well as a discussion of a multi-hospital intervention study that reduced violent events.

There are other resource materials prepared by OSHA that go into greater detail as to what each of the above elements involve. A special webpage on the topic, including links to additional resources, can be found at: https://www.osha.gov/SLTC/workplaceviolence/

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Atlantic Charter's Safety and Health Consultants are another resource that can assist your organization by providing guidance for establishing a workplace violence prevention program.

OSHA Settlement following the 2017 Lynnway Auto Auction Fatal Crash Accident

OSHA recently reached a settlement with Lynnway Auto Auction Inc. following a tragic accident in May 2017 in which a sport utility vehicle struck and killed five people during an auto action at their facility in Billerica. The company was cited for 16 violations which are detailed in the news release (https://www.osha.gov/news/newsreleases/region1/11092017), citations included motor vehicle hazards, electrical hazards, blocked exit routes, violations of the hazard communication standard, and recordkeeping deficiencies.

"This company was cited in 2014 for exposing employees to similar hazards," said OSHA Regional Administrator Galen Blanton, in Boston. "It is critically important that employers remain vigilant about safety and implement required safety measures."

The company has agreed to correct hazards, implement significant safety measures, and pay $200,000 in penalties. As part of the settlement, they will designate and mark non-driving locations, walkways, and crosswalks; install barriers in the auto auction area; establish and enforce speed limits and a safe driving program; periodically evaluate employees' driving capabilities and licenses; provide employee training; and review all vehicle accidents or near-misses.

The 76 year old driver of the vehicle involved with the accident was later determined to have been driving for the company with a suspended license according to an article posted on masslive and also reported on multiple local news outlets https://www.masslive.com/news/index.ssf/2017/05/driver_in_lynnway_auto_auction.html. According to a statement by the Lynnway Auto Auction President Jim Lamb, "We were unaware of the change in status of the driver's license until the police told us after the accident." The driver had a valid license in 2010, when he was hired roughly seven years ago.

As we reported in the Spring 2018 edition of our Safety and Health Advisor Newsletter, The Massachusetts Registry of Motor Vehicles (RMV) has a program in place for employers called the Driver Verification System (DVS). This system was put in place to assist in employers and help to facilitate immediate action to reduce the risk for accidents. Under the DVS program, registered employers receive an email notification whenever there is "change in status" for one of their registered drivers. Once the email is received from the RMV, the authorized employer contact must log into the DVS online system to view specific details of the status change (e.g., suspension, license expiration, etc.). Below is a link to website with additional details:

https://www.mass.gov/service-details/driver-verification-system-dvs

Influenza Vaccination Education - Online Toolkit for Employers

The Centers for Disease Control (CDC), the Advisory Committee on Immunization Practices (ACIP), and the Healthcare Infection Control Practices Advisory Committee (HICPAC) recommend that all U.S. health care workers get vaccinated annually against influenza. Health care workers include (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the health-care facility, and persons (e.g., clerical, dietary, housekeeping, laundry, security, maintenance, administrative, billing, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from health care workers and patients.

CDC's online toolkit provides a number of resources intended to help long-term care facilities, agencies, and other places of business with educational materials for employees so they can better understand the importance of influenza vaccination.

See https://www.cdc.gov/flu/toolkit/long-term-care/index.htm.

They also describe many of the common misconceptions about seasonal flu and flu vaccines. https://www.cdc.gov/flu/about/qa/misconceptions.htm

Finally, here is a link to some frequently asked flu questions for the 2018-2019 influenza season. https://www.cdc.gov/flu/about/season/flu-season-2018-2019.htm

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Ergonomics in Healthcare: Continuing Education for Caregivers

The Center for Center for the Promotion of Health in the New England Workplace (CPH-NEW) at UMass Lowell is a national Center for Excellence in Total Worker Health, conducting research and education to advance worker health, safety, and well-being. CPH-NEW recently announced a new continuing education program Ergonomics in Healthcare. This online program was developed to combat the high rates of musculoskeletal injuries, which are the leading occupational hazard among nursing staff.

The modules are very flexible. Users can start and stop as time allows. If you use the same computer each time, the system will remember you and not ask you to sign in each time. However, you can use different devices, but will have to log in each time.

It is estimated about five (5) hours is needed to complete the modules including the time required to read or watch the supplementary materials. A certificate gets generated after completing the program evaluation.

Participants who complete the program will learn:

- the risk factors involved in musculoskeletal injuries
- why nurses in particular are at risk
- ergonomic principles and risk reduction strategies
- the essential components of a Safe Patient Handling and Mobility Program

Read more about the program and why healthcare workers are at high risk for injuries on the job.

https://www.uml.edu/news/stories/2018/continuingednurses.aspx

Ergonomics in Healthcare meets the MA Board of Nurse Registration requirements for 5 contact hours. It is free of charge and self-paced, allowing professionals to finish the program based on their availability.

If you need assistance in evaluating your ergonomics or safety and health program, please contact Neal Freedman, John Cotnam, Mark Hickox or Rick Muller from Atlantic Charter's Safety and Health Department at (617) 488-6500.