IN Review

Indiana Occupational Safety and Health 2009

An annual publication of the Indiana Department of Labor

2007: SAFEST YEAR EVER FOR HOOSIER WORKERS

Most Often Violated:
IOSHA's Top Standards cited

HazCom
Keep It Labeled

***IN* the Know:**
Women in the workplace

Advancing the safety, health and prosperity of Hoosiers in the workplace

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On the Cover: INSafe Safety Consultant Roy Pannell communicates with Gartland Foundry Personnel Manager Larry Meddles during an on-site visit. Gartland Foundry received INSHARP certification in September 2007. The new Indianapolis International Airport was opened in November 2008. A scene is taken from a distance showing its progress (Photo Courtesy of Monomedia, Inc.). The Lucas Oil Stadium was completed in time for the 2008-2009 Indianapolis Colts' football season (Photo Courtesy of Monomedia, Inc.).

INDIANA LABOR LEADERS

Mitchell E. Daniels, Jr.
Governor of Indiana

"Indiana had its safest year in 2007 in the workplace. In today's economy, employers and employees recognize the value of finding solutions to decrease the number of workplace injuries, illnesses, and fatalities. The Indiana Department of Labor is continually working with businesses throughout the state of Indiana to provide a safer, healthier and more prosperous future for all Hoosiers."

Mitchell E. Daniels, Jr.
Governor of Indiana

Hoosiers in the Workplace are Our Priority

The Indiana Department of Labor is an agency of 100 dedicated professionals who touch the lives of nearly three million working Hoosiers. Advancing the safety, health and prosperity of Hoosiers in the workplace has been and will always be our first priority.

While never losing sight of employee safety and security, we believe that the best outcomes for Indiana workers can be achieved through a broad range of cooperative programs, voluntary compliance, and training and education resources, all supported by a vigorous and effective enforcement program.

The agency has enjoyed some successes, but more new challenges lie ahead. As Governor Daniels said during his 2009 inaugural address, *"a new mentality has taken root, a new boldness born of risks successfully run and change successfully delivered. In overwhelming numbers, Hoosiers have declared that we are unafraid to lead, to try the new before others do and that we like the results of doing so."*

The most recent Bureau of Labor Statistics data for Indiana reflects that Indiana's injury and illness rate is at a historic low of 5.2 per 100 workers. Injuries and illness to Hoosier workers decreased 42% from 1997 to 2007. Similarly, the downward trend in workplace fatalities also continued, decreasing 33% over the past decade.

Additionally, the agency was the recipient of two awards, the **William Q. Wiehrdt Award** and the **"OSCAR."** The Wiehrdt award was in recognition of outstanding efforts to advance the cause of a safe and healthful workplace for America's men and women through exemplary job performance. The **OSCAR** was awarded for outstanding achievement in marketing the agency's consultation services to high hazard establishments and increasing awareness of and participation in **INSHARP.** Indiana indeed is taking risks and successfully delivering results.

Lori A. Torres
Commissioner of Labor

This publication, ***IN Review***, is shared with trade associations, legislators, agency heads, labor officials and others in a position to help lead change in occupational health and safety. Our hope is that this data can be used to craft new and better solutions to keeping our Hoosiers safe and sound.

The Department of Labor is more than just **IOSHA** and enforcement. We have resources for you, and are looking at how to assist you, how to deliver information or training to you or partner with you for real improvement in your industry. If you have any ideas on how we can better assist you, better protect you, make you more prosperous, or deliver our services in a better way to you, please let me personally know.

Sincerely,

Lori A. Torres
Commissioner of Labor

2007: Safest Year EVER for Hoosier Workers

A review of the occupational injury, illness and fatality data in this state indicates that progress in the reduction of incidents in Indiana is being made. Information used in ***IN Review*** was provided by the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI), BLS Survey of Occupational Injuries and Illnesses (SOII) and data from the Indiana Occupational Health and Safety Administration (IOSHA). This data includes the most recent information available*.

- In 2007, Indiana reported 127 work-related deaths (Figure 1). There were 21 fewer fatalities than 2006, and the fewest on record. The most current workplace fatality rate was 4.8, per 100,000 Hoosier employees (Figure 2), which was released for 2006.

  Indiana's top three industries in 2007 with workplace fatalities are:

Transportation & Warehousing	31
Construction	21
Professional & Business Services	11

- The number of non-fatal occupational injuries and illnesses in 2007 was 125,000 (Figure 3). This is the lowest number of injuries and illnesses recorded for the state and represents a decrease of 6,000 as compared to 2006.

  Indiana's top three industries reporting injuries and illnesses in 2007 in raw numbers are:

Manufacturing	36,600
Healthcare & Social Assistance	17,100
State & Local Government	17,100

- Indiana's corresponding non-fatal occupational injury and illness rate is 5.2 per 100 employees (Figure 4). While Indiana continues a downward trend, it is greater than the U.S. private industry rate of 4.2.

  The top three industries reporting injuries and illnesses by rate in 2007 are:

Healthcare & Social Assistance	6.9
Manufacturing	6.6
Construction	5.7

Incidence rates represent the number of injuries and illnesses per 100 full-time workers.

*2008 BLS data will be released for CFOI in August 2009 and for SOII in October 2009.

Figure 1: Indiana's Fatal Occupational Injuries

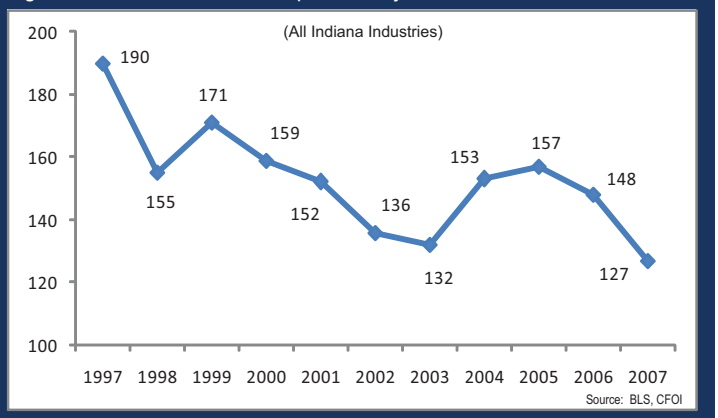


Figure 2: Indiana's Occupational Fatality Rate

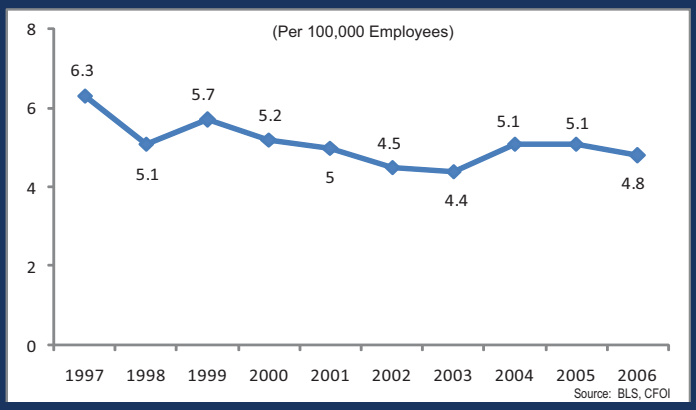


Figure 3: Indiana's Non-fatal Occupational Injuries & Illnesses

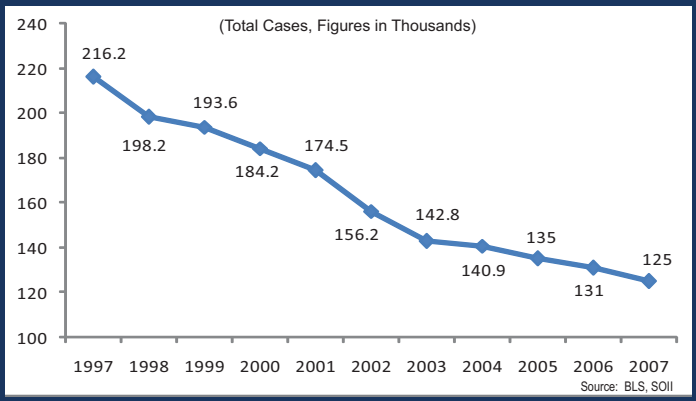
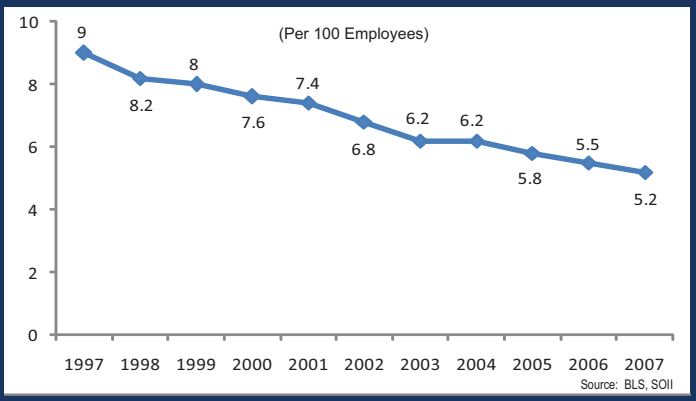


Figure 4: Indiana's Non-fatal Occupational Injury & Illness Rate



Is My Injury Recordable?

Tens of thousands of work-related injuries and illnesses occur each year in Indiana. Employers and state regulators constantly work to develop strategies to reduce the number of injuries and illnesses. For employers that are required to maintain OSHA Injury and Illness Logs, it is important to know when an injury or illness should be recorded. Some industries are exempt from the Recordkeeping requirement. To learn more about exemptions please visit http://www.osha.gov/recordkeeping/ppt1/RK1exempttable.html .

The following scenarios represent real Hoosier workers' experiences with injuries received while working.

Can you identify which injury is **OSHA recordable?**

Incident 1: A Graphic Designer was using an exact-o-knife to assemble a project when he sliced off the tip of his finger. The employee visited the emergency care center and received stiches to close the wound.

Incident 2: A Land Surveyor was working in the field when he struck himself in the head with a shovel while swatting at a bee, which stung him. The employee visited an emergency care center. The laceration that the employee suffered was closed using tape and gauze.

Answer: The OSHA recordable injury was portrayed in Incident 1 with the Graphic Designer. It does not matter whether or not the employee has visited a physician or emergency care center, but rather the *type of care* received.

How to Determine Injury or Illness Recordability:
The questions below will help to determine the recordability of the workplace injury or illness.

1. Was the incident an occupational injury or illness caused by the work or work environment?

2. Does the incident fall within any of the following - Illness which is diagnosed or an injury which results in:

a. Medical treatment provided other than First-Aid
b. Loss of consciousness
c. Restriction of work or motion
d. Transfer to another job
e. Death

Employers that answer yes to both of the previous questions should record the injury or illness on the company's **OSHA 300 Log.** Each recordable case must be entered on the employer's OSHA 300 Log within six workdays of receiving the report.

For additional information or OSHA recordkeeping forms, please visit http://www.osha.gov/recordkeeping/index.html .

Treating Minor Injuries

Contributed by John Brunswick, INSafe Construction Safety Consultant

OSHA has provided a nonmandatory Appendix A to Standards 1910.151 and 1926.50 to guide employers on the appropriate contents of a **First-Aid kit**. **First-Aid kits** in compliance with this nonmandatory standard provide a basic range of products to deal with common injuries encountered in the workplace.

The type and number of items needed to meet the minimum requirements include the following:

- **Compresses (1)**
- **Adhesive Bandages (16)**
- **Adhesive Tape (1)**
- **Antiseptic Ointment (10)**
- **Burn Treatment Applications (6)**
- **Medical Exam Gloves (2 pair)**
- **Sterile Pads (4)**
- **Triangular Bandages (1)**

For more information please visit http://www.osha.gov/SLTC/medicalfirstaid/index.html .

Whistleblower Protection Unit

Contributed by Jim Casey, Whistle Blower Protection Unit

The Indiana Department of Labor established the **Whistleblower Protection Unit** to provide employees that engage in a protected activity (e.g. the filing of safety and health complaints with IOSHA, the State Fire Marshal, or any entity that deals with safety and health for Hoosier employees) a way to report violations without fear of retaliation by the employer.

Employees who believe their employer has discriminated or retaliated against them because they exercised their **safety and health rights** should contact IOSHA immediately. Many workplace whistleblower complaints fall under the OSH Act, which provides only 30 days to report. Depending on the statute, the employee may need to file a complaint in writing.

Depending upon the circumstances of the case, "discrimination" can include firing or laying off, blacklisting, demoting, denying overtime or promotion, disciplining, denial of benefits, failure to hire or rehire, intimidation, reassignment affecting prospects of promotion or reducing pay or hours. The same laws also prevent retaliation against individuals who oppose unlawful discrimination or participate in an employment discrimination hearing.

A person filing a complaint of discrimination or retaliation will be required to show that he or she engaged in protected activity, the employer knew about that activity, the employer subjected him or her to an adverse employment action, and the protected activity contributed to the adverse action. Adverse employment action is generally defined as a material change in the terms or conditions of employment.

If the evidence supports the employee's allegations, the Department of Labor will investigate that employer in the form of an investigation, back wages, and possible legal action. Regardless of the unsafe condition, ***you are not protected if you simply walk off the job.*** If you leave, IOSHA cannot enforce union contracts or state laws that give employees the right to refuse to work.

For additional information about the **Whistleblower Protection Unit**, phone (317) 234-3946 or email oshacomplaint@dol.in.gov.

VPP *IN* the Spotlight: DSM NeoResins

Contributed by Stephen V. Dalton, *DSM NeoResins*

The DSM NeoResins Frankfort site received Voluntary Participation Program (VPP) certification in November 2005 and has maintained consistent excellence in safety and health performance. The site has operated for 21 years without a lost time incident. In September 2008, the site celebrated the seventh anniversary of being free from recordable injuries and/or illnesses.

Employees have established a tradition of "living our principles" and keeping safety the highest priority. Keys to success have been embracing behavior based safety, with near miss reporting as the cornerstone.

Our proven road to safe behavior includes:

- *Forced Behavior*. Rules are enforced. Positive, immediate and certain consequences are provided for at risk behavior.
- *Forced Participation*. Employees must attend safety training, risk assessment, etc.
- *Willing Participation*. Acceptance of individual responsibility for own behavior as well as the behavior of teammates, including contractors.
- *Belief in Safety*. People "see the risks." Continuous improvement and targeting excellence is a passion.

During the VPP audit, the compliance team from the Indiana Department of Labor noted that it was impossible to distinguish management from operators and that the operators interviewed could have been occupational safety, health and environmental professionals. The Frankfort team continues to work to create an environment where the best people are hired, developed, retained and most importantly, unleashed.

Worksites that have an interest in VPP may contact VPP Manager, Mike Gaskill, at (260) 373-2860.

IN Review Fact:

Today, there are 52 company worksites in Indiana that participate in the Voluntary Participation Program (VPP).

TOP GENERAL INDUSTRY STANDARDS CITED

Safety: 29 CFR 1910

1 1910.303 (g)(2)(i) - **Electrical - General Requirements: Guarding of live parts.** Except as elsewhere required or permitted by this standard, live parts of electrical equipment operating at 50 volts or more shall be guarded against accidental contact by use of approved cabinets or other forms of approved enclosures.

2 1910.212 (a)(1) - **Machine and Machine Guarding - General Requirements: Types of Guarding.** One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are-barrier guards, two-hand tripping devices,electronic safety devices, etc.

3 1910.1200 (e)(1) - **Hazard Communication: Written Hazard Communication Program.** Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met.

4 1910.1200 (h)(1) - **Hazard Communication: Employee information and training.** Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area. Information and training may be designed to cover categories of hazards (flammability, carcinogenicity, etc.) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.

5 1910.215 (b)(9) - **Abrasive Wheel Machinery: Guarding of abrasive wheel machinery.** Exposure adjustment. Safety guards of the types described in Subparagraphs (3) and (4) of this paragraph, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in paragraphs (b)(3) and (4) of this section shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed one-fourth inch.

Health: 29 CFR 1910

1 1910.1200 (h)(1) - **Hazard Communication: Employee information and training.** Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area. Information and training may be designed to cover categories of hazards (flammability, carcinogenicity, etc.) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.

2 1910.1200 (e)(1) - **Hazard Communication Program: Written hazard communication program.** Employers shall develop, implement, and maintain a written hazard communication program which describes how the criteria in paragraphs (f), (g) and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met.

3 1910.1200 (f)(5)(ii) - **Hazard Communication: Labels and other forms of warning.** *The employer shall ensure that each container of hazardous chemicals in the workplace is labeled with the following information:* Appropriate hazard warnings, or alternatively, words, pictures, symbols or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.

4 1910 134 (c)(2)(i) - **Respiratory Protection: Respiratory Protection Program.** *Where respirator use is not required:* An employer may provide respirators at the request of employees or permit employees to use their own respirators, if the employer determines that such respirator use will not in itself create a hazard. If the employer determines that any voluntary respirator use is permissible, the employer shall provide the respirator users with the information contained in Appendix D to this section ("Information for Employees Using Respirators When Not Required Under the Standard").

5 1910 1200 (f)(5)(i) - **Hazard Communication: Labels and other forms of warning.** *The employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with the following information:* Identity of the hazardous chemical(s) contained therein.

To read the OSHA Standards in their entirety, please visit http://www.osha.gov . From the *Programs & Resources* box, select, "Laws and Regulations."

Construction Safety: 29 CFR 1926

1 1926.20 (b)(1) - **General Safety and Health Provisions: Accident Prevention Responsibilities.** It shall be the responsibility of the employer to initiate and maintain such programs as may be necessary to comply with this part.

2 1926.100 (a) - **Head Protection.** Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets.

3 1926.451(b)(1) - **Scaffolds General Requirements: Scaffold platform construction.** Each platform on all working levels of scaffolds shall be fully planked or decked between the front uprights and the guardrail supports.

4 1926.451 (e)(1) - **Scaffolds General Requirements: Access.** When scaffold platforms are more than 2 feet (0.6 m) above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/ towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personal hoist or similar surface shall be used. Crossbraces shall not be used as a means of access.

5 1926.454 (a) - **Scaffold: Training requirements.** The employer shall have each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards.

6 1926.501 (b)(1) - **Duty to have Fall Protection: Unprotected sides and edges.** Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems or personal fall arrest systems.

7 1926.451 (6)(1)(v)(i)(i) - **Scaffolds General Requirements: Fall protection.** Each employee on a scaffold more than 10 feet (3.1 m) above a lower level shall be protected from falling to that lower level. Paragraphs (g)(1)(i) through (vii) of this section establish the types of fall protection to be provided to the employees on each type of scaffold. Paragraph (g)(2) of this section addresses fall protection for scaffold erectors and dismantlers. (vii) For all scaffolds not otherwise specified in paragraphs (g)(1)(i) through (g)(1)(vi) of this section, each employee shall be protected by the use of personal fall arrest systems or guardrail systems meeting the requirements of paragraph (g)(4) of this section.

8 1926.453 (b)(2)(v) - **Extensible and Articulating Boom Platforms.** A body belt shall be worn and a lanyard attached to the boom or basket when working from an aerial lift.

9 1926.453 (b)(2)(v) - **Excavation Requirements for Protective Systems: Protection of employees in excavations.** Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section.

10 1926.020 (b)(2) - **General Safety and Health Provision: Accident prevention responsibilities.** Such programs shall provide for frequent and regular inspections of the job sites, materials and equipment to be made by competent persons designated by the employers.

HazCom: Keep It Labeled

Contributed by Jason Reason, Compliance Safety and Health Officer

Hazard Communication (HazCom) programs are not only important, but a requirement when working with or around hazardous chemicals. One of the most overlooked aspects of a HazCom program is chemical labeling. All containers which hold hazardous chemicals must be labeled with the identity of the chemical, including warnings associated with the chemical. Most people don't realize that improperly labeled chemicals pose a serious threat to both employers and employees. Misuse of hazardous chemicals can set off a chain reaction which can lead to serious outcomes including death.

Above: Contaminant Closet, photo taken on March 27, 2008 IOSHA inspection.

Methylene chloride (also known as Dichloromethane) is a highly volatile organic solvent. Because of its dangerous properties and toxic effects, **methylene chloride** is one of a selected few chemicals to have its own OSHA standard (29 CFR 1910.1052). It is commonly used in paint removers, propellant mixtures for aerosol containers, as a solvent for plastics, degreasing and extracting agents in the pharmaceutical industry and as a blowing agent in polyurethane foams.

In an occupational setting, **methylene chloride** can have adverse effects to employees if inhaled or comes in direct contact with the eyes or skin. Inhalation of **methylene chloride** can cause central nervous system impairment (CNS), disorientation, headaches, nausea, vomiting and loss of consciousness. It can also cause an elevation of carboxyhemoglobin levels which are a result of excessive carbon monoxide levels. In addition to these aforementioned symptoms, **methylene chloride** can also result in severe irritation and chemical burns to the skin. Long term exposure to methylene chloride can result in liver or brain cancer. This chemical can cause negative lasting effects to those who are exposed, so it is important to know the hazards or dangers of the chemicals with which you work.

It Happened Here

Background: From 2002 to 2005, there were 18 chemical-related deaths in the state of Indiana.

Fatal Event: On March 27, 2008, the victim was working in a small room using a paint stripper which contained 75-100% methylene chloride. Co-workers found the victim unresponsive on the floor of the room. Based on information collected during the inspection, it was calculated that the victim was exposed to approximately 40,000 ppm of methylene chloride. The victim had 99 micrograms/milliliter of methylene chloride in her blood which is 99 times the normal amount. The victim died as a result of central nervous system depression due to exposure to methylene chloride vapors. Initially, the coroner was not able to identify the cause of death because the employer had deliberately removed the chemical manufacturer's labels from some of the chemical containers (including the paint stripper). The employer claimed this was done so that competing businesses would not know which chemicals the company was using.

Discussion: The employee's death was the result of lack of training and faulty labeling. Employees assumed the chemicals were safe to use and rarely (if ever) wore safety equipment such as gloves, safety glasses, or respirators. It is the employer's responsibility to maintain a safe and healthy work environment for its employees. It is also the employee's responsibility to be aware of potential hazards in the workplace and protect themself.

Scaffolds: Most Often Cited in Construction

Contributed by Bryan Thais, Construction Safety Supervisor

Whether it is the construction of a small single-family house or a multi-million dollar commercial building, you can find some kind of scaffolding on just about any construction site. Scaffolds can be as simple as a couple of saw horses with a board/plank across them, or as complex as platform suspended with cables on a roof. Some of the most frequently violated OSHA standards in the construction industry today relate to scaffolds.

OSHA defines scaffolds as any temporary elevated platform (suspended or supported) that is used to support employees, materials or both. The 29 CFR 1926 regulations, Subpart L provides guidance and sets the standards for the errection, maintenance, use of and disassembling of scaffolds in the workplace.

There were 40 cases reported in 2007 in which employees fell from scaffolding and were injured. These falls caused Hoosier workers to miss an average of five days of work. These are some of the reasons why, in Indiana, scaffolding is a Local Emphasis Program (LEP).

LEPs are enforcement strategies designed and implemented at the state level. These programs are intended to address hazards or industries that pose a particular risk to workers in the office's jurisdiction.

A frequently cited standard in construction regarding scaffolds relates to fall protection. Employees on a scaffold more than 10 feet above a lower level must be provided with some type of fall protection to prevent serious injury or death from falling to a lower level. The most common type of fall protection used on a scaffold is guardrails. Guardrails consist of a top rail installed between 38 inches and 45 inches above the platorm surface on the scaffold, a mid-rail and when a hazard of tools or material falling from the scaffold is present, a toe-board must be installed at the platform's edge.

Other types of scaffolds require a personal fall arrest system to be used for fall protection. A personal fall arrest system consists of a body harness with a lanyard connected to either a vertical or horizontal lifeline or some other anchorage capable of supporting 5,000 pounds. By their very nature, some types of scaffolds require both guardrails and a personal fall arrest system.

Stardards cited pertaining to scaffolds also include training. Employers are required to train employees that have the duty to erect, repair, operate or disassemble scaffolds. Employees that work from the scaffold must be trained to recognize hazards associated with the type of scaffold that they are using. Employees should understand how to either control or minimize the associated hazards. Such training must include the maximum load capacity, electrical hazards, fall hazards, falling object hazards and the proper procedures for using fall protection systems while on the scaffold. Scaffold erectors and those in charge of disassembling must be trained in all of the aforementioned to ensure that the appropriate type is erected for the job.

IN Review Fact:

Nationally in 2007, 88 workers were killed in a fall from a scaffold.

Standards dealing with platform construction are also often cited. Platforms on scaffolds should be fully planked between the front uprights and any guardrail supports. Specific requirements for the width of the scaffold's platforms are set depending on the scaffold's type. This includes a minimum and maximum length that the platforms can extend past the support. In addition, standards pertaining to access to platforms on scaffolds, capacity (maximum weight supported), bracing and tying.

Employees that work with or on scaffolds must understand exactly what a scaffold is as well as the different types of scaffolds. They should be able to recognize and anticipate occupational safety hazards. For more information about scaffolds, visit the OSHA eTool at http://www.osha.gov/SLTC/etools/scaffolding/index.html .

Above: Scaffolding is used in the construction of the new Indianapolis International Airport (Photo Courtesy of Monomedia, Inc.).

Injuries and Fatalities Reach Historic Low

In 2007 the manufacturing industry reported historic lows that included the number and rate of injuries, illnesses and workplace fatalities. The industry is the largest employer in the state, employing 568,000 workers.

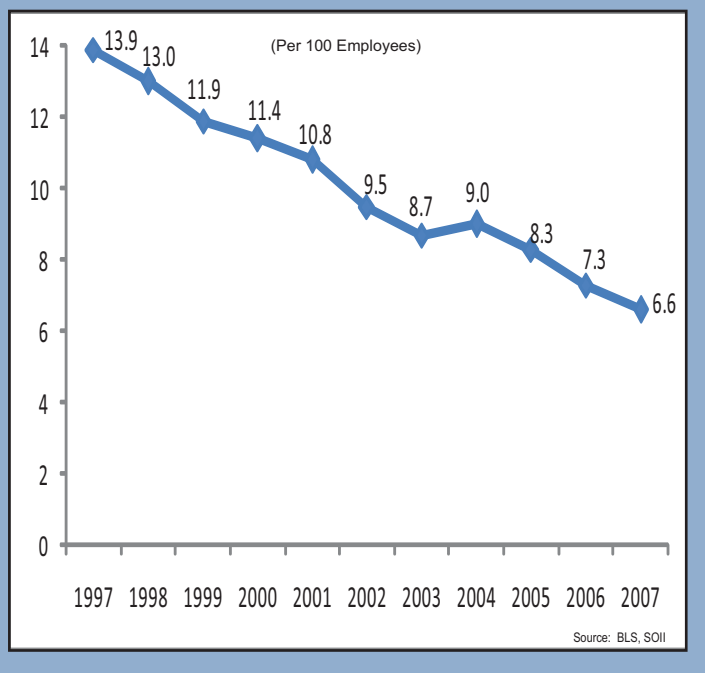
There were 36,600 workers in the manufacturing industry injured or made ill while working in 2007. Although higher than any other industry in the state, it represents 5,300 fewer injuries and illnesses and a 10% decrease in the injury and illness rate from 2006. Of the more than 36,000 injuries reported in this industry, 6,920 workers were injured severely enough to require time off from work. The average number of days away from work was seven days in 2007, the same as 2006, yet still greater than the state average of six. Work-related injuries in this industry most often occur among **Caucasian,** (62%) **men,** (67%) **25-44 years of age**. A comparison of injuries resulting in days away from work indicates that there were 520 fewer cases in 2007 than in 2006. More than one-third of injuries resulting in days away from work were a result of **sprains, strains and tears** (34%). The most frequent event resulting in injury was **struck by falling object** (22%), but followed closely by **overexertion in lifting** (20%). The most common source of injury was worker **motion or position** (18%), followed by the **floor** (8%). Specific manufacturing industries with high injury and illness rates include **ferrous metal foundries** (15.4), **mobile home manufacturing** (14.7) and **coating, engraving, heat treating & allied activities** (12.9). The continued decline in the industry's overall total recordable and lost workday case rates indicate that fewer workers in this industry are involved in workplace incidents resulting in injury and illness. However, the Indiana manufacturing injury and illness rate of 6.6 is well above the national manufacturing rate of 5.6.

Seven Hoosier workers were fatally injured while working in the manufacturing industry in 2007, a reduction from 13 in 2006 and the industry high of 40 in 1997. While transportation-related activities are typically the primary cause of workplace fatalities, the predominant source of fatal injury in 2007 in manufacturing was machinery. Three of the seven fatalities occurred while workers were constructing, repairing or cleaning machinery.

Manufacturing
Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	677	10.3	13.9	95.4	40
1998	684	9.7	13.0	88.9	24
1999	690	9.2	11.9	82.9	24
2000	686	9	11.4	78.3	19
2001	639	8.1	10.8	68.1	22
2002	588	7.2	9.5	87.8	24
2003	573	6.8	8.7	68.1	15
2004	572	6.6	9.0	51.4	15
2005	571	6.3	8.3	48.6	10
2006	570	6	7.3	42	13
2007	568	5.6	6.6	36.6	7

Indiana Injury and Illness Rate



Safety Showers Save Lost Hours

Contributed by Jay King, INSafe Health Consultant

The Indiana Occupational Safety and Health Act 29 CFR 1910.151(c) and 29 CFR 1910.124(g)(2) mandate employers that require their employees to use corrosive materials to provide easily accessible safety showers and/or eye wash stations in case of emergency. The employer must determine the appropriate proximity of the safety showers and eye wash stations for the employees.

Safety showers and eye wash stations shall be located in areas where employees are opening, dipping into, pouring, or spraying corrosive materials. The best method for determining an adequate distance is to utilize the material safety data sheets (MSDS) and container hazard warning information. The chemical's pH will assist in making an informed distance decision.

If the corrosive's pH is less than or equal to 2.0 or greater than or equal to 12.5, the safety shower and eye wash station should be no further than ten feet away from the potential splash exposure. If the corrosives are between 2.1 pH - 12.4 pH, the safety shower and eye wash station could be within 55 feet from the employees, but take no longer than ten seconds to reach. However, when determining distance for ranging pH levels, take into consideration that the more the corrosive chemical is, the more likely it is that the employee will need to reach a safety shower or eye wash station within a few feet or seconds. During an IOSHA inspection the Compliance Officer will check the company's MSDS's and the pH levels of all chemicals used. This will determine if the safety shower and eye wash stations are appropriately placed.

Above: Example of a Safety Shower/Eye Wash Station.

Safety showers and eye wash stations are only effective if employees are trained and prepared to use them in the appropriate situations. Whenever employees are handling corrosive materials, they should be wearing chemical goggles as they are their primary form of protection and a face shield as secondary protection. Employers should determine whether additional personal protective equipment (PPE) such as protective gloves, aprons, foot protection or full-body protection suits are necessary. By providing PPE to your employees, and having accessible safety showers and eye wash stations, employers limit the risk to which employees are exposed.

It Happened Here

Background: In 2007, there were 32 fatalities in the United States from inhalation of a noxious gas in permit-required confined spaces (PRCS). Confined spaces have limited means for entry or exit, are large enough to bodily enter and perform work, and are not designed for continuous human occupancy. Confined spaces include, but are not limited to: underground vaults, tanks, storage bins, manholes, pits, silos, underground utility vaults and pipelines.

Fatal Event: On March 13, 2008, in Wabash County, a 58 year-old manufacturing employee and a co-worker were performing maintenance in a confined space compartment. The victim was left alone to close the final compartment. The completed compartment was re-energized from the control room. Energized compartments operate under 300° F and negative pressure, which causes the compartments to self-seal. When co-workers could not reach the victim over radio contact, they returned to the confined compartment and pried the door open. The victim was found inside the compartment, unresponsive and covered in burns. He was not able to be revived and died as a result of CO poisoning.

Discussion: Employers are required to evaluate the workplace for permit-required confined spaces. Employees that work in confined spaces must be trained in emergency retrievals. Additionally, employers must establish lockout/tagout machine-specific procedures for the maintenance of compartments.

Injuries and Illnesses Decline in Government

State and local government employs over 360,000 workers in Indiana. The number employed on the state level is 89,000 (25%) and 272,000 on the local level (75%). Occupations in this industry include elected officials, police, firefighters, healthcare workers and educators. In Indiana employees in the public sector are protected by the same standards as their counterparts in private industry. In 2007 in Indiana, 17,100 public sector workers were injured on the job and nine were killed. The injury and illness rate is 5.7, which is higher than the rate for workers in the private sector. Over the past decade the rate has decreased; however it does not show the same consistency as other industries in Indiana. The lowest injury and illness rate for the public sector was 5.6 in 2004.

Forty-seven percent of public sector injuries and illnesses occurred in the **educational services field.** However, other industries had more injuries per 100 workers resulting in high injury and illness rates. Public sector industries with high rates include **local government leisure & hospitality** (14.7), **state hospitals** (13.7) and **local government transportation and warehousing** (12.0).

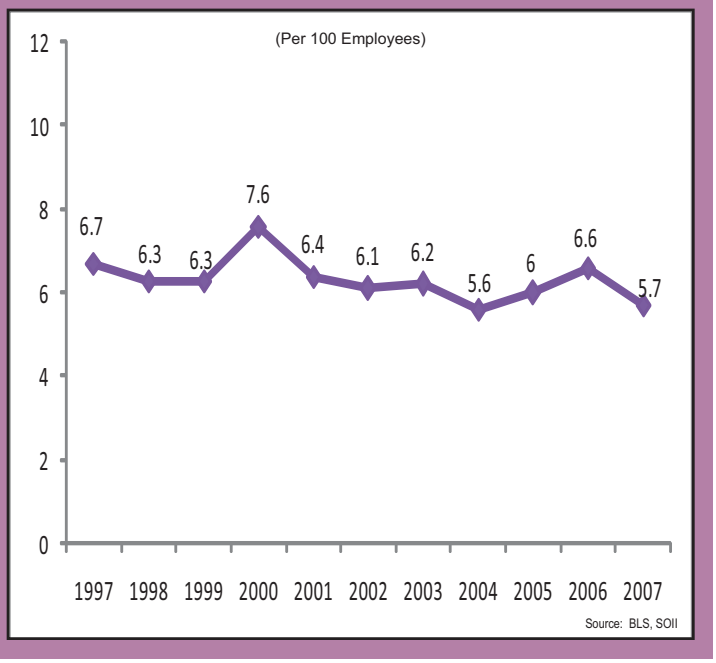
Of the nine public workers killed in 2007, eight were employed in **local government.** Six of the workers killed on the job were in the **protective services** and the other three were **operating a vehicle**. The two predominant events causing a fatal injury were **homicide** (3) and **highway vehicle accident** (3).

More information can be gleaned from injuries and illnesses. There were 3,550 injuries which required the employee to be away from work for an average of 3 days. There were some marked differences between the public and private worker characteristics. For government workers, the majority of those injured were **women** (52%) and **over the age of 45** (63%). The private industry percentages are 33% women and 36% over 45 years of age. Events, nature and source of injuries were similar to the private sector, but had much higher percentages. The primary event resulting in injury was **falling on the same level** (25%), the predominant nature of injury was a **sprain or strain** (44%) and the most common source of injury was the **floor or a ground surface** (35%).

State and Local Government Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	N/A	Data not available	6.7	18.2	15
1998	256.5		6.3	17.1	13
1999	339.5		6.3	17.8	14
2000	338.4		7.6	21.8	13
2001	346.4		6.4	17.9	16
2002	355.6		6.1	17.3	9
2003	355.3		6.2	18.9	7
2004	360.9		5.6	16.9	9
2005	362.2		6	17.5	9
2006	360.3		6.6	19.7	7
2007	361.2		5.7	17.1	9

Indiana Injury and Illness Rate



In the Line of Duty

People's lives often depend on the quick reaction and competent care of police officers, firefighters, medical technicians (EMTs) and paramedics. Individuals that work in these occupations work to maintain order, enforce laws and protect lives in some of the most dangerous situations. Because the work of emergency responders is inherently dangerous, managing their safety can be more accurately described as managing their level of risk.

The onset of an emergency creates the need for time-sensitive actions to save lives, property, as well as regain stability over the situation. The need for this quick action presents a hazard in itself. Since 1997, over two dozen public employees have been killed while responding to emergency situations. This includes emergency workers traveling by vehicle (fire engines, police cars, ambulances, etc.) as well as those that are fatally injured on the scene of an incident.

Motorists are accustomed to a clear, unobstructed roadway and may not recognize emergency rescue vehicles in route, closed lanes or emergency workers on or near the roadway. In some cases, conditions can reduce a motorist's ability to see and avoid emergency response personnel. Examples include weather, time of day, scene lighting, traffic speed and volume, and the configuration of the road (hills, curves and other obstructions that limit visibility).

To prevent such incidents, it is recommended that emergency service providers take the necessary precautions. All emergency response personnel should be trained for all types of emergencies to which they repond. In order to ensure that all individuals are prepared, an emergency response plan should be implemented.

Above: A career firefighter/emergency medical technician was fatally injured in Texas in 2003. The ambulance he was riding in crested a hill and was struck head-on by an oncoming vehicle (Photo from NIOSH).

An effective emergency response plan should identify an appointed safety officer. It should also include specific plans for high-risk areas (neighboorhoods with high crime rates, dangerous roadways, etc.) as well as an incident management system which specifies each agency's role in emergency situations that involve multiple jurisdictions. Lastly, an important component of any emergency response team is to provide the responding employees with personal protective equipment (PPE) so that one incident does not lead to another emergency.

It Happened Here

Background: Workers in protective service occupations have a higher risk for certain types of fatal events, for instance, homicide. However, homicides account for only 32% of the fatalities in these positions. Overwhelmingly, the predominant fatal event to these workers is transportation-related (43%).

Fatal Event: On October 19, 2008, in Monroe County, at approximately 10:30 p.m., a 27 year-old Deputy Sheriff was directing traffic at a location where a wrecker was removing a stranded vehicle from a ravine. The Deputy was using a flashlight and was not wearing any reflective gear. She was struck from behind by a car driven by a teenager. Two days later, the Deputy died from the injuries she sustained from the incident.

Discussion: When a police officer or fire fighter is directing traffic on a public street, road or highway, in or near the lanes of moving traffic, the General Duty Clause of the Indiana Occupational Safety and Health Act (OSH Act) applies. The General Duty Clause requires employers to control or eliminate known hazards in the workplace that are not covered by a specific standard. In the case of public safety officers directing traffic, the rule requires the use of high-visibility vests. It is not intended to apply to first responders rendering aid or assistance at an accident scene, or other public safety personnel on such a scene that are not directing traffic.

Retail Loses Fewer Days from Injuries

More than 330,000 Hoosiers work in the retail trade industry and more than 12,000 of these workers were injured while on-the-job in 2007. The occupational injury and illness rate for the retail industry is 5.1, which means that approximately five of every 100 workers in this industry suffer from a work-related injury or illness. This is 6% above the United States rate of 4.8.

Employees that work within the retail industry may be found in grocery stores, shopping malls and boutiques, convenience stations and home supply centers. These workers are subjected to a variety of occupational health and safety hazards that include working with the public, working long and irregular shifts and ergonomic hazards from repetitive motions.

Of the more than 12,000 work-related injuries that occurred in the retail industry, 2,620 of them were severe enough to require days away from work. The top injuries resulting in time away from work included **sprains, strains and tears** (46%), **bruises and contusions** (21%) and **cuts and lacerations** (9%). On average, injuries resulting in days away from work were for a duration of five days, one day less than the state average of six.

Job-related injuries and illnesses which required days away from work in the retail industry occurred most often among **men** (1,520). Additionally, these types of injuries occur most frequently among those **35-44 years of age** (25%), followed by **25-34 year-olds** (18%). The source of injury was most often the **floor or ground surface** (25%), followed by **containers** (16%) and worker **motion or position** (14%). Injured workers suffered most often from injury events that included **falls on the same level** (20%), **overexertion in lifting** (18%) and **struck by objects** (16%).

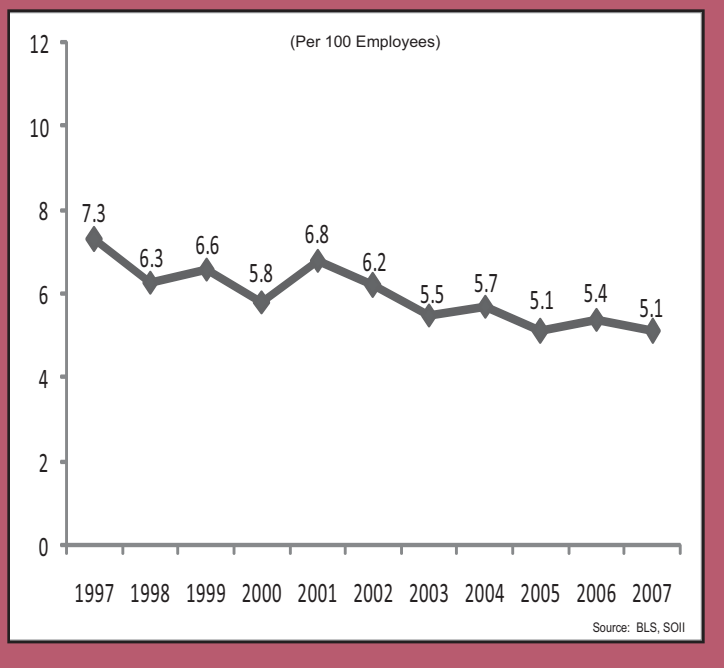
Specific retail industries with high injury and illness rates include **pet & pet supply stores** (8.6), **home centers** (7.7) and **recreational vehicle dealers** (7.6).

Four retail industry workers were killed while working in this state in 2007. This represents 19 fewer than the industry high of 23 in 1998 and a decrease from five in 2006. Nationally, the number one fatal event in this industry is homicide (53%) followed by events related to transportation (24%).

Retail Trade
Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	280.3	6.8	7.3	28.9	19
1998	379.3	6.5	6.3	25.2	23
1999	387.2	6.1	6.6	26.4	10
2000	354.1	5.9	5.8	23.8	13
2001	342.2	5.7	6.8	26.3	12
2002	338.4	5.3	6.2	23.2	15
2003	333.3	5.3	5.5	14.1	10
2004	332.9	5.3	5.7	13.7	17
2005	332.1	5	5.1	13	13
2006	330.7	4.9	5.4	13.7	5
2007	330.9	4.8	5.1	12.5	4

Indiana Injury and Illness Rate



Reduce the Chance of Musculoskeletal Disorders

Retail establishments provide vital services to Indiana consumers, and employ more than 10% of the Hoosier workforce. From stocking food shelves and clothing racks to checking and bagging purchases, this industry has many physical aspects.

If work is performed with awkward movement or excessive effort, fatigue and discomfort may result. Under these conditions, muscles, tendons, ligaments, nerves and blood vessels can be damaged. Injuries of this type are commonly known as **musculoskeletal disorders** (MSDs). Overwhelmingly, in 2007 in Indiana, the nature of 46% of injuries resulting in days away from work is sprains, strains and tears which can be caused by repetitive motions, awkward or static postures, forceful exertions, pressure points and vibrations.

Above: Awkward postures, repetitive motions can increase the likelihood of MSDs.

MSDs tend to be treatable and less costly in early stages but irreversible and very expensive later. To reduce or prevent costly MSDs, ensuring that employees have the appropriate tools and resources necessary to do the job safely is critical. Improving the fit of the workplace often involves a process of trial and error until a more effective and appropriate improvement is found. When designing or altering a workstation or process, the employee's abilities must be in the forefront. An employee's ability to perform physical tasks may vary because of differences in age, physical condition, strength, stature or other factors. Maximizing the fit reduces workplace injuries and illnesses associated with musculoskeletal disorders.

In-house human resources can prove to be effective in reducing the chance of MSDs. Brainstorming or holding discussions with engineers, maintenance personnel, managers and front-line employees themselves can offer advice on how to fit the job. Reviewing original design specifications to see if equipment, tools, raw materials or other aspects of the work have changed can also assist with implementing the appropriate changes. Contacting others in your respective industry to find out what they are doing to alleviate the same or similar problems can be useful as well.

Integrating changes in the workplace based on ergonomic principles can have a positive effect on worker productivity by eliminating repetitive or unneeded motions, reducing fatigue and increasing worker efficiency. Fewer injuries can improve employee morale, reduce turnover, encourage employees to stay longer and decrease the likelihood of the company's senior employees from retiring early. Healthier employees, better morale and higher productivity can also contribute to better customer service.

It Happened Here

Background: In 2007, 13 Hoosier workers were killed from falls. Three of these fatal falls were from a ladder. Nationally 132 workers were fatally injured after falling from a ladder.

Fatal Event: On February 7, 2008, in Marion County, a 23 year-old material handler was fatally injured after falling off of a 7.5 feet rolling ladder. The victim was restocking plastic siding boards when he lost his balance, fell and hit his head. The victim suffered an Intercranial hemmorage due to blunt force trauma to the head.

Discussion: To ensure that employees are safe, training must be provided. Employers should establish a mobile ladder stand inspection and training program in accordance with the Mobile Ladder Stand manufacturer's instructions and safety standards. This program should include, but not be limited to, instruction on damaged or weakened units, overreaching while on a mobile ladder, proper use of a mobile ladder, mobile ladder stands and operating instructions.

Healthcare Injury and Illness Rates High

Workers in this industry are relied upon to care for us when we are sick or injured, be it from a work-related injury or illness or from unforeseen circumstances in everyday life. With the oldest of the baby-boomer population approaching retirement age comes an increase in the demand for these healthcare workers to care for this segment of the population. While the number of facilities has increased, the number of healthcare workers required to staff these facilities has struggled to keep pace, putting more demands on everyone in the healthcare system.

The industries in this sector are arranged on a continuum starting with those establishments providing medical care exclusively (physicians, dentists, chiropractors and therapists), continuing with those providing healthcare and social assistance (medical centers, laboratories, hospitals and nursing care facilities) and finally finishing with those providing only social assistance (community food services, temporary shelters and child day care centers). Over the past decade this industry employed a high of 328,200 people in Indiana in 2002 and a low of 224,000 in 1997.

The healthcare industry has the highest injury and illness rate of all industries in Indiana and is tied for the second highest number of injuries and illnesses. In 2007 the injury and illness rate was 6.9, an increase from the 2006 rate of 6.6. This rate is 23% greater than the national healthcare industry rate of 5.6. An overwhelming number of injuries affect women (87%) in this industry. Specific healthcare related industries with high rates include **ambulance services** (11.8), **nursing care facilities** (9.7) and **psychiatric & substance abuse hospitals** (8.5). Fatalities in this industry are rare but when they do occur they are usually from a transportation related event (35%) or homicide (15%).

In 2007 over 17,000 injuries were reported in this industry with 2,910 injuries requiring the employee to spend days away from work. The average injured employee was away from work for five days. Over half of the injuries resulting in days away from work were considered **sprains, strains and tears** (54%). The predominant event resulting in injury was **falling on the same level** (30%). The most frequent sources of injury were a **healthcare patient** (33%) and **floor or ground surfaces** (31%).

Healthcare and Social Assistance Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	224.1	8.0	8.4	18.0	3
1998	296.6	7.4	7.8	16.5	3
1999	307.2	7.1	7.7	16.6	-
2000	313.2	7.1	7..7	17.5	-
2001	313.8	6.9	8.0	18.1	-
2002	328.2	7.0	7.6	17.3	-
2003	329.6	6.5	7.0	16.5	-
2004	303.2	6.2	7.5	18.6	3
2005	308.4	5.9	6.8	16.1	5
2006	316.0	5.8	6.6	16.5	-
2007	325.6	5.6	6.9	17.1	-

Indiana Injury and Illness Rate

Major Healthcare Industry Hazards

Contributed by John Duncan, INSafe Health Consultant

Did you know that hospital and healthcare workers are 33% more likely to be injured in the workplace than in any other Hoosier industry? The injury and illness rate for the Hoosier healthcare industry is 6.9, which means that nearly seven of every 100 workers were injured or made ill while working in 2007. Nationwide from 2003 to 2007, there have been 730 injuries from needlesticks and 21,870 cuts or lacerations reported that resulted in days away from work.

Healthcare facilities are addressed in specific standards for the general industry and the standards cited by Federal OSHA for SIC 8000 (Health Services) may be found online at http://www.osha.gov/pls/imis/citedstandard.sic?p_esize=&p_state=FEFederal&p_sic=80 . Workers in the healthcare industry should be aware of their surroundings and be prepared for possible hazards. Below are a few health and safety issues associated with this inudstry.

IN Review Fact:

Nationally, the Bloodborne Pathogen Standard (1910.1030) is the most frequently cited standard in the healthcare industry.

Bloodborne pathogens: All employers who have designated employees that are occupationally exposed to blood are required to provide them with information, training and recognized ways to protect themselves. Healthcare workers are most likely to contract a bloodborne pathogen such as Hepatitis B, Hepatitis C or HIV/Aids through a needlestick.

Exposure of employees to Glutaraldehyde: Glutaraldehyde is a toxic chemical that is used as a cold sterilant to disinfect and clean heat-sensitive medical, surgical and dental equipment. It is found in products such as Cidex, Aldesen, Hospex, Wavicide and others. Glutaraldehyde is also used as a tissue fixative in histology and pathology labs as a hardening agent in the development of x-rays. If exposed, the most common symptoms are eye, nose, throat and lung irritation as well as drowsiness and dizziness.

Exposure of employees to community and nosocomial infections (Multiple-Resistant Staph Aureus (MRSA)): Workers in the healthcare industry are exposed to these infectious organisms and can become infected and/or carriers which could spread the disease to other staff or patients. Patients are especially susceptible to this disease because people with open wounds or a weakened immune system are more likely to contract this disease. MRSA is resistant to antibiotics, including penicillin.

Mercury Poisoning: Employees in the healthcare industry can be exposed to mercury through accidental spills that can occur when repairing broken thermometers, sphygmomanometers, or during sterilization and centrifugation of thermometers in maintenance areas. Mercury can also be found in pressure-sensing instruments, older medical equipment, and electronic devices. When mercury is spilled, it can be inhaled or absorbed through the skin. Mercury poisoning can damage the brain, kidney and lungs and lead to diseases such as Acrodynia (pink disease), Hunter-Russell syndrome, and Minamata disease.

Exposure to Legionnaires' Disease: This disease is a bacterial disease which presents itself as a severe form of pnemonia. It is commonly associated with water-based aerosols and often a result of poorly maintained air conditioning cooling towers and potable water systems. It can occur where water, contaminated with the legionella organism, is aerosolized and then breathed in by workers or patients. Legionnaires' disease is not contagious but is of environmental origin. Only those who are directly exposed to the contaminated aerosolized water source can get the disease

In addition, healthcare workers also deal with many types of chemicals which could prove dangerous if handled improperly including pesticides, disinfectants and various drugs. It is important to always stay alert and aware of hazards in the workplace as these can lead to other illnesses or injuries. For more information on these and other hazards found in this industry, visit the OSHA website at http://www.osha.gov/SLTC/healthcarefacilities/index.html .

Fatal Injuries Fall in Hoosier Construction

Indiana's construction industry continues to grow in part due to Governor Daniels' 2006 ***Major Moves*** initiative, which invested billions into the development and restoration of Indiana's roadways. In 2007, Indiana created an additional 6,500 jobs for the Hoosier construction workforce. These positions resulted in a 4.5% increase in Indiana's construction workers. The construction industry includes professionals ranging from brick masons and pipe layers to electricians and engineers.

The number of injuries and illnesses that resulted in days away from work decreased by almost 400 cases in 2007, reaching the lowest number in at least 10 years. The construction industry was responsible for more than 7,700 of the total 125,000 occupational injuries and illnesses in Indiana in 2007. Workers in this industry that are typically injured are **Caucasian** (83%) **males** (94%) between the **ages of 25-34** (32%). The injury and illness rate of 5.7 is slightly higher than the previous year's rate of 5.6. Construction sub-industries with the highest injury and illness rates in Indiana are **Roofing Contractors** (9.5), **Building Finishing Contractors** (7.0), **Plumbing, Heating and A/C Contractors** (6.9) and **Poured Concrete and Foundation Contractors** (6.9).

The most common events associated with injuries that resulted in days away from work in 2007 was due to an employee being **struck by a falling object** (22%). **Overexertion** accounted for the next highest number (20%), followed by a **fall to a lower level from a ladder** (13%).

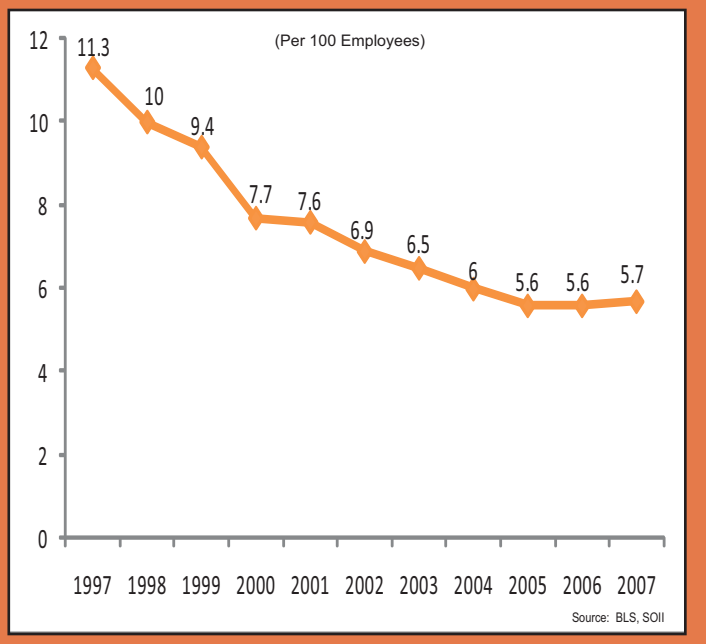
These types of events usually resulted in **sprains, strains and tears** (34%) and **fractures** (20%). The source of the injury or illness was most likely to result from contact with the **ground** (15%), the **motion or position of the worker** (9%) or a type of **structural metal material** (8%).

There were 21 fatalities in the construction industry in Indiana in 2007. This represents 11 fewer than the industry's high of 32 in both 1996 and 2000, and six fewer than in 2006. All fatal injuries occured among men. Eighteen of the fatal injuries were Caucasian, and three were Hispanic. The predominant causes of death were related to **transportation** (7) and **falls** (7).

Construction
Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	N/A	9.5	11.3	14.7	29
1998	142.9	8.8	10	13.5	24
1999	146.3	8.6	9.4	12.8	30
2000	144.1	8.3	7.7	10.7	32
2001	144.6	7.9	7.6	10.2	22
2002	141.4	7.1	6.9	9	25
2003	139.3	6.8	6.5	8.5	15
2004	143.3	6.4	6	7.9	23
2005	144.6	6.3	5.6	7.5	29
2006	146.6	5.9	5.6	7.6	27
2007	153.1	5.4	5.7	7.7	21

Indiana Injury and Illness Rate



Back Over Alert!

No fatal injury is any less traumatic than another. However, in a five month time frame (June 2008 - November 2008), four workplace fatalities in Indiana were a result of similar "back over" incidents in the state. Typcially events resulting in fatalities are preceded by a wide array of factors. Outside of highway vehicle accidents it is unusual for there to be so many fatalities in a short period that are similar.

Back over crashes are typically low speed, but result in some of the most devastating incidents in the workplace. According to the United States Department of Transportation's National Highway Traffic Safety Administration (NHSTA), back over crashes involving all vehicle types are estimated to cause at least 183 fatalities annually. Additionally, between 6,700 and 7,419 non-fatal injuries are caused by back over crashes.

Probable causes of incidents—Workers can fall victim to these types of incidents for a variety of reasons. Often workers don't think slow moving vehicles and equipment pose a danger and workers will take a quicker, more dangerous route or shortcut. Distracted workers have also fallen victim to these types of incidents. Distractions can include using a cell phone or talking to other worksite employees.

Workers are struck mainly because the types of equipment commonly found on jobsites have large blind spots. Operators are unable to see all that is going on behind them and workers may be too busy to notice equipment moving near them.

Above: Heavy equipment such as dumptrucks can potentially cause "back over" incidents (Photo from NIOSH).

How can we ensure workers are protected on-the-job? Workers must always keep other workers in mind. As work zones are noisy, it is not sufficient to rely solely on back-up alarms to alert workers of potential hazards. Drivers should remain alert at all times. The use of spotters when backing up large equipment and machinery may also prove to be advantageous. Workers need to maintain contact with each other. A reliable means or system of communication such as two way radios, hand signals, etc. is necessary to ensure each person on a jobsite is accounted for and located.

When working in construction, logistics is one of the most important elements. Planning, designing and implementing the layout of the worksite can be done in such a manner that worksite hazards can be controlled or contained. Where possible, provide barriers between laborers on foot and equipment and machine operators. This can reduce the likelihood that a worker may become a statistic in a back over incident or fatality.

It Happened Here

Background: In 2007, there were 30 fatalities nationwide from being crushed by a collapsing structure such as a building or excavation and/or trenching. Twenty of these fatalities occured in the construction industry.

Fatal Event: On June 26, 2008, in Johnson County, three Hispanic workers were fatally injured and another two were seriously injured after a portion of a masonry wall collapsed on them. Only portions of the wall had bracing. The victims were constructing the masonry wall when a severe storm began. Within minutes of the storm, a strong wind blew the wall over. The cause of death to the victims was cited as multiple blunt force trauma.

Discussion: When constructing a wall, bracing must be installed on both sides of the wall. This will help to stabilize the wall while it is being constructed. While bracing does help to stabilize a structure, it is not a final solution when facing dangerous weather conditions. When working in an exposed area, both employers and employees should be aware of nature warnings (e.g. dark clouds, lightning, wind, etc.) and stop working. In this case, the storm conditions directly contributed to the collapse of the wall and the victims' injuries and deaths.

Injuries, Illnesses Increase in Transportation

From truck drivers and sales workers to mechanics and material movers, these careers represent a small picture of the occupations that make up Indiana's transportation industry. The transportation industry employs over 110,900 Hoosiers. This industry is continuing to grow as does the emphasis on education, outreach and training for this industry.

Transportation has been the leading industry for workplace fatalities in Indiana for more than a decade. The transportation industry alone made up more than one-quarter of the state's workplace fatalities in 2007. The majority of fatalities in this industry were a result of motor vehicle accidents involving cars, trucks or vans.

In 2007, transportation industry fatalities fell slightly from 34 in the previous year to 31. However, the injury and illness rate rose from 5.3 in 2006 to 5.5 in 2007.

The number of injuries and illnesses which resulted in days away from work fell by 100 to 2,110 with the average days away from work remaining stable in 2007 at eight days. The majority of the injuries occured to **men** (73%) and individuals ranging between the **ages of 35-44** (37%).

Overexertion in lifting was the most frequent injury event (18%). Both **falls to a lower level** (13%) and **falls on the same level** (12%) were most common injury events in the Hoosier transportation industry.

The nature of a majority of the injuries is **sprains, strains and tears** (48%). This type of injury brings into focus the need to take personal precautions against lifting or carrying more than a person is physically capable of doing. The source of most transportation industry injuries resulting in days away from work was the **floor or ground surface** (26%) and the next most frequent events was **containers** and **worker motion and position** (15%).

Specific transportation industries with high rates of injury nationally include **scheduled passenger air transit** (10.9), **couriers** (10.5) and **marine cargo handling** (9.1). Eighty percent of fatalities occured by some manner of highway incident. The remaining fatalities usually involved drivers interaction with cargo or from falling off of the rig. Fatal interactions with cargo include being struck by load or exposed to harmful chemicals.

Transportation and Warehousing Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	72.6	10.1	10.0	5.1	29
1998	99.1	9.0	9.1	5.3	23
1999	100.5	9.0	11.1	6.4	34
2000	110.4	8.7	8.6	4.8	26
2001	105.6	8.7	9.3	6.0	23
2002*	104.7	7.5	9.1	5.7	27
2003	107.7	7.8	7.0	6.7	17
2004	101.8	7.3	7.4	7.0	29
2005	105.2	7.0	5.6	6.3	29
2006	108.8	6.5	5.3	5.9	34
2007	110.9	6.4	5.5	6.2	31

*1996-2002 SIC Trucking & Warehousing; 2003-2007 NAICS Transportation & Warehousing

Indiana Injury and Illness Rate

Behind the Wheel with Sgt. Kennedy

Contributed by Sgt. Shana Kennedy, *Indiana State Police*

The basic skills of defensive driving can save your life and the lives of others and the fundamentals haven't changed over the years. Rule number one in driving defensively is to simply **slow down.** Through my years as an Indiana State Police Officer, I have heard just about every excuse for speeding imaginable. Despite this, I have never heard an excuse which justifies speeding.

By nature, people are easily distracted while they are driving. If you are talking on the phone, playing with your iPod and haven't been involved in a serious crash—consider yourself lucky. However, be aware that luck always runs out.

Here are some of the basics: keep space between you and all the vehicles around you, maintain your brakes and tires, use your turn signals (they were not an option when you bought your vehicle), obey the automatic signal (yellow light does not mean speed up it's about to turn red and red does mean stop) and lastly—**don't drink and drive!**

I believe that if drivers would begin to **accept responsibility** for what goes on in and around their vehicles, my job might be a little easier. Often, no one is willing to step up to the plate and accept responsibility for their actions. Too many times I've heard the excuse that the driver behind them was "on their tail." The response is simple—pull over. I can't tell you how many times I've seen people pass me in a fully marked State Police vehicle in snowstorms. I usually find them a few miles up the road in the ditch or median wondering what happened. I always suggest to them that their speed could have been a factor—to which I'm readily rebuked. Yet, I traveled the same road under the same weather conditions and my car is on the roadway and theirs is not.

I find troubling the "it is not my fault" attitudes at crash scenes. Recently, I was working at a crash site when another vehicle came off of a ramp at a high speed towards us. The driver panicked and crashed into the guardrail. Luckily he hit the guardrail and not one of us that were trying to clean up the crash scene. The driver never considered his speed as a factor, even though he was not able to control his vehicle and safely maneuver around us.

The most disturbing crashes are those that result in death. I have stood at the site of an accident with people telling me to hurry because they are inconvenienced. These statements have been made to me with a deceased victim still lying at the crash scene. I find these times very difficult. I have a job to do, and sometimes I'm the only voice that the deceased has.

So if you remember nothing else that I've written, please, I beg you to remember this—**be responsible for your actions.** Be alert and watch what others around you are doing. Be able to react in a moment's notice to protect yourself and your passengers. The bottom line is—it's your responsibility to protect yourself and your passengers.

IN Review Fact:

From 2003 to 2007, 218 workers were killed in highway vehicle incidents.

It Happened Here

Background: Indiana's transportation industry has the greatest number of fatalities of all Hoosier industries. Over the past decade, this industry has averaged 27 deaths each year.

Fatal Event: On May 5, 2008, in Washington County, a 77 year-old truck driver was fatally injured while unloading pipes from the trailer bed of his truck. The pipes were secured using ratchet straps and during unloading, the pipe on the top of the load rolled off of the trailer bed and struck the victim in the back of the head. The cause of death was cited as intercrannial hemorrhage.

Discussion: Employers should always provide and employees should always check for written procedures for loading and unloading materials. Employees should be trained in the use of ratchet straps, chocks, and other means of securing piping and similar materials. Inspect the stability of a load and identify potential hazards before employees are allowed to load or unload materials.

Vehicles Contribute to Most Fatalities

Professional and Businesses Services is the fifth largest industry sector in Indiana employing over 288,700 Hoosiers (10%). The sector is broad and includes professional, scientific and technical services like legal services, accounting, engineering, computer and photographic services. It includes management, administration and facilities support services. Another aspect is waste management and remediation services.

A majority of work areas are in an office setting which is a relatively low-risk environment. The industry has an injury and illness rate of 2.5 which is 52% below the state average. When compared to the U.S. **professional and business services** sector, which has a rate of 2.1, Indiana is 19% higher. Nationally, the specific businesses with high rates include **veterinary services** (8.7), **landscaping services** (5.9) and **armored car services** (5.4).

The Bureau of Labor Statistics redefined the industry characteristics starting in 2003. This precludes trending the data before that time. Since 2003, the injury and illness rate has fluctuated between 2.5 and 3.0. Similarly, the number of fatalities shows no definitive trend with a low of 7 fatalities in 2004 and a high of 13 in 2006. On average, 4,800 employees are injured or made ill each year in the professional and business industry. The predominant characteristics of an injured worker in the professional and business service industry are **Caucasian** (69%) **men** (74%) between the **ages of 45-54** (36%).

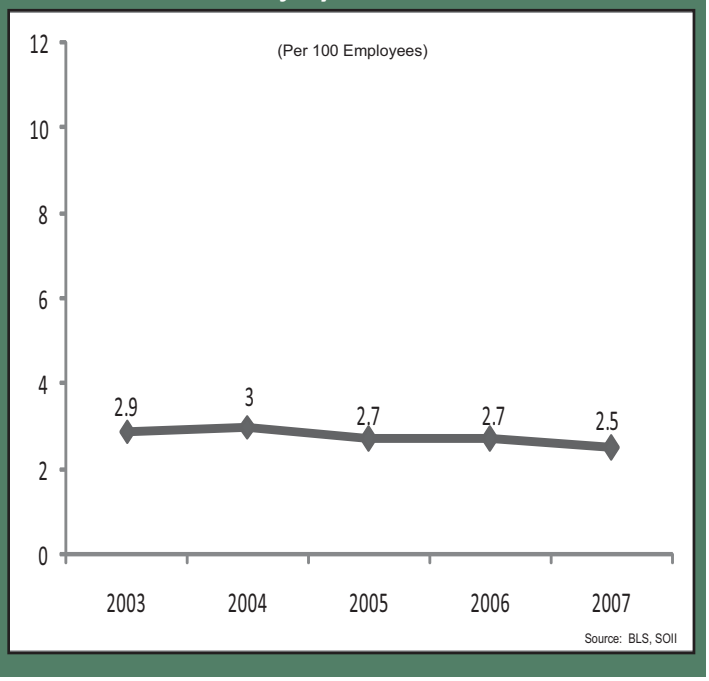
In 2007 this Hoosier industry had 6,100 workers injured or made ill. Of these workers, 1,690 were injured severely enough that they were unable to work for a number of days. The average number of days away from work was eight days. This is two days greater than the state average. Over half of the injuries resulting in days away from work were considered **sprains, strains and tears** (56%). The predominant events resulting in injury were **falling on the same level** (30%) and **overexertion from lifting** (13%). The most frequent sources of injury were a **sidewalk or pathway** (18%), **worker motion or position** (12%) and **stairs or steps** (7%).

In Indiana there were 11 fatalities in this sector. These fatalities included six vehicle-related incidents and three deaths resulting from falls to a lower level. The most common occupation of fatally injured workers in this industry was **building and grounds cleaning** and **maintenance** occupations.

Professional and Business Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	The Bureau of Labor Statistics redefined the industry characteristics in 2003. This precludes trending the data before that time.				
1998					
1999					
2000					
2001					
2002					
2003	258.7	2.5	2.9	4.6	11
2004	266.3	2.4	3.0	4.3	7
2005	272.4	2.4	2.7	4.4	12
2006	279.3	2.1	2.7	4.9	13
2007	288.7	2.1	2.5	6.1	11

Indiana Injury and Illness Rate



Injuries, Illnesses Increase in Leisure Industry

From theme parks and fitness centers to hotels and restaurants, the leisure and hospitality industry is comprised of a wide-range of occupations and employs 285,800 workers. The industry is made up of two key components—arts, entertainment and recreation and accommodation and food services sectors.

There are several careers that comprise the leisure and hospitality industry including amusement attendants, athletes, trainers and salespersons within the art, entertainment and recreation sector as well as cooks, waiters and desk clerks within the accomodation and food service sector.

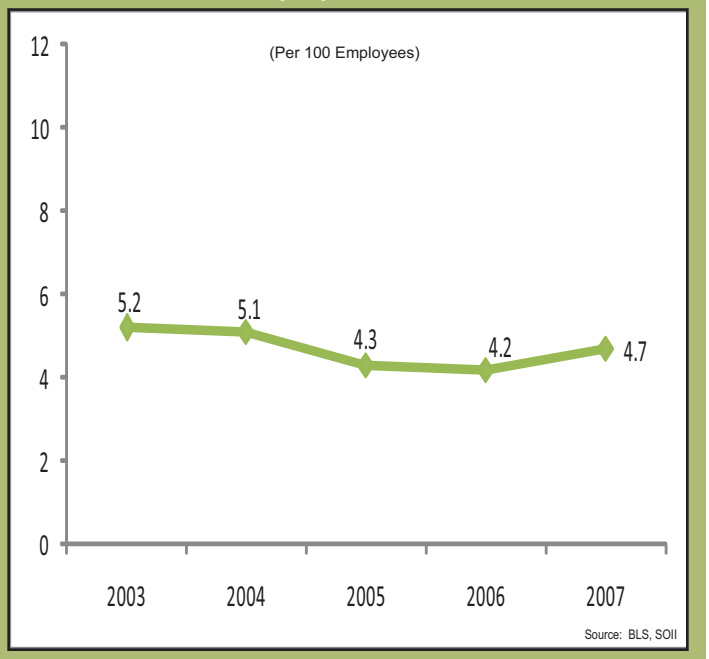
In 2003, the Bureau of Labor Statistics redefined the industry characteristics. This precludes trending the data before that time. Since 2003 the injury and illness rate has fluctuated between low of 4.2 and a high of 5.1. Similarly the number of fatalities shows no definitive trend with an industry low of four fatalities in 2004 and 2007 and a high of seven in 2003. On average 6,900 workers are injured or made ill each year in this industry. The sub-industry with the highest injury and illness rate is **skiing facilities** (16.5), it is followed closely by **sports teams and clubs** (16.2). Injuries in this sub-industry include those recorded by professional sports teams, such as the Indianapolis Colts and Indiana Pacers.

In Indiana in 2007, the leisure and hospitatality is one of two industries in the state in which work-related injuries most often occur among **women** (64%). Further analysis indicates that **Caucasians** (45%) **35-44 years of age** (36%) are most often affected. Overwhelmingly, more than half of the injuries to workers are **sprains, strains and tears** (56%), followed by **bruises and contusions** (7%) and **heat burns and scalds** (5%). The more frequent events of non-fatal injury include **fall on same level** (21%), **struck against object** (17%) and a tie between **bodily reaction** and **contact with hot temperature** (12%). The most frequent source of injury included **motion or position of worker** (21%), followed by **counter and countertops** (11%) and then by the **floor** (10%). Of the 1,040 more severe injuries that required days away from work, Hoosier workers in this industry were away for an average of seven days. This is one day greater than the state average of six days.

Injury and Illness Rates and Numbers

Year	Employment (000's)	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
1997	The Bureau of Labor Statistics redefined the industry characteristics in 2003. This precludes trending the data before that time.				
1998					
1999					
2000					
2001					
2002					
2003	271.9	5.1	5.2	8.7	7
2004	274.3	4.7	5.1	8.7	4
2005	276.8	4.7	4.3	7.5	6
2006	279.4	4.6	4.2	3.0	5
2007	285.8	4.5	4.7	8.5	4

Indiana Injury and Illness Rate



How Women Become Injured in the Workplace

Indiana occupational fatality data in 2007 indicates that men are killed 15 times more frequently than women. However, since 1997, 131 Hoosier women have died on-the-job. Eight were killed in 2007. Four of the fatalities were **transportation**-related incidents, and the other four were equally distributed among **assaults and violent acts** and **contact with objects.**

Although the gender gap is not as wide for non-fatal occupational injuries and illnesses as it is for fatalities, the female share is still lower than the male share. Women represent less than one-third (28%) of the total injuries and illnesses with days away from work. In 2007 there were 7,830 female cases of work-related injuries and illnesses requiring at least one day away from work. This represents 430 fewer cases in 2007 than 2006 and more than 10,000 fewer than in 1996. The average number of days away from work among women in 2007 was six.

The top three areas of employment for women are **food service and drinking places** (125,238), **ambulatory healthcare services** (92,920) and **hospitals** (75,733). Industries in which women are hurt more than men include **healthcare and social assistance, leisure and hospitality** and **state and local government.** Nearly one-third of the injuries to female workers requiring days away from work in 2007 were in the **healthcare and social assistance industry** (2,520). This was followed by **manufacturing** (1,660) and then by **retail trade** (1,100).

Injuries and illnesses in these three aforementioned industries made up 67% of all cases with days away from work. The most common type of injury for both males and females was **sprains and strains**, which was almost 43% of the women work-related injuries. **Soreness and pain** followed with 12% and **bruises and contusions** made up 11%.

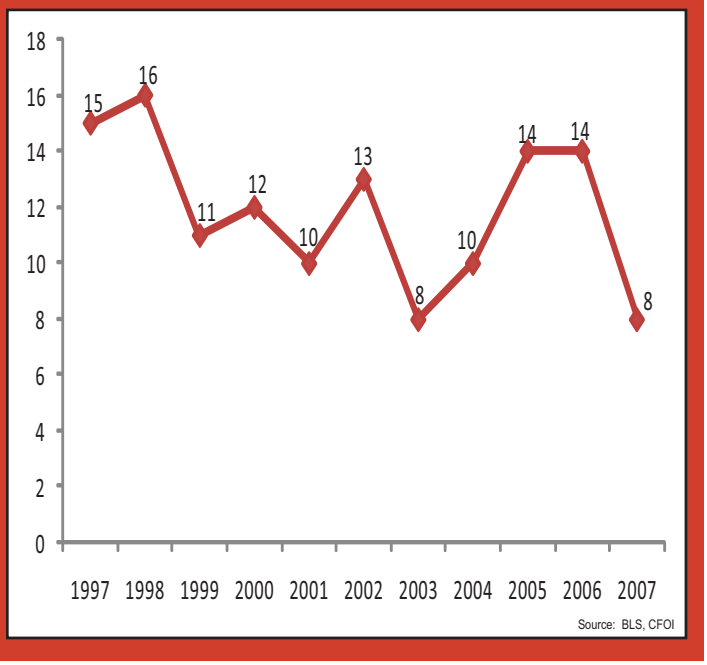
Common sources of injury resulting in days away from work included the **floor or ground** (1,970), **worker motion or position** (1,310) and **healthcare patients** (930). The top three sources of injuries to women make up 53% of all injuries to female workers that required days away from work in 2007.

The most frequent events resulting in injuries with days away from work were **overexertion in lifting** (1,070), **struck against object** (680) and **repetitive motion** (620).

Women
Injury and Illness Rates and Numbers

Year	Employment (000's)	Number of Injuries and Illnesses	Number of Fatalities
1997	N/A	15,780	15
1998	1,008	16,707	16
1999	1,364	14,577	11
2000	1,378	12,646	12
2001	1,362	11,557	10
2002	1,349	10,840	13
2003	1,350	9,460	8
2004	1,362	9,400	10
2005	1,378	8,490	14
2006	1,397	8,260	14
2007	1,386	7,830	8

Fatal Injuries Among Hoosier Women



Protecting Workers from Violent Acts and Assaults

Compared to men, women have a much lower rate of job-related deaths. Yet homicide accounts for a quarter (25%) of the fatal injuries to working Hoosier women. Since 2003, 547 women have been killed in the United States due to an act of violence in the workplace. Eleven of these women were from Indiana. Homicide is the second-leading cause of fatal occupational injuries for women, falling second only to transportation accidents involving a motor vehicle.

IN Review Fact:

Nationally, in 2007, 110 women were victims of an assault in the workplace. In the same year, there were 40 male victims of assault.

Violent acts against women are usually committed by someone the individual knows such as a boyfriend or a husband. The U.S. Department of Justice estimates that husbands and boyfriends commit 13,000 acts of violence against women in the workplace each year. Because of this and the threat of other potential violent acts occuring in the workplace, Indiana took precautions and established a law that allows Hoosier employers and employees to obtain a restraining order for up to 15 days against individuals who they feel pose a threat to either themselves or their co-workers. While this is a deterrent, additional measures can be taken.

Employers are responsible to ensure that their employees are safe from health and safety hazards, which includes violent acts and assaults while working. While these situations are more difficult to control, precautions can be taken to prevent violent acts in the workplace. Employers should secure their workplace. The employer can install surveilance systems, extra lighting and alarm systems. By requiring their employees to carry identification badges or provide security personnel on-site, added security can be provided. This is particularly important if the business operates in an isolated area or during late hours.

Employers can also develop safety procedures and policies such as the buddy system. This can ensure that employees travel in groups which often deters acts of violence from occurring. Finally, the employer can provide convenient parking, cellular phones, and noise devices for employees as requested. Most importantly, IOSHA can issue citations to employers who do not provide adequate protection for their employees.

While safety precautions are the responsibility of the employer, employees are responsible to follow all the employer's safety and health rules and bring safety and health concerns to the employer's attention. It is important that if an employee feels threatened, either at work or at home, that they inform their employer of a potential threat. This will allow the employer to take all necesary precautions to protect their employees from harm. Violent acts are often unpredictable and it is difficult to plan for them, but it is not difficult to be prepared.

It Happened Here

Background: Nationally, over 111 women were victims of a homicide while working in 2007. That comprises over 27% of the deaths among women. Ten percent of men are victims of homicide which occur at their workplace.

Fatal Event: On June 6, 2008, in LaPorte County, a co-worker reported finding a 54-year old worker who was fatality injured by a handle grinder machine which is used to process foam. The victim died of multiple lacerations and crushing injuries to her head and torso. IOSHA and law enforcement investigators found that the victim had been forced into the grinder by a co-worker/boyfriend.

Discussion: Regardless of the industry, it is important that all employees remain aware of their surroundings at all times. There should always be at least two people working in a facility. This is to ensure that in case of an injury or incident, there is a person available to contact the authorities or proper personnel for assistance. In addition, if an employee has concerns about the work environment, the employer should take extra percautions to prevent an incident from occuring.

Employees Responsible for Less Noise

Contributed by Brian Dale, *Jasper Engines and Transmissions*

When manufacturing companies evaluate equipment and its performance to determine efficiency, a number of factors are taken into consideration. Noise level is typically not a major factor. However, that is not the case at Jasper Engines and Transmissions, a company certified in the Indiana Voluntary Protection Program (VPP). A group of the company's employees recently teamed up to make significant improvements in the area of noise reduction.

Above: Jasper Engine and Transmissions' Noise Reduction Team (Submitted photo).

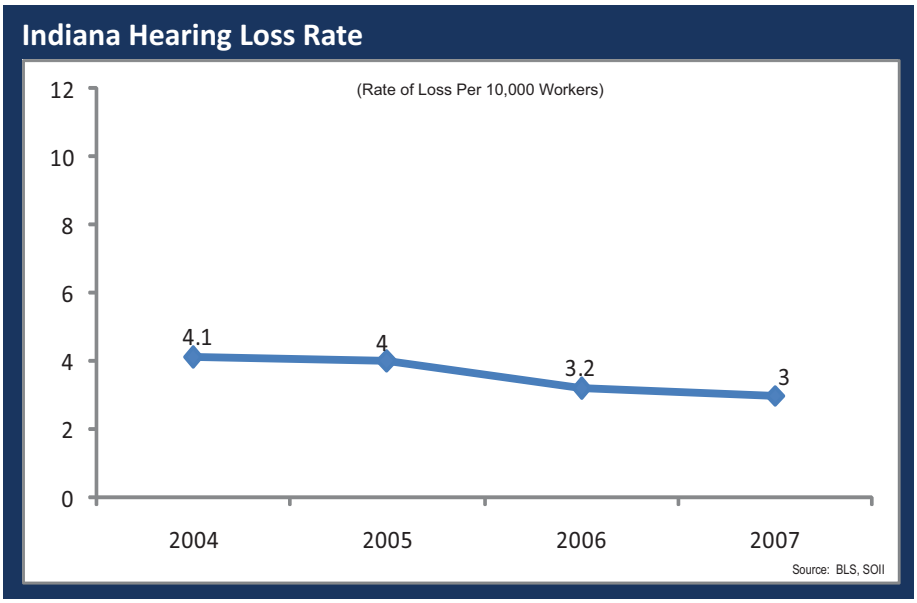
The team measured eight different noise levels on various pieces of equipment in the company's transmission division. To accurately target the tools which contributed the greatest to the noise problem, the team conducted a series of eight-hour exposure readings. They utilized noise dosimeters that determined the average reading to be 101 decibels.

As a result of the testing the team made several improvements including purchasing new air nozzles, air drills and air guns as well as installed rubber noise-absorbent materials by way of plastic blasters throughout the facility. These changes reduced the noise levels more than 20 decibels in some areas.

According to the Jasper Engine and Transmissions' Safety Director, Jason Pieper, "The increased awareness of noise levels alone was well worth the more than 160 combined hours the team spent on this project."

"The best part about the project was that it was initiated and conducted completely by our employees. Since completion, we have received feedback from many employees as to how much they've noticed the noise reduction in their areas. Along with the mandated hearing protection in many areas of our facility, the heightened awareness level of noise reduction has sparked other successes, which have greatly improved Jasper's hearing conservation program," Pieper added.

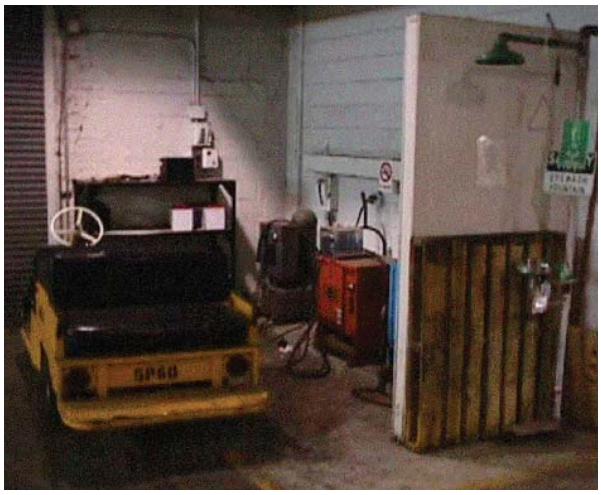
The company is focused on keeping safety as its first priority. Employee involvement increases visibility and encourages ongoing improvements to the company's already strong worker safety and health program. For more information about Jasper Engines, visit the company's website at http://www.jasperengines.com .



Can You Identify the Hazard in the Pictures Below?

Photographs seen on this page are real pictures taken of real hazards at Hoosier worksites throughout the state. Answers for each of the pictures can be found at the bottom of the page.

1



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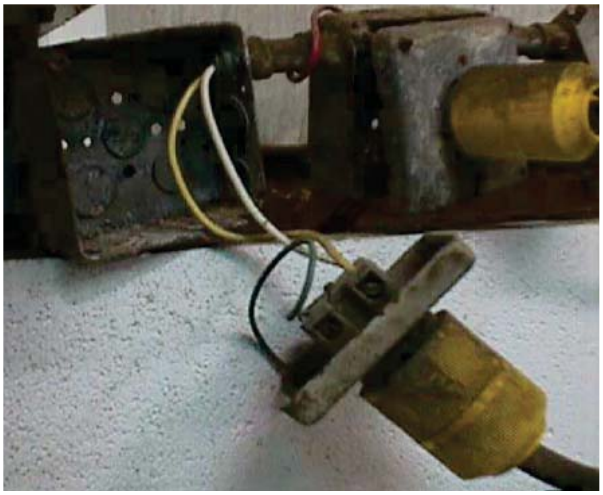

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Picture 1: Partially blocked Eye/Body Flushing Facilities 1910.151(c). Picture 2: Unused portion of the blade is Unguarded 1910.213(i). Picture 3: Exposed Wiring 1910.303(b). Picture 4: Inadequate Container labeling in Hazard Communication 1910.1200(f)(5). Picture 5: Cylinders improperly stored 1910.253(b)(2)(ii) Picture 6: Fire Extinguisher Accessibility 1910.157(c)(i).

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IN Review **is an annual publication of the Indiana Department of Labor's Quality, Metrics and Statistics Division. For this report, the Indiana Department of Labor used the Census of Fatal Occupational Injuries (CFOI) and Survey of Occupational Injuries and Illnesses (SOII) research file provided by the Bureau of Labor Statistics (BLS). Because of confidentiality restrictions, individual case information from the CFOI data cannot be reported; information for the cases described in this report was obtained solely from the Indiana Department of Labor field investigations.**

Indiana Injury and Illness Rates

Industry Sector	Total Recordable Cases			Cases with Days Away from Work, Job Transfer or Restriction									Other Recordable Cases		
				Total			Cases with Days Away From Work			Cases with Job Transfer or Restriction					
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
All Industries including State and Local Government	5.8	5.5	5.2	2.8	2.7	2.4	1.4	1.3	1.1	1.4	1.4	1.3	3.0	2.9	2.7
Private Industry	5.8	5.4	5.1	2.8	2.7	2.5	1.3	1.2	1.1	1.5	1.5	1.3	2.9	2.7	2.6
Goods Producing	7.8	6.9	6.4	3.8	3.5	3.1	1.6	1.5	1.3	2.2	2.0	1.8	3.9	3.4	3.4
Natural Resources and Mining	6.4	4.7	6.1	3.6	2.8	3.5	2.7	1.9	2.2	0.9	0.9	1.3	2.8	1.9	2.5
Agriculture, Forestry, Fishing and Hunting	8.1	5.8	8.4	4.3	3.2	4.8	3.5	2.0	2.7	0.8	1.2	2.1	3.8	2.6	3.6
Mining	4.5	3.4	3.3	2.8	2.3	2.1	1.7	1.7	1.7	1.1	0.3	0.4	1.8	1.2	1.3
Construction	5.6	5.6	5.7	2.6	2.9	2.5	1.9	2.2	1.9	0.6	0.7	0.6	3.0	2.7	3.2
Manufacturing	8.3	7.3	6.6	4.1	3.6	3.2	1.5	1.3	1.1	2.6	2.4	2.0	4.2	3.6	3.4
Service Providing	4.6	4.5	4.4	2.2	2.2	2.2	1.1	1.1	1.0	1.1	1.1	1.1	2.4	2.3	2.3
Trade, Transportation and Utilties	5.3	5.2	5.1	2.9	3.1	3.0	1.5	1.5	1.4	1.4	1.6	1.6	2.4	2.1	2.1
Wholesale Trade	5.3	4.7	4.7	2.8	2.9	2.8	1.5	1.5	1.5	1.3	1.3	1.3	2.4	1.9	1.9
Retail Trade	5.1	5.4	5.1	2.7	2.9	2.7	1.3	1.3	1.1	1.4	1.6	1.7	2.5	2.5	2.4
Transportation and Warehousing	5.6	5.3	5.5	3.5	3.8	3.8	1.9	2.0	1.9	1.6	1.8	2.0	2.1	1.5	1.7
Utilities	5.1	4.4	4.4	2.8	2.0	2.3	1.2	0.9	0.9	1.5	1.1	1.4	2.3	2.4	2.2
Information	2.7	2.4	2.4	1.1	1.3	1.2	0.7	0.5	0.9	0.4	0.8	0.3	1.6	1.1	1.2
Financial Activities	1.9	1.9	1.5	0.9	0.8	0.6	0.6	0.4	0.5	0.4	0.4	0.2	1.0	1.1	0.9
Professional and Business Services	2.7	2.7	2.5	1.4	1.3	1.2	1.0	0.8	0.7	1.7	0.5	0.5	1.3	1.4	1.3
Educational and Health Services	6.5	6.2	6.6	2.7	2.6	2.7	1.1	1.0	1.1	0.6	1.6	1.6	3.7	3.6	3.9
Educational Services	4.0	2.4	4.2	1.2	1.0	1.3	0.6	0.5	0.6	1.8	0.5	0.7	2.8	1.4	3.0
Healthcare and Social Assistance	6.8	6.6	6.9	2.9	2.8	2.9	1.1	1.1	1.2	0.7	1.7	1.7	3.8	3.8	4.0
Leisure and Hospitality	4.3	4.2	4.7	1.7	1.3	1.5	1.0	0.8	0.6	0.6	0.5	0.9	2.6	2.8	3.2
Other Services Except Public Administration	3.3	4.4	3.4	1.6	1.4	2.2	0.9	0.4	1.9	0.9	0.9	0.3	1.7	3.0	1.2
State and Local Government	6.0	6.6	5.7	2.7	2.7	2.3	1.8	1.7	1.2	0.5	1.0	1.1	3.3	3.9	3.4
State Government	5.0	3.5	3.7	2.4	1.5	1.6	1.9	1.0	1.0	1.0	0.5	0.6	2.6	2.0	2.0
Local Government	6.5	8.1	6.5	2.8	3.3	2.5	1.8	2.1	1.2	1.0	1.2	1.3	3.7	4.8	4.0

•Incidence rates represent the number of injuries and illnesses per 100 full-time workers and were calculated as (N/EH) x 200,000 where

N =number of injuries and illnesses
EH = total hours worked by all employees during the calendar year
200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)

•North American Industry Classification System, 2002 Edition

•Excludes farms with fewer than 11 employees

•Data for mining (Sector 21 in the North American Industry Classification System 2002 edition) includes establishments not governed by the Mine Safety and Health Administration (MSHA) rules and reporting, such as those in oil and gas extraction and related support activites. Data for mining operators in coal, metal, and nonmetal mining are provided to BLS by the Mine Safety and Health Administration, U.S. Department of Labor. Independent mining contractors are excluded from the coal, metal and nonmetal mining industries. These data do not reflect the changes OSHA made to its recordkeeping requirements effective January 1, 2002; therefore estimates for these industries are not comparable to estimates in other industries.

•Data for employers in railraod transportation are provided to BLS by the Federal Railroad Administration, U.S. Department of Transportation.

•Days away from work cases include those that result in days away from work wtih or without restricted work activity

•Data too small to be displayed

NOTE: Because of rounding, components may not add to totals. Dash indicates data do not meet publication guidelines.

SOURCE: Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses, in cooperation with participating State agencies.

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