



INReview

Indiana Occupational Safety and Health 2014

An annual publication of the Indiana Department of Labor

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



Photos from left to right and top to bottom: On September 12, 2013, Terry "Fig" Phegley was inducted into the Mine Rescue Hall of Fame. Fig, who is pictured here with his wife, Brenda, currently serves as mine rescue trainer for the Five Star and Black Panther mine rescue teams. In June 2013, Indiana Department of Labor staff participated in a two-day work zone safety training provided by the Indiana Department of Transportation. The training incorporated both classroom-style lecture and a visit to an established work zone. Indiana Department of Labor staff participated in a hands-on demonstration during a three-day excavation, trenching and soil mechanics training course. The International Union of Operating Engineers, Local 150 in Illinois hosted the event on behalf of the OSHA Training Institute.

*Hoosier workplace
safety and health*

Advancing

toward occupational safety and health excellence, the agency honed in on three key areas in which to reduce workplace injuries, illnesses and fatalities. Those industries include transportation, agriculture and healthcare.

The Indiana Department of Labor began constructing a foundation for its emphasis areas. To do this, the agency partnered with internal and external stakeholders to bring worker safety and health issues to the forefront.

Worker safety and health campaigns included partnering with the **Indiana Department of Transportation** to heighten awareness of road construction safety during national (and Indiana) *Work Zone Safety Awareness Week*. The two agencies are also collaborating with other state offices to launch a distracted driving awareness campaign.

The agency worked with Terre Haute's **Union Hospital, Inc.**, to publicly launch a worker safety and health initiative aimed at reducing worker injuries in the Hoosier healthcare industry. The **Indiana State Department of Health** pledged its support to the initiative's launch.

The Indiana Department of Labor also developed a formal alliance with Indianapolis-based **Dow AgroSciences** to gain momentum behind its agriculture worker safety and health awareness initiative. The **Indiana State Department of Agriculture** was supportive of agriculture worker safety and health efforts as well.

the safety, health and prosperity of Hoosiers in the workplace is the mission of the Indiana Department of Labor. To continue its push

IN Review

Indiana Occupational Safety and Health - 2014

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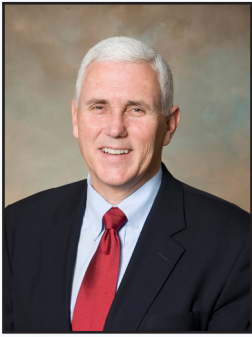
IN Review is an annual publication of the Indiana Department of Labor's INSafe Division. INSafe Safety and Health Consultants provide free onsite OSHA consultation to Hoosier employers upon request. To learn more about the free OSHA consultation services provided by INSafe, please visit www.in.gov/dol/insafe, email insafe@dol.in.gov or phone (317) 232-2688 to speak with a consultant.

The Indiana Department of Labor expresses its sincere appreciation to Megan Wade-Taxter of the Indiana Department of Revenue and Teresa Blalock of the Indiana Department of Labor for their assistance and attention to detail in editing this edition of *IN Review*.

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Indiana Occupational Safety and Health Leaders



“The continuing decline in the number of occupational injuries, illnesses and fatalities demonstrates the unwavering dedication of the Department of Labor, Hoosier employers, employees, trade associations and professional organizations, and proves again, that Indiana is not only a state that works, but the place to do business.”



Michael R. Pence
Governor

Indiana's

non-fatal worker injury and illness rate for 2012 was 4.0 per 100 workers, the lowest experienced since the Bureau of Labor Statistics' (BLS) Survey of Occupational Injuries and Illnesses (SOII) was introduced in its current form in 1992.

The 2012 rate represents a one-year decline of more than 7 percent from 2011 and marks the first time the rate has declined since 2009. Nearly all of the major Hoosier industries saw a decrease in worker injuries and illnesses in 2012. The largest one-year decrease in workplace injuries was in the mining industry, where worker injury and illness rates decreased by nearly 45 percent.

The Indiana Department of Labor's emphasis industries of agriculture, healthcare and transportation all experienced a decrease in non-fatal workplace injuries and illnesses in 2012—agriculture -24.2 percent, healthcare -15.9 percent and transportation -2.2 percent.

Workplace fatalities were also at a historic low for the state since the BLS Census of Fatal Occupational Injuries report was introduced in 1992. In 2012, the Indiana Department of Labor reported 113 worker deaths—9 fewer than 2011.

While the historically low numbers of workplace injuries, illnesses and fatalities in Indiana are indeed an accomplishment, we are reminded that all Hoosier workers deserve a safe and healthy workplace, and the Indiana Department of Labor continues to push to achieve that goal. The record low number of workplace deaths means everyone, employers and employees alike, are doing a better job of protecting the Hoosier workforce. However, it also reminds us that we still have work to do to achieve workplace safety and health excellence.

The 2014 edition of *IN Review* provides a further look into each major Hoosier industry. We truly hope that you will find something in this publication to help make your work processes safer for the Hoosiers who perform them.

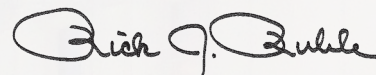
The staff of the Indiana Department of Labor is available to help you make your workplace safer and healthier. Please feel confident reaching out to the Indiana Department of Labor for assistance.

We invite you to provide us with your thoughts, feedback, questions or concerns. You may contact a representative from the Indiana Department of Labor directly by calling (317) 232-2655 or emailing us at customerservice@dol.in.gov. We are committed to helping *advance the safety, health and prosperity of Hoosiers in the workplace*. We look forward to working with and honoring Hoosier workplaces for continued occupational safety and health improvement and excellence in the coming year.



Rick J. Ruble
Commissioner

To your health and wealth,



Rick J. Ruble
Commissioner of Labor

Hoosier Occupational Safety and Health *IN Review*

According to the federal Bureau of Labor Statistics' annual workplace injury, illness and fatality reports, the Survey of Occupational Injuries and Illnesses (SOII) and the Census of Fatal Occupational Injuries (CFOI), Hoosier workplaces were safer and healthier in 2012 than they have ever been. These improvements were seen across almost every major industry in Indiana.

Indiana's overall non-fatal injury and illness rate was 4.0 per 100 workers, which represented a historic low for the state. It also represented a one-year decline in non-fatal occupational injuries and illnesses of seven percent for both public and private sector workplaces. In 2012, Hoosier industries with the highest non-fatal occupational injuries and illnesses (in raw numbers) were **manufacturing** (25,100), **healthcare and social assistance** (14,500) and **state and local government** (13,400). Hoosier industries that reported the highest non-fatal injury and illness rate in 2012 included **agriculture** (7.2), **healthcare and social assistance** (5.3) and **manufacturing** (5.3).

The preliminary CFOI report indicated there were 113 occupational fatalities reported in 2012—also a historic low for the state. Overall, decreases in occupational fatalities were seen in eight of ten major Hoosier industries. Indiana industries with the highest number of occupational deaths in 2012 were **construction** (20), **transportation and warehousing** (20) and **agriculture, forestry and fishing** (15).

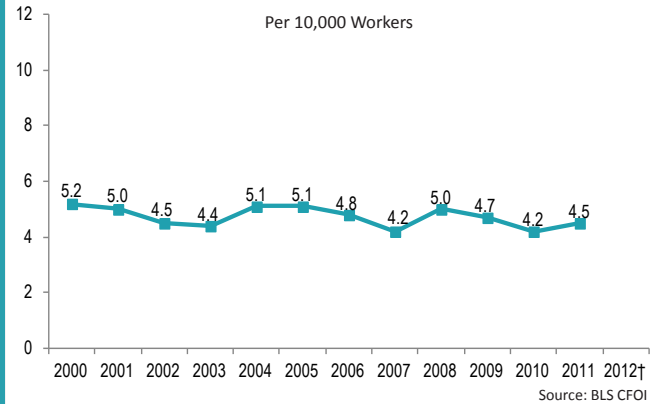
Factors aside from workplace safety and health, such as current economic conditions, may have an effect on non-fatal occupational injury and illness rates and the number of occupational fatalities. Despite this variability, the rate can still be seen as a general progress report on workplace safety and health. The steady decline of worker injury and illness rates and fatality numbers in Indiana over time is a likely indicator that employers have continued to find the pursuit of increased workplace safety and health a sound investment.

Indiana's Fatal Occupational Injuries



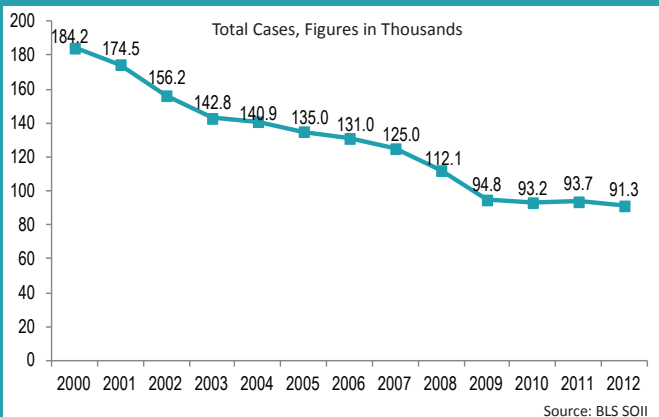
†Preliminary data. Final data available second quarter of 2014.

Indiana's Occupational Fatality Rate



†Rate available first quarter 2014

Indiana's Non-fatal Occupational Injuries and Illnesses



Indiana's Non-fatal Occupational Injury and Illness Rate



The OSHA Top Ten Standards Cited

Between

October 1, 2012, and September 30, 2013,

compliance safety and health officers (CSHOs) of the Indiana Occupational Safety and Health Administration (IOSHA) conducted more than 1,535 inspections. Inspections included programmed and unprogrammed visits of Hoosier workplaces to ensure compliance with workplace safety and health regulations.

Programmed inspections are random and typically result from high worker injury and illness rates and federal emphasis programs which focus attention on specific activities and occupations. Unprogrammed inspections are triggered by a complaint; a referral from another agency, legal entity or media outlet; or the occurrence of a fatality or catastrophe.

Workplaces inspected in federal fiscal year 2012 included factories and foundries, convenience stores, nursing and residential care facilities as well as active construction jobsites. The top ten most frequently cited occupational safety and health hazards and their cost to business may be found below. The violations that are part of 29 CFR 1926 standards reference construction safety and 29 CFR 1910 references worker safety and health for all other general industries.

Citations and penalty calculations were initial and current at the time the report was generated.

1. 1926.20(b)(2): Safety Training and Education

Employers are responsible for designating someone as a competent person. This person must have the authority to stop work and make corrections to any process that violates safety standards without needing to make requests to a higher authority. The competent person must make regular inspections of the jobsites, materials and equipment. To learn more about competent persons, please visit www.osha.gov/SLTC/competentperson/index.html.

Citations: 81
Initial Penalties: \$63,400



2. Indiana Code 22-8-1.1-2: IOSHA General Duty Clause

This clause can be applied to any unsafe situation where there is no standard that specifically addresses the hazard that was found. The IOSHA General Duty Clause requires all employers to provide their employees with a working environment that is free of recognized hazards which are causing or are likely to cause death or serious physical harm. Please visit www.in.gov/legislative/iac/T06100/A00090.pdf for more information about the Indiana Occupational Safety and Health Act (IOSH Act).

Citations: 74
Initial Penalties: \$609,175

3. 1910.212(a)(1): Machine Guarding

Machinery must have one or more methods of guarding to protect both the operator and other employees from hazards created by moving parts, flying chips and sparks. Protection could include electronic safety systems, barriers which separate the hazard from the employees, two-handed tipping devices, etc. An OSHA eTool for machine guarding is available online at www.osha.gov/SLTC/etools/machineguarding/index.html.

Citations: 66
Initial Penalties: \$145,075

4. 1926.21(b)(2): Safety Training and Education

Employers are responsible for training their employees on how to recognize and avoid hazards that exist in their workplace or hazards associated with a particular job or task. Employers must also teach their employees about the specific regulations that apply to the hazards and hazard mitigations which can be found in their workplace. To learn more, read OSHA's Training Requirements guide available online at www.osha.gov/Publications/OSHA2254.pdf.

Citations: 52
Initial Penalties: \$58,775

5. **1926.20(b)(1): General Safety and Health Provisions**

No contractor or subcontractor can require anyone to work in an area or under conditions that are unsanitary, hazardous or dangerous to the health or safety of the worker. This rule also requires the implementation of the appropriate safety and health education and prevention programs. Learn more about these types of programs at www.osha.gov/dsg/topics/safetyhealth/index.html.

Citations: 40

Initial Penalties: \$42,650

6. **1910.1200(e)(1): Hazard Communication**

Employers are required to develop, implement and maintain a communication program that ensures the proper labeling of all hazardous materials and the proper use of appropriate chemical safety data sheets. This requirement also includes the proper training of all employees so that hazard warnings in the workplace are recognized and clearly understood. The system of labeling hazards is in the process of transitioning to the Globally Harmonized System (GHS). To learn more, please visit www.osha.gov/dsg/hazcom.

Citations: 29

Initial Penalties: \$34,500

7. **1910.151(c): Medical Services and First Aid**

Any time a worker's eyes or body is exposed to potentially corrosive material suitable facilities must be available in the employees' immediate area for quick drenching or flushing. Examples include eyewash stations and emergency showers. To learn more about first aid requirements, visit www.osha.gov/SLTC/medicalfirstaid/index.html.

Citations: 23

Initial Penalties: \$23,305

8. **1926.501(b)(13): Fall Protection in Construction**

Every employee engaged in residential construction activities 6 feet (1.8 m) or more above lower levels shall be protected by a guardrail system, safety net system or personal fall arrest system. The only exception is if it can be demonstrated that these types of safety systems are infeasible given the work being done or present a greater danger to the employee. If that is the case, the employer must create an alternate safety plan. More information about fall protection can be found online at www.osha.gov/SLTC/fallprotection/index.html.

Citations: 21

Initial Penalties: \$19,250

9. **1910.23(c)(1): Walking and Working Surfaces**

This standard requires holes or gaps in floors and walls to be kept safe. Any opening must be guarded by a fixed railing, unless the opening is for a ramp, stairway or fixed ladder. This covers things like skylights, the edge of a roof, holes or spaces in walls where a tool could fall and injure someone below or any open-sided floor or platform 4 feet or more above the ground or adjacent floor. Visit www.osha.gov/SLTC/walkingworkingsurfaces/index.html for more information about walking and working surfaces.

Citations: 20

Initial Penalties: \$23,875

10. **1910.303(g)(2): Guarding of Live Electrical Parts**

Any machine that operates at 50 or more volts (unless specifically exempted by this standard) must be guarded to ensure no one is able to accidentally come into contact with live electrical parts. This can be done through the use of an approved enclosure or by isolating the machine itself so that no one but authorized personnel can access the machine. Learn more about electrical safety by visiting www.osha.gov/SLTC/electrical/index.html.

Citations: 20

Initial Penalties: \$22,025

Resources

For more information about IOSHA, please visit www.in.gov/dol/iosha.htm. Answers to many frequently asked questions are also available online. Occupational safety and health standards for general industry, hygiene and construction safety may be found on federal OSHA's website at www.osha.gov and by clicking on the letter for "standards" on the A-Z index.

Employer Compliance Assistance

Do you need help or have questions about occupational safety and health? INSafe's knowledgeable safety and health consultants are available to assist you. Call (317) 232-2688 to speak with an INSafe consultant or email your inquiry to insafe@dol.in.gov. To learn more information about INSafe's free onsite consultation services, please visit www.in.gov/dol/insafe. To request a free and confidential occupational safety or health consultation, please complete and submit the form available at www.in.gov/dol/insafeconsultation.htm.

Closing the Workplace Safety and Health Gap

Timothy E. Maley, Deputy Commissioner of IOSHA, provides information about avoiding gaps in workplace safety and health programs and the agency's approach to workplace safety and health enforcement.

One of the most important things I've learned in the year or so that I've served as Deputy Commissioner of the Indiana Department of Labor is that when a company experiences a workplace fatality, it is not necessarily a bad company. No one ever intends for an occupational injury, illness or fatality to occur. No one thinks it's going to happen to them.

Often, many companies that experience a tragic event even have some sort of written safety program. In many cases, employees have been provided with training and safety equipment. However, the reason a company experiences a worker fatality may be attributed to a gap in its workplace safety and health program. When it comes to worker safety and health, any program less than 100 percent is not enough.

The Workplace Safety and Health Gap

In some cases, the program may be written but few people actually read and understand it. There may be a communication gap, or information may not be available or presented in an effective way. Some employers even provided training, but the training may have been nothing more than a few PowerPoint slides. The slides might even say or convey that "worker safety is key." Generally, the employer requires employees to sign the training attendance sheet to acknowledge the employees participated in the training. Employees are usually then released back to do their jobs. Many times, safety equipment is available but there might not be enough to go around. The required personal protective equipment (PPE) might be out of date or in poor condition or there could be modern, up-to-date equipment, but no one has been trained on how to use it or maintain it.

Upper management may talk about the importance of safety, but the first-line supervisors turn a blind eye in the hopes of "getting the job done." Employees might not be active or empowered to get involved in their safety and actually make decisions. The employees may be reluctant to say anything, even when they worry that what they're doing isn't as safe as it should be.

Workplace Fatalities and the Ripple Effect

In many cases of workplace fatalities, the company wasn't trying to get an employee killed. No one thought it would happen. They had PPE and a worker safety and health program and had implemented some training. The company even made some of the critical safety items available, just not enough or not in the right way, so a fatality was only a question of time.

A worker fatality is damaging for all involved. Generally, there's an OSHA investigation. There could be fines and lawsuits. Worker morale can be negatively affected, and the company's relationship with the local community can suffer.

Then there's the family and friends of the deceased. They cannot just replace their loved one. Someone they care deeply about was killed in a way that was, in reality, completely avoidable. It is a sad and frustrating situation.

Even after the many years I have spent in safety, I now more than ever understand why I and other safety professionals are in this line of work. I know what we are working to accomplish. I feel its importance. I hope all occupational safety and health professionals feel this way. We're not here to save the company from OSHA fines or lawsuits. We do what we do for the worker and his or her family.



Timothy E. Maley
Deputy Commissioner

Regulatory Compliance and Beyond

Regulatory compliance is important, in that it provides us guidelines by which to work. Regulations often express correction for past problems that were found in workplaces. However, there is no regulation for management leadership and employee involvement. There is no standard that tells us exactly what employee and managerial involvement is and how much is the right amount. But, companies that truly understand how to protect their employees know that great safety comes through the workplace's ingrained culture. Safety should not be viewed as a priority—priorities can change. Instead, safety should be viewed as a core value. In my experience, companies that practice poor workplace safety and health management do not do well in other aspects of their business.

Progressive companies have a safety system where management lends the correct leadership to the program. Their employees are involved and enthusiastic about safety. There is a sense of pride you can feel within the facility. They continuously look to improve, share and benchmark with others. These sites consistently analyze and identify their hazards and then eliminate the hazard or put solid prevention methods in place. And they train and then measure the effectiveness of their training to ensure everyone knows exactly what needs to be done. Management gets it, insists upon it and measures it.

Recently, I had the privilege of celebrating safety milestones with two Indiana companies—**CF Industries** and **Covanta of Indianapolis**. CF Industries, located in Huntington, Indiana, celebrated 15,000 days without a lost-time incident. Covanta recently celebrated its recertification in the Indiana Voluntary Protection Program (VPP) with no lost-time injuries and only one OSHA recordable incident in the last four years. These 2 are among more than 60 other Hoosier workplaces in VPP. These sites have proven occupational safety and health programs.

A Balanced Approach to Compliance

The Indiana Department of Labor works to maintain a balanced approach to workplace safety and health management—the “carrot” and the “stick.” Enforcement of occupational safety and health standards is very important, and the agency strives to strengthen its enforcement operations every day. Indiana Occupational Safety and Health Administration (IOSHA) compliance safety and health officers (CSHOs) conduct enforcement inspections at businesses and worksites throughout the state in an effort to keep Hoosier workers safe and healthy. At the same time, the department encourages employer and employee participation in its cooperative programs—VPP, the Indiana Safety and Health Achievement Recognition Program (INSHARP) and partnerships and alliances. Companies involved in these

programs have not only made a commitment to safety, but are proven leaders—employee safety and health is a core value.

The Indiana Department of Labor stands ready to work with any Hoosier company that wants to improve its workplace safety and health program. It’s not all about compliance. It’s about closing the safety and health gaps. It’s about striving for 100 percent occupational safety and health program effectiveness. It’s about a healthy attitude towards worker safety and health, an interest in focusing on injury and illness prevention programs and a commitment to excellence.

Achieving workplace safety and health is challenging, but it’s a challenge worth working to meet. It’s worth it to send employees home safe and healthy at the end of the workday. It’s what I’m striving for every day—it’s the purpose of all of us here at the Indiana Department of Labor.

Resources

More information about the Indiana Department of Labor, including information pertaining to the agency’s worker safety and health initiatives, may be found online at www.in.gov/dol. For more about VPP, please visit www.in.gov/dol/vpp.htm. Additional information about INSHARP is available online at www.in.gov/dol/2382.htm.



Deputy Commissioner of Labor Timothy Maley, celebrates the achievement of Indiana VPP site CF Industries in July 2013. CF Industries’ Huntington, Indiana, Terminal worked 15,000 consecutive “safe days.” (Photo provided by CF Industries.)

IN the Know: Discovering Your Inner Safety



Tradespeople work on hardscapes for new Community Health Network South Regional Cancer Center. The new three-story Cancer Center will open in spring 2014. (Photo provided by Dave Murphy, Safety Director for Pepper Construction.)

Dave Murphy, Safety Director for Pepper Construction of Indiana, provides insight on the company's approach to incident- and injury-free jobsites.

Hoosiers working in the construction industry are fortunate to have the marketplace's support for an incident- and injury-free approach to workplace safety and health management. This, coupled with our own internal drive for continuous improvement, prompted Pepper Construction President and Chief Executive Officer Bill McCarthy and Pepper Indiana President and Chief Operating Officer Mike McCann to seek new ideas for taking Pepper's established and proven safety program to the next level. Both analyzed Pepper Construction's operations and performance, which addressed the foundational questions for all change management: Where are we now? Pretty good. Where do we want to be? Setting the bar for the industry. And, how big is the gap between the two? Not that big, but big enough for change.

Trying to reach the next level when you're already close to the top sometimes takes more effort than when the gap is larger. As such, answering these seemingly simple questions required a unique approach—one that asked everyone in our organization to think differently. We started with a

safety leadership training series for all management and supervision, which Mike McCann and I led through a small group discussion format. We incorporated real-time polling software into the presentation that allowed us to present a discussion topic and chart instant, anonymous feedback about the group's perception around a given topic. This "safe sharing" environment proved to be remarkably productive. It allowed us to tailor the content and discussion during the session and focus in on each group's responses. From this training, we headed down a path of personalization and connection.

Making It Personal

Although not labeled as such at the time, the development and implementation of this information-gathering approach was the first major step toward understanding that the pathway to incident- and injury-free requires a mental shift from "policy" to "personal." The participants began to discover their own inner safety by understanding that written words do not create safe work environments, but rather people do, through their deliberate personal actions.

Integrating Continuous Feedback

This push to personalization required that Pepper provide different resources that everyone could use to build a new system of thinking and action. First, we completely revamped Pepper's safety committee. The safety committee was rebranded as the *Safety Discovery Team* to focus on collecting tradespeople and contractor feedback regarding our projects, company and culture. Members of the committee visit projects each month to meet with tradespeople, representing both Pepper and our subcontractors. The meeting summaries and action items are communicated to the entire company. These are exciting changes, and we look forward to continued involvement and feedback from our tradespeople.

Acknowledging Areas for Improvement

Next, we measured the effectiveness of our safety culture improvement initiatives. We surveyed our project team members, including subcontractor tradespeople. We were encouraged about the consensus that our goal of zero injuries is critical to our success. We truly believe this is the most important part of what we do as a construction company, and it's essential that people on Pepper jobs understand our expectations. Our message is that we work safe because we believe it's the right thing to do—not because someone tells us to. We are also grateful for the critical feedback we received to help us enhance our safety culture and put in place a new covenant of company standards. We have targeted three standards to develop and implement:

1. Supervision must recognize and reward good safety performance. Our feedback indicated that we need to do a better job recognizing and rewarding people for good safety performance. We believe that all of us, including the tradespeople, can do a better job showing our personal appreciation for working safely and positively impact the jobsite safety culture. Our *Safety Discovery Team* has created Twitter® and Instagram® blogs (@SafetyDiscovery) to provide additional and timely employee safety recognition.

2. No one must ever prioritize cost, schedule or convenience over personal safety. The second target is that employees never place cost, schedule or convenience over safety. At our safety leadership training sessions, Mike McCann addressed this issue specifically by stating, "We will always have schedule and budget pressures on our jobs. It's the reality of the construction business. However, we will never compromise the health and safety of tradespeople on our projects. Our business is people, and the safety of our people comes first!" Our leadership training has focused on making sure the message of safety is not lost or misconstrued



A Pepper tradesman performs layout for the new Gordmans Distribution Center. The 530,000-square-foot warehouse, which is being developed by Ambrose Property Group, was substantially completed in November 2013. (Photo provided by Dave Murphy, Safety Director for Pepper Construction.)

amid daily pressures. We emphasize the inclusion of safety in every discussion, particularly when the project scope or schedule changes.

3. No one gets hurt is a journey completely worthwhile to begin and sustain for its own rightness regardless of outcome. The third perception that, in your opinion, all injuries are preventable is a real hang-up for many. Pepper suggests that it's not really constructive to argue whether or not it's statistically possible to be injury-free. It's important that each of us does everything within our power, every day, to work injury free. It's all about the mindset and choosing to proactively participate in a safety culture based on *No One Gets Hurt!*

Experiencing Real Change

As a result of our senior leaders' self assessments, we have initiated significant change over the past year, including a complete remake of our safety committee and an investment in safety leadership skills and insight gained by an in-depth analysis of employee perceptions. We recognized early on that deep cultural shifts require persistence and a long-term commitment. We are seeing successes as people discover their own inner safety. One senior project manager sent thank-you notes to tradespeople after a particularly strong safety effort. Project teams are including tradespeople in site safety audits. Senior managers are acknowledging project teams for specific safety achievements, and superintendents are making their site orientations more personal by sharing their own commitments to incident-and injury-free projects.

Automotive

component manufacturers, foundries and steel mills are just a few establishments that make up the Hoosier manufacturing industry. The manufacturing industry is the largest employment sector among all Indiana industries.

Indiana’s manufacturing industry experienced the highest raw number of recordable injuries and illnesses of any industry in the state. This Hoosier industry accounted for more than 26 percent (25,100) of all work-related injuries and illnesses in 2012.

While the manufacturing industry had the highest number of injured and ill workers, its rate of non-fatal work-related injuries and illnesses (5.3 per 100 workers) was lower than the rate for **agriculture** (7.2) and tied with the Hoosier **healthcare and social assistance industry** (5.3). The 2012 non-fatal occupational injury and illness rate for manufacturing experienced a slight uptick from the 2011 rate of 5.2 per 100 workers. The national average for the manufacturing industry in 2012 was 4.3 per 100 workers. This means the Indiana non-fatal injury and illness rate for the manufacturing industry is nearly 17 percent above the national average. Sub-industries in the larger manufacturing industry with high non-fatal worker injury and illness rates in 2012 included **prefabricated wood building manufacturing**

(16.5), **manufactured home manufacturing** (14.2) and **other transportation equipment manufacturing** (12.3).

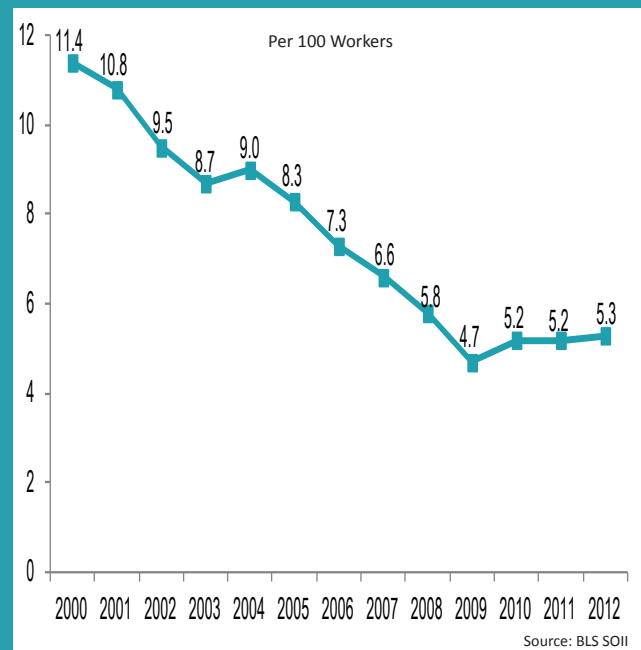
Hoosier manufacturing workers suffered 4,320 injuries severe enough to require at least one day away from work to recuperate in 2012. The average number of days away from work in the manufacturing industry in 2012 was seven—the same as 2011. Employees who suffered these injuries were most often **male** (76%), **Caucasian** (64%) and between the **ages of 45 and 54** (29%). Common events resulting in an injury with days away from work in the manufacturing industry included **contact with object or equipment** (36%); **overexertion in lifting or lowering activities** (36%); and **falls, slips and trips** (19%).

While the manufacturing industry had the highest raw number of workers who experienced non-fatal injuries and illnesses in 2012, the industry experienced the greatest single-year reduction in workplace fatalities (28%). Despite its size, the Hoosier manufacturing industry also had fewer worker deaths than some smaller Indiana industries, including **transportation and warehousing** (20); **construction** (20); and **agriculture, forestry, fishing and hunting** (15). In 2012, ten Hoosier manufacturing industry workers were fatally injured on-the-job.

Manufacturing Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	686,000	9.0	11.4	78,300	19
2001	639,000	8.1	10.8	68,100	22
2002	588,000	7.2	9.5	57,800	24
2003	573,000	6.8	8.7	49,200	15
2004	572,000	6.6	9.0	51,400	15
2005	571,000	6.3	8.3	48,600	10
2006	570,000	6.0	7.3	41,900	13
2007	568,000	5.6	6.6	36,600	7
2008	538,500	5.0	5.8	30,800	18
2009	470,800	4.3	4.7	21,500	12
2010	437,600	4.4	5.2	22,800	14
2011	456,200	4.4	5.2	23,700	13
2012	Unavailable	4.3	5.3	25,100	10

Indiana Manufacturing Injury and Illness Rate



Importance of Job Hazard Analysis

Every year thousands of Hoosier manufacturing and other industry workers suffer severe and disabling work-related injuries. Far too often, these injuries could have been prevented. Regular job hazard analyses, employer-provided training and employee utilization of safe work practices are imperative when developing a culture of safety and health in the workplace.

Conducting Job Hazard Analysis

One of the best ways to determine and establish proper work procedures is to conduct a job hazard analysis (JHA). Ultimately, without a JHA for each job, training and safe work practices will be less effective.

Supervisors can use the findings from a JHA to reduce employee exposure to workplace safety and health hazards. Using findings will likely result in fewer work-related injuries and illnesses, as well as a safer and more productive atmosphere for employees.

JHAs are techniques that focus on specific job tasks as a way to identify hazards before they occur. These tools focus on the relationship between the worker, the task, the tools and the work environment. After hazards have been identified, employers take steps to eliminate safety and health hazards or at least reduce the risks if eliminating the hazard isn't possible.

JHAs should be conducted on all jobs and tasks within an organization. Priority in developing a JHAs should be given to the following classifications of jobs: jobs with the highest injury or illness rates, jobs with the potential to cause severe or disabling injuries or illnesses (even if there is no history of previous accidents), jobs in which a simple human error can lead to a severe accident or injury, jobs that are new to your operation or those that have undergone changes in processes and procedures and jobs that are complex enough to require written instructions.

To maximize the effectiveness of JHAs, employees should be involved in the process. Employees are an employer's best asset in the identification and elimination of workplace safety and health hazards. Involving employees in this process will help employers minimize oversights, ensure a quality analysis and get workers to "buy in" to the solutions

because they will share ownership in the safety and health management system.

Employers should review their workplace's history of accidents and illnesses, especially those incidents that required medical attention. Don't forget or overlook any "near-miss" incidents. These incidents can be indicators that the existing hazard controls are not adequate and require additional attention.

Next, employers should list, rank and set priorities accordingly. Begin this process by listing jobs with hazards that present unacceptable risks, based on the hazard most likely to occur and with the most severe consequences. These jobs should be your first priority for analysis.

Nearly every job can be broken down into job tasks or a sequence of steps. Finish the JHA process by outlining the appropriate steps or tasks done to perform the job.

As a result of the JHA, a safe way of performing the job is developed. In addition to this, a written procedure should be developed to ensure that all affected employees are performing the job in the same safe manner.

For a JHA to be effective, management must demonstrate its commitment to safety and health and follow through to correct any uncontrolled hazards identified. Without commitment and follow-through, management will lose any established credibility and employees

will hesitate to go to management when dangerous conditions are present.

While training is a component of the corrective process, the JHA and the resultant safe operating procedure are the first items that should be considered after all accidents or near-miss injuries. These can be developed by an accident investigation team designated to determine the cause of the accident and ways to correct it and prevent reoccurrence.

Resources

For additional information or assistance with JHAs, please visit www.osha.gov/Publications/osha3071.pdf. For additional questions about worker safety and health, please contact INSafe by email at insafe@dol.in.gov or by phone at (317) 232-2688.



Conducting job hazard analysis (JHAs) for all work tasks is a best practice in establishing safe work procedures, programs and policies. (IOSHA file photo.)

State and Local Government

State

and local government workers perform a wide variety of duties.

Employees who work in this sector include law enforcement personnel, career and volunteer firefighters, utility and healthcare workers, elected officials as well as educators and more. In some cases, public sector workers overlap some private industry occupations and duties (e.g. healthcare workers at state-run hospitals, construction activities for work related to the state's infrastructure, etc.). Indiana operates an OSHA-approved state plan program; therefore, the state's public sector workers are protected by the same occupational safety and health standards as their private industry counterparts.

The Indiana state and local government non-fatal worker injury and illness rate for 2012 was 5.1 per 100 workers—nine percent lower than the national average. The rate also represents a one-year increase of approximately nine percent from the 2011 rate of 4.6 per 100 workers.

More than 13,000 workers in the Indiana state and local government sector suffered a workplace injury or illness in 2012—approximately 15 percent of all occupational injuries in the state. Work groups in state and local governments with high worker injury and illness rates in 2012 included local **transit and ground passenger transportation** (12.0), state **healthcare and social assistance** (11.0) and local **public administration** (7.9).

Over 17 percent (2,340) of the 13,400 reported injuries in this sector required the worker to miss at least one day of work to recuperate. The average number of missed workdays in 2012 for state and local government employees was five days, two days less than the private industry's average of seven.

More than half of the sector's injuries and illnesses requiring days away from work were experienced by **men** (58%). The most frequent injuries suffered by workers in the state and local government sector were **sprains, strains and tears** (38%). The second most common nature of injury was **soreness and pain** (15%). **Fractures** were the third highest injury suffered by state and local government sector workers (9%).

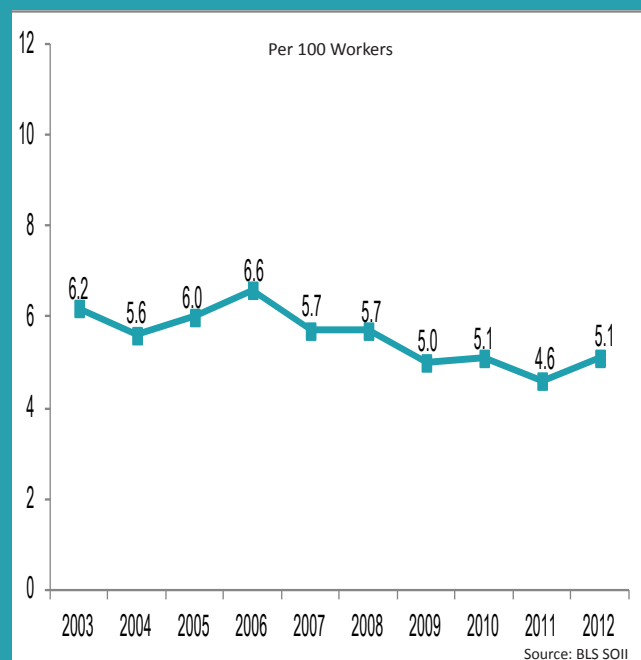
At 36 percent, **overexertion and body reaction** was the most common injury-causing event among state and local government workers. This was followed by **fall-related events—falls, slips and trips** (29%) and **falls on the same level** (19%).

In 2012 in Indiana, eight workers in the state and local government sector were killed while working. Seven of the eight occupational deaths were attributed to **transportation-related incidents**.

State and Local Government Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	338,400	Data not available	7.6	21,800	13
2001	346,400		6.4	17,900	16
2002	355,600		6.1	17,300	9
2003	357,500		6.2	18,900	7
2004	360,900		5.6	16,900	6
2005	362,200		6.0	17,500	9
2006	360,300		6.6	19,700	7
2007	361,200		5.7	17,100	9
2008	368,800	6.3	5.7	15,500	10
2009	371,100	5.8	5.0	15,300	6
2010	368,600	5.7	5.1	14,500	9
2011	359,400	5.7	4.6	13,500	9
2012	Unavailable	5.6	5.1	13,400	8

Indiana State and Local Government Injury and Illness Rate



Healthcare and Social Assistance

The Hoosier healthcare industry continues to be a thriving and robust industry—it is consistently one of the largest employment industries in Indiana. Healthcare also plays an important role in the Hoosier economic roadmap and will continue to do so well into the future.

In 2012, Indiana’s healthcare and social assistance non-fatal injury and illness rate was 5.3 per 100 workers—a 16 percent decline from the 2011 rate. While the healthcare and social assistance industry experienced a significant one-year decline, it tied with manufacturing for the second-highest worker injury and illness rate of all major Hoosier industries in 2012. Industries most often considered high hazard such as transportation and warehousing (4.5), construction (3.1) and mining (2.6) have all maintained lower worker injury and illness rates than the healthcare and social assistance industry. Workers in this industry are exposed to a number of occupational safety and health hazards, which include overexertion in lifting and lowering activities, needlesticks, bloodborne pathogens and other infectious diseases as well as workplace violence and assault. Injuries in the healthcare field are also more likely to have long-term, debilitating effects.

Sub-industries in the Hoosier healthcare and social assistance industry with high worker injury and illness rates included **nursing and residential care facilities**

(8.2), **hospitals** (6.2) and the **social assistance sector** (4.3). All three sub-industries experienced a decrease from their respective 2011 non-fatal occupational injury and illness rates. Hoosier healthcare and social assistance workers suffered 14,500 non-fatal injuries and illnesses in 2012—the fewest ever recorded for the industry. Almost 20 percent of these injuries and illnesses required the affected worker to miss at least one day of work to recover. On average, the more severely injured workers in the healthcare and social assistance industry spent five days away from work.

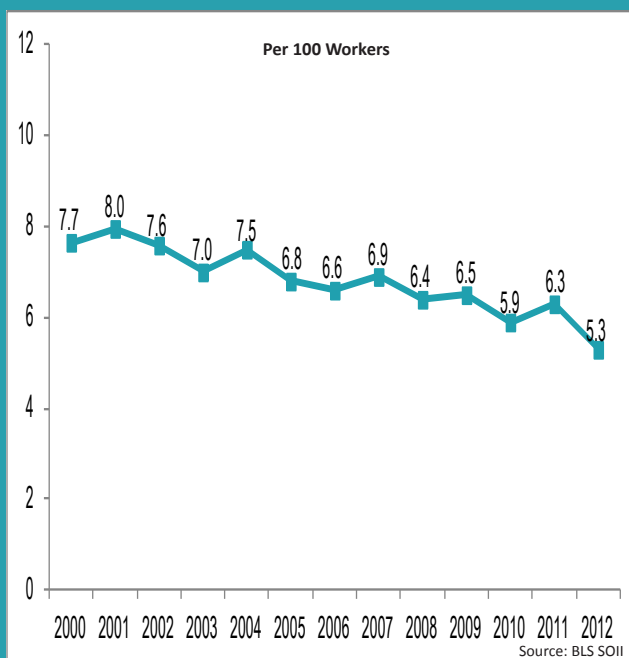
Sprains, strains and tears (55%); **soreness and pain** (13%); and **fractures** (8%) were the three most frequent types of injuries suffered by Hoosier healthcare workers in 2012. Injury-causing events were most often **overexertion and bodily reaction** (53%); **falls, slips and trips** (22%); and **overexertion in lifting and lowering activities** (21%). Nearly 45 percent of the time, other individuals were most often the source of non-fatal worker injuries. An overwhelming majority of injuries and illnesses in the healthcare and social assistance industry occurred among **women** (89%). Workers who were injured were most often between the **ages of 45 and 54** (28%).

While worker fatalities are rare in the Hoosier healthcare industry, they do occur. One Hoosier healthcare worker was fatally injured in 2012.

Healthcare and Social Assistance Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	313,200	7.1	7.7	17,500	-
2001	313,800	6.9	8.0	18,100	-
2002	328,200	7.0	7.6	17,300	-
2003	329,600	6.5	7.0	16,500	-
2004	303,200	6.2	7.5	18,600	3
2005	308,400	5.9	6.8	16,100	4
2006	316,000	5.8	6.6	16,500	-
2007	325,600	5.6	6.9	17,100	-
2008	332,600	5.4	6.4	16,000	5
2009	341,000	5.4	6.5	16,600	6
2010	348,100	5.2	5.9	16,200	4
2011	353,900	5.0	6.3	17,300	-
2012	Unavailable	4.8	5.3	14,500	1

Healthcare and Social Assistance Injury and Illness Rate



Retail Trade

Grocery and convenience stores, gas stations, new and used automobile dealerships and home supply centers are just a few of the types of establishments that make up the retail trade industry. Many Hoosiers are employed in the retail industry.

The Indiana non-fatal occupational injury and illness rate for the retail industry has experienced a steady decline since 2006. With a rate of 3.6 per 100 workers, the 2012 Indiana retail industry non-fatal worker injury and illness rate is the lowest it has ever been. The industry experienced a one-year three-percent decline in non-fatal worker injuries and illnesses in 2012. The national non-fatal occupational injury and illness rate for the retail industry in 2012 was 4.0 per 100 workers.

Indiana retail sub-industries with high rates of non-fatal worker injury and illness in 2012 included **building material and supplies** (5.8), **general merchandise stores** (5.4) and **new car dealers** (4.2). All of the above-mentioned sub-industry rates were higher than the retail industry average.

Workers in the retail trade industry are subjected to many occupational health and safety hazards, including contact with the public; working long or irregular hours; and ergonomic stressors from repetitive motions like lifting, bending and reaching. Exposure to worker injury and illness

increases during certain times of the year—for example, “Black Friday” and other large crowd-drawing sales events.

In 2012, approximately 23 percent (1,970) of the retail trade industry’s injuries and illnesses required one or more days away from work for the injured or ill worker to recuperate. On average, injured or ill workers missed five days of work. The most common injury suffered by workers in this industry resulting in lost work time was **sprains and strains** (40%). Other frequent injuries reported by workers in the retail trade industry included **cuts, lacerations and punctures** (13%) as well as **soreness and pain** (12%). Common sources of worker injury included **containers** (18%), **persons** (17%) and **parts and materials** (14%).

In 2012, most non-fatal worker injuries and illnesses occurred among **Caucasian** (55%) **men** (58%). The majority (25%) of these injuries occurred among workers **25-34 years of age**.

Between 2008 and 2012, the retail industry reported 44 workplace deaths. Seven worker fatalities occurred in 2012. In 2012, retail workers were killed while working for the following types of establishments: **automobile dealerships** (2), **hardware stores** (2), **convenience stores** (1), **vending machine operators** (1) and **miscellaneous store retailers** (1).

Retail Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	354,100	5.9	5.8	23,800	13
2001	342,200	5.7	6.8	26,300	12
2002	338,400	5.3	6.2	23,200	15
2003	333,300	5.3	5.5	14,100	10
2004	332,900	5.3	5.7	13,700	17
2005	332,100	5.0	5.1	13,000	13
2006	330,700	4.9	5.4	13,700	5
2007	330,900	4.8	5.1	12,500	4
2008	328,400	4.4	4.9	12,100	13
2009	316,000	4.2	4.3	10,200	9
2010	306,200	4.1	3.9	8,700	7
2011	307,200	3.9	3.7	8,500	8
2012	Unavailable	4.0	3.6	8,500	7

Indiana Retail Injury and Illness Rate



Arts, Entertainment and Recreation

Skiing

facilities; amusement and theme parks; and spectator sports such as auto racing, football, basketball and baseball are just a few of the sub-industries that make up the arts, entertainment and recreation sector. Arts, entertainment and recreation is actually a sub-industry that is a part of the much larger leisure and hospitality industry.

Occupational safety and health hazards in this sub-industry include exposure to loud noise, engine exhaust and other fumes and cleaning agents; falls; contact with objects and equipment; and workplace violence.

While the 2012 rate of non-fatal worker injuries and illnesses (5.2 per 100 workers) increased from the 2011 rate of 4.9, the arts, entertainment and recreation industry remained lower than the 2009 rate of 7.6. While data for Indiana sectors in this sub-industry are limited, the national sub-industry within the leisure and hospitality industry with the highest non-fatal occupational injury and illness rates was **skiing facilities** (10.2). **Amusement and theme parks** and **recreation and vacation camps, excluding campgrounds** (7.0) were tied for the second highest non-fatal injury and illness rates.

In 2012, nearly 14 percent (180) of the occupational injuries that occurred required the worker to miss one or more days away from work in the arts, entertainment and

recreation sub-industry. On average, injured or ill workers in the arts, entertainment and recreation sector spent five days away from work to recover from their respective injuries or illnesses in 2012—the same amount of time as the 2011 average.

Hoosier **women** (67%) suffered the majority of the non-fatal occupational-related injuries and illnesses that resulted in lost work time in 2012. In 2012, workers most often suffered injuries from **overexertion and body reaction** (33%); **contact with objects or equipment** (22%); **struck by object or equipment** (23%); and **falls, slips and trips** (22%). The most common nature of injury suffered by workers in this sub-industry in 2012 was **sprains, strains and tears** (28%). **Cuts, lacerations and punctures** (22%) were second, followed by **soreness, pain** (17%).

In 2012, five workers in the arts, entertainment and recreation sub-industry were killed while working. Three of the five fatalities occurred while the worker was participating in a competition-related event. Incidents that result in a fatality while an individual is participating in a competition are considered work-related for the Bureau of Labor Statistics' Census of Fatal Occupational Injuries report.

Arts, Entertainment and Recreation Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	The federal Bureau of Labor Statistics redefined the industry characteristics in 2003. This precludes trending data before that time.				
2001					
2002					
2003	43,200	5.9	4.4	1,300	-
2004	44,300	5.9	5.0	1,300	4
2005	43,800	6.1	4.7	1,400	-
2006	43,300	5.3	4.2	1,200	-
2007	43,700	5.3	7.6	2,400	-
2008	43,300	5.1	6.3	1,800	6
2009	44,800	4.9	7.2	1,800	3
2010	42,300	4.8	7.6	2,000	4
2011	41,400	4.5	4.9	1,200	5
2012	Unavailable	4.6	5.2	1,300	5

Indiana Arts, Entertainment and Recreation Injury and Illness Rate



Accommodation and Food Services

Hoosier residents and the needs of tourists alike are fulfilled by workers in the state's accommodation and food services industry. These industry workers provide vital services to patrons that include lodging and meal preparation. The accommodation and food services sector is actually a sub-industry of the much larger **leisure and hospitality** industry.

This industry includes hotels and motels, restaurants and recreation and vacation camps, along with many other hospitality-based services. Accommodation and food services industry workers are subject to a variety of occupational safety and health hazards that include working long or irregular and late-night/early morning hours, working with the public and exposure to chemicals such as cleaning supplies.

The non-fatal occupational injury and illness rate for the Hoosier accommodation and food service industry in 2012 was 3.8 per 100 workers. This represents a one-year decrease of nearly 16 percent in non-fatal worker injuries and illnesses. The national non-fatal injury and illness rate for this industry is also 3.8 per 100 workers.

A little more than 20 percent of the 5,400 work-related injuries and illnesses in the accommodation and food services sub-industry required the affected worker to miss one or more days away from work in 2012. The average time

an injured or ill worker spent away from work in 2012 was five days—two days more than the average reported for this sub-industry in 2011.

The most common nature of injury in 2012 resulting in missed work days was **sprains, strains and tears** (26%). This was consistent with the most common nature of injury for industry workers in 2011. The next most common nature of injury in 2012 was **cuts, lacerations and punctures** (20%), followed by **heat (thermal) burns** (15%). Workers in this industry were most often afflicted by injuries resulting from **contact with objects or equipment** (33%); followed by **falls, slips and trips** (24%); and **exposure to harmful substances and overexertion** (18%).

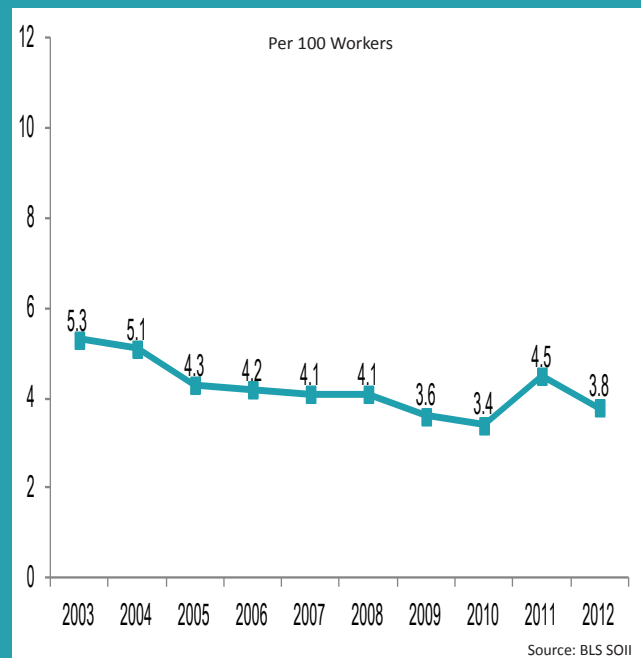
Sections of the accommodation and food services industry that reported high non-fatal injury and illness rates at the national level in 2012 included **RV parks and recreational camps** (6.4), **special food services** (6.0) and **casino hotels** (5.3).

One worker fatality was reported in 2012 in the Indiana accommodation and food services industry. The fatally injured worker was performing maintenance in a hotel attic when he fell from the rafters.

Accommodation and Food Services Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	The federal Bureau of Labor Statistics redefined the industry characteristics in 2003. This precludes trending data before that time.				
2001					
2002					
2003	228,700	5.0	5.3	7,400	5
2004	230,000	4.5	5.1	7,400	-
2005	232,900	4.5	4.3	6,100	5
2006	236,100	4.5	4.2	6,300	3
2007	242,100	4.4	4.1	6,100	3
2008	244,300	4.1	4.1	5,800	3
2009	240,200	3.7	3.6	5,100	4
2010	233,700	3.7	3.4	4,800	-
2011	236,500	3.9	4.5	6,800	3
2012	Unavailable	3.8	3.8	5,400	1

Indiana Accommodation and Food Services Injury and Illness Rate



Mining

The Hoosier mining industry experienced the greatest one-year decline of any other major industry with respect to non-fatal occupational injury and illness rates in 2012. The Indiana mining worker injury and illness rate was 2.6, which represents a one-year decline of 45 percent. It is also the lowest non-fatal occupational injury and illness rate on record for the Hoosier mining industry.

This rate includes all mining activities in Indiana—surface and underground. Indiana’s mining industry injury and illness rate is slightly above the national average of 2.1 per 100 workers.

The mining industry reported 200 occupational injuries and illnesses in 2012. Half of these injuries required the affected worker to miss at least 1 day away from work to recuperate. The average number of days away from work for an injured or ill worker in this industry in 2012 was 26—a significant decrease from the 2011 number of 55. Overwhelmingly, the majority of injured workers in this industry suffered from **sprains and strains** (40%). The next most common injury suffered by workers in the mining industry in 2012 was **fractures** (20%).

All occupational injuries and illnesses requiring days away from work in 2012 were experienced by **men** (100%). The most common age of an injured worker in the mining industry was **25-44** (60%). The most frequent injury-causing

events in 2012 were a tie between **contact with objects** and **overexertion and bodily reaction** (40%). **Falls, slips and trips** (20%) was the next most common injury-causing event.

Currently there are eight underground coal mines located in southwest Indiana. Mine management, staff and employees of these sites work very closely with the **Indiana Bureau of Mines and Mine Safety**, located at **Vincennes University** in Vincennes, Indiana.

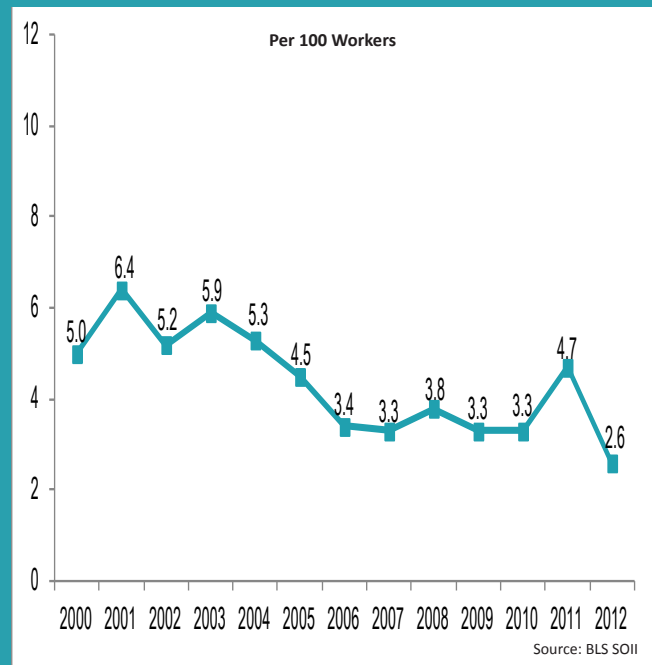
The Indiana Bureau of Mines is required by law to conduct an inspection of each underground mine at least once per quarter. Inspections are conducted by either the assistant commissioner of the Bureau of Mines or the chief mine inspector, who are both certified mine foremen. Violations found are required to be abated. In addition to the Bureau of Mines inspection, federal inspectors of the Mine Safety and Health Association (MSHA) conduct much more frequent enforcement inspections of each Indiana underground coal mine.

While the data and information above reflects the mining industry as a whole, the 2012 coal mining injury and illness rate in Indiana was 2.7 per 100 workers. This reflects a 12-percent decrease from the 2011 rate of 3.1. Indiana underground coal mines remained fatality-free again in 2012.

Mining Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	7,100	4.7	5.0	300	-
2001	6,900	4.0	6.4	500	-
2002	6,800	4.0	5.2	400	-
2003	6,700	3.3	5.9	400	6 between 2003 and 2008
2004	6,700	3.8	5.3	400	
2005	6,500	3.6	4.5	300	
2006	6,500	3.5	3.4	200	
2007	6,600	3.1	3.3	200	
2008	6,400	2.9	3.8	300	
2009	6,400	2.4	3.3	200	-
2010	6,400	2.3	3.3	200	-
2011	6,400	2.2	4.7	300	-
2012	Unavailable	2.1	2.6	200	-

Indiana Mining Injury and Illness Rate



Construction

workers perform job duties and tasks that expose them to serious occupational safety and health hazards. Industry hazards include falling from structures, equipment and ladders; working with unguarded machinery and tools; being struck by heavy equipment or vehicles; electrocution; as well as exposure to many dangerous chemicals.

The 2012 non-fatal occupational injury and illness rate for the construction industry was 3.1 per 100 workers and is the lowest rate on record for the Hoosier industry. It also represents a one-year decline of more than 20 percent. Between 2011 and 2012, the national non-fatal occupational injury and illness rate for construction increased to a four-year high of 4.5 per 100 workers.

The 2012 construction industry rate was lower than many other major industries in the state, including **agriculture (7.2); healthcare (5.3); manufacturing (5.3); arts, entertainment and recreation (5.2); state and local government (5.1); transportation and warehousing (4.5) and accommodation and food services (3.8).**

Sub-industries in construction with high non-fatal worker injury and illness rates in 2012 included **poured foundation and structure contractors (10.4); roofing contractors (9.8); and foundation, structure and building (6.0).**

Some construction industry workers experience injuries that are severe enough to require them to miss work to recuperate. In 2012, more than 35% of the non-fatal injuries in the Hoosier construction industry required the worker to spend at least one day away from work. On average, construction workers who were more seriously injured spent **5 days away from work** in 2012—significantly less than the 2011 average of 22 days. Most often, these injuries were experienced by **Caucasian (60%) men (99%) between the ages of 45 and 54 (43%).**

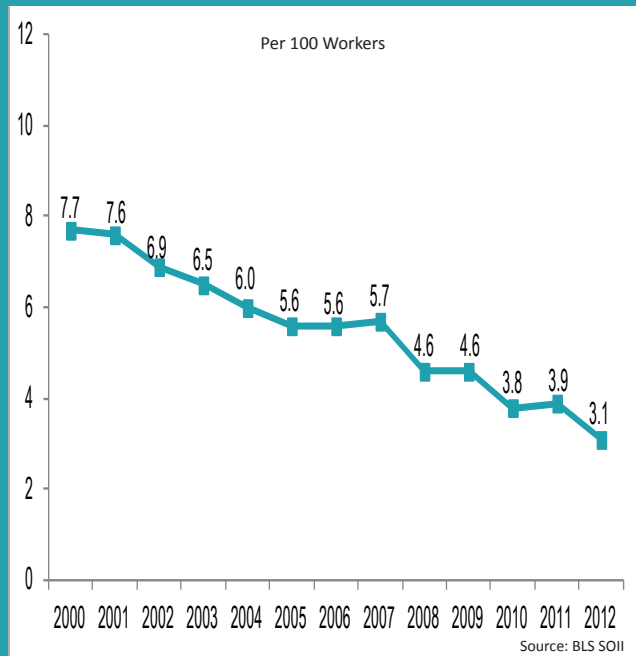
The most common injury type these workers suffered from was **sprains, strains and tears (25%),** while **fractures (18%)** were the second most common nature of injury, followed by **cuts, lacerations and punctures (16%).**

Twenty Hoosier construction industry workers suffered a fatal occupational injury in 2012. This preliminary 2012 count was 1 more than the 2011 final count of 19. Worker fatalities occurred in the **specialty trade sector (8), heavy and civil engineering construction (7) and construction of buildings (5).** Indiana’s construction industry was tied with the **transportation and warehousing** industry with the highest number of occupational deaths in 2012.

Construction Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	144,100	8.3	7.7	10,700	32
2001	144,600	7.9	7.6	10,200	22
2002	141,400	7.1	6.9	9,000	25
2003	139,300	6.8	6.5	8,500	15
2004	143,300	6.4	6.0	7,900	21
2005	144,600	6.3	5.6	7,500	27
2006	146,600	5.9	5.6	7,600	27
2007	153,100	5.4	5.7	7,700	21
2008	151,600	4.7	4.6	6,300	20
2009	135,300	4.3	4.6	5,600	17
2010	117,600	4.0	3.8	4,000	16
2011	119,100	3.9	3.9	4,300	19
2012	Unavailable	3.7	3.1	3,600	20

Indiana Construction Injury and Illness Rate



Working Safely with Nail Guns

Nail guns are powerful and easy to operate and significantly boost productivity for any task that would normally be relegated to a hammer. While these tools increase efficiency, studies indicate they are also responsible for an estimated 37,000 emergency room visits each year.

How serious were these injuries? A nail exits the nail gun at upwards of 100 miles per hour and can easily travel through a hand, break bones, tear tendons and puncture organs. Severe nail gun injuries to the head, neck, eye, internal organs and spinal cord have even led to blindness, life-long incapacitation and death.

Nail gun injuries are probably more likely than you would think. A study of apprentice carpenters found that 40 percent were injured once using a nail gun during their four years of training, 20 percent were injured twice and 10 percent were injured three or more times!

Most commonly, injuries were reported to the hand and finger—and a quarter of these types of injuries involved serious structural damage to tendons, joints, nerves and bones. After hands, the next most often injured areas are the leg, knee, thigh, foot and toes.

While these tools boost worker productivity immensely, nail guns can be dangerous. Workers must be prepared when they're using these types of tools.

First, workers have to know that there are basically two safety features on a nail gun—the safety tip and the trigger. The safety tip is at the end of the nail gun's barrel. This piece must be pushed in against something in order for the gun to fire. Secondly, the trigger must be depressed in order for the gun to fire. Trigger mechanisms can vary based on the order in which the controls are activated and whether the trigger can be held in the squeezed position to discharge multiple nails or if the trigger must be released and then squeezed again for each individual nail. Combining these variations gives four kinds of triggers.

Full-sequential Trigger—The Safest Option!

This is the safest type of nail gun trigger. This trigger will fire a nail only when the controls are activated in a certain order. First, the safety contact tip must be pushed into the work piece and then the user must squeeze the trigger to discharge a nail. Both the safety contact tip and the trigger must be released and activated again to fire a second nail so nails cannot be bump fired.

Contact Trigger

This setup fires a nail when the safety contact and trigger are activated in any order. You can push the safety contact tip first and then squeeze the trigger, or you can squeeze the trigger first and then push the safety contact tip. If the trigger is kept squeezed, a nail will be driven each time the safety contact is pushed in so nails can be bump fired.



Bump firing is using a nail gun with a contact trigger held squeezed and bumping or bouncing the tool along the work piece to fire nails. (Photo illustration from federal OSHA publication.)

Single-sequential Trigger

The single-sequential trigger will fire a nail only when the controls are activated in a certain order; however, it requires the two-step safety trigger and tip only once. First, the safety contact tip must be pushed into the work piece. Then, the user must squeeze the trigger to discharge a nail. To fire a second nail, only the trigger must be released and pressed again. The safety contact tip can stay pressed into the work piece. Nails cannot be bump fired.

Single-actuation Trigger

Like the contact trigger, this trigger will fire a single nail when the safety contact and trigger are activated in any order. A second nail can be fired by releasing the trigger, moving the tool and squeezing the trigger again without releasing the safety contact tip.

Nail Gun Incidents

Double fire: While using a contact-style trigger, multiple nails can be released if the user does not release the trigger quickly enough. **Accidental discharge:** Can occur when knocking the safety tip against an object or a person while carrying the nail gun with the trigger depressed. **Nail penetration:** A nail can go through the wood being worked on. **Nail bounces:** A nail can bounce off something hard like a piece of unseen metal embedded in the wood or a knot. **Intentional by-passes:** Safety mechanisms can be disabled by the worker.

Working Safely

Always use full-sequential triggers, get trained in the proper way to use the nail gun safely, wear proper PPE, use a hammer in situations where a nail gun is too awkward and provide immediate medical attention to anyone who is injured by a nail gun. Don't try to "tough it out." It's not worth it.

More information about nail gun safety is available at www.osha.gov/doc/topics/nailgun/index.html. The website provides guides, fact sheets and other useful safety resources.

Agriculture, Forestry and Fishing

From harvesting crops and raising livestock to operating combines, tractors and other large equipment, agriculture workers are exposed to a variety of risks throughout the season. Farming is an occupation that is always strenuous and is very dangerous work.

The 2012 non-fatal occupational injury and illness rate for the Hoosier agriculture industry was 7.2 per 100 workers—the highest rate of worker injury and illness of any Indiana industry. For comparison, the Indiana agriculture industry’s occupational injury and illness rate is nearly 64 percent higher than the Hoosier **coal mining industry** (2.6 per 100 workers). It is also nearly 57 percent higher than the Hoosier construction industry (3.1 per 100 workers). The national average for the agriculture industry remained static at 5.5 per 100 workers in 2012. While Indiana’s agriculture industry non-fatal occupational injury and illness rate remained above the national average, it marked a one-year improvement of 24 percent in comparison of the 2011 rate of 9.5 per 100 workers.

In 2012, 600 agriculture workers reported a non-fatal occupational injury or illness. More than 26 percent of these injuries and illnesses required the injured worker to miss at least one day away from work to recuperate from his or her injuries. The average number of lost work days for a worker in this industry in 2012 was 3. This represents

a significant decrease from the 2011 average of 24 days away from work. Injuries requiring workers to miss 1 or more days away from work most often were attributed to **sprains, strains and tears** (31%) and **fractures** (25%). Nearly all work-related injuries and illnesses that required days away from work in 2012 were suffered by **men** (150 of 160) and most often by workers who were **25-34 years of age** (38%).

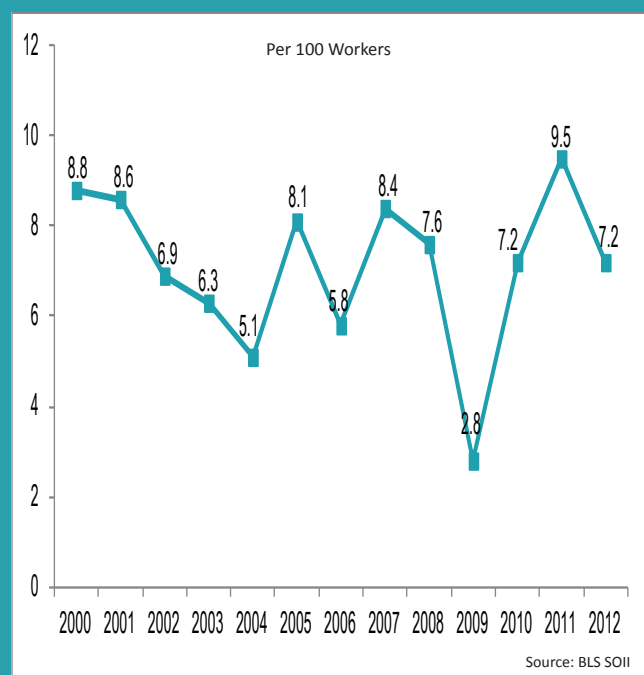
Common events resulting in injuries requiring days away from work for affected workers in 2012 included **contact with object or equipment** (50%); **falls, slips and trips** (31%); and **falls on the same level, struck by/against object** (19%).

While the agriculture industry is one of Indiana’s smaller employment sectors, the industry was among the top three industries for workplace fatalities in 2012. In a five-year span between 2008 and 2012, 103 workers suffered a fatal injury while working in the Hoosier agriculture industry. In 2012 alone, the industry experienced 15 worker fatalities. Twelve (80%) of the 15 industry worker deaths in 2012 occurred in the **crop production segment** of the agriculture industry. Seven of these 12 were a result of **transportation-related incidents**. These incidents included collisions, overturned equipment and pedestrian workers who were fatally struck by vehicles and other equipment.

Agriculture, Forestry and Fishing Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	11,500	7.1	8.8	Data not available	29
2001	11,500	7.3	8.6		27
2002	11,400	6.4	6.9		24
2003	11,200	6.2	6.3	500	22
2004	9,000	6.4	5.1	400	30
2005	8,800	6.1	8.1	600	26
2006	8,800	6.0	5.8	500	12
2007	9,200	5.4	8.4	700	22
2008	9,300	5.3	7.6	600	25
2009	9,300	5.3	2.8	300	23
2010	9,300	4.8	7.2	600	24
2011	9,700	5.5	9.5	800	16
2012	Unavailable	5.5	7.2	600	15

Indiana Agriculture, Forestry and Fishing Injury and Illness Rate

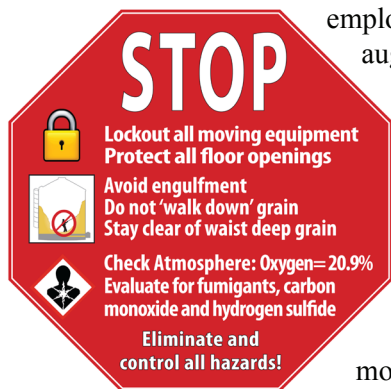


Indiana

agriculture workers have the single-highest non-fatal injury and illness rate of any major Hoosier industry. According to the 2012 Bureau of Labor Statistics' (BLS) Census of Fatal Occupational Injuries (CFOI) report, the agriculture industry also is among the top three industries with worker fatalities in Indiana.

Among the dangerous activities that agriculture workers contend with is working with grain products in storage. Across the country, there are deaths every year as workers, some as young as 14 years old, become buried and/or suffocate in storage bins. This concern is not going away.

Hazards Associated with Grain Bins



Accidents can happen when employees enter a bin when the auger is running. As the auger unloads the bin, grain flows to the outlet and is released, causing the grain above it to flow in and replace the released grain. Standing in moving grain forces the grain to flow to the outlet more quickly, especially when the auger is running.

Moving grain is like quicksand and can bury you in just a few seconds. Never enter a grain bin when the auger is running.

When workers stand on or below a grain bridge, it can cave in and bury the employee in an empty space. "Bridging" happens when grain clumps together because of moisture or mold and a space forms under the bridge as grain is released. Bridged grain resists the downward pull that normally moves loose grain to the bin outlet, but it is rarely rigid enough to support a person.

Even in instances when grain may appear to be safe, disturbing it can cause it to cave in. If you're knocked off balance by the weight of the grain, you can be buried. Instead of trying to loosen grain from inside the bin, try bumping it with a pole through an access cover from the outside. Workers who enter a bin from a level at or above stored grain or who walk or stand on stored grain should wear a body harness with an attached lifeline that prevents the person from sinking

farther than waist-deep in grain. Only rescue equipment that is specifically suited for rescue from a grain bin should be permitted onsite.

Atmospheric conditions in bins can be dangerous. There's always a potential for oxygen levels to be at unsafe levels in the bin. There's also a potential for hazardous gases to be present. If you must enter a grain bin, be sure to test the air in the bin for oxygen content and hazardous gases before entry.

An observer must be outside the bin and equipped to provide assistance and perform a rescue in the event of a grain bin emergency. Observers must maintain visual, voice or signal-line communication with workers who enter the bin.

Accidents in grain bins often result in multiple deaths because other workers attempt to rescue their co-workers and become trapped or overcome as well. Pulling out a worker who is trapped in a grain bin requires a great deal of force—much more than is needed to rescue someone from under water. Water has buoyancy; grain does not, which makes it difficult to remove a buried worker. Human strength is usually not enough to rescue someone buried in grain. Experts state that rescuing a 150-pound person who is completely buried requires approximately 1,500 pounds of force.

Resources

Learn more about grain bin safety by visiting federal OSHA's grain handling webpage at www.osha.gov/SLTC/grainhandling/index.html. For specific questions about workplace safety and health, please email INSafe at insafe@dol.in.gov or call (317) 232-2688 to speak with an occupational safety and health consultant.



A poster placed on the outside of a Hoosier grain bin depicts the safety hazards associated with entry. Of all the safety concerns, suffocation is the leading cause of worker death in grain storage bins. (Photo taken from IOSHA inspection case file.)

Transportation and Warehousing

Moving passengers and cargo, providing support activities and storing goods are some of the duties associated with the transportation and warehousing industry. While the transportation and warehousing industry makes up a small percentage of the total Hoosier workforce, it tied Indiana's **construction industry** for the highest number of workplace deaths (20) in 2012.

Transportation and warehousing industry workers experienced about 5,000 occupational injuries and illnesses in 2012. The non-fatal occupational injury and illness rate in the transportation and warehousing industry was 4.5 per 100 workers in 2012—a little more than a two-percent decrease from the 2011 rate. The 2012 national average for the industry also experienced a two-percent decrease in non-fatal worker injuries and illnesses during the same one-year period.

More than 40 percent of the 5,000 non-fatal occupational injuries and illnesses reported in 2012 in the Hoosier transportation and warehousing industry required the injured worker to miss 1 or more days of work to recover. The average amount of time an injured transportation and warehousing industry worker spent away from work in 2012 was 14 days—1 day more than the 2011 average and second only to the Hoosier **mining industry** (26 days).

Injured worker characteristics in 2012 indicated **Caucasian** (48%) **men** (76%) **aged 45-54** (29%) experienced the majority of the non-fatal workplace injuries and illnesses in this industry. **Overexertion and bodily reaction** (34%) was the predominant non-fatal injury-causing event experienced by workers in the transportation and warehousing industry. Other leading injury-causing events were **falls, slips and trips** (33%) and **contact with objects and equipment** (20%).

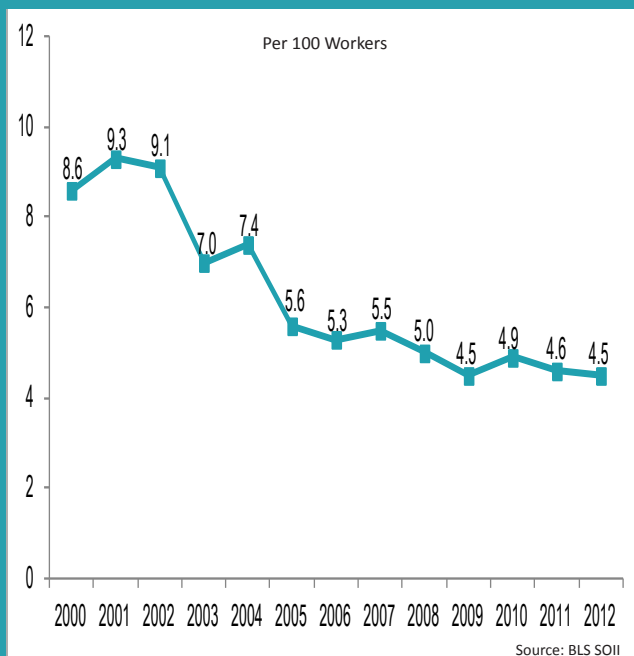
The most frequent injury suffered by transportation and warehousing workers in 2012 was **sprains and strains** (40%). Other frequent natures of injury experienced by workers included **soreness and pain** (18%) as well as **bruises and contusions** (10%). Sub-industries contained within the Hoosier transportation and warehousing industry with high worker injury and illness rates in 2012 included **couriers and messengers** (6.8), **truck transportation** (5.0) and **warehousing and storage** (4.9).

On average, 19 workers in the Hoosier transportation and warehousing industry were killed each year between 2008 and 2012. Twenty industry workers suffered a fatality in 2012. Eighty-five percent of the 20 workers who suffered a fatal workplace injury in 2012 were involved in a **transportation-related incident**.

Transportation and Warehousing Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	110,400	7.9	8.6	4,800	26
2001	105,600	8.4	9.3	6,000	23
2002	104,700	7.0	9.1	5,700	27
2003	107,700	7.8	7.0	6,700	17
2004	101,800	7.3	7.4	7,000	27
2005	105,200	7.0	5.6	6,300	28
2006	108,800	6.5	5.3	5,900	34
2007	110,900	6.4	5.5	6,200	31
2008	108,800	5.7	5.0	5,800	16
2009	107,200	5.2	4.5	5,200	18
2010	103,000	5.2	4.9	5,100	16
2011	106,300	5.0	4.6	4,900	25
2012	Unavailable	4.9	4.5	5,000	20

Indiana Transportation and Warehousing Injury and Illness Rate



Source: BLS SOI

Professional and Business Services

Professional

and business services is a very broad and diverse industry. Occupations found within this industry include information technology specialists, attorneys, photographers, veterinarians as well as many others. Workers in this industry are engaged in providing care and treatment for sick and injured animals, legal consultation and waste collection services or other service-based tasks.

After maintaining a steady non-fatal occupational injury and illness rate of 1.8 per 100 workers in both 2010 and 2011, the professional and business services industry experienced a single-year decline of 11 percent in 2012. The 2012 non-fatal occupational injury and illness rate for the professional and business services industry was 1.6 per 100 workers. The 2012 rate was tied with the industry's 2009 rate for the lowest on record. In 2003, the Bureau of Labor Statistics (BLS) redefined the industry characteristics for the professional and business services industry; therefore, trending data is not available prior to that time.

Workers in Indiana's professional and business services industry reported 4,200 non-fatal work-related injuries and illnesses in 2012. Thirty percent (1,260) of these cases required the injured or ill worker to miss at least one day of work to recover. While the rate of injuries was down, lost

work day cases for 2012 were up 48 percent from the 2011 report. In 2012, the average amount lost work time due to an occupational injury or illness for a worker in this industry was five days.

The type of injuries and illnesses resulting in lost workdays were most often **sprains, strains and tears** (26%); followed by **fractures** (13%); and **soreness and pain** (10%). The leading injury events were **overexertion and bodily reaction** (33%); **contact with object or equipment** (23%); and **falls, slips and trips** (20%).

In 2012, **men** (62%) most often suffered a non-fatal workplace injury or illness that resulted in lost work time in this industry. Injured or ill workers were most often between the **ages of 45 and 54**.

National sub-industries within the business and professional services industry that experienced high non-fatal occupational injury and illness rates included **veterinary services** (9.6), **material recovery facilities** (8.8) and **solid waste collection** (6.7). Due to data limitations, Indiana-specific data for these sub-industries was unavailable.

Fatalities in Indiana's professional and business services industry doubled from five in 2011 to ten incidents in 2012. In 2012, the most frequent fatal event or exposure in this industry was attributed to **transportation-related incidents** (4).

Professional and Business Services Injury and Illness Rates and Numbers

Year	Employment	U.S.	IN	Number of Injuries and Illnesses	Number of Fatalities
2000	The federal Bureau of Labor Statistics redefined the industry characteristics in 2003. This precludes trending data before that time.				
2001					
2002					
2003	258,700	2.5	2.9	4,600	11
2004	266,300	2.4	3.0	4,300	7
2005	272,400	2.4	2.7	4,400	12
2006	279,300	2.1	2.7	4,900	13
2007	288,700	2.1	2.5	6,100	11
2008	292,400	1.9	2.4	4,700	8
2009	272,500	1.8	1.6	2,900	6
2010	268,200	1.7	1.8	4,000	4
2011	285,500	1.7	1.8	3,400	5
2012	Unavailable	1.6	1.6	4,200	10

Indiana Professional and Business Services Injury and Illness Rate



Ergonomics for Healthcare Facilities

Rebecca (McPheeters) Ellson, INSafe Health Consultant, provides insight in implementing ergonomic programs for healthcare facilities. Ellson is a Certified Occupational Health Nurse-Specialist/Case Manager (COHN-S/CM).

More

than 50 percent of the work-related injuries suffered by Hoosier healthcare workers that required the injured worker to miss at least one day of work in 2012 were attributed to an **overexertion or bodily reaction-related event** (53%). According to the 2012 Bureau of Labor Statistics' (BLS) Survey of Occupational Injuries and Illnesses (SOII) report, injured Hoosier healthcare workers missed an average of five days of work to recuperate from their injuries. That's a big concern as these workers are highly skilled and trained caregivers.



Rebecca Ellson
INSafe Health Consultant

The purpose of this article is to identify opportunities for healthcare worker safety and health improvements. The article's focus is on musculoskeletal injuries and the critical steps necessary to successfully implement an ergonomics program to decrease the healthcare worker's risk of suffering musculoskeletal injuries.

Introduction

Musculoskeletal disorders (MSDs) are the most frequent injuries experienced by healthcare workers. These injuries are generally caused by improper patient handling, lifting and other repetitive tasks—tasks that warrant looking further into. MSDs can be debilitating, changing the injured worker's life forever. Not only do injured workers experience pain and suffering, but sometimes they cannot return to work, thus ending the career of a well-trained and highly skilled caregiver.

Ergonomic Programs for Healthcare Facilities

In my experience when working with healthcare facilities in reducing musculoskeletal injuries, one of the most successful strategies was to implement an ergonomic program including ergonomic committees and training employees as ergonomic specialists. The term *ergonomics* means fitting the job to the worker.

Senior-level management commitment and buy-in are essential. This is translated into the establishment of priorities for prevention through the development and adoption of safety policies, procedures and guidelines that focus on the control and prevention of musculoskeletal injuries.

Implementation of an ergonomic program includes

analyzing all patient or resident handling job tasks. These tasks include manual lifting, lateral transfers, ambulating, repositioning, transporting and assisting the patient with daily living activities. Observing these tasks is a critical step in this process.

Successful ergonomic programs will focus on preventing incidents and creating a workplace that is safe and healthful for the employees. In turn, this focus will also maximize both the safety and comfort of the healthcare patient or resident.

A Likely Starting Point

The first step in the development of an ergonomic program (as well as any other worker safety and health program) is creating a strong, well-defined ergonomic policy. This policy should clearly communicate the responsibilities for implementing and managing the program to senior-level managers, mid-level supervisors and front-line employees. A significant part of the programs will include designating a team leader and the identification of team members for the role of ergonomic specialists. It is critical to require that all "near misses" and injuries be investigated and root causes identified.

It is also important for management to take an active role in providing employees with the authority, resources, information and training to meet their responsibilities in correcting the root causes of injuries and support their efforts for injury prevention.

Developing a Written Ergonomic Program

A written occupational safety and health program starts with a well-defined purpose, program goals, management leadership roles and employee involvement. Other elements of the program will include employer responsibilities, training, surveillance, evaluation and management of musculoskeletal injuries, job analysis and design and intervention approaches with established timelines or due dates.

Training

Employees and managers need training to recognize potential ergonomic issues, musculoskeletal injury signs and symptoms and an understanding of techniques to decrease the risk for injuries. Early identification of these types of injuries is critical.

It is imperative that employees understand the importance of early reporting as well as their role in the ergonomics program. Specialized training and "train-the-trainer" training can be provided for designated ergonomic



specialists. Successful training will include job task analysis, evaluation of job practices and safer approaches to doing the job. Ergonomic specialists must also provide ongoing methods for keeping employees informed and trained on new job processes and equipment and remind employees of the importance of working safer.

Responsibilities of an Ergonomic Team

The focus of the committee is to identify the root cause of both “near misses” and injuries as well as determine methods for preventing future injuries. It is highly recommended that a complete walk-through worksite assessment be conducted prior to the team meeting. In order to be objective and identify potential problems, it is recommended that each team member complete the walk-through assessments in areas they do not normally work. As a part of the assessment phase, the committee should discuss hazards and recommend changes to eliminate or reduce each hazard. This assessment also includes evaluating current policies, procedures, equipment and employee behaviors.

As mentioned above, employee involvement is vital to the success of an occupational safety and health program. Employee involvement can take on many forms, including identification of workplace risk factors. Employees can serve as a tremendous asset for brainstorming solutions and alternatives for getting the work done more safely.

Ultimately, employees need to understand the importance of becoming “champions” for ergonomic changes. It must also be stressed that ergonomic programs have the potential of changing the culture of healthcare organizations as employees begin to use ergonomic principles to improve

their jobs and the workplace. Participatory interventions incorporate management’s commitment to reducing injuries along with workers who are involved in developing solutions. The results can be positive and effective changes can occur.

Worker Safety and Health Compliance

While there is not a national, formal federal standard for safe patient handling, some states have enacted legislation or adopted regulations. In the absence of state-specific regulations, rules or laws, the federal Occupational Safety and Health Administration (OSHA) addresses ergonomic concerns, including safe patient handling, through the general duty clause. OSHA’s general duty clause requires every employer to provide a safe, healthy and hazard-free work environment.

Resources

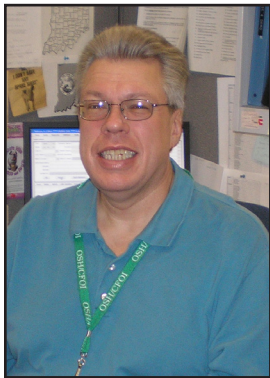
Need help getting started? Be sure to visit the National Institute for Occupational Safety and Health’s (NIOSH) healthcare worker safety and health webpage at www.cdc.gov/niosh/topics/healthcare/#e. In addition to ergonomic-related resources, the webpage provides information and guides on other healthcare worker safety and health topics including workplace violence; needlestick injury prevention; and slip, trip and fall hazards.

For more questions about healthcare worker safety and health, please email INSafe at insafe@dol.in.gov. To speak with an INSafe safety and health consultant, please call (317) 232-2688.

The Long Hot Summer of 2012

Joseph P. Black, Bureau of Labor Statistics Coordinator with the Indiana Department of Labor's Quality, Metrics and Statistics Division, provides a retrospect on the extreme heat and high humidity of 2012.

Indiana experienced the second warmest year on record in 2012,



Joseph P. Black
BLS Coordinator

according to the National Climatic Data Center (NCDC) at the National Oceanic and Atmospheric Administration (NOAA). It was also one of driest years on record for the state.

In Indianapolis, 38 of the 43 days between June 27 and August 8, 2012, had temperature readings of 90°F or higher. For 9 of those days, the temperature was at or above 100°F. These extreme heat and humidity conditions presented some challenges for Hoosier employers and employees.

Workplace Illnesses and Fatalities Related to Heat

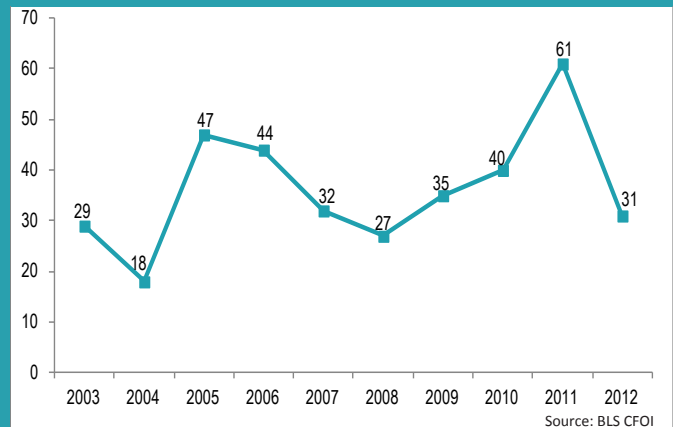
Nationwide between 2003 and 2012, 364 worker fatalities were attributed to **exposure to environmental heat**, according to the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI). While 2012 was one of the warmest years on record, the number of worker fatalities from exposure to environmental heat decreased by almost 50 percent from the number of deaths reported in 2011.

Although there has been a welcome decrease in the number of heat-related deaths, heat-related illnesses remain a concern. According to the BLS Survey of Occupational Injuries and Illnesses (SOII), the national non-fatal occupational illness rate for exposure to environmental heat in 2012 was 1.0 per 10,000 workers—double the 2011 rate.

Workers exposed to hot and humid indoor or outdoor environments are at risk for suffering heat-related illnesses. These may include rashes, exhaustion, dehydration and, most severely, potentially fatal heat-strokes. Individuals engaged in heavy work tasks that demand physical exertion or workers who wear bulky or non-breathable personal protective equipment (PPE) are particularly at risk. Workers who have not built up a tolerance to hot conditions or individuals with certain health issues such as high blood pressure are at an even greater risk.

Workers must be trained on the dangers of heat and how to recognize the symptoms of heat-related illnesses. New workers and those who are returning to work from an extended absence are especially vulnerable to suffering a

U.S. Environmental Heat-Related Occupational Fatalities



heat-related illness. Workers must be acclimatized to hot and humid conditions by gradually increasing their workload or allowing more frequent breaks to help build their tolerance.

When the body is unable to get rid of the excess heat, it will store it. As the body stores heat, an individual's core temperature rises. This causes the heart rate to increase in an attempt to circulate more blood to the skin so excess heat can radiate away. Eventually, the individual will begin to lose concentration and experience difficulty focusing and may become irritable or feel ill. The person will lose the ability to sweat, which further increases the body's temperature. If not cooled down, the worker may faint or suffer a heat-stroke, which can lead to death. The situation becomes a medical emergency if a worker shows symptoms of heat stress like confusion, lack of sweat or fainting. If this occurs, call 911 and, while waiting for help, move the worker to a shaded or cooler area, loosen his or her clothing, provide fluids as soon as possible and stay with the worker until help arrives.

Resources

Heat-related illnesses can be prevented by reducing exposure. This may include engineering controls, such as air conditioning and ventilation that make the work environment cooler, and work practices, such as work/rest cycles, drinking water often and providing an opportunity for workers to build up a level of tolerance to working in the heat. Employers should include prevention steps in worksite plans. Visit www.osha.gov/SLTC/heatstress/index.html for more on the prevention of heat-related illnesses.

It Happened Here: Indiana Workplace Fatality Cases

It Happened Here: Marion County, Indiana

Background: Missing or poorly executed lockout/tag-out procedures and poor handling of a permit-required confined space put employees performing duties in these spaces at risk of suffering a serious injury or, in some cases, death.

Fatal Event: On February 6, 2013, a technician entered an industrial trash compactor to perform maintenance. When the work was signaled as complete, lockout/tag-out equipment was removed and the compactor was tested. However, the technician had not yet exited the compactor and was crushed.

Discussion: To reduce the likelihood of similar events, employers must conduct a hazard assessment of the worksite and each job and task. Employees must be trained and retrained as necessary in the safe operation of all equipment; safety rules; policies; and procedures, including lockout/tag-out. Training must be provided by a person who has knowledge, training and experience to train operators and evaluate their competence. Employers must work to foster a culture of workplace safety and health where employees are encouraged to participate in activities and report safety and health hazards as well as “near-miss” incidents. Employers must take action to immediately correct hazards and investigate “near-miss” incidents to prevent incidents from occurring.

It Happened Here: Fountain County, Indiana

Background: Suffocation from engulfment is one of the leading causes of workplace death in grain bins, and the number of these deaths continues to rise.

Fatal Event: On June 29, 2013, in Fountain County, an employee was unloading a grain bin when the grain became clogged. The employee entered the bin to clear the clog. The worker became caught in the moving grain and was pulled down. Emergency personnel and co-workers spent several hours attempting to free the employee from the grain; however, the employee died as a result of asphyxiation.

Discussion: To reduce the likelihood of similar events, employers must conduct a hazard assessment of the worksite and each job and task. Employees must be trained and retrained as necessary in the safe operation of all equipment, safety rules, policies and procedures. Workers must not be permitted to enter a grain bin when grain is flowing. Employers must work to foster a culture of workplace safety and health where employees are encouraged to participate in activities and report safety and health hazards as well as “near-miss” incidents. Employers must take action to immediately correct hazards and investigate “near-miss” incidents to prevent incidents from occurring.

It Happened Here: Marion County, Indiana

Background: Struck-by-related incidents are the cause of a number of serious workplace injuries and deaths each year.

Fatal Event: On September 27, 2013, in Marion County, an employee was using a truck-mounted crane to lift a 5,000-pound generator. The vehicle’s stabilizing outriggers were not engaged. During the maneuver, the load shifted and caused the truck to become unbalanced. The employee leapt from the truck cab and attempted to run to safety. He was struck and killed by the crane’s extended boom.

Discussion: To reduce the likelihood of similar events, employers must conduct a hazard assessment of the worksite and each job and task. Employees must be trained

and retrained as necessary in the safe operation of all equipment, safety rules, policies and procedures. Employees must follow all manufacturers’ recommendations for using the equipment, including deploying outriggers to stabilize the vehicle’s load. Employers must work to foster a culture of workplace safety and health where employees are encouraged to participate in activities and report safety and health hazards as well as “near-miss” incidents. Employers must take action to immediately correct hazards and investigate “near-miss” incidents to prevent incidents from occurring.

Ask Our Expert: Globally Harmonized System

Bradley M. Freeman, INSafe Health Consultant, answers your questions about the Globally Harmonized System (GHS).



What is the Globally Harmonized System?



Bradley M. Freeman
INSafe Health Consultant

The Globally Harmonized System (GHS) is an international approach to hazard communication. It provides an agreed upon criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets (SDSs). It was negotiated by hazard communication experts from many different countries, international organizations and stakeholder groups. It is based on major existing systems around the world, including the federal Occupational

Safety and Health Administration's (OSHA's) Hazard Communication Standard (HCS) and the chemical classification and labeling systems of other U.S. agencies.

This negotiation process resulted in the United Nation's document titled "Globally Harmonized System of Classification and Labeling of Chemicals," commonly referred to as *The Purple Book*. *The Purple Book* provides harmonized classification criteria for health, physical and environmental hazards of chemicals. It includes standardized label elements that are assigned to these hazard classes and categories. It also provides the appropriate signal words and pictograms as well as the hazard and precautionary statements to convey the hazard to users.

Why did OSHA modify the HCS to adopt the GHS?

To improve the safety and health of workers through more effective communication on chemical hazards, OSHA modified HCS to adopt the GHS. HCS is performance-oriented allowing chemical manufacturers and importers to convey information on labels and material safety data sheets (MSDSs) in whatever format they choose. A more standardized approach to classifying hazards and conveying the information will be more effective and provide further improvement in the U.S. workplace. It will enhance both employer and worker comprehension of the hazards, helping to best ensure appropriate handling, storage and

use of workplace chemicals. In addition, the SDS requirements establish an order of information that is standardized. The harmonized format of the SDSs will enable employers, workers, health professionals and emergency responders to access the information more efficiently and effectively in the event of an emergency.

Adoption of the GHS in the United States will also help improve information received from other countries. Workers often see labels and SDSs from other countries. Labels and SDSs may include symbols and hazards statements that are unfamiliar to readers or not well understood. If countries around the world adopt the GHS, these problems will be minimized and chemicals crossing borders will have consistent information, thus improving communication globally.



Hazard Communication Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below.

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

(Continued on other side)

For more information:



U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)

OSHA 3448 (02/10)

What are the major changes to the HCS?

The three major areas of change are in hazard classifications, labels and SDSs. The definitions of hazard classifications have been changed to provide specific criteria for classification of health and physical hazards, as well as classification of mixtures. For labels, chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram and hazard statement for each hazard class and category. Precautionary statements must also be provided. SDSs will essentially replace the MSDSs and will now have a specified 16-section format.

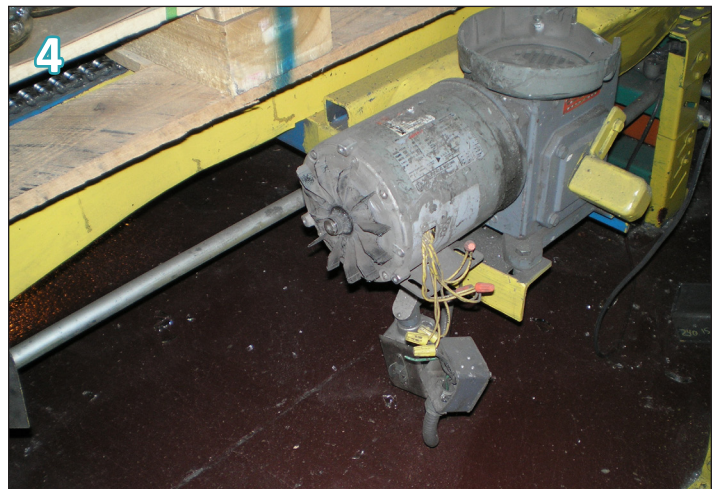
How do I find more information about HCS?

Information on the revised HCS can be found on OSHA's hazard communication webpage online at www.osha.gov/dsg/hazcom/index.html. Resources available online include a hazard communication wallet card, information about the labels and pictograms and the final published rule.

For more questions about GHS or other occupational safety and health inquiries, please phone INSafe at (317) 232-2688. You may also email your inquiry to insafe@dol.in.gov.

Real Hazards, Real Workplaces

Identify the worker safety and/or health hazard shown in the photos below. Each photo has at least one safety or health violation. “Like” the Indiana Department of Labor on Facebook® and “follow” us on Twitter® for our weekly “Spot the Hazard Challenge.”



Picture 1: The worker in the trench needs the appropriate protection in the event of a trench cave-in or collapse. 1926.652(a)(1). **Picture 2:** The emergency exit door is padlocked. 1910.37(a)(3). **Picture 3:** Moving parts (e.g. flywheel, belt, pulley, etc.) less than seven feet off the ground must be covered. 1910.219(b)(1)(i). **Picture 4:** The exposed cooling fan's wiring connection is outside the junction box. 1910.303(b)(1)(viii) and 1910.305(b)(1)(i). **Picture 5:** Employee under a load and un-centered load 1910.178(m)(2) and 1910.178(o)(1) and inappropriate machine (equipment) use 1926.602(c). **Picture 6:** The employee is too close to power lines/clearance between equipment and power lines 1926.550(15) and has no fall protection 1926.501(b)(1). In addition to the physical safety hazards present in the photos above, other worker safety and health concerns may exist. These concerns may include lack of appropriate safety and health training, lack of designated competent person and lack of appropriate OSHA records (e.g. injury and illness logs, training records and safety data sheets).

Ready to
#spotthehazard? Every
Wed. a real hazard
found at a real business.
Can you see what's
wrong here? #badidea

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Mr. Black currently serves as a coordinator with the Indiana Department of Labor's Quality, Metrics and Statistics Division for the two cooperative programs with the federal Bureau of Labor Statistics (BLS). Prior to joining the Quality, Metrics and Statistics Division in 1998, Mr. Black previously worked in the division from 1983 to 1991 and moved to the agency's Accounting Division from 1991 until his return to the division in 1998. Mr. Black has a bachelor of arts degree in radio/television with a marketing minor from Indiana University.

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Ms. Ellison currently serves as an assistant commissioner for the Indiana Department of Labor. Her responsibilities include managing the INSafe Division, which consists of a staff of occupational safety and health professionals, and promoting employer participation in voluntary compliance programs such as onsite consultation, training and certification in the Indiana Safety and Health Achievement Recognition Program (INSHARP). Ms. Ellison oversees the Indiana Department of Labor's partnerships and alliances as well. Additionally, Ms. Ellison also serves as the OSHA Region V Representative on the Occupational Safety and Health Consultation Board. Ms. Ellison is a graduate of Indiana University with a bachelor of science degree in business with concentrations in marketing and management.

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Mrs. Ellison currently serves as a health consultant with the Indiana Department of Labor's OSHA consultation division, INSafe. After spending more than ten years in numerous clinical positions, Mrs. Ellison began her nursing career in occupational health in 1981 as manager of an occupational clinic. She was hired as an occupational health consultant for Liberty Mutual Insurance. Her responsibilities included providing occupational safety consulting and training services to national market customers in the Midwest. She is a member of the Indiana Association of Occupational Health Nursing, the Mid-Indiana Association Occupational Health Nursing and Indiana State Nursing Association. She is past president of the Indiana State Nursing Association's Midwest Chapter and the Indiana Occupational Health Nurses Midwest Chapter. Mrs. Ellison earned an M.B.A. from Indiana Wesleyan University, a bachelor of science degree in nursing from Indiana University and a diploma in nursing from St. Anthony's Hospital School of Nursing. She was selected for membership of Sigma Theta Tau Honorary Nursing Association. Mrs. Ellison was nominated for Who's Who in Nursing and Who's Who World Wide.

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Mr. Maley currently serves as a deputy commissioner for the Indiana Department of Labor. His responsibilities include managing both the construction and general industry compliance divisions of the Indiana Occupational Safety and Health Administration (IOSHA) as the Indiana Voluntary Protection Program (VPP). Prior to his work for the Indiana Department of Labor, Mr. Maley was employed with Eli Lilly for 30 years. While at Eli Lilly, Mr. Maley led the Lilly Technology Center to VPP certification. He also served on the Voluntary Protection Program Participants Association (VPPPA) Region V board of directors for five years. After retiring from Eli Lilly, Mr. Maley also worked as a senior safety consultant with Advanced Worksite Solutions. In this role, he partnered with businesses to provide injury reduction management systems and solutions. Mr. Maley is a graduate of Purdue University, in West Lafayette, Indiana.

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Mr. Miller currently serves as a marketing assistant for the Indiana Department of Labor's INSafe division. His responsibilities include graphic design and layout; website maintenance; text editing; as well as writing general interest articles, news posts and blogs. Mr. Miller is also responsible for the agency's social media messaging for Facebook® and Twitter®. He graduated from Indiana University Purdue University with a bachelor of arts degree in journalism focusing in public relations with a minor in sociology.

[IN Review design and editing services](#)

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IN Review is an annual publication of the Indiana Department of Labor's INSafe onsite OSHA consultation 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 files provided by the Bureau of Labor Statistics (BLS) for calendar year 2012. CFOI data for 2012 is preliminary data. Final data will be available in the second quarter of 2014. BLS 2013 CFOI data will be released in August 2014.

BLS 2013 SOII data will be released in October 2014. 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.

Non-fatal Occupational Injury and Illness Rates

Table 11. Incidence rates³ of non-fatal occupational injuries and illnesses by industry sector and selected case types, 2010-2012

Indiana

Industry Sector ²	Total recordable cases			Cases with days away from work, job transfer, or restriction						Other recordable cases		
	Total			Cases with days away from work ⁶			Cases with job transfer or restriction			Total		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
All industries including state and local government	4.3	4.3	4.0	2.0	2.0	2.0	1.0	1.1	1.1	2.2	2.3	2.0
Private industry ³	4.1	4.2	3.9	2.1	2.0	2.0	1.0	1.1	1.1	2.1	2.2	1.9
Goods-producing ³	5.0	5.0	4.8	2.4	2.4	2.4	1.1	1.0	1.4	2.5	2.6	2.4
Natural resources and mining ^{3,4}	5.5	7.3	5.1	3.0	3.0	3.2	2.1	2.1	1.6	2.5	4.3	1.9
Agriculture, forestry, fishing and hunting ³	7.2	9.5	7.2	3.7	2.8	4.5	2.6	1.7	1.8	3.6	--	2.7
Mining ⁴	3.3	4.7	2.6	2.1	3.2	1.7	1.6	2.6	1.3	1.2	1.5	0.9
Construction	3.8	3.9	3.1	1.9	1.6	1.3	1.4	1.1	1.1	0.5	0.2	1.7
Manufacturing	5.2	5.2	5.3	2.6	2.6	2.7	1.0	1.0	1.6	1.8	2.7	2.6
Service-providing	3.8	3.9	3.4	1.9	1.8	1.8	0.9	0.9	0.9	1.9	2.0	1.7
Trade, transportation, and utilities ⁵	4.0	3.9	3.9	2.4	2.1	2.3	1.2	1.2	1.1	1.6	1.8	1.7
Wholesale trade	3.7	3.6	4.0	2.2	2.2	2.1	1.1	1.1	1.1	1.5	1.4	2.0
Retail trade	3.9	3.7	3.6	2.1	1.8	1.9	0.9	1.0	0.8	1.1	1.8	1.7
Transportation and warehousing	4.9	4.6	4.5	3.6	2.9	3.2	1.8	1.6	1.8	1.3	1.7	1.3
Utilities	3.3	--	3.2	2.0	1.7	2.1	1.1	--	0.9	1.3	--	1.2
Information	3.6	1.3	1.6	1.7	0.6	1.1	0.7	0.5	0.7	0.5	1.9	0.5
Financial activities	1.6	1.2	1.3	0.7	0.5	0.5	0.3	0.3	0.4	0.2	0.3	0.7
Professional and business services	1.8	1.8	1.6	0.9	0.8	0.9	0.6	0.5	0.3	0.4	0.5	0.7
Education and health services	5.5	5.9	4.9	2.7	2.7	2.4	1.2	0.9	1.0	2.8	3.2	2.6
Educational services	2.3	2.0	1.8	1.0	0.8	0.9	0.5	0.5	0.4	1.4	1.2	1.0
Health care and social assistance	5.9	6.3	5.3	2.9	2.9	2.6	1.2	1.0	1.0	3.0	3.4	2.7
Leisure and hospitality	4.1	4.6	4.0	1.7	1.5	1.3	0.9	0.7	0.8	0.5	2.4	2.7
Other services, except public administration	3.5	3.9	3.6	1.2	2.0	2.1	0.8	1.6	1.3	0.4	0.7	1.6
State and local government	5.1	4.6	5.1	1.8	1.8	2.0	1.1	0.9	0.9	3.3	2.8	3.1
State government	3.1	3.2	2.9	1.4	1.5	1.4	0.7	0.8	0.7	1.7	1.7	1.5
Local government	5.8	5.3	5.9	2.0	2.0	2.2	1.2	1.0	1.0	3.8	3.3	3.7

¹ 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).

² *North American Industry Classification System*, 2007 Edition

³ Excludes farms with fewer than 11 employees.

⁴ Data for mining (Sector 21 in the North American Industry Classification System, 2007 edition) include 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 activities. 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

⁵ Data for employers in railroad transportation are provided to BLS by the Federal Railroad Administration, U.S. Department of Transportation.

⁶ Days-away-from-work cases include those that result in days away from work with or without restricted work activity.

⁷ 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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