Occupational Health in Kentucky: Annual Report 2010

PREFACE

About this Report

This is the fifth annual report produced by the Kentucky Occupational Safety and Health Surveillance (KOSHS) program at the Kentucky Injury Prevention and Research Center. This report is intended to provide trend data on occupational injury and illness indicators including health, exposure, hazard, intervention, and socio-economic indicators. It also includes comparisons between Kentucky occupational injury and illness rates, and US rates.

The Kentucky Injury Prevention and Research Center, as the bona fide agent for the Kentucky Department for Public Health, has been funded by the National Institute for Occupational Safety and Health (NIOSH) to collect data on 19 indicators of worker injuries and illnesses using guidelines established by the Council of State and Territorial Epidemiologists (CSTE). Kentucky also collects data for four state- specific indicators.

Indicator data was collected using standardized methodology from a variety of different state data sources including emergency department billing data, inpatient hospitalization billing data, motor vehicle crash data, mortality data, poison control center data, workers' compensation data, state personnel cabinet data, Kentucky Adult Blood Lead Epidemiology and Surveillance data, and Kentucky Cancer Registry data among others.

Our Objectives

The objectives of the KOSHS program are to identify worker populations and work environments with elevated risk for nonfatal and fatal worker injuries and illnesses, to identify risk factors for an occupational injury, and to develop strategies for dissemination of state occupational health data, with the ultimate goal of reducing the burden of occupational injuries in Kentucky.

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Cover Images

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CABINET FOR HEALTH AND FAMILY SERVICES
DEPARTMENT FOR PUBLIC HEALTH

Steven L. Beshear
Governor

Division of Epidemiology & Health Planning
275 East Main Street, HS2GW-C
Frankfort, Kentucky 40621-0001
(502) 564-7243
(502) 564-9626 FAX
http://chfs.ky.gov/dph

Janie Miller
Secretary

May 2010

The Kentucky Injury Prevention and Research Center (KIPRC) at the University of Kentucky and the Kentucky Department for Public Health are proud to present our fifth annual report on the surveillance of occupational injuries and illnesses in Kentucky. This surveillance report provides a snap-shot of the status of Kentucky compared to the US for a number of standardized indicators for occupational injuries and illnesses that were developed collaboratively between the Council of State and Territorial Epidemiologists and the National Institute for Occupational Safety and Health.

The Kentucky Occupational Safety and Health Surveillance program at KIPRC contributes to the Healthy Kentuckians initiative and the Kentucky State Injury Prevention Plan by:

- Tracking occupational injuries, illnesses, and fatalities in Kentucky;
- Establishing and maintaining partnerships and collaborations with state partners, agencies, companies, organizations and other stakeholders;
- Maintaining an advisory committee to target major occupational injury and illness issues specific to Kentucky;
- Enhancing occupational injury and illness surveillance through response to emerging issues;
- Analyzing occupational injury and illness surveillance data to identify new and emerging risk factors for an occupational injury or illness;
- Providing worker and employer groups with a sound evidence basis for improving worker safety and health.

The Occupational Health in Kentucky annual report is intended to inform worker safety and health in Kentucky. It is hoped that the report will serve the needs of employers, employees, and other stakeholders by raising awareness of the state of the commonwealth on occupational injuries and illnesses, so that they can respond effectively.

Sincerely,

Kraig E. Humbaugh, MD, MPH
Director, Division of Epidemiology and Health Planning
Kentucky Department for Public Health

EXECUTIVE SUMMARY

Work-related injuries and illnesses impact both Kentucky workers and their families which were estimated to be 1.7 million employees and 4.3 million persons in 2009. Worker injuries result in not only economic costs but also social and emotional costs. Information on the incidence and prevalence of work-related injuries and illnesses is used to target prevention programs and reduce workplace exposures.

Key findings:

- Kentucky's 2008 *nonfatal* work-related injury and illness rate has decreased 44% since 1998 but is still 21% above the national rate. The highest injury incidence rate was in the forging and stamping industry.

- Kentucky's *fatal* work-related injury rate decreased in 2008, but was 33% higher than the national occupational fatality rate. The primary cause of death was due to motor vehicle collisions.

- Kentucky's work-related amputation rate increased in the year 2008 to 13 cases/100,000 workers, 87% higher than the national amputation rate.

- From 2007 to 2008, Kentucky's overall MSD incidence rate decreased 18%.

- The acute work-related pesticide-associated injury and illness rate for Kentucky remained the same for years 2008 and 2009. Occupational pesticide exposures were due primarily to hypochlorite disinfectants.

- Kentucky's 2008 malignant mesothelioma incidence rate increased 50% from the year 2007.

- The Kentucky occupational motor vehicle nonfatal and fatality rate increased slightly in the year 2008. Workers' Compensation claims were most frequently filed for the Services industry.

- The Kentucky adult blood lead level (>25µg/dL) prevalence rate was 6.3 cases per 100,000 workers in 2008, and was 4% lower than the average state rate in the year 2007, the most recent year available for US data.

- The Kentucky industries at greatest risk for occupational injury were nursing and residential care facilities, wood products manufacturing, and couriers and messengers industries in 2008. The occupation at highest risk for work-related injuries and illnesses in Kentucky for 2008 was the laborers, and freight, stock, and material movers occupation.

- Kentucky public sector employee injuries increased 7% from 2,350 injuries recorded in the year 2008 to 2,511 injuries recorded in the year 2009.

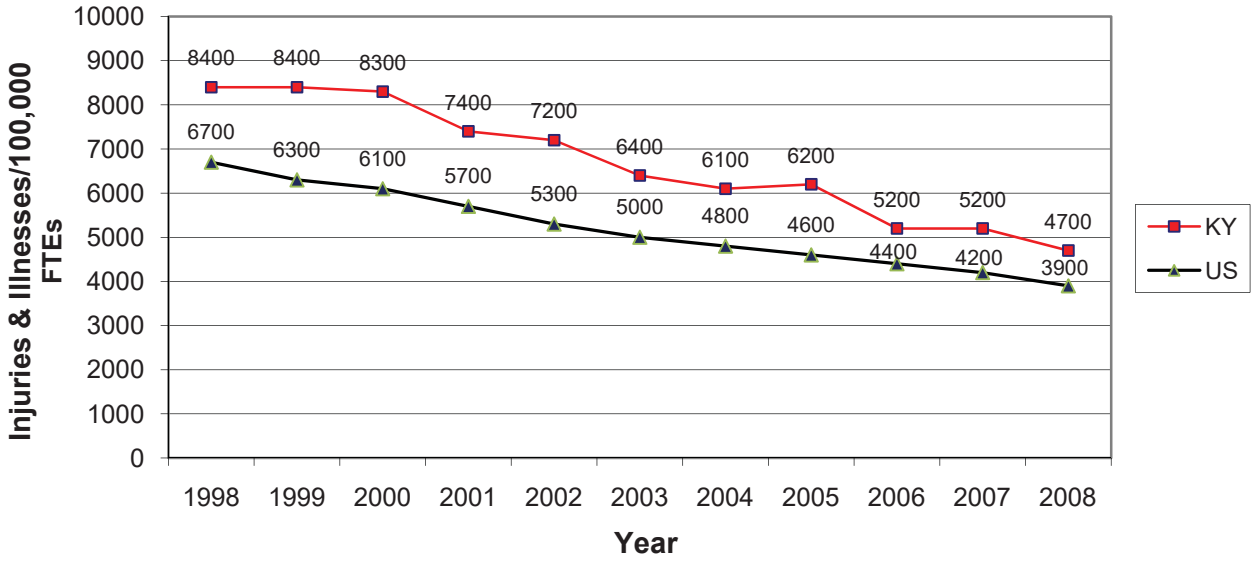
- The occupational fall injury incidence rate decreased 3% in 2008, and occurred primarily in the services industry and in the laborers except construction occupation.

- The industries at highest risk for occupational mortality in 2009 were the construction, and truck transportation industries.

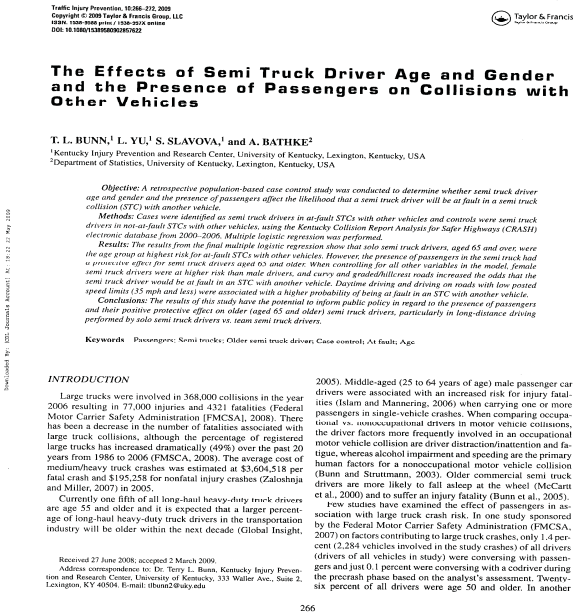
Indicator #1: Non-Fatal Work Related Injuries and Illnesses Reported By Employers

In 2008, there were 59,800 nonfatal work-related injuries and illnesses in Kentucky, with an incidence rate of 4,700/100,000 employees, down 44% from 1998 (Figure 1). Kentucky is still 21% above the national incidence rate of 3,900 /100,000 FTEs. Forging and stamping (14.3 cases/100 FTEs), residential care facilities (11.3 cases/100 FTEs), and motor vehicle steering and suspension component manufacturing industries had the highest nonfatal injury incidence rates in 2008.

Figure 1. Total Work-Related Injury and Illness Incidence Rates In Kentucky (1998-2008).



Data Source: Annual BLS Survey of Occupational Injuries and Illnesses (SOII)



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The Effects of Semi Truck Driver Age and Gender and the Presence of Passengers on Collisions with Other Vehicles

T. L. BUNN,[1] L. YU,[1] S. SLAVOVA,[1] and A. BATHKE[2]
[1]Kentucky Injury Prevention and Research Center, University of Kentucky, Lexington, Kentucky, USA
[2]Department of Statistics, University of Kentucky, Lexington, Kentucky, USA

Objective: *A retrospective population-based case control study was conducted to determine whether semi truck driver age and gender and the presence of passengers affect the likelihood that a semi truck driver will be at fault in a semi truck collision (STC) with another vehicle.*

Methods: *Cases were identified as semi truck drivers in at-fault STCs with other vehicles and controls were semi truck drivers in not-at-fault STCs with other vehicles, using the Kentucky Collision Report Analysis for Safer Highways (CRASH) electronic database from 2000–2006. Multiple logistic regression was performed.*

Results: *The results from the final multiple logistic regression show that solo semi truck drivers, aged 65 and over, were the age group at highest risk for at-fault STCs with other vehicles. However, the presence of passengers in the semi truck had a protective effect for semi truck drivers aged 65 and older. When controlling for all other variables in the model, female semi truck drivers were at higher risk than male drivers, and curvy and graded/hillcrest roads increased the odds that the semi truck driver would be at fault in an STC with another vehicle. Daytime driving and driving on roads with low posted speed limits (35 mph and less) were associated with a higher probability of being at fault in an STC with another vehicle.*

Conclusions: *The results of this study have the potential to inform public policy in regard to the presence of passengers and their positive protective effect on older (aged 65 and older) semi truck drivers, particularly in long-distance driving performed by solo semi truck drivers vs. team semi truck drivers.*

Keywords Passengers; Semi trucks; Older semi truck driver; Case control; At fault; Age

INTRODUCTION

Large trucks were involved in 368,000 collisions in the year 2006 resulting in 77,000 injuries and 4321 fatalities (Federal Motor Carrier Safety Administration [FMCSA], 2008). There has been a decrease in the number of fatalities associated with large truck collisions, although the percentage of registered large trucks has increased dramatically (49%) over the past 20 years from 1986 to 2006 (FMSCA, 2008). The average cost of medium/heavy truck crashes was estimated at $3,604,518 per fatal crash and $195,258 for nonfatal injury crashes (Zaloshnja and Miller, 2007) in 2005.

Currently one fifth of all long-haul heavy-duty truck drivers are age 55 and older and it is expected that a larger percentage of long-haul heavy-duty truck drivers in the transportation industry will be older within the next decade (Global Insight, 2005). Middle-aged (25 to 64 years of age) male passenger car drivers were associated with an increased risk for injury fatalities (Islam and Mannering, 2006) when carrying one or more passengers in single-vehicle crashes. When comparing occupational vs. nonoccupational drivers in motor vehicle collisions, the driver factors more frequently involved in an occupational motor vehicle collision are driver distraction/inattention and fatigue, whereas alcohol impairment and speeding are the primary human factors for a nonoccupational motor vehicle collision (Bunn and Struttmann, 2003). Older commercial semi truck drivers are more likely to fall asleep at the wheel (McCartt et al., 2000) and to suffer an injury fatality (Bunn et al., 2005).

Few studies have examined the effect of passengers in association with large truck crash risk. In one study sponsored by the Federal Motor Carrier Safety Administration (FMCSA, 2007) on factors contributing to large truck crashes, only 1.4 percent (2,284 vehicles involved in the study crashes) of all drivers (drivers of all vehicles in study) were conversing with passengers and just 0.1 percent were conversing with a codriver during the precrash phase based on the analyst's assessment. Twenty-six percent of all drivers were age 50 and older. In another

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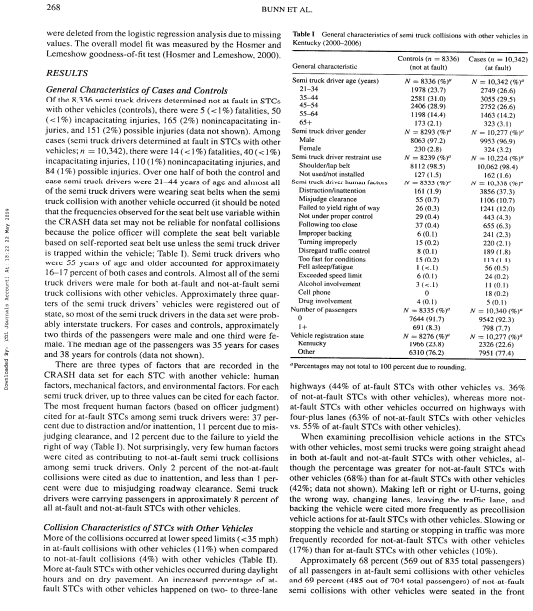
Address correspondence to: Dr. Terry L. Bunn, Kentucky Injury Prevention and Research Center, University of Kentucky, 333 Waller Ave., Suite 2, Lexington, KY 40504. E-mail: tlbunn2@uky.edu



were deleted from the logistic regression analysis due to missing values. The overall model fit was measured by the Hosmer and Lemeshow goodness-of-fit test (Hosmer and Lemeshow, 2000).

RESULTS

General Characteristics of Cases and Controls

Of the 8,336 semi truck drivers determined not at fault in STCs with other vehicles (controls), there were 5 (<1%) fatalities, 50 (<1%) incapacitating injuries, 165 (2%) nonincapacitating injuries, and 151 (2%) possible injuries (data not shown). Among cases (semi truck drivers determined at fault in STCs with other vehicles; $n = 10,342$), there were 14 (<1%) fatalities, 40 (<1%) incapacitating injuries, 110 (1%) nonincapacitating injuries, and 84 (1%) possible injuries. Over one half of both the control and case semi truck drivers were 21–44 years of age and almost all of the semi truck drivers were wearing seat belts when the semi truck collision with another vehicle occurred (it should be noted that the frequencies observed for the seat belt use variable within the CRASH data set may not be reliable for nonfatal collisions because the police officer will complete the seat belt variable based on self-reported seat belt use unless the semi truck driver is trapped within the vehicle; Table 1). Semi truck drivers who were 25 years of age and older accounted for approximately 16–17 percent of both cases and controls. Almost all of the semi truck drivers were male for both at-fault and not-at-fault semi truck collisions with other vehicles. Approximately three quarters of the semi truck drivers' vehicles were registered out of state, so most of the semi truck drivers in the data set were probably interstate truckers. For cases and controls, approximately two thirds of the passengers were male and one third were female. The median age of the passengers was 35 years for cases and 38 years for controls (data not shown).

There are three types of factors that are recorded in the CRASH data set for each STC with another vehicle: human factors, mechanical factors, and environmental factors. For each semi truck driver, up to three values can be cited for each factor. The most frequent human factors (based on officer judgment) cited for at-fault STCs among semi truck drivers were: 37 percent due to distraction and/or inattention, 11 percent due to misjudging clearance, and 12 percent due to the failure to yield the right of way (Table 1). Not surprisingly, very few human factors were cited as contributing to not-at-fault semi truck collisions among semi truck drivers. Only 2 percent of the not-at-fault collisions were cited as due to inattention, and less than 1 percent were due to misjudging roadway clearance. Semi truck drivers were carrying passengers in approximately 8 percent of all at-fault and not-at-fault STCs with other vehicles.

Collision Characteristics of STCs with Other Vehicles

More of the collisions occurred at lower speed limits (<35 mph) in at-fault collisions with other vehicles (11%) when compared to not-at-fault collisions (4%) with other vehicles (Table II). More at-fault STCs with other vehicles occurred during daylight hours and on dry pavement. An increased percentage of at-fault STCs with other vehicles happened on two- to three-lane

Table 1 General characteristics of semi truck collisions with other vehicles in Kentucky (2000–2006)

General characteristic	Controls ($n = 8336$) (not at fault)	Cases ($n = 10,342$) (at fault)
Semi truck driver age (years)	$N = 8336$ (%)[a]	$N = 10,342$ (%)[a]
21–34	1978 (23.7)	2749 (26.6)
35–44	2581 (31.0)	3055 (29.5)
45–54	2406 (28.9)	2752 (26.6)
55–64	1198 (14.4)	1463 (14.2)
65+	173 (2.1)	323 (3.1)
Semi truck driver gender	$N = 8293$ (%)[a]	$N = 10,277$ (%)[a]
Male	8063 (97.2)	9953 (96.9)
Female	230 (2.8)	324 (3.2)
Semi truck driver restraint use	$N = 8239$ (%)[a]	$N = 10,224$ (%)[a]
Shoulder/lap belt	8112 (98.5)	10,062 (98.4)
Not used/not installed	127 (1.5)	162 (1.6)
Semi truck driver human factors	$N = 8335$ (%)[a]	$N = 10,338$ (%)[a]
Distraction/inattention	161 (1.9)	3856 (37.3)
Misjudge clearance	55 (0.7)	1106 (10.7)
Failed to yield right of way	26 (0.3)	1241 (12.0)
Not under proper control	29 (0.4)	443 (4.3)
Following too close	37 (0.4)	655 (6.3)
Improper backing	6 (0.1)	241 (2.3)
Turning improperly	15 (0.2)	220 (2.1)
Disregard traffic control	8 (0.1)	189 (1.8)
Too fast for conditions	15 (0.2)	113 (1.1)
Fell asleep/fatigue	1 (<.1)	56 (0.5)
Exceeded speed limit	6 (0.1)	24 (0.2)
Alcohol involvement	3 (<.1)	11 (0.1)
Cell phone	0	18 (0.2)
Drug involvement	4 (0.1)	5 (0.1)
Number of passengers	$N = 8335$ (%)[a]	$N = 10,340$ (%)[a]
0	7644 (91.7)	9542 (92.3)
1+	691 (8.3)	798 (7.7)
Vehicle registration state	$N = 8276$ (%)[a]	$N = 10,277$ (%)[a]
Kentucky	1966 (23.8)	2326 (22.6)
Other	6310 (76.2)	7951 (77.4)

[a]Percentages may not total to 100 percent due to rounding.

highways (44% of at-fault STCs with other vehicles vs. 36% of not-at-fault STCs with other vehicles), whereas more not-at-fault STCs with other vehicles occurred on highways with four-plus lanes (63% of not-at-fault STCs with other vehicles vs. 55% of at-fault STCs with other vehicles).

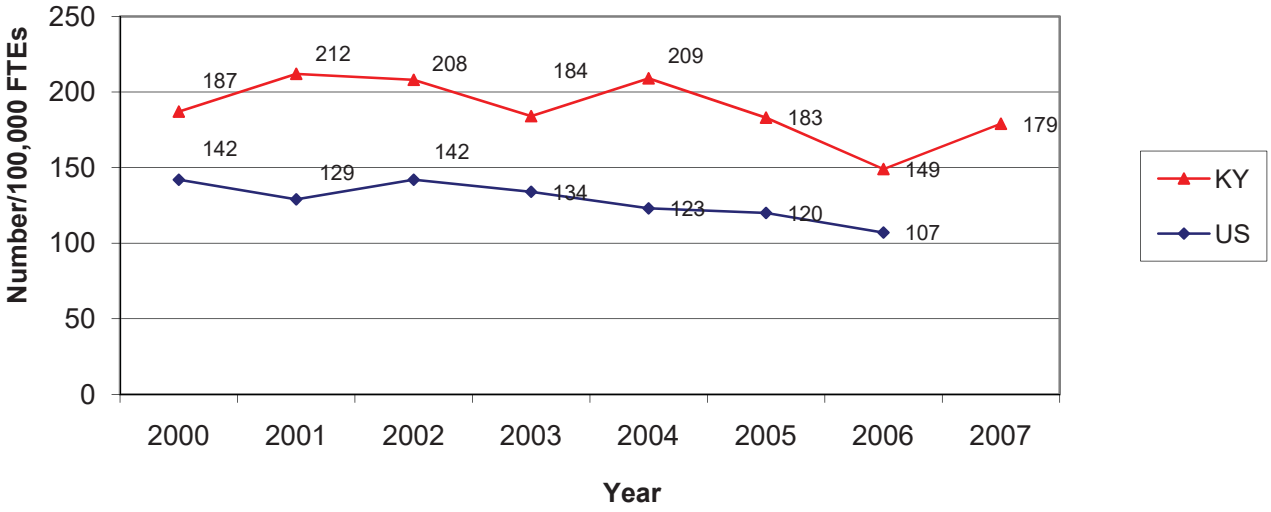
When examining precollision vehicle actions in the STCs with other vehicles, most semi trucks were going straight ahead in both at-fault and not-at-fault STCs with other vehicles, although the percentage was greater for not-at-fault STCs with other vehicles (68%) than for at-fault STCs with other vehicles (42%; data not shown). Making left or right or U-turns, going the wrong way, changing lanes, leaving the traffic lane, and backing the vehicle were cited more frequently as precollision vehicle actions for at-fault STCs with other vehicles. Slowing or stopping the vehicle and starting or stopping in traffic was more frequently recorded for not-at-fault STCs with other vehicles (17%) than for at-fault STCs with other vehicles (10%).

Approximately 68 percent (569 out of 835 total passengers) of all passengers in at-fault semi collisions with other vehicles and 69 percent (485 out of 704 total passengers) of not-at-fault semi collisions with other vehicles were seated in the front

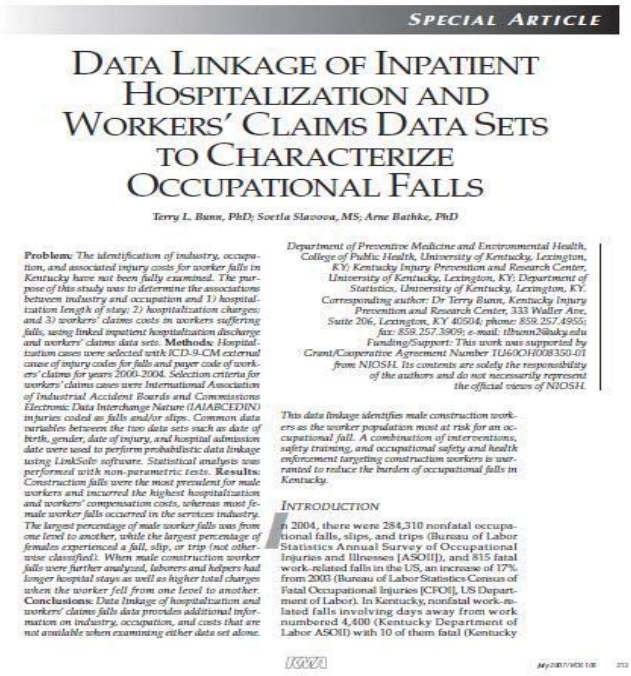
Indicator #2: Work-Related Hospitalizations

In 2007, there were 3,455 work-related hospitalizations with an annual crude rate of 179/100,000 employed persons age 16 years and older, up 20% from the year 2006 (Figure 2).

Figure 2. Work-Related Hospitalization Rates In Kentucky Compared To U.S. Rates, 2000-2007.



Data Source: Numerator data was obtained from the KY Department for Public Health hospital discharge data set and National Hospital Discharge Survey. Denominator data was obtained from BLS Current Population Survey data.
*US data was not available for year 2007.



SPECIAL ARTICLE

DATA LINKAGE OF INPATIENT HOSPITALIZATION AND WORKERS' CLAIMS DATA SETS TO CHARACTERIZE OCCUPATIONAL FALLS

Terry L. Bunn, PhD; Svetla Slavova, MS; Arne Bathke, PhD

Problem: The identification of industry, occupation, and associated injury costs for worker falls in Kentucky have not been fully examined. The purpose of this study was to determine the associations between industry and occupation and 1) hospitalization length of stay; 2) hospitalization charges; and 3) workers' claims costs in workers suffering falls, using linked inpatient hospitalization discharge and workers' claims data sets. **Methods:** Hospitalization cases were selected with ICD-9-CM external cause of injury codes for falls and payer code of workers' claims for years 2000-2008. Selection criteria for workers' claims cases were International Association of Industrial Accident Boards and Commissions Electronic Data Interchange Nature (IAIABCEDIN) injuries coded as falls and/or slips. Common data variables between the two data sets such as date of birth, gender, date of injury, and hospital admission date were used to perform probabilistic data linkage using LinkSolv software. Statistical analysis was performed with non-parametric tests. **Results:** Construction falls were the most prevalent for male workers and incurred the highest hospitalization and workers' compensation costs, whereas most female worker falls occurred in the services industry. The largest percentage of male worker falls was from one level to another, while the largest percentage of females experienced a fall, slip, or trip (not otherwise classified). When male construction worker falls were further analyzed, laborers and helpers had longer hospital stays as well as higher total charges when the worker fell from one level to another. **Conclusions:** Data linkage of hospitalization and workers' claims falls data provides additional information on industry, occupation, and costs that are not available when examining either data set alone.

Department of Preventive Medicine and Environmental Health, College of Public Health, University of Kentucky, Lexington, KY; Kentucky Injury Prevention and Research Center, University of Kentucky, Lexington, KY; Department of Statistics, University of Kentucky, Lexington, KY. Corresponding author: Dr Terry Bunn, Kentucky Injury Prevention and Research Center, 333 Waller Ave, Suite 206, Lexington, KY 40504; phone: 859.257.4955; fax: 859.257.3909; e-mail: tlbunn2@uky.edu

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This data linkage identifies male construction workers as the worker population most at risk for an occupational fall. A combination of interventions, safety training, and occupational safety and health enforcement targeting construction workers is warranted to reduce the burden of occupational falls in Kentucky.

INTRODUCTION

In 2004, there were 284,310 nonfatal occupational falls, slips, and trips (Bureau of Labor Statistics Annual Survey of Occupational Injuries and Illnesses [ASOII]), and 815 fatal work-related falls in the US, an increase of 17% from 2003 (Bureau of Labor Statistics Census of Fatal Occupational Injuries [CFOI], US Department of Labor). In Kentucky, nonfatal work-related falls involving days away from work numbered 4,400 (Kentucky Department of Labor ASOII) with 10 of them fatal (Kentucky

SPECIAL ARTICLE

Table 1. Hospitalization and workers' claims variables for occupational falls to a different level compared to occupational falls from a ladder or scaffolding.

Hospitalization Variables	Fall to a different level (n=136)	Fall On Or From Ladders Or Scaffolding (n=308)	P-value*
Length of stay	Median:: 4 days Mean*: 6.6±6.4 days	Median:: 3 days Mean:: 3.8±4.1 days	p<0.05
Long Stays (≥7 days)	31%	8%	p<0.05
Total Charges	Median:: $17,900 Mean:: $34,200±$45,700	Median:: $13,700 Mean:: $19,500±$24,800	p<0.05
Workers' Claims Variables	**Fall to a different level (n=64)**	**Fall on or from a ladder or scaffolding (n=45)**	**P-value***
Disability	Median:: 8.5% Mean:: 18.8%±27.9%	Median:: 6% Mean:: 13.7%±22.1%	p::0.32
Impairment	Median:: 0% Mean:: 10.3%±22.4%	Median:: 0% Mean:: 3.8%±7.3%	p::0.25
Award Amount	Median:: $27,316 Mean:: $106,820±$225,413	Median:: $24,000 Mean:: $12,493±$40,594	p::0.53

*Wilcoxon Mann Whitney two sample test, two-sided
**Mean ± SD

from one level to another was significantly higher for roofers than for the other occupational groups (Table 2). No significant differences were observed by occupation for WC variables.

Hospitalization length of stay was significantly higher for carpenters and apprentices, laborers and helpers, and other construction workers for those who fell to a different level than for those who fell on or from a ladder or scaffolding (Table 3). Roofers did not differ in their hospitalization length of stay based on fall classification. Laborers and helpers had statistically significant increased hospitalization total charges for falls to another level relative to falls on or from scaffolding.

DISCUSSION

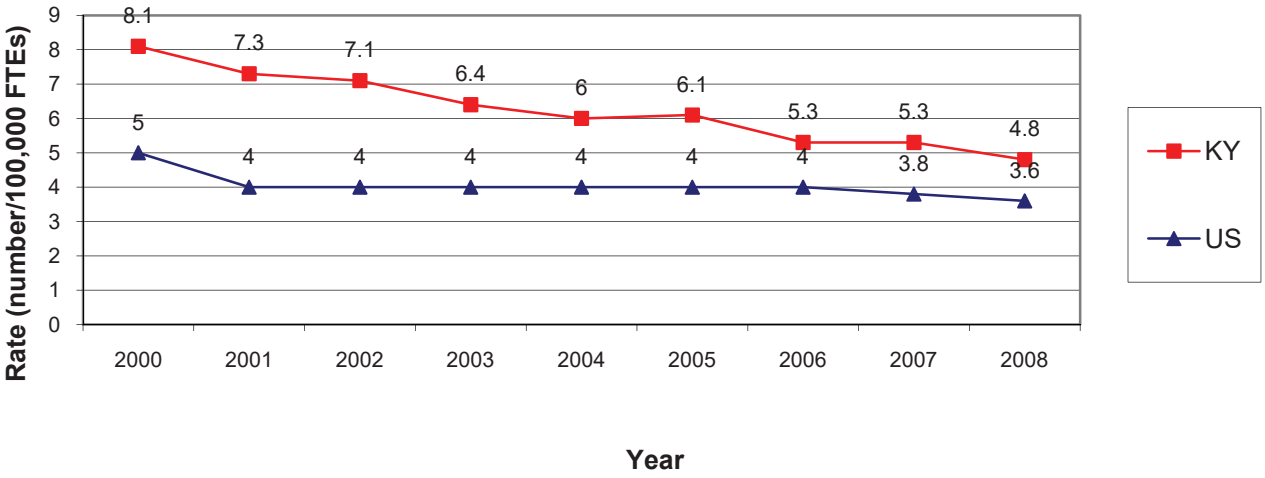
The results of this study show that data linkage can be successfully used to link hospitalization and workers compensation data sets and provides crucial information on industry and occupation of the victim that are currently unavailable in the hospitalization discharge data set alone. We found that 1) construction falls were the most prevalent for male workers, whereas most female worker falls occurred in the services industry; 2) the largest percentage of male worker falls were due to falls from one level to another while females experienced most of their falls on the same level; and 3) male workers incurred the highest hospitalization and workers' compensation costs. When male construction worker falls were further analyzed, laborers and helpers had longer hospital stays as well as higher total charges when the worker fell from one level to another. Carpenters and apprentices, as well as other construction workers, had longer hospital stays when the fall was from one level to another.

A match cutoff probability of 0.5 for probabilistic data linkage was used for this study and resulted in 822 linked cases. Initially, a match probability of 0.95 was utilized (ie, 95% of the cases are expected to be true matches with weights near the cutoff weight), and only 394 cases were matched of the 1,954 possible cases. We then lowered the match cutoff probability to 0.8, and when a sample of 200 of the matched cases was manually checked, all record matches were biologically plausible.

Indicator #3: Fatal Work-Related Injuries

The fatality rate for Kentucky occupational injuries decreased from 8.1 deaths/100,000 employed persons in the year 2000 to 4.8/100,000 in 2008 (National Census of Fatal Occupational Injuries [CFOI] data) (Figure 3). Kentucky had an occupational fatality rate 33% higher than the national occupational fatality rate in 2008. The industry with the highest work-related fatality rate was the agriculture industry. The primary cause of death was due to motor vehicle collisions.

Figure 3. Rate of Fatal Work-Related Injuries in Kentucky and U.S., 2000-2008.



Source: BLS Census of Fatal Occupational Injuries (CFOI).

Solid Waste Driver Dies After Single Vehicle Rollover
Incident Number: 08KY074

Photograph of solid waste truck involved in motor vehicle crash. Courtesy of law enforcement.

Kentucky Fatality Assessment and Control Evaluation Program
Kentucky Injury Prevention and Research Center
333 Waller Avenue
Suite 206
Lexington, Kentucky 40504
Phone: 859-323-2981
Fax: 859-257-3909
www.kiprc.uky.edu

Kentucky Fatality Assessment and Control Evaluation (FACE) Program
Incident Number: 08KY074
Release Date: August 28, 2009
Subject: Solid Waste Driver Dies After Single Vehicle Rollover

Summary

On the morning of a fall day in 2008, a 59 year-old male solid waste worker (Driver 1) entered the cab of a company solid waste truck parked in his driveway and drove to a restaurant a few miles away. After leaving the restaurant, the driver was observed weaving by another solid waste driver (Driver 2) at least two times in the northbound lane of a two-lane state highway. After he had driven 1.8 miles in a little over 2 minutes away from the restaurant, the driver entered a right-hand curve in the highway. While in the curve, the driver crossed the centerline and drove into the southbound lane, then crossed the northbound lane and off the right side of the highway. The driver hit a culvert, rolled the vehicle, and the driver was ejected from the driver's door. The truck came to rest on its right side in the front yard of a private residence.

Driver 2 called emergency services to the scene, parked his solid waste truck off the highway and exited the cab. He ran to where Driver 1 was lying on the ground; found Driver 1 conscious and instructed Driver 1 not to move. Emergency services arrived, transported Driver 1 via ambulance and helicopter to the nearest Level 1 trauma hospital. While enroute, Driver 1 died. According to Driver 2, Driver 1 did not attempt to brake while the incident was occurring. Skid marks on the highway in the curve were from a previous incident involving a semi tractor-trailer.

To prevent future occurrences of similar incidents, the following recommendations have been made:

Recommendation No. 1: Commercial vehicle carriers should implement and enforce a workplace policy that requires drivers to wear seat belts while operating a commercial vehicle.

Recommendation No. 2: Companies with remote drivers should implement a supervisory system to oversee drivers on a daily basis.

Recommendation No. 3: Companies with commercial drivers should perform random verification of driver motor vehicle records.

Background

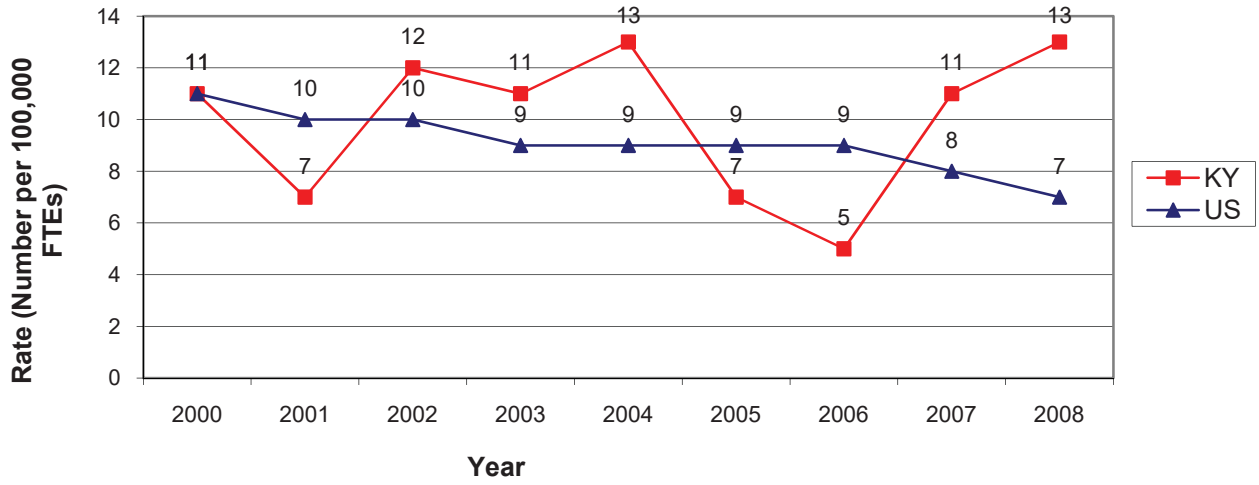
The decedent involved in this incident worked as a regular, full-time, swing driver for a waste management company which was acquired by another waste management company approximately two years prior to the incident. It is unknown how many years the decedent had worked in the waste management industry prior to the acquisition.

2

Indicator #4: Work-Related Amputations with Days Away From Work Reported By Employers

There were 170 amputation cases with days away from work in 2008, up 30 cases from year 2007. The annual incidence rate of 13 cases per 100,000 FTEs increased from 2007, and was higher than the national amputation incidence rate of 7/100,000 (BLS SOII) in 2008 (Figure 4).

Figure 4. Rate of Work-Related Amputations Involving Days Away From Work, 2000-2008.



Data Source: Annual BLS Survey of Occupational Injuries and Illnesses (SOII).

Ernie Fletcher
Governor

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT OF LABOR
OFFICE OF OCCUPATIONAL SAFETY AND HEALTH
1047 US Hwy 127 S STE 4
Frankfort, Kentucky 40601
Phone: (502) 564-3070
www.kentucky.gov

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Executive Director

New Reporting Regulation to take effect November 1, 2006

This bulletin is to serve as a reminder to employers in the Commonwealth of Kentucky of recent changes in Kentucky law that will soon require the reporting of a wider range of injuries to the Kentucky Office of Occupational Safety and Health (KYOSHA). Beginning on November 1, 2006, Kentucky employers will be required to report any work related incident resulting in the in-patient hospitalization of one or two employees. The reporting requirement is limited to hospitalizations that occur within seventy two (72) hours of the incident.

Employers will also be required to report any amputation suffered by an employee from any work-related incident. Hospitalizations of one or two employees and amputations must be reported to the Kentucky Department of Labor within seventy-two hours.

The reporting time is considered the time from which an employer, employer's agent, or another employee first becomes aware of the fatality, catastrophe, amputation, or hospitalization.

In-patient hospitalization is defined as any time an employee is admitted to the hospital for more than twenty-four (24) hours for any reason other than observation.

This new reporting requirement does not affect any of the current OSHA regulations related to reporting injuries and fatalities. Employers are already required by OSHA to report fatalities and catastrophes (defined as the hospitalization of three or more employees from a single incident) within eight (8) hours of the incident.

The regulation will be effective from November 1, 2006 through December 31, 2008. The effectiveness of the new legislation will be evaluated prior to the end date and a decision made as to whether the new regulation will continue as written or allowed to expire.

Violations of the reporting requirement will fall under the "other than serious" category with citations that could reach up to $5,000. KYOSHA has developed the following table to assist in understanding the new requirements.

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Reporting Workplace Amputations and Hospitalizations
Incident Comparison Table

Incident	Reporting Time1	Report To	Time Limitation	Effective Date
Fatality	Report within 8 hours	Division of Compliance (502) 564-3070 After hours call: OSHA (800) 321-6742	Fatalities which occur more than 30 days following an incident are not required to be reported. 2	Jan. 4, 2004
3+ employees hospitalized in single incident (catastrophe)	Report within 8 hours	Division of Compliance (502) 564-3070 After hours call: OSHA (800) 321-6742	Catastrophes which occur more than 30 days following an incident are not required to be reported. 2	Jan. 4, 2004
Amputation	Report within 72 hours	Division of Compliance (502) 564-3070	Not applicable.	Nov. 1, 2006
1 or 2 employees hospitalized in single incident	Report within 72 hours	Division of Compliance (502) 564-3070	Hospitalizations which occur more than 72 hours following an incident are not required to be reported.	Nov. 1, 2006

Notes:
1. Reporting time is the time from which an employer, employer's agent, or another employee first becomes aware of the fatality, catastrophe, amputation, or hospitalization.
2. See: 29 CFR 1904.39(b)(6).

These additional reporting requirements will create a higher likelihood of a workplace inspection for Kentucky employers if a workplace incident results in a hospitalization or amputation. For more information visit the Office of Occupational Safety & Health's web page at www.labor.ky.gov or contact the Kentucky Office of Occupational Safety and Health at (502) 564-3070.

Now is the time for employers operating in the Commonwealth to prepare for these changes. Companies should update or develop their Accident Reporting Procedures to establish a policy on how accidents are handled within their organizations.

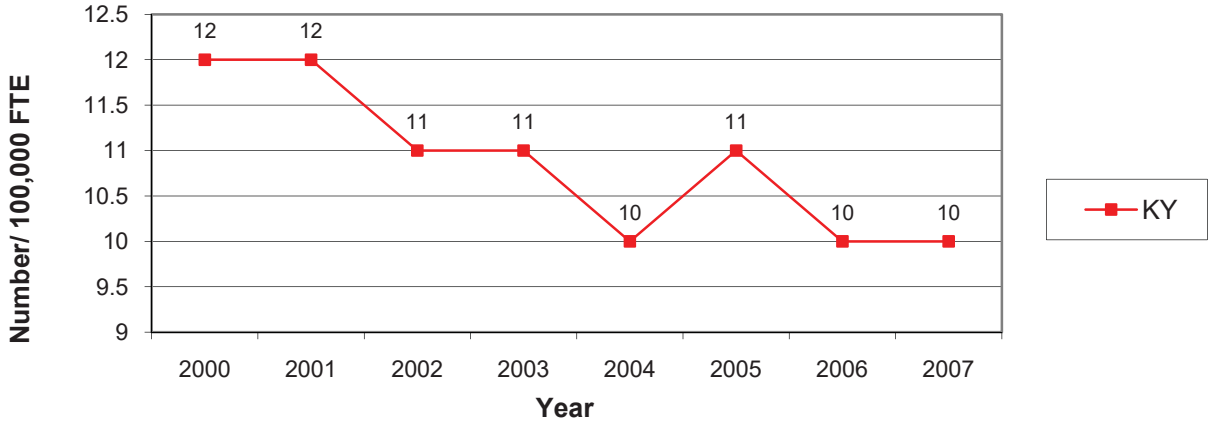
For more information on the reporting changes, visit www.labor.ky.gov/osh/oshregulations/referenceinfo. There you will find a posting titled "Informational Bulletin 01-2006: Reporting Workplace Amputations and Hospitalizations." This document was created to assist employers in understanding the new requirements.

To view the Kentucky Administrative Regulation, visit www.labor.ky.gov/osh/oshregulations and click on "803 KAR 2:180. Recordkeeping; reporting; statistics."

Indicator #5: Amputation Claims Filed With the State Workers' Compensation System by Injury Year

The number of amputation injury claims filed with the Kentucky Department of Workers' Claims in the year 2007 was 181 compared to 165 claims filed in 2006 and the annual incidence rate for amputation claims was 10 cases per 100,000 employees (Figure 5). Using 2007 data, the majority of the amputations occurred among miscellaneous machine operators (n=26), and laborers except construction (laborers) (n= 19).

Figure 5. Rate of Workers' Claims for Amputations, 2000-2007.



Data Source: Work-related amputation surveillance data was provided by the Kentucky Department of Workers' Claims, Frankfort, KY.

Haz Alert

Volume 1, Issue 1
September 2006

KENTUCKY OCCUPATIONAL SAFETY AND HEALTH SURVEILLANCE (KOSHS)

KOSHS

To prevent injuries from forklifts while working:

- Before you operate a forklift, make sure that you are trained and certified.
- Remember if you are on a sit-down type forklift, and it starts to over-turn, lean in the opposite direction, stay with the forklift; don't jump.
- When operating a forklift on site, slow the truck and sound the horn at cross aisles, exits, and other employee traverse points.
- Before dismounting, set the parking brake, lower the forks or lifting carriage, and neutralize controls.

Amputation Injuries Due to Forklifts

During 2000-2004, there were 1002 amputation claims filed with the Office of Workers' Claims and 13 of these claims involved forklifts. Seven worker deaths resulted from injuries due to forklifts from 2000-2005.

Following are case descriptions of four Kentucky forklift-related cases that resulted in amputations:

Case 1: A 21-year old male stock clerk was driving a forklift at an electrical apparatus and equipment company when the forklift overturned. The victim's left foot was injured in the incident and needed to be amputated. He received a weekly workers' claims award due to the injury.

Case 2: A 60-year-old female forklift operator who worked in a plastics factory was moving a forklift on site. When she stepped off the forklift, the wheel caught her left foot and this resulted in an amputation. She received a lump sum workers' claims award.

Case 3: A 41-year-old female manufacturing employee was struck by a forklift at work. She sustained a massive injury to her left leg and required emergency surgery. The entire lower leg was amputated. She received a weekly workers' claim award due to the injury.

Case 4: A 44-year-old assembly worker in a manufacturing plant was struck by a forklift. He was transported to the nearest hospital where four toes were amputated. He received a weekly workers' claims award due to the injury.

BEFORE YOU OPERATE A FORKLIFT, MAKE SURE THAT YOU ARE TRAINED AND LICENSED.

Kentucky Occupational Safety and Health Surveillance (KOSHS) Page 2

BEFORE YOU OPERATE A FORKLIFT, MAKE SURE THAT YOU ARE TRAINED AND CERTIFIED.

The American Society of Mechanical Engineers (ASME) defines a powered industrial truck as a mobile, power-propelled truck used to carry, push, pull, lift, stack, or tier materials. Powered Industrial – more commonly known as pallet trucks, rider trucks, forktrucks or lifttrucks, can be ridden or controlled by a walking operator. They can be powered through electric or combustion engines.

Forklift operators need to complete training and certification to be declared competent to operate a forklift safely (KY Occupational Safety and Health (KOSH) Standard 1910.178(l)). The person who trains the operator needs to be knowledgeable, experienced and trained to effectively evaluate an operator's competence (KOSH Standard 1910.178 (l)(2)(iii). When training is completed, the employer needs to certify that the operator was trained and evaluated by recording the operator's name, date of training, date of evaluation, and name of person(s) who performed training (KOSH Standard 1910.178 (l)(6).

If an injury occurs on the worksite, beginning November 1, 2006, all inpatient hospitalizations resulting from a work-related incident will need to be reported by the employer within 72 hours of occurrence to Kentucky OSHA. If an employee suffers an amputation (requiring hospitalization or not) while at work, all amputations need to be reported to Kentucky OSHA..

Remember if you are on a sit-down type forklift, and it starts to overturn, lean in the opposite direction, stay with the forklift; don't jump.

According to the American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) standard B56.1, §5.3.18 [d] [ASME 1993], if a lateral or longitudinal tipover occurs, one should stay with the truck and lean away from the point of impact. If a lateral overturn occurs, exit a rear-access stand-up type forklift by stepping backward. Seat belt restraints shall be used when operating a forklift. Retrofits are generally available if the forklift does not have a restraint system.

When operating a forklift on site, slow the truck and sound the horn at cross aisles, exits, and other employee traverse points.

According to KOSH Standard 1910.178(n)(4), "The driver shall be required to slow down and sound the horn at cross aisles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing". While traveling with the forklift, the operator needs to have a clear view of the travel path (KOSH Standard 1910.178(n)(6)). Ensure that travel routes used by forklift operators are free of obstacles and other unsafe conditions.

Before dismounting , set the parking brake, lower the forks or lifting carriage, and neutralize controls.

KOSH Standard 1910.178(m)(5)(iii) states that when the operator of a forklift is dismounting within 25 feet of his/(her) view, the load needs to be lowered, the controls neutralized, and the brake set. If the operator is over 25 feet away from the forklift, the power needs to be shut off in addition to the above and if the forklift is on an incline, the wheels need to be blocked (KOSH Standard 1910.178 (m)(5)(i). Ensure that forklift operators do not position themselves between the uprights of the mast, outside the running lines of the truck, or under elevated forks or loads.

References:

1. **National Institute of Occupational Safety and Health, 2001.** *Preventing injuries and deaths of workers who operate or work near forklifts.* **DHHS (NIOSH) Publication 2001-109. June 2001.**

2. **Massachusetts Fatality Assessment and Control Evaluation (FACE) report #98-MA-033-01.** *Carpet installer killed in forklift tipover at a Massachusetts warehouse.*

3. **http://www.osha.gov/dcsp/ote/trng-materials/pit/pit.html**

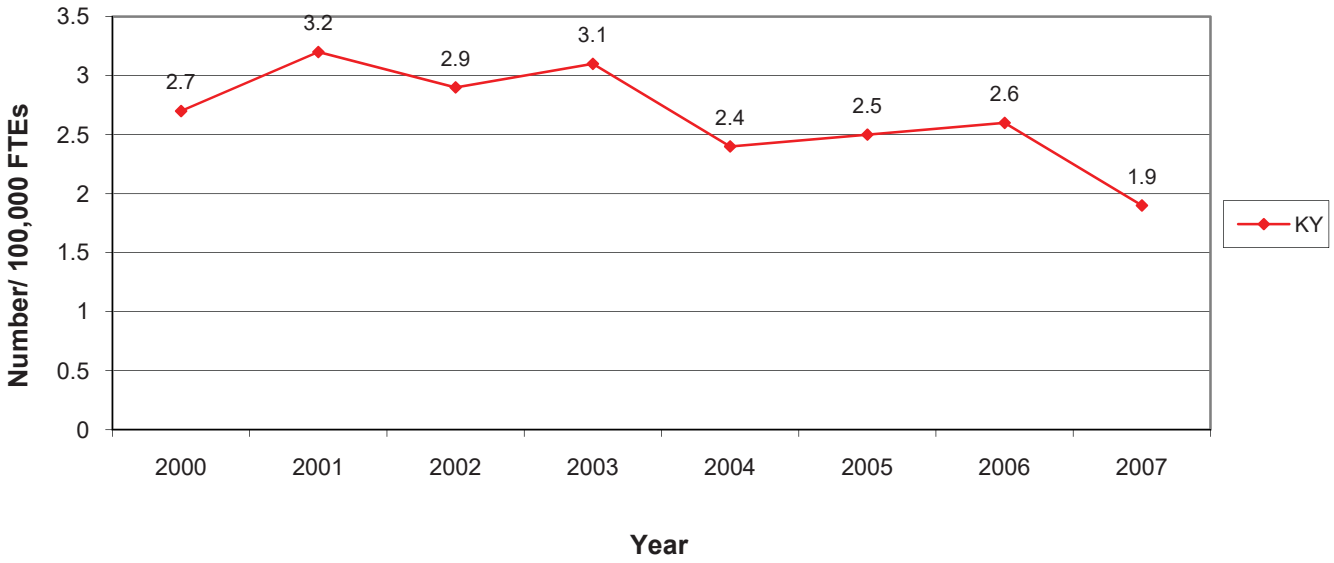
For more information, contact:
Kentucky Injury Prevention and Research Center (KIPRC)
333 Waller Ave., Suite 206
Lexington, KY 40504
1-800-204-3223 (toll-free)
www.kiprc.uky.edu

The Occupational Safety and Health surveillance (KOSHS) and KY Fatality Assessment and Control Evaluation (FACE) programs are funded by the National Institute for Occupational Safety and Health (NIOSH) (Cooperative Agreement No: 1U60OH000483-01).

Indicator #6: Work-Related Burn Hospitalizations

There were 36 work-related burn hospitalization cases in 2007 (most recent year available), down from 50 in 2006. The annual crude rate for work-related burn hospitalizations was 1.9 per 100,000 employed persons in 2007. Kentucky work-related burn hospitalization rates have been decreasing (Figure 6).

Figure 6. Rate of Hospitalizations for Work-Related Burns for Kentucky, 2000-2007.



Data Source: Kentucky Department for Public Health hospital discharge data.

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Kentucky Injury Prevention and Research Center

Burn Awareness Week is Feburary 4-10, 2001

How to use this data.

In recognition of Burn Awareness Week, we would like to this opportunity to address occupational burn injuries. The Occupational Burn Surveillance Project at KIPRC collects data on work-related burn injuries from participating medical facilities in Kentucky. Since data collection began in April 1998, we have collected data on 430 cases of workers who sought medical treatment for a burn injury.

- 72% (309) were male and 28% (121) were female.
- 92% of the burns were treated on an outpatient basis, 7% required hospitalization and 1% were fatal.
- Age range was 14-69, with over one-third (37%) of the injuries occurring in the 20-29 age group.
- Most common types of burns: thermal (64%), chemical (16 %), welding flash (12%), electrical (5%).
- The occupation with the most injuries was food service workers, accounting for 30%. Burns in this occupation were most commonly caused by grease (38%), water/liquids (27%), food (12%) and grills/ovens (7%).

Our data show that inappropriate first aid treatments are often used for thermal burn injuries, such as vinegar, milk, cold pickle juice, butter, toothpaste, hot water and soap, and batter for frying food. Even though injury prevention is the primary goal, it is important for both supervisors and workers to know how to properly treat burn injuries when they do occur. In recognition of Burn Awareness Week, we would like to increase awareness of burn prevention as well as first aid.

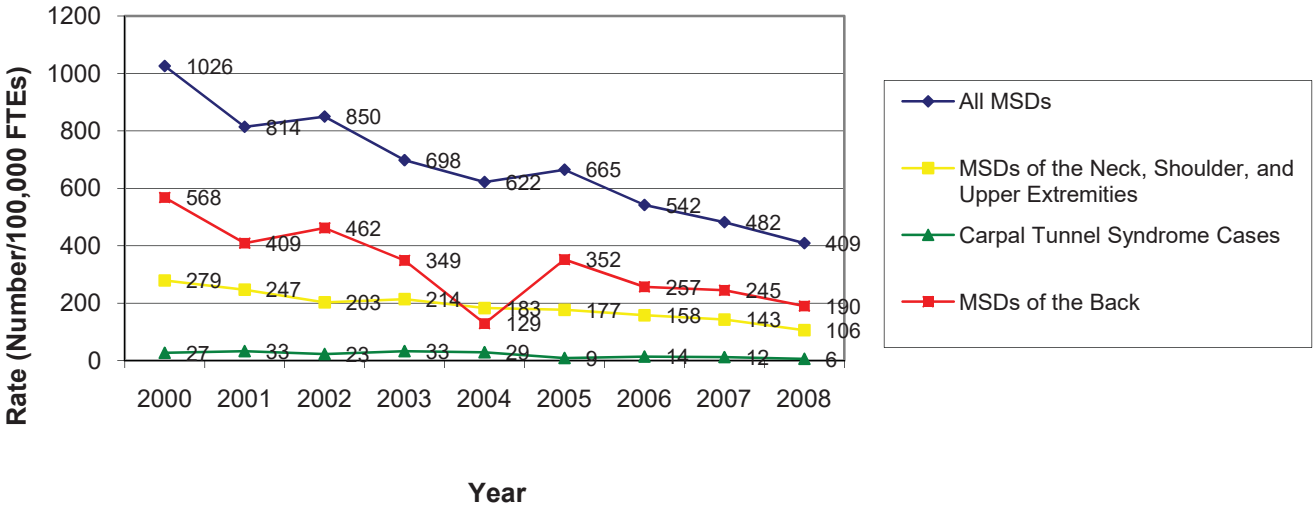
First Aid for Minor Thermal Burn Injuries

- The best first aid treatment for a thermal burn injury is to flush the burned area with low pressure running **cool water**.
- Don't apply ice for prolonged periods- it can be too harsh for burned skin and cause tissue damage.
- Cool water alone or a very mild soap can be used to gently clean the area.
- "Folk remedies" such as applying butter do not help the healing process and may increase the risk of infection if the burn is severe.
- Keep the burned area clean and dry as it heals. The area can be covered with a light bandage if needed and a small amount of an over-the-counter ointment can be applied to keep the bandage from sticking to the skin.
- Seek medical treatment when a burn covers a large area or there is extreme pain or loss of sensation.

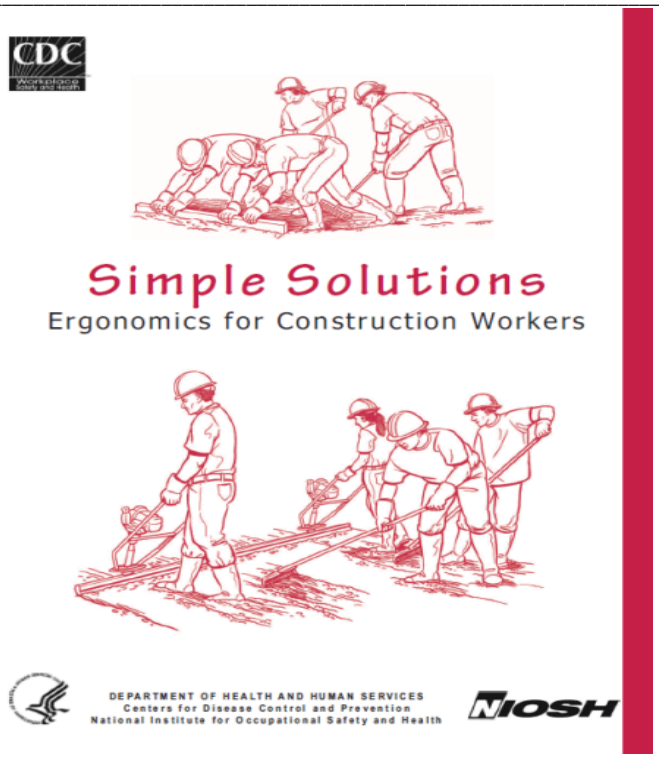
Indicator #7: Work-Related Musculoskeletal Disorders (MSDs) with Days Away From Work

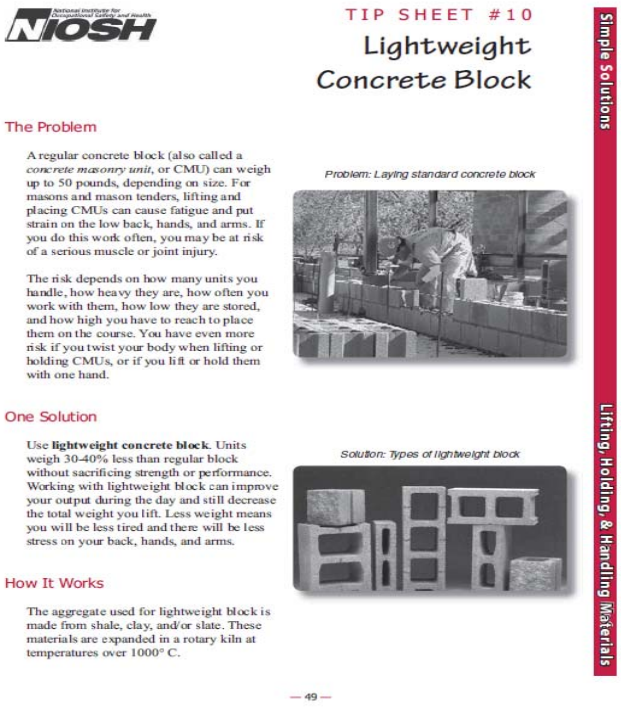
Kentucky had a total annual MSD incidence rate of 409 cases/100,000 FTEs in 2008 (Figure 7) and have decreased significantly since the year 2000. The Kentucky MSD incidence rate was 17% above the national rate (350 per 100,000 employees) in 2008.

Figure 7. Incidence Rates for Musculoskeletal Disorders in Kentucky Involving Days Away From Work, 2000-2008.



Data Source: Annual Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII).



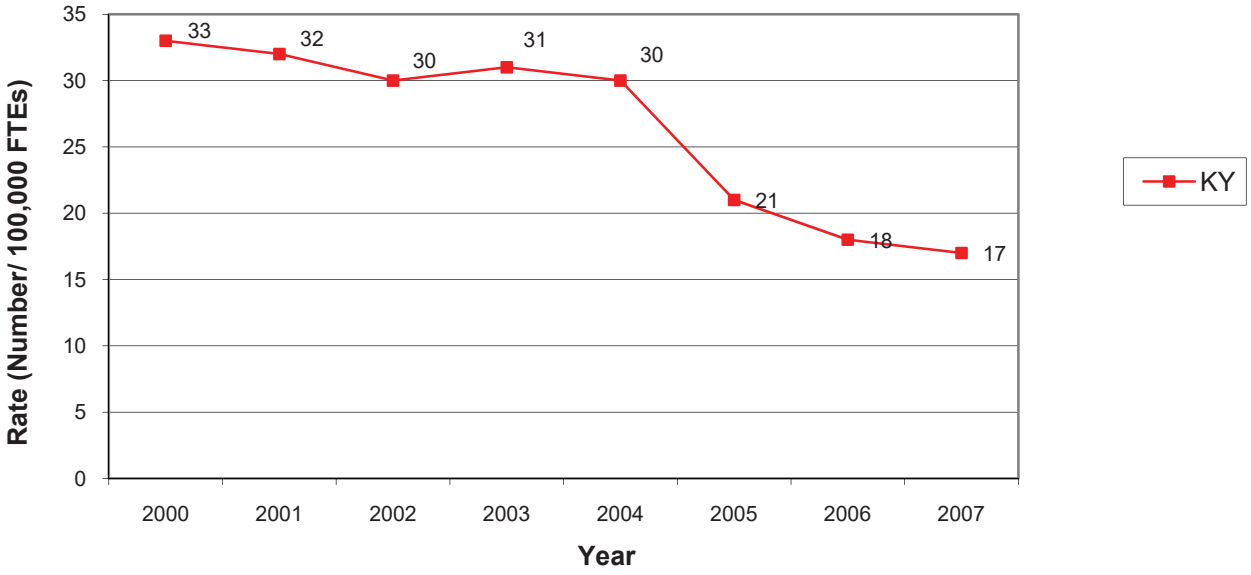


DHHS (NIOSH) Publication No. 2007–122, August 2007.

Indicator #8: Carpal Tunnel Syndrome Cases Filed with the State Workers' Compensation System by Injury Year

Carpal tunnel syndrome (CTS) case claim rates have declined 68% since the year 2000 (Figure 8). CTS claims occurred primarily among laborers except construction (n=26), and assemblers (n= 25).

Figure 8. Rate of Lost Work-Time Claims for Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation Systems for Kentucky, 2000-2007.



Data Source: Carpal tunnel syndrome claims data was provided by the Kentucky Department of Workers' Claims, Frankfort, KY.

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Carpal Tunnel Syndrome Fact Sheet

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Síndrome del Túnel Carpiano

Table of Contents (click to jump to sections)

You're working at your desk, trying to ignore the tingling or numbness you've had for months in your hand and wrist. Suddenly, a sharp, piercing pain shoots through the wrist and up your arm. Just a passing cramp? More likely you have carpal tunnel syndrome, a painful progressive condition caused by compression of a key nerve in the wrist.

top

What is carpal tunnel syndrome?

Carpal tunnel syndrome occurs when the median nerve, which runs from the forearm into the hand, becomes pressed or squeezed at the wrist. The median nerve controls sensations to the palm side of the thumb and fingers (although not the little finger), as well as impulses to some small muscles in the hand that allow the fingers and thumb to move. The carpal tunnel - a narrow, rigid passageway of ligament and bones at the base of the hand - houses the median nerve and tendons. Sometimes, thickening from irritated tendons or other swelling narrows the tunnel and causes the median nerve to be compressed. The result may be pain, weakness, or numbness in the hand and wrist, radiating up the arm. Although painful sensations may indicate other conditions, carpal tunnel syndrome is the most common and widely known of the entrapment neuropathies in which the body's peripheral nerves are compressed or traumatized.

How is carpal tunnel syndrome treated?

Treatments for carpal tunnel syndrome should begin as early as possible, under a doctor's direction. Underlying causes such as diabetes or arthritis should be treated first. Initial treatment generally involves resting the affected hand and wris for at least 2 weeks, avoiding activities that may worsen symptoms, and immobilizing the wrist in a splint to avoid furthe damage from twisting or bending. If there is inflammation, applying cool packs can help reduce swelling.

Non-surgical treatments

Drugs - In special circumstances, various drugs can ease the pain and swelling associated with carpal tunnel syndrome Nonsteroidal anti-inflammatory drugs, such as aspirin, ibuprofen, and other nonprescription pain relievers, may ease symptoms that have been present for a short time or have been caused by strenuous activity. Orally administered diuretics ("water pills") can decrease swelling. Corticosteroids (such as prednisone) or the drug lidocaine can be injecte directly into the wrist or taken by mouth (in the case of prednisone) to relieve pressure on the median nerve and provide immediate, temporary relief to persons with mild or intermittent symptoms. (Caution: persons with diabetes and those who may be predisposed to diabetes should note that prolonged use of corticosteroids can make it difficult to regulate insulin levels. Corticosteriods should not be taken without a doctor's prescription.) Additionally, some studies show that vitamin B^6 (pyridoxine) supplements may ease the symptoms of carpal tunnel syndrome.

Exercise - Stretching and strengthening exercises can be helpful in people whose symptoms have abated. These exercises may be supervised by a physical therapist, who is trained to use exercises to treat physical impairments, or an occupational therapist, who is trained in evaluating people with physical impairments and helping them build skills to improve their health and well-being.

Alternative therapies - Acupuncture and chiropractic care have benefited some patients but their effectiveness remains unproved. An exception is yoga, which has been shown to reduce pain and improve grip strength among patients with carpal tunnel syndrome.

Surgery

Carpal tunnel release is one of the most common surgical procedures in the United States. Generally recommended if symptoms last for 6 months, surgery involves severing the band of tissue around the wrist to reduce pressure on the median nerve. Surgery is done under local anesthesia and does not require an overnight hospital stay. Many patients require surgery on both hands. The following are types of carpal tunnel release surgery:

Open release surgery, the traditional procedure used to correct carpal tunnel syndrome, consists of making an incision up to 2 inches in the wrist and then cutting the carpal ligament to enlarge the carpal tunnel. The procedure is generally done under local anesthesia on an outpatient basis, unless there are unusual medical considerations.

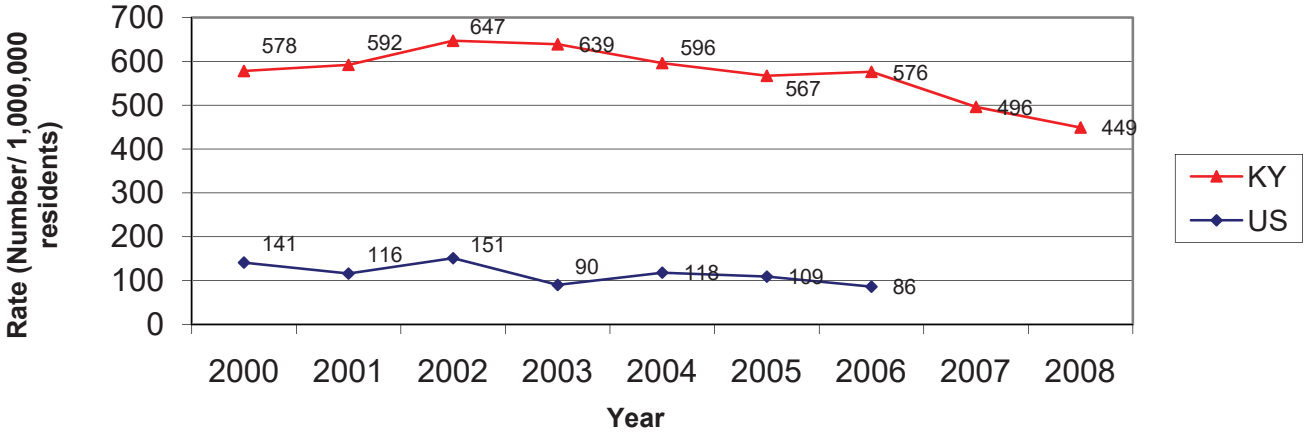
Endoscopic surgery may allow faster functional recovery and less postoperative discomfort than traditional open release surgery. The surgeon makes two incisions (about ½" each) in the wrist and palm, inserts a camera attached to a tube, observes the tissue on a screen, and cuts the carpal ligament (the tissue that holds joints together). This two-portal endoscopic surgery, generally performed under local anesthesia, is effective and minimizes scarring and scar tenderness, if any. One-portal endoscopic surgery for carpal tunnel syndrome is also available.

Although symptoms may be relieved immediately after surgery, full recovery from carpal tunnel surgery can take months Some patients may have infection, nerve damage, stiffness, and pain at the scar. Occasionally the wrist loses strength because the carpal ligament is cut. Patients should undergo physical therapy after surgery to restore wrist strength. Some patients may need to adjust job duties or even change jobs after recovery from surgery.

Indicator #9: Hospitalization From or With Pneumoconiosis

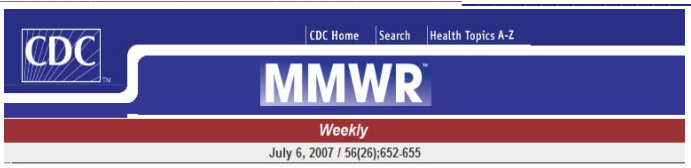
The annual rate of pneumoconiosis hospitalizations per million residents in Kentucky decreased from an age-standardized rate of 578/million residents in 2000 to a rate of 449/million residents in 2008 (Figure 9).

Figure 9. Age-Standardized Rates of Hospitalizations from or With Total Pneumoconiosis for Kentucky and the U.S., 2000-2008[ab].



[a] The above rates are based on the number of hospitalizations.
[b] U.S. rates are not yet available for years 2007 and 2008.

Data Source: Kentucky Department for Public Health UB92 hospital discharge data.



Advanced Pneumoconiosis Among Working Underground Coal Miners --- Eastern Kentucky and Southwestern Virginia, 2006

Current regulations for U.S. underground coal mines, mandated by federal legislation in 1969 and amended in 1977, include provisions to prevent the occurrence of pneumoconiosis* (*1*). However, in 2005 and 2006, clusters of rapidly progressing and potentially disabling pneumoconiosis were reported in certain geographic areas (*2*,*3*). In response to these reports, CDC's National Institute for Occupational Safety and Health (NIOSH) instituted field surveys conducted under the Enhanced Coal Workers' Health Surveillance Program (ECWHSP).† This report describes the results of those surveys, which were conducted in three counties in eastern Kentucky (Knott, Letcher, and Pike) and four counties in southwestern Virginia (Buchanan, Dickenson, Tazewell, and Wise). A total of 37 cases of advanced pneumoconiosis (including four cases reported previously) were identified. Measures are needed to prevent further occurrence of this disease among underground coal miners.

The ECWHSP team visited 26 sites in the seven counties. All 4,897 miners listed on the rosters of active underground coal mines were notified of the field survey program by mail and told when and where the ECWHSP mobile examination unit would be in operation. During the medical surveys, standardized questionnaires, spirometry (lung-capacity testing), and chest radiography were administered according to NIOSH-specified procedures. Radiographs were classified by NIOSH-certified B Readers according to international standards§ (*4*). A total of 975 (20%) of the 4,897 miners were tested; 37 (4%) of those tested had advanced pneumoconiosis.

The national chest radiograph program recommends that all miners receive an initial radiograph upon hire, a second radiograph after 3 years, and additional radiographs at 5-year intervals for the remainder of their careers. However, medical record data indicated that all 37 miners had worked underground for at least one interval of ≥10 years without a chest radiograph. Twenty-two (59%) of the miners had worked for at least a 20-year interval without a chest radiograph, and two had worked for >30 years without a radiograph. The following descriptions of four of the 37 cases exemplify the different patterns of exposure to coal-mine dust and development of advanced pneumoconiosis observed among the miners surveyed.

Case Descriptions

Case 1. A man from Wise County, Virginia, began work as an underground coal miner in 1970, at age 22 years. He worked underground for 31 years, all but 2 years in coal-face¶ jobs. In 2001, he began work in other areas underground, and his chest radiograph indicated category 2/1 small opacities (*4*). In 2006, at age 58 years, his ECWHSP radiograph indicated progression to 2/3. His exposure history (i.e., limited exposure to silica dust) and slow disease progression were consistent with coal workers' pneumoconiosis (CWP).

Case 2. A man from Pike County, Kentucky, began work as an underground coal miner in 1976, at age 18 years. After 23 years in coal-face jobs, in 1999, his chest radiograph indicated no evidence of pneumoconiosis. Seven years later, at age 48 years, he participated in a health survey through ECWHSP, and his radiograph revealed category 2/2 small opacities and stage B progressive massive fibrosis (PMF). This rapid disease development is atypical of the usual clinical progression of CWP, which can take 20--40 years to develop, and is more consistent with silicosis. However, the man's disease developed without apparent exposure to silica dust.

Case 3. A man from Letcher County, Kentucky, began work as an underground coal miner in 1972, at age 18 years. By 2003, at age 49 years, he had spent 6 years at the coal face and 25 years as a roofbolter,** and a chest radiograph indicated category 1/2 small opacities, suggesting simple pneumoconiosis. During 2003--2006, the man continued to work at the coal face. In 2006, he participated in ECWHSP, and his chest radiograph indicated progression to category 2/2 small opacities. Although he had spent most of his mining years as a roofbolter, a job generally associated with silica-dust exposure, his disease development pattern was more consistent with CWP than silicosis.

Case 4. A man from Buchanan County, Virginia, began work as an underground coal miner in 1971, at age 20 years. In 2001, after 30 years working in jobs at the coal face and roofbolting, he had category 0/1 small opacities. After 5 more years of similar work, at age 55 years, he participated in ECWHSP, and his disease had progressed to category 1/2 simple small opacities and stage B PMF. This exposure pattern and accelerated clinical course is more consistent with silicosis development than CWP.

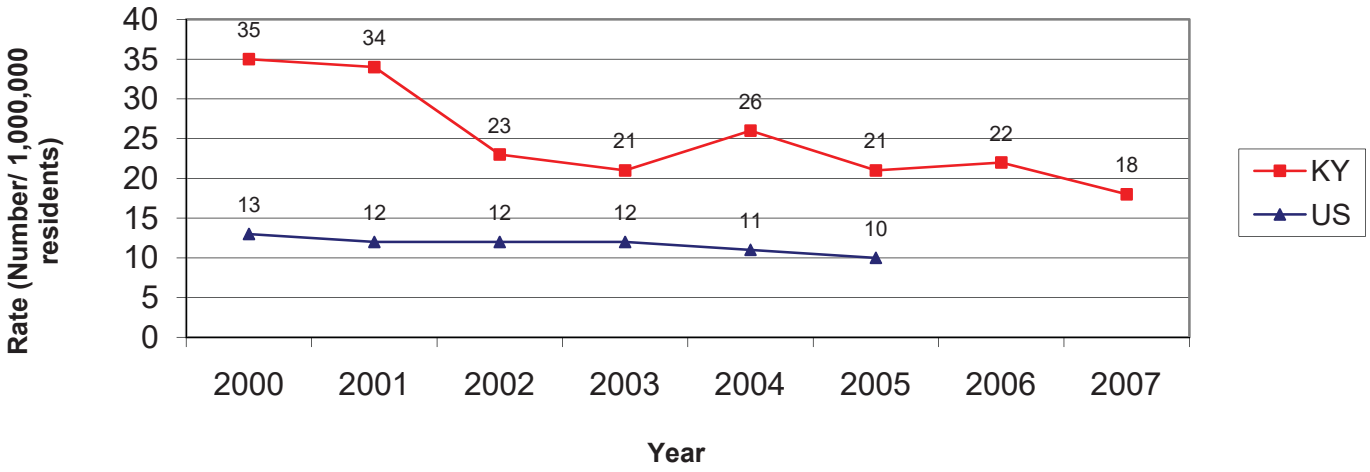
Field Survey Findings

Silica dust is more toxic to lungs than coal-mine dust, and categorization by exposure to these two types of dust can be a useful way to differentiate lung disease and identify causative factors. The 37 miners with advanced pneumoconiosis were categorized into two groups according to their occupation exposures: those who had worked in jobs with known exposure to silica dust (roofbolters or drillers) and those who had worked in jobs not typically associated with silica-dust exposure (coal-face jobs only) (Table). Job information was summarized from self-reported work histories collected at each medical examination. Eleven miners (more likely at risk for CWP) reported working only in coal-face jobs and other mining jobs not historically associated with the high silica-dust levels that might result in silicosis. Twenty-six miners (more likely at risk for silicosis) included 25 who had worked as roofbolters and one who had not been a roofbolter but had worked for 8 years as a driller at a surface coal mine; both jobs are historically associated with exposure to higher levels of silica dust.

Indicator #10: Mortality From or With Pneumoconiosis

Deaths from pneumoconiosis numbered 62 in 2007, down from 74 in the year 2006. The age-adjusted total death rate for pneumoconiosis was 18 per million residents in 2007. Kentucky's total pneumoconiosis mortality rate has decreased overall since the year 2000 (Figure 10); coal workers' pneumoconiosis mortality rates have decreased since the year 2000. In 2007, coal workers' pneumoconiosis accounted for 42 occupational deaths (age-adjusted rate of 12/million residents). This rate is significantly decreased from the 73 deaths reported in 2000 (age-adjusted death rate of 23 per million residents).

Figure 10. Age-Standardized Mortality Rate From or With Total Pneumoconiosis for Kentucky and U.S., 2000-2007[a].



[a]U.S. rates are not yet available for years 2006- 2007.

Data Source: State pneumoconiosis mortality data was obtained from the Kentucky Department for Public Health Office of Vital Statistics.

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Weekly
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Coal Workers' Pneumoconiosis-Related Years of Potential Life Lost Before Age 65 Years --- United States, 1968--2006

Coal workers' pneumoconiosis (CWP) is a preventable, slowly progressive parenchymal lung disease caused by inhalation and deposition of coal mine dust in the lungs. The incidence and rate of CWP progression is related to the amount of respirable coal dust to which miners were exposed during their working lifetime (*1*). Early pneumoconiosis can be asymptomatic, but advanced disease often leads to disability and premature death (*1*,*2*). To characterize the impact of premature mortality attributed to CWP in the United States, CDC's National Institute for Occupational Safety and Health (NIOSH) analyzed annual underlying cause of death data from 1968--2006, the most recent years for which complete data were available. Years of potential life lost before age 65 years (YPLL), and mean YPLL were calculated using standard methodology. This report describes the results of that analysis, which indicate that during 1968--2006, a total of 22,625 YPLL were attributed to CWP (mean per decedent: 5.7). Annual YPLL attributed to CWP decreased 91.2%, from an average of 1,484 YPLL per year during 1968--1972 to 154 per year during 2002--2006. However, annual YPLL from CWP have been increasing since 2002, from 135 in that year to 169 YPLL in 2006, suggesting a need for strengthening CWP prevention measures. CDC intends to maintain surveillance of CWP deaths to determine future trends and promote safer work environments.

NIOSH maintains a mortality surveillance system for work-related respiratory diseases.* Data are drawn from CDC's National Center for Health Statistics (NCHS) multiple cause-of-death data files, which include all deaths in the United States since 1968. YPLL and mean YPLL (*3*) were calculated using mortality data for 5-year age groups. For this analysis, decedents for whom the *International Classification of Diseases* (ICD) code for CWP was listed as the underlying† cause of death were identified from 1968--2006 mortality data.§ Deaths with the ICD-10 underlying cause of death coded as J65 (pneumoconiosis associated with tuberculosis) were included if code J60 (coal workers' pneumoconiosis) also was recorded on the death certificate.¶ Because CWP results solely from >10 years of occupational exposure (*1*,*2*), only deaths of persons aged ≥25 years were considered. A simple linear regression model was used for time-trend analysis of YPLL (using 5-year moving averages).

During 1968--2006, CWP was identified as the underlying cause of death for 28,912 decedents aged ≥25 years. Of these, 3,983 (13.8%) were aged 25--64 years, including four (0.1%) aged 25--34 years, 40 (1.0%) aged 35--44 years, 494 (12.4%) aged 45--54 years, and 3,445 (86.5%) aged 55--64 years, accounting for 22,625 YPLL (mean per decedent: 5.7). Among CWP decedents aged 25--64 years, 3,954 (99.3%) were male and 3,891 (97.7%) were white, accounting for 22,283 (98.5%) and 21,893 (96.8%) YPLL, respectively (Table). The mean YPLL per decedent was greatest for the few females (11.8) and blacks (8.1).

Overall, CWP deaths among U.S. residents aged ≥25 years declined 73%, from an average of 1,106.2 per year during 1968--1972 to 300.0 per year during 2002--2006 (regression trend, $p<0.001$). Age-adjusted death rates among residents aged 25--64 years declined 96%, from 1.78 per million in 1968 to 0.07 in 2006; age-adjusted death rates among residents aged ≥65 years declined 84%, from 6.24 per million in 1968 to 1.02 in 2006 (Figure 1).

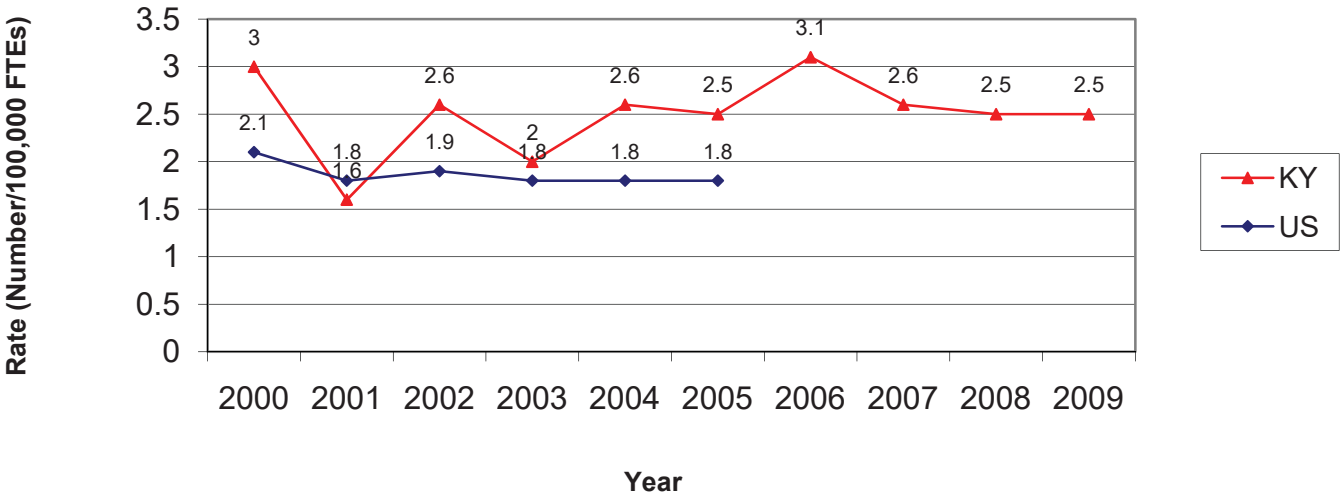
CWP-attributable YPLL varied annually, from a high of 1,768 (mean per decedent: 6.0) in 1970 to a low of 66 (mean per decedent: 5.5) in 2001 (Figure 2). YPLL increased from 66 in 2001 to 198 in 2005, and then declined to 169 in 2006. Overall, YPLL decreased 91%, from an average of 1,484.2 per year during 1968--1972 to 153.8 per year during 2002--2006 (regression trend, $p<0.001$). The mean YPLL per decedent increased 47%, from 5.3 per decedent during 1968--1972 to 7.8 during 2002--2006 (regression trend, $p<0.001$). During 1968--2006, CWP deaths in Pennsylvania (2,845; 15,420 YPLL), West Virginia (281; 1,640 YPLL), Virginia (191; 1,314 YPLL), Kentucky (209; 1,273 YPLL), and Ohio (91; 543 YPLL) accounted for 90.8% of all decedents aged 25--64 years with CWP as the underlying cause of death and 89.2% of the total YPLL attributed to CWP (Table).

Reported by: *JM Mazurek, MD, AS Laney, PhD, JM Wood, MS, Div of Respiratory Disease Studies, National Institute for Occupational Safety and Health, CDC.*

Indicator #11: Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers

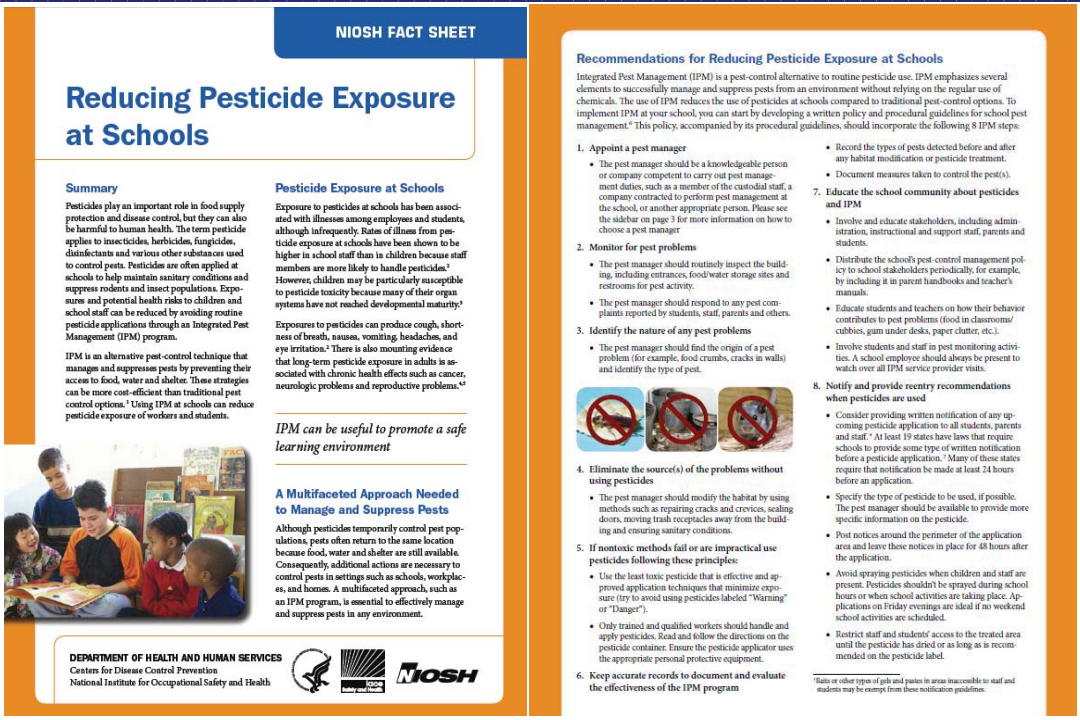
In 2009, 47 pesticide poisoning cases were reported to the Kentucky Regional Poison Control Center, equal to the 47 cases reported in 2008. The annual incidence rate of reported work-related pesticide poisonings in 2009 was 2.5/100,000 FTEs. The pesticide exposures were primarily due to hypochlorite disinfectants (n= 14, 30%), and disinfectant industrial cleaners (n=9, 19%) (Figure 11).

Figure 11. Rate of Work-Related Pesticide-Associated Poisonings for Kentucky and U.S., 2000-2009[a].



[a]U.S. rates are not yet available for years 2006-2009.

Data Source: Kentucky Regional Poison Control Center, Louisville, KY.



NIOSH FACT SHEET

Reducing Pesticide Exposure at Schools

Summary

Pesticides play an important role in food supply protection and disease control, but they can also be harmful to human health. The term pesticide applies to insecticides, herbicides, fungicides, disinfectants and various other substances used to control pests. Pesticides are often applied at schools to help maintain sanitary conditions and suppress rodents and insect populations. Exposures and potential health risks to children and school staff can be reduced by avoiding routine pesticide applications through an Integrated Pest Management (IPM) program.

IPM is an alternative pest-control technique that manages and suppresses pests by preventing their access to food, water and shelter. These strategies can be more cost-efficient than traditional pest control options.[1] Using IPM at schools can reduce pesticide exposure of workers and students.

Pesticide Exposure at Schools

Exposure to pesticides at schools has been associated with illnesses among employees and students, although infrequently. Rates of illness from pesticide exposure at schools have been shown to be higher in school staff than in children because staff members are more likely to handle pesticides.[2] However, children may be particularly susceptible to pesticide toxicity because many of their organ systems have not reached developmental maturity.[3]

Exposures to pesticides can produce cough, shortness of breath, nausea, vomiting, headaches, and eye irritation.[2] There is also mounting evidence that long-term pesticide exposure in adults is associated with chronic health effects such as cancer, neurologic problems and reproductive problems.[4,5]

IPM can be useful to promote a safe learning environment

A Multifaceted Approach Needed to Manage and Suppress Pests

Although pesticides temporarily control pest populations, pests often return to the same location because food, water and shelter are still available. Consequently, additional actions are necessary to control pests in settings such as schools, workplaces, and homes. A multifaceted approach, such as an IPM program, is essential to effectively manage and suppress pests in any environment.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control Prevention
National Institute for Occupational Safety and Health

NIOSH

Recommendations for Reducing Pesticide Exposure at Schools

Integrated Pest Management (IPM) is a pest-control alternative to routine pesticide use. IPM emphasizes several elements to successfully manage and suppress pests from an environment without relying on the regular use of chemicals. The use of IPM reduces the use of pesticides at schools compared to traditional pest-control options. To implement IPM at your school, you can start by developing a written policy and procedural guidelines for school pest management.[6] This policy, accompanied by its procedural guidelines, should incorporate the following 8 IPM steps:

1. **Appoint a pest manager**
   - The pest manager should be a knowledgeable person or company competent to carry out pest management duties, such as a member of the custodial staff, a company contracted to perform pest management at the school, or another appropriate person. Please see the sidebar on page 3 for more information on how to choose a pest manager
2. **Monitor for pest problems**
   - The pest manager should routinely inspect the building, including entrances, food/water storage sites and restrooms for pest activity.
   - The pest manager should respond to any pest complaints reported by students, staff, parents and others.
3. **Identify the nature of any pest problems**
   - The pest manager should find the origin of a pest problem (for example, food crumbs, cracks in walls) and identify the type of pest.

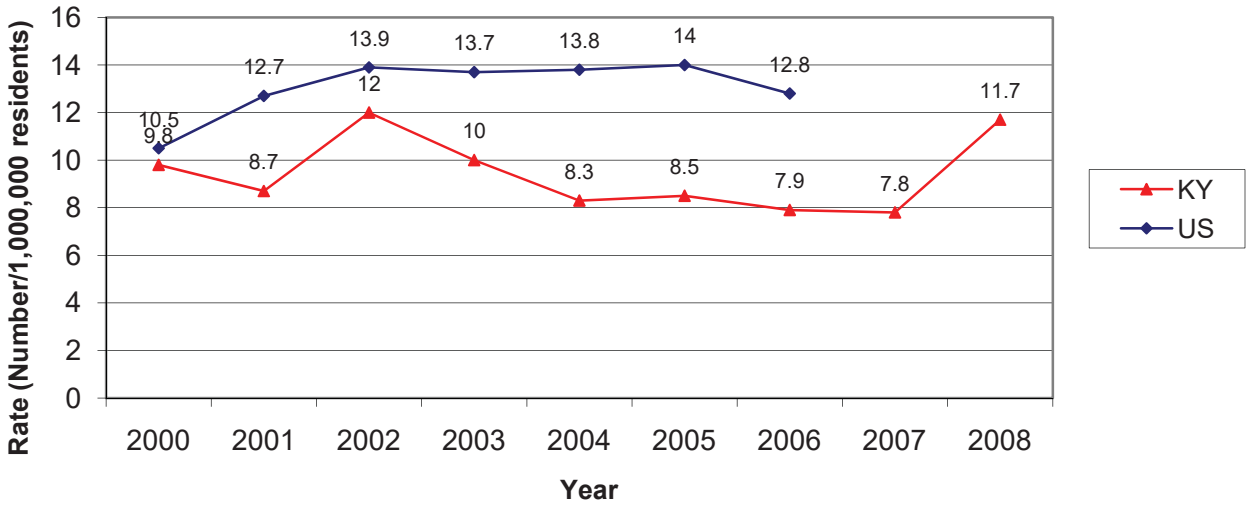
4. **Eliminate the source(s) of the problems without using pesticides**
   - The pest manager should modify the habitat by using methods such as repairing cracks and crevices, sealing doors, moving trash receptacles away from the building and ensuring sanitary conditions.
5. **If nontoxic methods fail or are impractical use pesticides following these principles:**
   - Use the least toxic pesticide that is effective and approved application techniques that minimize exposure (try to avoid using pesticides labeled "Warning" or "Danger").
   - Only trained and qualified workers should handle and apply pesticides. Read and follow the directions on the pesticide container. Ensure the pesticide applicator uses the appropriate personal protective equipment.
6. **Keep accurate records to document and evaluate the effectiveness of the IPM program**
   - Record the types of pests detected before and after any habitat modification or pesticide treatment.
   - Document measures taken to control the pest(s).
7. **Educate the school community about pesticides and IPM**
   - Involve and educate stakeholders, including administration, instructional and support staff, parents and students.
   - Distribute the school's pest-control management policy to school stakeholders periodically, for example, by including it in parent handbooks and teacher's manuals.
   - Educate students and teachers on how their behavior contributes to pest problems (food in classrooms/cubbies, gum under desks, paper clutter, etc.).
   - Involve students and staff in pest monitoring activities. A school employee should always be present to watch over all IPM service provider visits.
8. **Notify and provide reentry recommendations when pesticides are used**
   - Consider providing written notification of any upcoming pesticide application to all students, parents and staff.[7] At least 19 states have laws that require schools to provide some type of written notification before a pesticide application.[7] Many of these states require that notification be made at least 24 hours before an application.
   - Specify the type of pesticide to be used, if possible. The pest manager should be available to provide more specific information on the pesticide.
   - Post notices around the perimeter of the application area and leave these notices in place for 48 hours after the application.
   - Avoid spraying pesticides when children and staff are present. Pesticides shouldn't be sprayed during school hours or when school activities are taking place. Applications on Friday evenings are ideal if no weekend school activities are scheduled.
   - Restrict staff and students' access to the treated area until the pesticide has dried or as long as is recommended on the pesticide label.

[7]Baits or other types of gels and pastes in areas inaccessible to staff and students may be exempt from these notification guidelines.

Indicator #12: Incidence of Malignant Mesothelioma

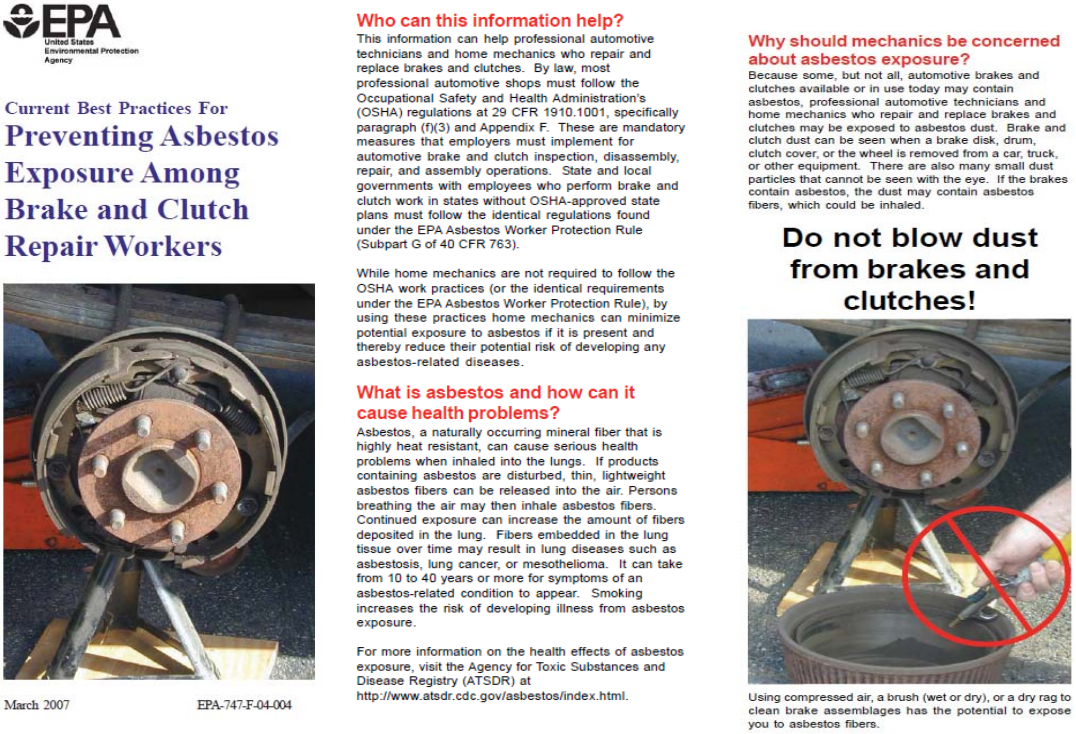
Malignant mesothelioma is a rare cancer of the lining of the chest or abdomen and has been associated with exposure to airborne asbestos particles. Malignant mesothelioma annual incidence rates were determined for 2008. The age-adjusted rate was 11.7 cases per million residents (37 cases) in 2008, compared to 7.8 cases per million in 2007 (Figure 12).

Figure 12. Age-Standardized Incidence Rate of Malignant Mesothelioma, 2000-2008[a].



[a]U.S. rate data is not yet available for years 2007-2008.

Data Source: Kentucky Cancer Registry.



EPA
United States Environmental Protection Agency

Current Best Practices For

Preventing Asbestos Exposure Among Brake and Clutch Repair Workers

March 2007 EPA-747-F-04-004

Who can this information help?

This information can help professional automotive technicians and home mechanics who repair and replace brakes and clutches. By law, most professional automotive shops must follow the Occupational Safety and Health Administration's (OSHA) regulations at 29 CFR 1910.1001, specifically paragraph (f)(3) and Appendix F. These are mandatory measures that employers must implement for automotive brake and clutch inspection, disassembly, repair, and assembly operations. State and local governments with employees who perform brake and clutch work in states without OSHA-approved state plans must follow the identical regulations found under the EPA Asbestos Worker Protection Rule (Subpart G of 40 CFR 763).

While home mechanics are not required to follow the OSHA work practices (or the identical requirements under the EPA Asbestos Worker Protection Rule), by using these practices home mechanics can minimize potential exposure to asbestos if it is present and thereby reduce their potential risk of developing any asbestos-related diseases.

What is asbestos and how can it cause health problems?

Asbestos, a naturally occurring mineral fiber that is highly heat resistant, can cause serious health problems when inhaled into the lungs. If products containing asbestos are disturbed, thin, lightweight asbestos fibers can be released into the air. Persons breathing the air may then inhale asbestos fibers. Continued exposure can increase the amount of fibers deposited in the lung. Fibers embedded in the lung tissue over time may result in lung diseases such as asbestosis, lung cancer, or mesothelioma. It can take from 10 to 40 years or more for symptoms of an asbestos-related condition to appear. Smoking increases the risk of developing illness from asbestos exposure.

For more information on the health effects of asbestos exposure, visit the Agency for Toxic Substances and Disease Registry (ATSDR) at http://www.atsdr.cdc.gov/asbestos/index.html.

Why should mechanics be concerned about asbestos exposure?

Because some, but not all, automotive brakes and clutches available or in use today may contain asbestos, professional automotive technicians and home mechanics who repair and replace brakes and clutches may be exposed to asbestos dust. Brake and clutch dust can be seen when a brake disk, drum, clutch cover, or the wheel is removed from a car, truck, or other equipment. There are also many small dust particles that cannot be seen with the eye. If the brakes contain asbestos, the dust may contain asbestos fibers, which could be inhaled.

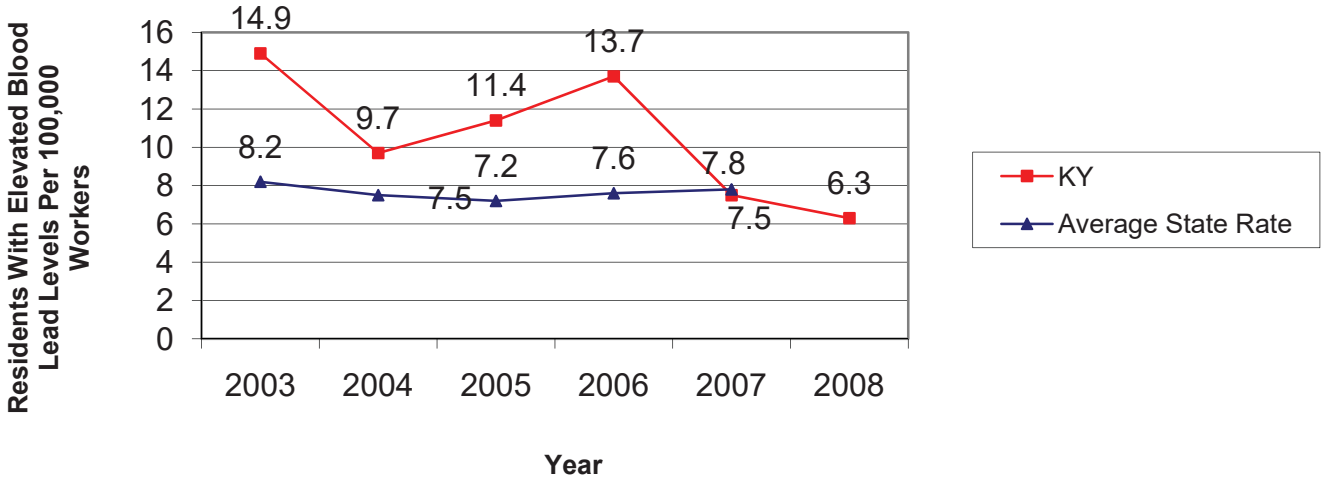
Do not blow dust from brakes and clutches!

Using compressed air, a brush (wet or dry), or a dry rag to clean brake assemblages has the potential to expose you to asbestos fibers.

Indicator # 13: Elevated Blood Lead Levels among Adults

Lead exposure is considered elevated in an adult when it reaches 25 µg/dL. In 2008, Kentucky's prevalence rate of persons with blood lead levels ≥ 25µg/dL was 6.3 cases per 100,000 workers; there were 0.9 cases per 100,000 workers with 40µg/dL blood lead levels (Figure 13).

Figure 13. Prevalence Rate of Persons with Blood Lead Levels ≥ 25µg/dl Aged 16 Years or Older, 2003-2008.



Data Source: Kentucky Lead Poisoning Prevention Program, Division of Adult and Child Health, Frankfort, KY. US rates were obtained from the NIOSH ABLES program.

OSHA FactSheet

Protecting Workers from Lead Hazards

Cleaning up after a flood requires hundreds of workers to renovate and repair, or tear down and dispose of, damaged or destroyed structures and materials. Repair, renovation and demolition operations often generate dangerous airborne concentrations of lead, a metal that can cause damage to the nervous system, kidneys, blood forming organs, and reproductive system if inhaled or ingested in dangerous quantities. The Occupational Safety and Health Administration (OSHA) has developed regulations designed to protect workers involved in construction activities from the hazards of lead exposure.

How You Can Become Exposed to Lead

Lead is an ingredient in thousands of products widely used throughout industry, including lead-based paints, lead solder, electrical fittings and conduits, tank linings, plumbing fixtures, and many metal alloys. Although many uses of lead have been banned, lead-based paints continue to be used on bridges, railways, ships, and other steel structures because of its rust- and corrosion-inhibiting properties. Also, many homes were painted with lead-containing paints. Significant lead exposures can also occur when paint is removed from surfaces previously covered with lead-based paint.

Operations that can generate lead dust and fumes include:

- Demolition of structures;
- Flame-torch cutting;
- Welding;
- Use of heat guns, sanders, scrapers, or grinders to remove lead paint; and
- Abrasive blasting of steel structures

OSHA has regulations governing construction worker exposure to lead. Employers of construction workers engaged in the repair, renovation, removal, demolition, and salvage of flood-damaged structures and materials are responsible for the development and implementation of a worker protection program in accordance with Title 29 Code of Federal Regulations (CFR), Part 1926.62. This program is essential to minimize worker risk of lead exposure. Construction projects vary in their scope and potential for exposing workers to lead and other hazards. Many projects involve only limited exposure, such as the removal of paint from a few interior residential surfaces, while others may involve substantial exposures. Employers must be in compliance with OSHA's lead standard at all times. A copy of the standard and a brochure — Lead in Construction (OSHA 3142) — describing how to comply with it, are available from OSHA Publications, P.O. Box 37535, Washington, D.C. 20013-7535, (202) 693-1888(phone), or (202) 693-2498(fax); or visit OSHA's website at www.osha.gov.

Major Elements of OSHA's Lead Standard

- A permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, as averaged over an 8-hour period.
- Requirements that employers use engineering controls and work practices, where feasible, to reduce worker exposure.
- Requirements that employees observe good personal hygiene practices, such as washing hands before eating and taking a shower before leaving the worksite.
- Requirements that employees be provided with protective clothing and, where necessary, with respiratory protection accordance with 29 CFR 1910.134.
- A requirement that employees exposed to high levels of lead be enrolled in a medical surveillance program.

Additional Information

For more information on this, and other health-related issues impacting workers, visit OSHA's Web site at www.osha.gov.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For more complete information:

OSHA Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

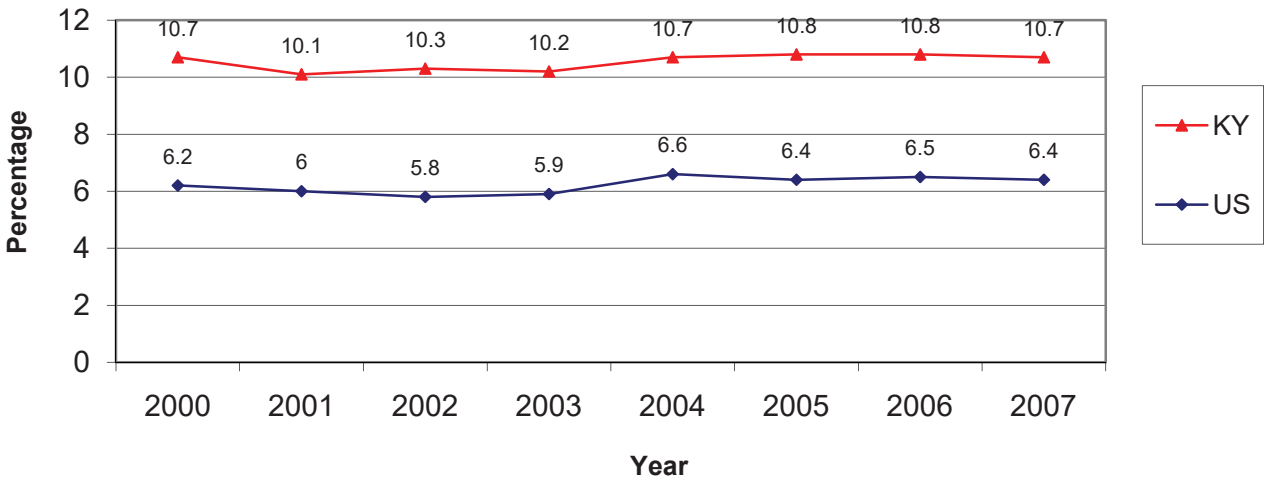
(800) 321-OSHA

DSTM 9/2005

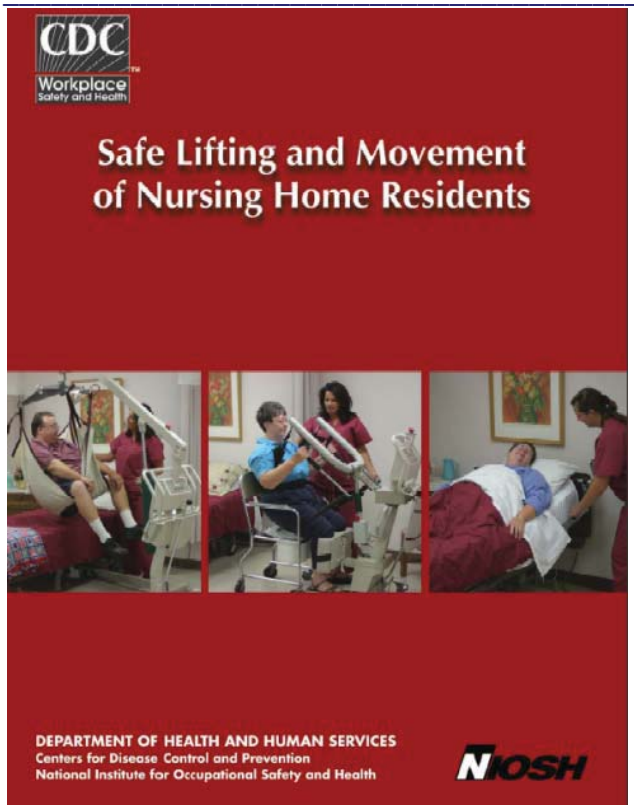
Indicator #14: Percentage of Workers Employed in Industries at High Risk for Occupational Morbidity

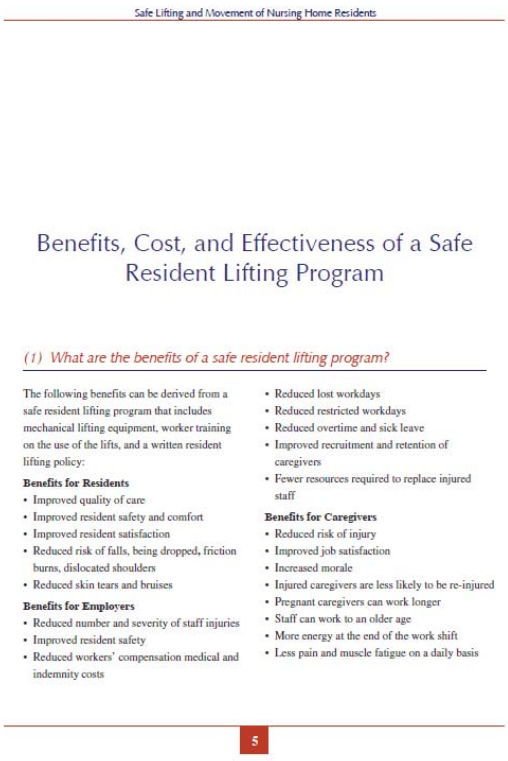
The percentage of Kentucky workers employed in high-risk industries for the year 2007 was 67% higher than the percentage of US workers employed in high risk industries (Figure 14) in the year 2007. The industries at greatest risk for occupational injury were nursing and residential care facilities, wood products manufacturing, and couriers and messengers.

Figure 14. Percentage of Workers in Industries with High Risk for Occupational Morbidity, 2000-2007.



Data Source: Bureau of the Census County Business Patterns (CBP)




Safe Lifting and Movement of Nursing Home Residents

Benefits, Cost, and Effectiveness of a Safe Resident Lifting Program

(1) What are the benefits of a safe resident lifting program?

The following benefits can be derived from a safe resident lifting program that includes mechanical lifting equipment, worker training on the use of the lifts, and a written resident lifting policy:

Benefits for Residents
- Improved quality of care
- Improved resident safety and comfort
- Improved resident satisfaction
- Reduced risk of falls, being dropped, friction burns, dislocated shoulders
- Reduced skin tears and bruises

Benefits for Employers
- Reduced number and severity of staff injuries
- Improved resident safety
- Reduced workers' compensation medical and indemnity costs
- Reduced lost workdays
- Reduced restricted workdays
- Reduced overtime and sick leave
- Improved recruitment and retention of caregivers
- Fewer resources required to replace injured staff

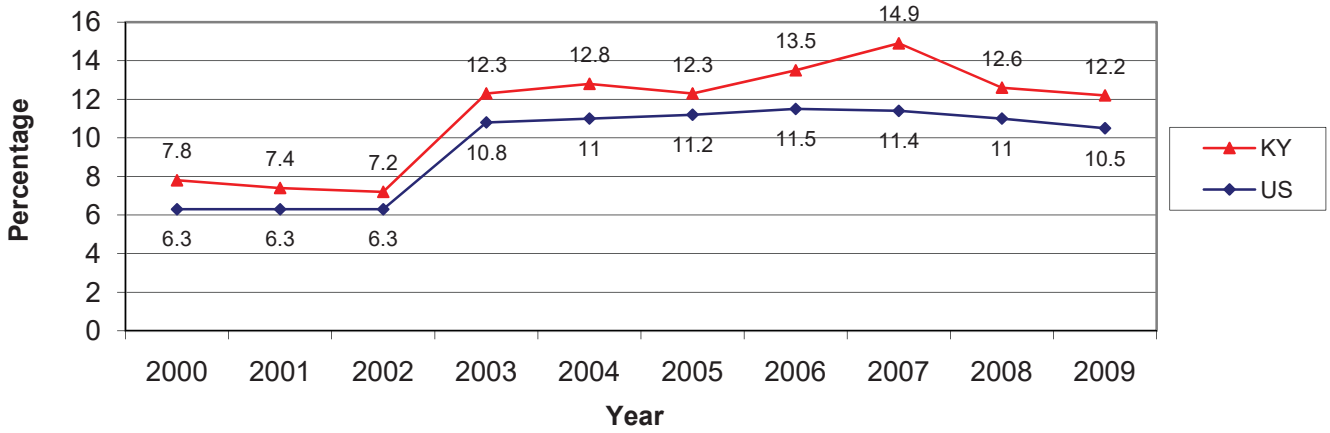
Benefits for Caregivers
- Reduced risk of injury
- Improved job satisfaction
- Increased morale
- Injured caregivers are less likely to be re-injured
- Pregnant caregivers can work longer
- Staff can work to an older age
- More energy at the end of the work shift
- Less pain and muscle fatigue on a daily basis

5

Indicator #15: Percentage of Workers Employed in Occupations at High Risk for Occupational Morbidity

The proportion of Kentucky workers employed in occupations at increased risk for occupational injury and/or illness in 2009 was 12.2%, 16% above the national percentage in high risk occupations (Figure 15). The occupation at highest risk for occupational injuries and illnesses in 2009 was the laborers, and freight, stock and material movers occupation (2.09% in KY compared to 1.22% in the US).

Figure 15. Percentage of Workers in Occupations with High Risk for Occupational Morbidity by State and U.S., 2000-2009[a].



[a] Selected high-risk occupations changed in 2003.

Data Source: Bureau of Labor Statistics (BLS) Current Population Survey (CPS)

Volume 7, Issue 4
November 2009

FACE THE FACTS HAZ ALERT

To prevent truck driver injuries while traversing distribution facilities:

- Drivers of yard tractors should ensure that a clear path is visible before moving the vehicle. Truck drivers should not approach such vehicles on foot until acknowledgment of contact has been made between both drivers.
- Do not enter behind the trailer until other vehicle drivers behind have come to a complete stop and parked the vehicle.
- Always wear reflective vests while traversing a distribution facility.
- Employers should develop and implement a comprehensive safety plan that addresses truck driver pedestrian traffic in freight distribution facilities.
- All air lines and electrical connections should be made between the yard tractor and trailer before moving the trailer.

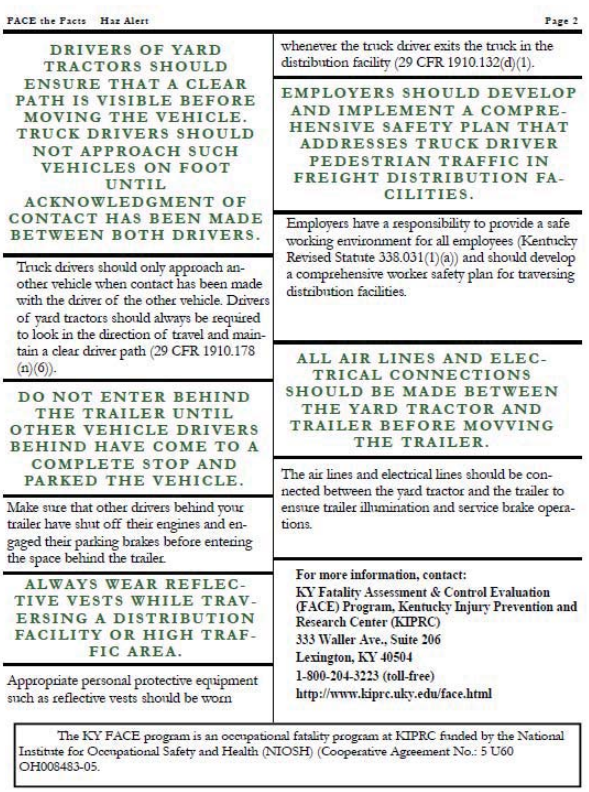
TRUCK DRIVERS KILLED AFTER EXITING SEMI TRACTORS AND BEING STRUCK BY OTHER SEMI TRACTORS IN DISTRIBUTION CENTER

During 2008-2009, two truck drivers were each killed after exiting their semi tractors when they were struck by other semi tractors. Following are the case descriptions for both truck driver deaths in Kentucky:

Case 1: A 57-year-old male truck driver, who worked for a private contractor, stopped at a distribution center guard shack at approximately 10am to have his trailer checked. While the truck driver was closing the doors on his trailer, he was struck from behind by another semi-truck who had pulled up behind him. The driver of the other vehicle was distracted and had accidentally released the brake pedal allowing the vehicle to roll forward. The driver was pinned between both vehicles and later died after being transported to the local hospital.

Case 2: A 68-year-old female truck driver, employed by a private contractor, exited her semi-truck in a freight loading area of a distribution center to speak with the driver of a spotter truck (yard tractor) who was backing up to drop and hook a trailer at approximately 5am. The driver of the yard tractor did not see the truck driver approaching, and struck and ran over the truck driver. The driver

TRUCK DRIVERS SHOULD ALWAYS WEAR REFLECTIVE VESTS AFTER EXITING THEIR SEMI-TRUCK AND TRAVERSING A DISTRIBUTION FACILITY.



FACE the Facts Haz Alert Page 2

DRIVERS OF YARD TRACTORS SHOULD ENSURE THAT A CLEAR PATH IS VISIBLE BEFORE MOVING THE VEHICLE. TRUCK DRIVERS SHOULD NOT APPROACH SUCH VEHICLES ON FOOT UNTIL ACKNOWLEDGMENT OF CONTACT HAS BEEN MADE BETWEEN BOTH DRIVERS.

Truck drivers should only approach another vehicle when contact has been made with the driver of the other vehicle. Drivers of yard tractors should always be required to look in the direction of travel and maintain a clear driver path (29 CFR 1910.178 (n)(6)).

DO NOT ENTER BEHIND THE TRAILER UNTIL OTHER VEHICLE DRIVERS BEHIND HAVE COME TO A COMPLETE STOP AND PARKED THE VEHICLE.

Make sure that other drivers behind your trailer have shut off their engines and engaged their parking brakes before entering the space behind the trailer.

ALWAYS WEAR REFLECTIVE VESTS WHILE TRAVERSING A DISTRIBUTION FACILITY OR HIGH TRAFFIC AREA.

Appropriate personal protective equipment such as reflective vests should be worn whenever the truck driver exits the truck in the distribution facility (29 CFR 1910.132(d)(1).

EMPLOYERS SHOULD DEVELOP AND IMPLEMENT A COMPREHENSIVE SAFETY PLAN THAT ADDRESSES TRUCK DRIVER PEDESTRIAN TRAFFIC IN FREIGHT DISTRIBUTION FACILITIES.

Employers have a responsibility to provide a safe working environment for all employees (Kentucky Revised Statute 338.031(1)(a)) and should develop a comprehensive worker safety plan for traversing distribution facilities.

ALL AIR LINES AND ELECTRICAL CONNECTIONS SHOULD BE MADE BETWEEN THE YARD TRACTOR AND TRAILER BEFORE MOVVING THE TRAILER.

The air lines and electrical lines should be connected between the yard tractor and the trailer to ensure trailer illumination and service brake operations.

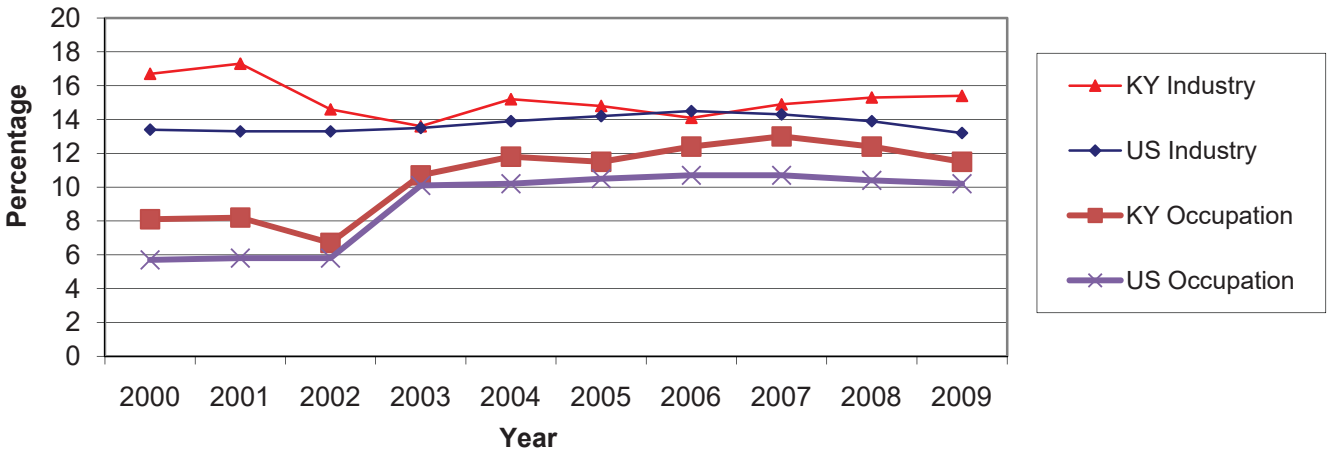
For more information, contact:
KY Fatality Assessment & Control Evaluation (FACE) Program, Kentucky Injury Prevention and Research Center (KIPRC)
333 Waller Ave., Suite 206
Lexington, KY 40504
1-800-204-3223 (toll-free)
http://www.kiprc.uky.edu/face.html

The KY FACE program is an occupational fatality program at KIPRC funded by the National Institute for Occupational Safety and Health (NIOSH) (Cooperative Agreement No.: 5 U60 OH008483-05.

Indicator #16: Percentage of Workers Employed in Industries and Occupations at High Risk for Occupational Mortality

The percentage of Kentucky workers employed in industries and occupations at high risk for occupational mortality was higher than for the US (13.2%) in 2009 (Figure 16). The industries at highest risk for occupational mortality were the construction (7.1%), and truck transportation (1.6%) industries, and the driver/sales workers and truck drivers (2.3%), and farmers and ranchers (1.3%) occupations.

Figure 16. Percentage of Workers Employed in Industries with High Risk for Occupational Mortality, 2000-2009.



Data Source: Bureau of Labor Statistics (BLS) Current Population Survey (CPS)

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October 2009

FACE THE FACTS HAZ ALERT

To prevent injuries while working with granite:

- A job hazard analysis should be conducted each day before work commences.
- Employees should be trained in proper material handling procedures that include handling and transport of granite slabs.
- Use slab carts or slab racks to transport granite slabs and use tie-downs to secure the granite slabs to the forklift.
- Work should only be performed when the general contractor has a competent person on the job site.

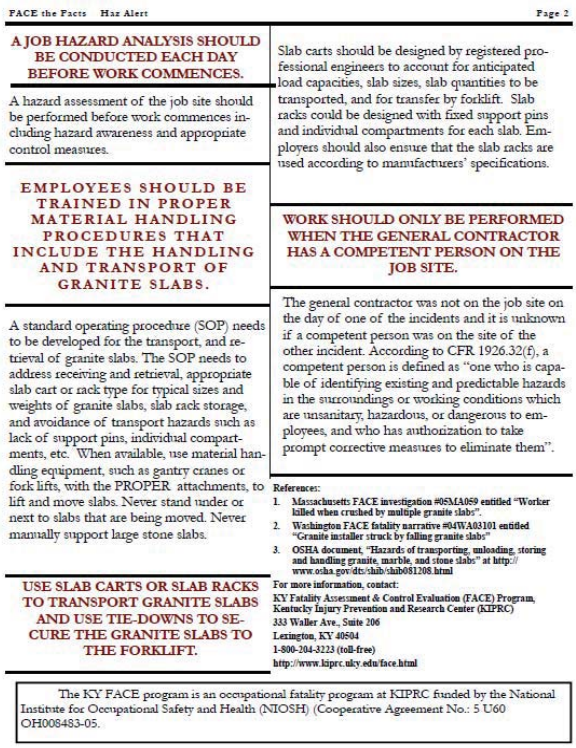
WORKERS KILLED WHILE WORKING WITH GRANITE

During 2007-2008, two workers died while working with granite. Following are the case descriptions for both worker deaths in Kentucky:

Case 1: In the summer of 2009, a 50-year-old male Lithuanian construction worker was working at a hotel construction site installing vanity tops and sinks. The worker was employed by an out-of-state subcontractor and the general contractor was not on the job site that day. The worker was unloading ten granite vanities from an unsecured homemade platform on a forklift truck by reaching out a second story window. When the worker reached for the last section of granite, it is presumed that he had to climb out the window and onto the platform. The worker and platform fell off the forklift and onto the ground. Emergency medical services were called by a co-worker who heard a noise and the worker was transported to a nearby hospital where he was declared dead.

Case 2: In 2008, A 42-year-old male Chinese prospective company partner who was a former granite company employee was observing the transfer of a 7'x6'x1" granite slab on a slab cart with no tie-downs. The slab was being tilted by two employees on each end of the cart for a forklift to transfer the slab to a fabrication area. The slab fell over and hit the prospective company partner in the head. The victim was transported to the hospital where he died three days later.

ALWAYS PERFORM A WORKSITE HAZARD ASSESSMENT BEFORE COMMENCING ANY NEW JOB ACTIVITY.



FACE the Facts Haz Alert Page 2

A JOB HAZARD ANALYSIS SHOULD BE CONDUCTED EACH DAY BEFORE WORK COMMENCES.

A hazard assessment of the job site should be performed before work commences including hazard awareness and appropriate control measures.

EMPLOYEES SHOULD BE TRAINED IN PROPER MATERIAL HANDLING PROCEDURES THAT INCLUDE THE HANDLING AND TRANSPORT OF GRANITE SLABS.

A standard operating procedure (SOP) needs to be developed for the transport, and retrieval of granite slabs. The SOP needs to address receiving and retrieval, appropriate slab cart or rack type for typical sizes and weights of granite slabs, slab rack storage, and avoidance of transport hazards such as lack of support pins, individual compartments, etc. When available, use material handling equipment, such as gantry cranes or fork lifts, with the PROPER attachments, to lift and move slabs. Never stand under or next to slabs that are being moved. Never manually support large stone slabs.

USE SLAB CARTS OR SLAB RACKS TO TRANSPORT GRANITE SLABS AND USE TIE-DOWNS TO SECURE THE GRANITE SLABS TO THE FORKLIFT.

Slab carts should be designed by registered professional engineers to account for anticipated load capacities, slab sizes, slab quantities to be transported, and for transfer by forklift. Slab racks could be designed with fixed support pins and individual compartments for each slab. Employers should also ensure that the slab racks are used according to manufacturers' specifications.

WORK SHOULD ONLY BE PERFORMED WHEN THE GENERAL CONTRACTOR HAS A COMPETENT PERSON ON THE JOB SITE.

The general contractor was not on the job site on the day of one of the incidents and it is unknown if a competent person was on the site of the other incident. According to CFR 1926.32(f), a competent person is defined as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them".

References:

1. Massachusetts FACE investigation #05MA059 entitled "Worker killed when crushed by multiple granite slabs".
2. Washington FACE fatality narrative #04WA03101 entitled "Granite installer struck by falling granite slabs"
3. OSHA document, "Hazards of transporting, unloading, storing and handling granite, marble, and stone slabs" at http://www.osha.gov/dts/shib/shib081208.html

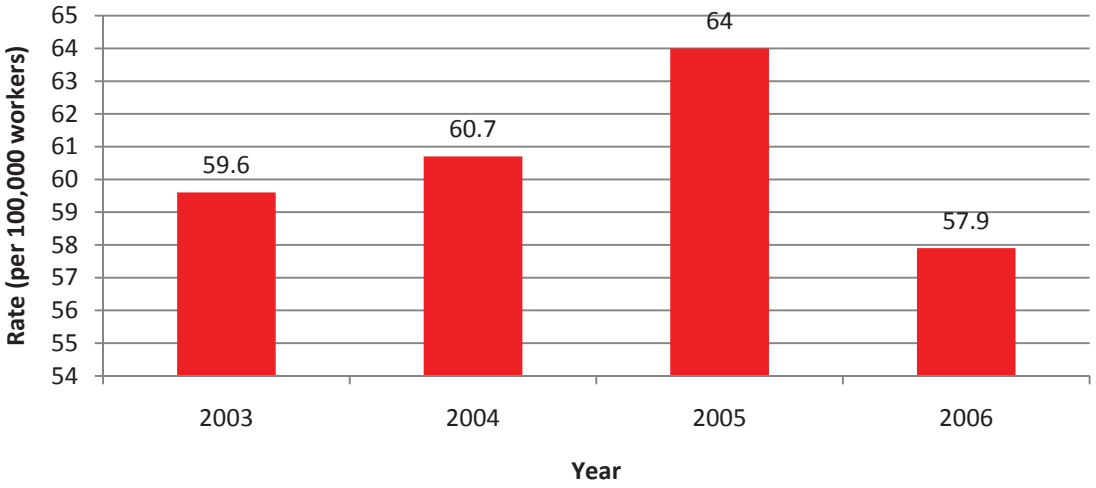
For more information, contact:
KY Fatality Assessment & Control Evaluation (FACE) Program,
Kentucky Injury Prevention and Research Center (KIPRC)
333 Waller Ave., Suite 206
Lexington, KY 40504
1-800-204-3223 (toll-free)
http://www.kiprc.uky.edu/face.html

The KY FACE program is an occupational fatality program at KIPRC funded by the National Institute for Occupational Safety and Health (NIOSH) (Cooperative Agreement No.: 5 U60 OH008483-05.

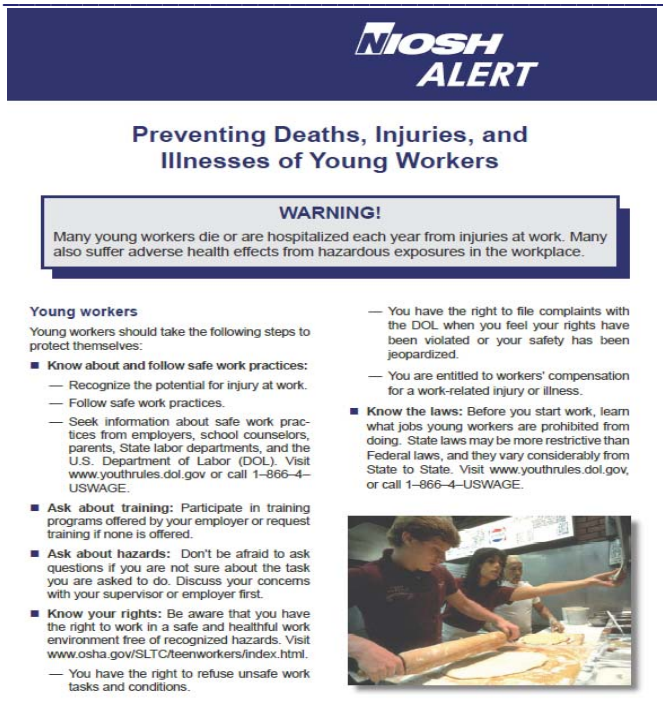
Indicator #17: Occupational Safety and Health Professionals

In 2006, the rates of occupational safety and health professionals in Kentucky declined (Figure 17) and the total number of occupational professionals in Kentucky only numbered 1,115. The majority of health professionals are members of the American Society of Safety Engineers (n=509).

Figure 17. Rates of Occupational Safety and Health Professionals in Kentucky, 2003-2006.



Data Sources: American Board of Preventive Medicine (ABPM) diplomats database, ACOEM annual roster, American Board of Occupational Health Nurses Directory, AAOHN annual roster, American Board of Industrial Hygiene, AIHA member directory, BCSP member directory, ASSE member directory, BLS Current Population Survey.



NIOSH ALERT

Preventing Deaths, Injuries, and Illnesses of Young Workers

WARNING!

Many young workers die or are hospitalized each year from injuries at work. Many also suffer adverse health effects from hazardous exposures in the workplace.

Young workers

Young workers should take the following steps to protect themselves:

- **Know about and follow safe work practices:**
  - — Recognize the potential for injury at work.
  - — Follow safe work practices.
  - — Seek information about safe work practices from employers, school counselors, parents, State labor departments, and the U.S. Department of Labor (DOL). Visit www.youthrules.dol.gov or call 1–866–4–USWAGE.
- **Ask about training:** Participate in training programs offered by your employer or request training if none is offered.
- **Ask about hazards:** Don't be afraid to ask questions if you are not sure about the task you are asked to do. Discuss your concerns with your supervisor or employer first.
- **Know your rights:** Be aware that you have the right to work in a safe and healthful work environment free of recognized hazards. Visit www.osha.gov/SLTC/teenworkers/index.html.
  - — You have the right to refuse unsafe work tasks and conditions.
  - — You have the right to file complaints with the DOL when you feel your rights have been violated or your safety has been jeopardized.
  - — You are entitled to workers' compensation for a work-related injury or illness.
- **Know the laws:** Before you start work, learn what jobs young workers are prohibited from doing. State laws may be more restrictive than Federal laws, and they vary considerably from State to State. Visit www.youthrules.dol.gov, or call 1–866–4–USWAGE.

Employers

Employers should take the following steps to protect young workers:

- **Recognize the hazards:**
  - — Reduce the potential for injury or illness in young workers by assessing and eliminating hazards in the workplace.
  - — Make sure equipment used by young workers is safe and legal. Visit www.dol.gov/dol/topic/youthlabor/hazardousjobs.htm or call 1–866–4–USADOL.
- **Supervise young workers:**
  - — Make sure that young workers are appropriately supervised.
  - — Make sure that supervisors and adult coworkers are aware of tasks young workers may or may not perform.
  - — Label equipment that young workers cannot use, or color-code uniforms of young workers so that others will know they cannot perform certain jobs.
- **Provide training:**
  - — Provide training to ensure that young workers recognize hazards and are competent in safe work practices.
  - — Have young workers demonstrate that they can perform assigned tasks safely and correctly.
  - — Ask young workers for feedback about the training.
- **Know and comply with the laws:** Know and comply with child labor laws and occupational safety and health regulations that apply to your business. State laws may be more restrictive than Federal laws, and they vary considerably from State to State. Post these regulations for workers to read. For information about Federal child labor laws, visit www.dol.gov/dol/topic/youthlabor/index.htm or call 1–866–4–USADOL. For State laws, visit www.ilsa.net or www.youthrules.dol.gov/states.htm, or call 1–866–4–USWAGE. Information about OSHA regulations that apply to all workers is available at www.osha.gov.
- **Develop an injury and illness prevention program:** Involve supervisors and experienced workers in developing a comprehensive safety program that includes an injury and illness prevention program and a process for identifying and solving safety and health problems. OSHA consultation programs are available in every State to help employers identify hazards and improve their safety and health management programs. Visit www.osha.gov/oshprogs/consult.html.

Educators

Educators should take the following steps to protect young workers:

- **Talk to students about work:** Talk to students about safety and health hazards in the workplace and students' rights and responsibilities as workers.
- **Ensure the safety of school-based work experience programs:** Ensure that vocational education programs, school-to-work, or Workforce Investment Act partnerships offer students work that is allowed by law and is in safe and healthful environments free of recognized hazards. All such programs should include safety and health training.

Indicator #18: OSHA Enforcement Activities in the Private Sector

In 2008, there were 1,500 establishments inspected by KY OSHA, a slight decrease from 1,546 in 2007. The percentage of establishments under OSHA jurisdiction inspected by KY OSHA in 2008 was the same as in 2007 (1.36% in 2007 and 2008).

Data Sources: OSHA annual reports of total inspections conducted and the number or workers covered by these inspections, BLS statistics on Covered Employers and Wages.

U. S. Department of Labor
Occupational Safety and Health Administration
Directorate of Standards and Guidance
Office of Safety Systems

Combustible Dust in Industry: Preventing and Mitigating the Effects of Fire and Explosions

Safety and Health Information Bulletin

SHIB 07-31-2005

Purpose

This Safety and Health Information Bulletin (SHIB) highlights:

- Hazards associated with combustible dusts;
- Work practices and guidelines that reduce the potential for a combustible dust explosion, or that reduce the danger to employees if such an explosion occurs; and,
- Training to protect employees from these hazards.

This Safety and Health Information Bulletin is **not** a standard or regulation, and it creates no new legal obligations. The Bulletin is advisory in nature, informational in content, and is intended to assist employers in providing a safe and healthful workplace. Pursuant to the *Occupational Safety and Health Act*, employers must comply with hazard-specific safety and health standards promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, pursuant to Section 5(a)(1), the General Duty Clause of the Act, employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. Employers can be cited for violating the General Duty Clause if there is a recognized hazard and they do not take reasonable steps to prevent or abate the hazard. However, failure to implement any recommendations in this Safety and Health Information Bulletin is not, in itself, a violation of the General Duty Clause. Citations can only be based on standards, regulations, and the General Duty Clause.

Background

Organic Dust Fire and Explosion: Massachusetts (3 killed, 9 injured)

In February 1999, a deadly fire and explosion occurred in a foundry in Massachusetts. The Occupational Safety Health Administration (OSHA) and state and local officials conducted a joint investigation of this incident. The joint investigation report[1] indicated that a fire initiated in a shell molding machine from an unknown source and then extended into the ventilation system ducts by feeding on heavy deposits of phenol formaldehyde resin dust. A small primary deflagration occurred within the ductwork, dislodging dust that had settled on the exterior of the ducts. The ensuing dust cloud provided fuel for a secondary explosion which was powerful enough to lift the roof and cause wall failures. Causal factors listed in the joint investigation report included inadequacies in the following areas:

- Housekeeping to control dust accumulations;
- Ventilation system design;
- Maintenance of ovens; and,
- Equipment safety devices.

Organic Dust Fire and Explosion: North Carolina (6 killed, 38 injured)

In January 2003, devastating fires and explosions destroyed a North Carolina pharmaceutical plant that manufactured rubber drug-delivery components. Six employees were killed and 38 people, including two firefighters, were injured. The U.S. Chemical Safety and Hazard Investigation Board (CSB), an independent Federal agency charged with investigating chemical incidents, issued a final report[2] concluding that an accumulation of a combustible polyethylene dust above the suspended ceilings fueled the explosion. The CSB was unable to determine what ignited the initial fire or how the dust was dispersed to create the explosive cloud in the hidden ceiling space. The explosion severely damaged the plant and caused minor damage to nearby businesses, a home, and a school. The causes of the incident cited by CSB included inadequacies in:

- Hazard assessment;
- Hazard communication; and
- Engineering management.

The CSB recommended the application of provisions in National Fire Protection Association standard NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, as well as the formal adoption of this standard by the State of North Carolina.

Organic Dust Fire and Explosion: Kentucky (7 killed, 37 injured)

In February 2003, a Kentucky acoustics insulation manufacturing plant was the site of another fatal dust explosion. The CSB also investigated this incident. Their report[3] cited the likely ignition scenario as a small fire extending from an unattended oven which ignited a dust cloud created by nearby line cleaning. This was followed by a deadly cascade of dust explosions throughout the plant. The CSB identified several causes of ineffective dust control and explosion prevention/mitigation involving inadequacies in:

- Hazard assessment;
- Hazard communication;
- Maintenance procedures;
- Building design; and,
- Investigation of previous fires.

Metal Dust Fire and Explosion: Indiana (1 killed, 1 injured)

Finely dispersed airborne metallic dust can also be explosive when confined in a vessel or building. In October 2003, an Indiana plant where auto wheels were machined experienced an incident which was also investigated by the CSB. A report has not yet been issued, however, a CSB news release[4] told a story similar to the previously discussed organic dust incidents: aluminum dust was involved in a primary explosion near a chip melting furnace, followed by a secondary blast in dust collection equipment.

Related Experience in the Grain Handling Industry

In the late 1970s a series of devastating grain dust explosions in grain elevators left 59 people dead and 49 injured. In response to these catastrophic events, OSHA issued a "Grain Elevator Industry Hazard

Alert" to provide employers, employees, and other officials with information on the safety and health hazards associated with the storage and distribution of grain.

In 1987, OSHA promulgated the Grain Handling Facilities standard (29 CFR 1910.272), which remains in effect. This standard, other OSHA standards such as Emergency Action Plans (29 CFR 1910.38), and updated industry consensus standards all played an important role in reducing the occurrence of explosions in this industry, as well as mitigating their effects. The lessons learned in the grain industry can be applied to other industries producing, generating, or using combustible dust.

Elements of a Dust Explosion

Elements Needed for a Fire (the familiar "Fire Triangle"):

1. Combustible dust (fuel);
2. Ignition source (heat); and,
3. Oxygen in air (oxidizer).

Additional Elements Needed for a Combustible Dust Explosion:

4. Dispersion of dust particles in sufficient quantity and concentration; and,
5. Confinement of the dust cloud.

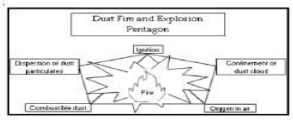


Figure 1

The addition of the latter two elements to the fire triangle creates what is known as the "explosion pentagon" (see Figure 1). If a dust cloud (diffused fuel) is ignited within a confined or semi-confined vessel, area, or building, it burns very rapidly and may explode. The safety of employees is threatened by the ensuing fires, additional explosions, flying debris, and collapsing building components.

An initial (primary) explosion (see Figure 2) in processing equipment or in an area were fugitive dust has accumulated may shake loose more accumulated dust, or damage a containment system (such as a duct, vessel, or collector). As a result, if ignited, the additional dust dispersed into the air may cause one or more secondary explosions (see Figure 2). These can be far more destructive than a primary explosion due to the increased quantity and concentration of dispersed combustible dust.

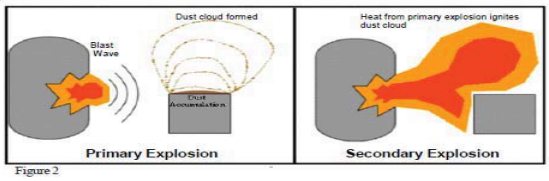


Figure 2

If one of the elements of the explosion pentagon is missing, a catastrophic explosion can not occur. Two of the elements in the explosion pentagon are difficult to eliminate: oxygen (within air), and confinement of the dust cloud (within processes or buildings). However, the other three elements of the pentagon can be controlled to a significant extent, and will be discussed further in this document.

Facility Dust Hazard Assessment

A combustible dust explosion hazard may exist in a variety of industries, including: food (e.g., candy, starch, flour, feed), plastics, wood, rubber, furniture, textiles, pesticides, pharmaceuticals, dyes, coal, metals (e.g., aluminum, chromium, iron, magnesium, and zinc), and fossil fuel power generation. The vast majority of natural and synthetic organic materials, as well as some metals, can form combustible dust. NFPA's *Industrial Fire Hazards Handbook*[5] states that "any industrial process that reduces a combustible material and some normally noncombustible materials to a finely divided state presents a potential for a serious fire or explosion."

Facility Analysis Components

Facilities should carefully identify the following in order to assess their potential for dust explosions:

- Materials that can be combustible when finely divided;
- Processes which use, consume, or produce combustible dusts;
- Open areas where combustible dusts may build-up;
- Hidden areas where combustible dusts may accumulate;
- Means by which dust may be dispersed in the air; and
- Potential ignition sources.

The applicable Federal, state, and local laws and regulations must be identified and followed. The two predominant model fire codes which have been adopted by many jurisdictions in this country are the International Code Council's *International Fire Code®* and NFPA's *Uniform Fire Code®*. Both of these model codes reference many of the NFPA consensus standards related to dust explosion prevention and mitigation which are discussed below. In the absence of a legal mandate to comply with these consensus standards, they should be considered a very useful source of guidance on this topic.

Dust Combustibility

The primary factor in an assessment of these hazards is whether the dust is in fact combustible. Any "material that will burn in air" in a solid form can be explosive when in a finely divided form.[6] Combustible dust is defined by NFPA 654 as: "Any finely divided solid material that is 420 microns or smaller in diameter (material passing a U.S. No. 40 Standard Sieve) and presents a fire or explosion hazard when dispersed and ignited in air." The same definition is used for combustible metal dust in NFPA 484, *Standard for Combustible Metals, Metal Powders, and Metal Dusts*. One possible source for information on combustibility is the Material Safety Data Sheet (MSDS) for the material. In some cases, additional information such as test results will be available from chemical manufacturers.

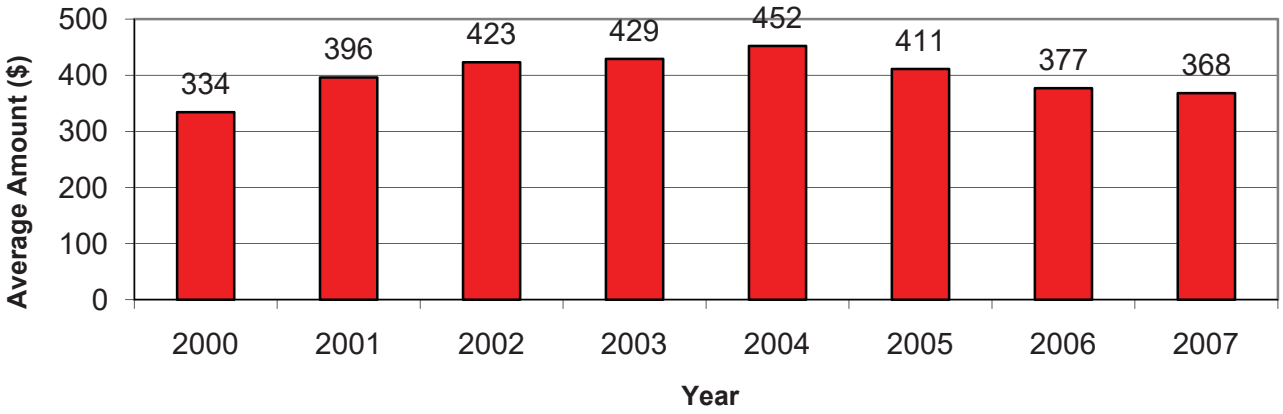
Different dusts of the same chemical material will have different ignitability and explosibility characteristics, depending upon many variables such as particle size, shape, and moisture content. Additionally, these variables can change while the material is passing through process equipment. For this reason, published tables of dust explosibility data may be of limited practical value. In some cases, dusts will be combustible even if the particle size is larger than that specified in the NFPA definition, especially if the material is fibrous.[7]

Industrial settings may contain high-energy ignition sources such as welding torches. In these situations, test methods for dust ignition and explosion characteristics from ASTM International (originally the American Society for Testing and Materials) would be of value. A discussion of these test methods is in reference 8, and the relevant OSHA and other standards are listed in the "Sources of Additional Information" section of this document.

Indicator #19: Workers' Compensation Awards

The total amount of workers' compensation benefits paid in Kentucky in 2000 was $575,292,000; in 2007, the total amount of workers' compensation benefits paid was $647,706,000. The average amount of workers' compensation benefits paid per covered worker in KY decreased to $368 in 2007 compared to $377 in 2006 (Figure 18). When comparing US and Kentucky average amount of workers' compensation benefits paid, Kentucky's average amount was lower ($368) than for the US ($421) in the year 2007.

Figure 18. Average Amount of Workers' Compensation Benefits Paid Per Worker in Kentucky, 2000-2007.



Data Source: National Academy of Social Insurance

AMERICAN JOURNAL OF INDUSTRIAL MEDICINE (2008)

Disparities in Work-Related Injuries Associated With Worker Compensation Coverage Status

Valerie J. Nicholson, MD, MHA, Terry L. Bunn, PhD, and Julia F. Costich, JD, PhD*

Background *This exploratory study addresses patterns of injury in an emerging population of contingent workers who are not covered by either worker's compensation (WC) or health insurance. The primary purpose is to improve the information base regarding the entire population of uninsured, injured workers. Because Latino workers are over-represented in the uninsured group, we include additional characterization of their patterns of injury. Recent studies have found that worker compensation claims and reports address a shrinking proportion of occupational injury and exposure, and about two-thirds of occupational injuries are not captured in the U.S. national surveillance system.*
Methods *Following the NEISS methodology, a work-relatedness indicator was retrieved for emergency department (ED) visits to an academic health center in fiscal year 2005.*
Results *Twenty percent of self-declared work-related injuries were not associated with self-reported WC coverage. Parametric and non-parametric statistical analysis found several significant disparities in workers without WC. These disparities included a higher proportion of Latinos, workers under age 25, and construction workers. In the uninsured group, Latino workers had a higher proportion of moderate and severe injuries. Nearly all (92 percent) workers without WC also lacked health insurance. Injured low-income workers who lack access to both WC and employer-sponsored health insurance comprise an increasing percentage of the occupationally injured. Our exploratory study found this to be particularly true in high-risk populations.*
Conclusions *Work-relatedness indicators collected routinely in ED and outpatient settings should be incorporated into standard reporting systems to facilitate more accurate and comprehensive surveillance and better-targeted interventions.* Am. J. Ind. Med. 2008.

KEY WORDS: worker compensation; uninsured; emergency department

BACKGROUND

Occupational safety and health (OSH) surveillance has traditionally focused on the organized workplace where large numbers of employed workers performed well-defined functions for a common employer over a period of years [Smith, 2001]. Interventions customarily involve on-site training of workers exposed to well-identified risks, engineering modifications to mitigate the danger of potentially risky tasks, and compensation for workers whose injuries require medical care or lost work time. The employer is the accountable party and its behavior is monitored by the state and federal agencies that are empowered by decades of legal precedent, statute, and regulation to penalize inappropriate exposure of workers to hazards. However, in the post-industrial era, the shop-floor model of occupational health and safety has often been a poor fit. The traditional regulatory regime focuses attention on a shrinking proportion of the labor force [Laflamme, 2001]. Manufacturing work is increasingly automated, and it continues to move outside the

Kentucky Injury Prevention and Research Center, College of Public Health, University of Kentucky, Lexington, Kentucky
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*Correspondence to: Julia F. Costich, Director, Kentucky Injury Prevention and Research Center, College of Public Health, University of Kentucky, 333 Waller Ave., Suite 206, Lexington, KY 40504. E-mail: julia.costich@uky.edu

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U.S. Labor market restructuring is a global phenomenon that has led to the loss of 11% of U.S. manufacturing jobs in the period 1998–2002 [Friedman, 2003], including 642,000 in 2002 and approximately twice this number in 2001 [McMenamin et al., 2003]. As US workers lose the opportunity to work in large, well-organized manufacturing enterprises, many migrate to small businesses or self-employment, thereby further weakening the traditional link between the employer and occupational safety [Hamermesh, 1999; NIOSH, 1999; Quinlan, 1999, 2001].

"Alternative work arrangements," an employment category that includes independent contractors, on-call workers, workers paid by temporary help firms, and workers whose services are provided through contract firms [Polivka, 1996], often preclude access to workers' compensation, employer-sponsored health or disability insurance, and safety training or personal protective equipment [Stephen et al., 1994; Mirabelli, 2003; DeNavas-Walt et al., 2006; Dong et al., 2007]. Because the employment relationship is generally that of an independent contractor or temporary at-will employee, the employer's legal responsibility for employee safety is minimal or nonexistent. In Kentucky law, the employer's responsibility for worker's compensation is further limited by the exemption of all agricultural employees [Ky. Revised Statutes 342.630(1)] and those who work for building contractors for fewer than 20 consecutive work days, provided that the contractor has no employees subject to worker compensation coverage [Ky. Revised Statutes 342.650(2)].

Given the convergence of these factors, worker compensation claims and reports address a shrinking proportion of occupational injury and exposure [Leigh, 2004]. Rosenman et al. [2006] found that current national surveillance systems failed to capture about two-thirds of occupational injuries in Michigan. Similarly, the Centers for Disease Control and Prevention (CDC)'s analysis of work-related injury in the National Electronic Injury Surveillance System (NEISS) must rely on medical record review to identify cases [CDC, 2006]. The Bureau of Labor Statistics annual reports of work-related injuries, which rely on employer reports, typically find a decrease in injured workers every year [BLS, 2006], while the NEISS analysis shows no such trend [CDC, 2006]. Clearly, such contradiction between reporting systems requires clarification for capture of both insured and uninsured occupational injuries [Stout, 2002].

Emergency departments (EDs) routinely identify work-relatedness in their intake documentation. Narrative data recorded in the patient records can support identification of work-relatedness and characterization of work-related injuries. EDs can therefore bridge the current surveillance systems to capture data on occupational injuries for the self employed, independent contractor.

This exploratory study addresses patterns of injury in an emerging population of workers who do not self-identify as being covered by either Worker's Compensation (WC) or health insurance. Our primary purpose is to improve the information base on the entire population of injured workers, both uninsured and insured. Because Latino workers are over-represented in our uninsured group, we include additional characterization of their patterns of injury. The Latino workforce in the region is predominantly employed in agriculture, residential construction trades, and the hospitality industry, and nearly all these workers are uninsured for both general health care and work-related injuries [NCIOM, 2003].

METHODS

Data on self-reported work-related occupational injury patient encounters (n = 1,023) at an academic health center's ED for the full fiscal year 2005 were reviewed for third-party coverage status, demographic variables, mechanism of injury (e-code), comorbidities, and industry. As in the CDC analysis of NEISS data, we used self-report or work-relatedness as determined by ED staff at patient intake to identify relevant cases [Jackson, 2001; CDC, 2006]. The work-relatedness indicator, while routinely collected, is not part of routine administrative reports, so additional data retrieval and medical record review by a board-certified emergency medicine physician were required to obtain this critical data element.

Descriptive statistics and a nonparametric analysis of factorial data were performed using a stepwise selection of variables. The dependent variables were total charges and injury severity; the independent variables were age, race, ethnicity, e-code, and insured status.

Injury severity was determined by detailed analysis of patient records by one of the authors, a board certified emergency physician. Injury severity was categorized as mild, moderate or severe. A mild injury was defined as involving a single organ system without associated morbidity that required work restriction or work loss. Examples of mild injuries were back strains and simple lacerations involving only skin and subcutaneous tissues. Moderate injuries included isolated one- or two-organ injuries with patients requiring some lost work time for rehabilitation. Severe injuries included patients with multiple organ injuries with significant morbidity or mortality, with extended lost time from work and prolonged rehabilitation.

RESULTS

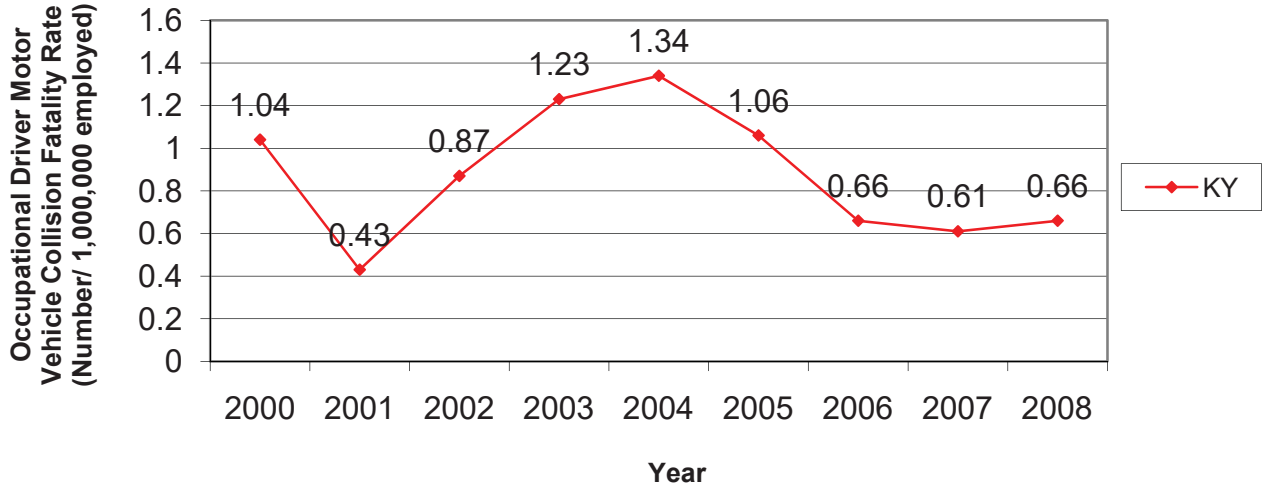
Descriptive Analysis

Approximately 20% (209/1,023) of patients reporting work-related injuries did not self-report as being covered by WC, according to ED records (Table I). Injured Latino

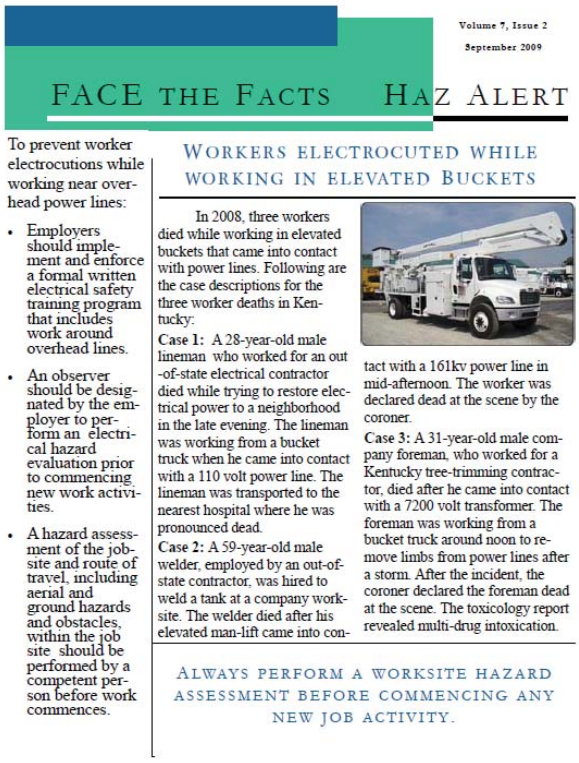
Indicator #20 (Kentucky-Specific): Fatal and Non-Fatal Occupational Motor Vehicle Collision Injuries

In 2008, there were 11,898 occupational motor vehicle collisions (MVCs) in Kentucky, decreased from 12,673 in the year 2007. There were 126 drivers and/or occupants killed and 2,676 people injured in work-related MVCs in 2008. The occupational driver motor vehicle fatality rate was 0.66/1,000,000 employed persons in 2008, a slight increase from the year 2007 (Figure 19).

Figure 19. Occupational Motor Vehicle Fatality Rates- 2000-2008.



Data Source: Motor vehicle collision surveillance data was obtained from the Collision Report Analysis for Safer Highways (CRASH) database established and maintained by the Kentucky State Police.



Volume 7, Issue 2
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FACE THE FACTS HAZ ALERT

To prevent worker electrocutions while working near overhead power lines:

- Employers should implement and enforce a formal written electrical safety training program that includes work around overhead lines.
- An observer should be designated by the employer to perform an electrical hazard evaluation prior to commencing new work activities.
- A hazard assessment of the job-site and route of travel, including aerial and ground hazards and obstacles, within the job site should be performed by a competent person before work commences.

WORKERS ELECTROCUTED WHILE WORKING IN ELEVATED BUCKETS

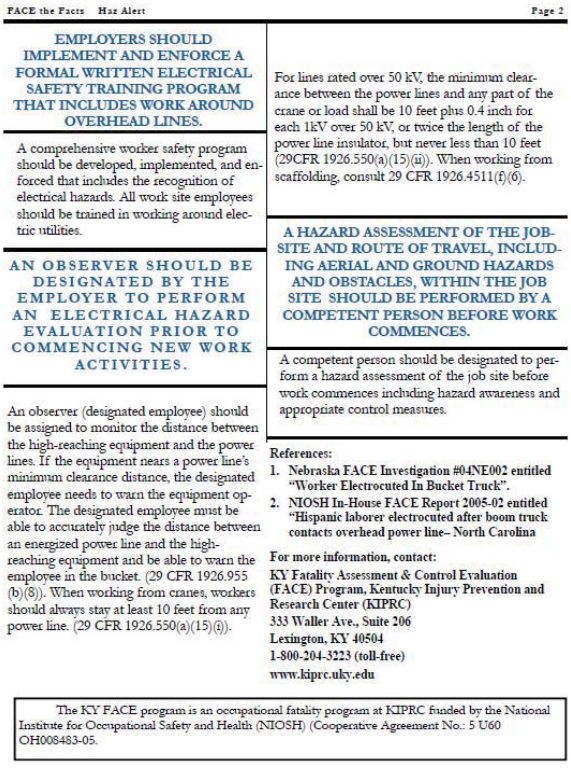
In 2008, three workers died while working in elevated buckets that came into contact with power lines. Following are the case descriptions for the three worker deaths in Kentucky:

Case 1: A 28-year-old male lineman who worked for an out-of-state electrical contractor died while trying to restore electrical power to a neighborhood in the late evening. The lineman was working from a bucket truck when he came into contact with a 110 volt power line. The lineman was transported to the nearest hospital where he was pronounced dead.

Case 2: A 59-year-old male welder, employed by an out-of-state contractor, was hired to weld a tank at a company worksite. The welder died after his elevated man-lift came into contact with a 161kv power line in mid-afternoon. The worker was declared dead at the scene by the coroner.

Case 3: A 31-year-old male company foreman, who worked for a Kentucky tree-trimming contractor, died after he came into contact with a 7200 volt transformer. The foreman was working from a bucket truck around noon to remove limbs from power lines after a storm. After the incident, the coroner declared the foreman dead at the scene. The toxicology report revealed multi-drug intoxication.

ALWAYS PERFORM A WORKSITE HAZARD ASSESSMENT BEFORE COMMENCING ANY NEW JOB ACTIVITY.



FACE the Facts Haz Alert Page 2

EMPLOYERS SHOULD IMPLEMENT AND ENFORCE A FORMAL WRITTEN ELECTRICAL SAFETY TRAINING PROGRAM THAT INCLUDES WORK AROUND OVERHEAD LINES.

A comprehensive worker safety program should be developed, implemented, and enforced that includes the recognition of electrical hazards. All work site employees should be trained in working around electric utilities.

AN OBSERVER SHOULD BE DESIGNATED BY THE EMPLOYER TO PERFORM AN ELECTRICAL HAZARD EVALUATION PRIOR TO COMMENCING NEW WORK ACTIVITIES.

An observer (designated employee) should be assigned to monitor the distance between the high-reaching equipment and the power lines. If the equipment nears a power line's minimum clearance distance, the designated employee needs to warn the equipment operator. The designated employee must be able to accurately judge the distance between an energized power line and the high-reaching equipment and be able to warn the employee in the bucket. (29 CFR 1926.955 (b)(8)). When working from cranes, workers should always stay at least 10 feet from any power line. (29 CFR 1926.550(a)(15)(i)).

For lines rated over 50 kV, the minimum clearance between the power lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1kV over 50 kV, or twice the length of the power line insulator, but never less than 10 feet (29CFR 1926.550(a)(15)(ii)). When working from scaffolding, consult 29 CFR 1926.4511(f)(6).

A HAZARD ASSESSMENT OF THE JOB-SITE AND ROUTE OF TRAVEL, INCLUDING AERIAL AND GROUND HAZARDS AND OBSTACLES, WITHIN THE JOB SITE SHOULD BE PERFORMED BY A COMPETENT PERSON BEFORE WORK COMMENCES.

A competent person should be designated to perform a hazard assessment of the job site before work commences including hazard awareness and appropriate control measures.

References:

1. Nebraska FACE Investigation #04NE002 entitled "Worker Electrocuted In Bucket Truck".
2. NIOSH In-House FACE Report 2005-02 entitled "Hispanic laborer electrocuted after boom truck contacts overhead power line– North Carolina

For more information, contact:

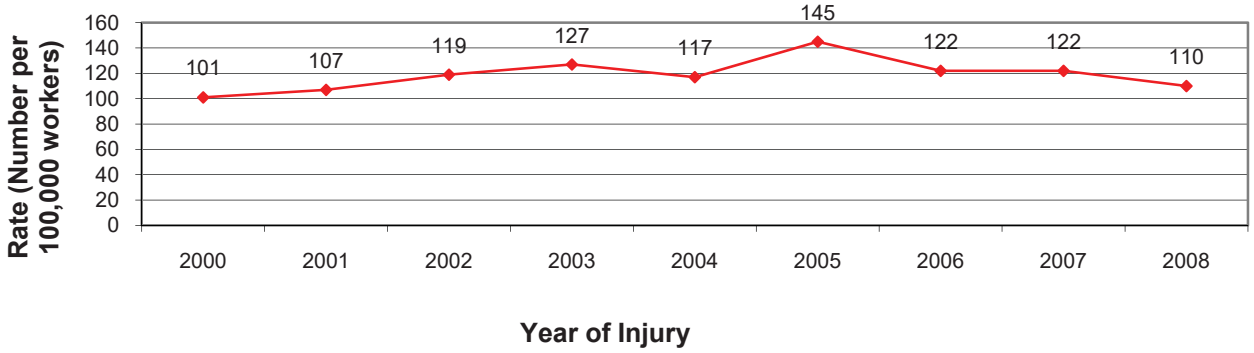
KY Fatality Assessment & Control Evaluation (FACE) Program, Kentucky Injury Prevention and Research Center (KIPRC)
333 Waller Ave., Suite 206
Lexington, KY 40504
1-800-204-3223 (toll-free)
www.kiprc.uky.edu

The KY FACE program is an occupational fatality program at KIPRC funded by the National Institute for Occupational Safety and Health (NIOSH) (Cooperative Agreement No.: 5 U60 OH008483-05.

Indicator #21 (Kentucky- Specific): Occupational Motor Vehicle Collisions- First Reports of Injury and Claims Filed With Workers' Claims by Injury Year

There were 2,089 occupational motor vehicle collision claims, and the occupational motor vehicle collision driver injury rate decreased in the year 2008 (Figure 20). The cause of injury in occupational motor vehicle collision reports and claims was primarily due to a collision or sideswipe with another vehicle. Claims were most frequently reported in the services (n=490), transportation (n=472), and public administration (n=217) industries.

Figure 20. Occupational Motor Vehicle Collision Driver Injury Rates, 2000-2008.



Data Source: Kentucky Department of Workers' Claims

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August 2008

FACE THE FACTS HAZ ALERT

To prevent truck crashes due to substance use:

- Employers should implement and enforce a policy that prohibits commercial drivers who are ill or taking over-the-counter medications with potential side effects for impaired driving from operating a commercial vehicle.
- Employers should implement and enforce a "reasonable suspicion" drug testing policy if a driver is suspected to be under the influence of drugs.
- Companies should conduct comprehensive new-hire prescreening and after-hire random drug testing for substance abuse.
- A nationwide database containing a record of all commercial driver positive drug tests in the last two years should be developed.

Truck Drivers in Fatal Crashes After Substance Use

In Kentucky in 2007, preliminary numbers indicate that at least twenty-nine drivers were killed in occupational motor vehicle collisions.

Following are case descriptions for two Kentucky drivers who were killed in crashes after using substances while driving:

Case 1: A 31-year-old male truck driver died when his semi-tractor trailer left the roadway and rolled into a ditch. The driver was on a straight stretch of road. His right tires left the pavement into a grassy area on the side of the road. The driver attempted to correct the vehicle, but was unable to do so, then hit a tree and rolled over. The driver, who was not wearing a seat belt was declared dead at the scene. Toxicology results showed the presence of chemicals found in over the counter cough and flu medications. When used together, these substances have a dramatic depressive effect on the central nervous system.

Case 2: A 47-year-old male truck driver was killed after crashing his tractor and refrigerated trailer. The driver had exited the interstate and attempted to turn right at the end of the ramp. He missed the turn and drove straight across a four-lane highway, going through a guardrail, becoming airborne, and crashing into an embankment, immediately bursting into flames. The truck driver was pronounced dead at the scene by the coroner. Toxicology results showed the presence of cocaine, benzodiazepine (active ingredient in Valium), and a carbon monoxide level of 38% at the time of the crash.

DRIVERS WHO ARE ILL OR UNDER THE INFLUENCE OF SUBSTANCES SHOULD BE PROHIBITED FROM OPERATING A COMMERCIAL VEHICLE.

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EMPLOYERS SHOULD IMPLEMENT AND ENFORCE A POLICY THAT PROHIBITS COMMERCIAL DRIVERS WHO ARE ILL OR TAKING OVER-THE-COUNTER MEDICATION FROM OPERATING A COMMERCIAL VEHICLE.

Many common medications, including those used to treat cough and cold symptoms, can have side effects that can affect a driver's ability. These include drowsiness, impaired decision making abilities, dizziness, blurred vision, and even hypnosis and hallucinations.

In addition, truck drivers should adhere to FMCSA regulations pertaining to illness and fatigue. 49 CFR §392.3 states that no driver shall operate a commercial motor vehicle, and a motor carrier shall not require or permit a driver to operate a commercial motor vehicle, while the driver's ability or alertness is impaired, or so likely to become impaired, through fatigue, illness, or any other cause, as to make it unsafe for him/her to begin or continue to operate the commercial motor vehicle.

EMPLOYERS SHOULD IMPLEMENT AND ENFORCE A "REASONABLE SUSPICION" DRUG TESTING POLICY IF A DRIVER IS SUSPECTED TO BE UNDER THE INFLUENCE OF DRUGS.

49 CFR §382.307 (a and b) state that an employer who suspects that a driver is engaged in substance abuse is required to have that driver undergo drug testing. Fleet supervisors should be trained to recognize signs of employee substance abuse and receive company authorization to have a driver submit to reasonable suspicion drug testing if he/she exhibits symptoms of substance abuse.

A NATIONWIDE DATABASE CONTAINING A RECORD OF ALL COMMERCIAL DRIVER POSITIVE DRUG TESTS IN THE LAST TWO YEARS SHOULD BE DEVELOPED.

In 2006, North Carolina instituted a law which requires employers to report all positive drug tests of CDL drivers to the state's Division of Motor Vehicles. Those results are kept on record for two years. When performing background checks on potential drivers, employers can see if a driver has had a positive test in the last two years. The U.S Government Accountability Office has recommended that the Federal Motor Carrier Safety Administration should develop a similar, nationwide, database.

References:

1.Federal Motor Carrier Safety Administration,. Website address: http://www.fmcsa.dot.gov/rules-regulations/rules-regulations.htm

2. Kentucky FACE program, Case Report #05ky008 - "Male semi-truck driver killed in rollover crash on county road," and Case Report #05ky074- "Long haul trucker dies after striking an embankment at the end of an interstate highway off-ramp."

3. National Highway Traffic Safety Administration, "Drugs and human performance fact sheets: Dextromethorpan and Diazepam. Website address: http://www.nhtsa.dot.gov/people/injury/research/job185drugs/index.htm

4. U.S. Government Accountability Office, GAO-08-600- "Motor Carrier Safety– Improvements to drug testing programs could better identify illegal drug users and keep them off the road."

For more information, contact:

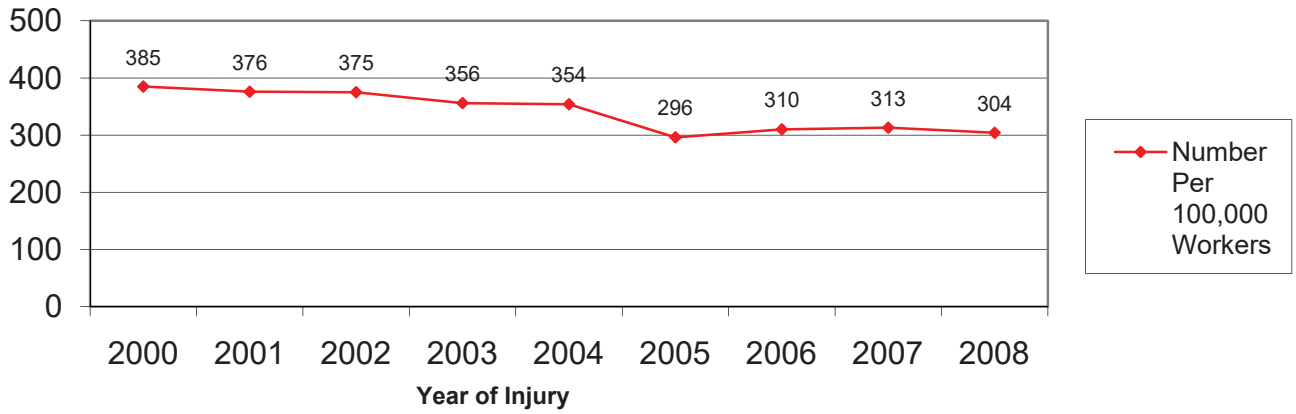
KY Fatality Assessment & Control Evaluation (FACE) Program, Kentucky Injury Prevention and Research Center (KIPRC)
333 Waller Ave., Suite 206
Lexington, KY 40504
1-800-204-3223 (toll-free)
www.kiprc.uky.edu

The KY FACE program is an occupational fatality program at KIPRC funded by the National Institute for Occupational Safety and Health (NIOSH)

Indicator #22 (Kentucky- Specific): Occupational Falls- First Reports of Injury and Claims Filed With Workers' Claims by Injury Year

In the year 2008, there were 5,764 occupational fall claims and first reports filed. The occupational fall injury incidence rate was 304/100,000 employed workers in the year 2008, a slight decrease from 2007 (Figure 21). Most occupational falls occurred in the services (n=1962) and retail trade (n=1097) industries and in the laborers except construction (N=378), truck drivers (N=322), and retail and personal services sales workers (n=315) occupations.

Figure 21. Occupational Fall Injury Incidence Rates, 2000-2008.



Data Source: Kentucky Department of Workers' Claims

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June 2006

Workers Killed in Falls From Ladders

To prevent falls from ladders while working:

- Make sure that an extension or straight ladder are erected according to the "4 to 1" rule of thumb.
- Safe work practices should be established by the employer for ascending and descending extension or straight ladders with materials and/or equipment.
- All non-self-supporting ladders should be secured at the top and stabilized at the bottom.
- While working from ladders, workers should wear appropriate footwear.

During 2004, 44 hospitalizations resulted from workers falling off ladders. The average hospitalized length of stay was 3.29 days and the average total hospitalization charges were $21,274. Eighty-four percent of the injured workers suffered fractures and 12% suffered traumatic brain injuries. From April 2005 to April 2006, there were 5 ladder-related worker fatalities in Kentucky.

Following are case descriptions for four Kentucky ladder-related fatality cases:

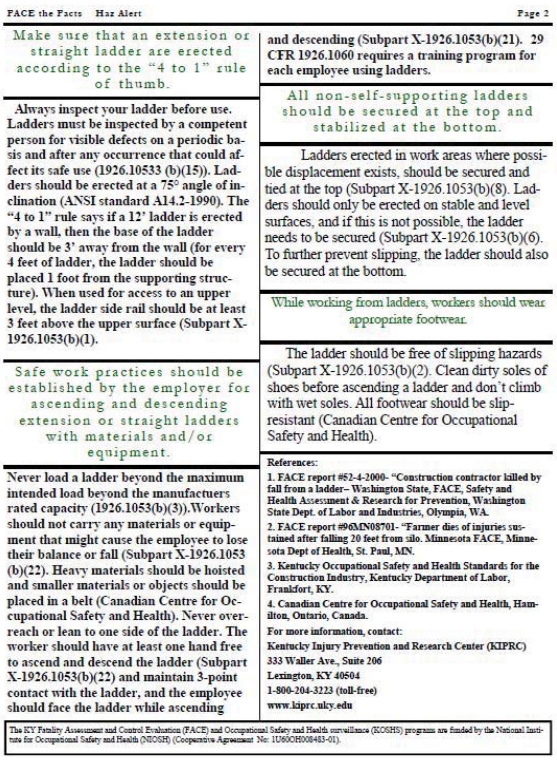
Case 1: A 43-year-old male environmental technician died in a manufacturing plant while inspecting a leaking factory equipment pipe. The technician was up on a ladder 6 feet off the ground and removed an inspection plate. Material escaped from the leaking pipe, knocking the worker off the ladder and down onto the concrete floor below. A co-worker found him and he was transported to a nearby hospital where he was pronounced dead.

Case 2: A 61-year-old male self-employed laborer fell to his death while trimming a tree at a residence. While trimming the tree, a limb dropped down onto the base of the ladder throwing the laborer 30 feet to the ground below. The laborer was transported to the nearby hospital where he was pronounced dead.

Case 3: A 43-year-old male Hispanic laborer was killed after a ladder fall at a residential homebuilding site. The laborer was handing tools to residential framers while standing on the 4th rung of the ladder. The laborer fell from the ladder onto the ground and hit his head. The laborer was transported to a nearby hospital where he died 4 days later from the head injury.

Case 4: A 38-year-old male Hispanic day laborer hired by a residential roofing company died when he fell 10 feet from a ladder. The laborer was done for the day and was descending the ladder while carrying a bundle shingles. The laborer fell from the ladder and struck his head. He was transported to a nearby hospital where he died 3 days later.

SECURE ALL NON-SELF-SUPPORTING LADDERS AT THE TOP AND STABILIZE THEM AT THE BOTTOM.



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Make sure that an extension or straight ladder are erected according to the "4 to 1" rule of thumb.

Always inspect your ladder before use. Ladders must be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect its safe use (1926.10533 (b)(15)). Ladders should be erected at a 75° angle of inclination (ANSI standard A14.2-1990). The "4 to 1" rule says if a 12' ladder is erected by a wall, then the base of the ladder should be 3' away from the wall (for every 4 feet of ladder, the ladder should be placed 1 foot from the supporting structure). When used for access to an upper level, the ladder side rail should be at least 3 feet above the upper surface (Subpart X-1926.1053(b)(1).

Safe work practices should be established by the employer for ascending and descending extension or straight ladders with materials and/or equipment.

Never load a ladder beyond the maximum intended load beyond the manufacturers rated capacity (1926.1053(b)(3)).Workers should not carry any materials or equipment that might cause the employee to lose their balance or fall (Subpart X-1926.1053 (b)(22). Heavy materials should be hoisted and smaller materials or objects should be placed in a belt (Canadian Centre for Occupational Safety and Health). Never overreach or lean to one side of the ladder. The worker should have at least one hand free to ascend and descend the ladder (Subpart X-1926.1053(b)(22) and maintain 3-point contact with the ladder, and the employee should face the ladder while ascending and descending (Subpart X-1926.1053(b)(21). 29 CFR 1926.1060 requires a training program for each employee using ladders.

All non-self-supporting ladders should be secured at the top and stabilized at the bottom.

Ladders erected in work areas where possible displacement exists, should be secured and tied at the top (Subpart X-1926.1053(b)(8). Ladders should only be erected on stable and level surfaces, and if this is not possible, the ladder needs to be secured (Subpart X-1926.1053(b)(6). To further prevent slipping, the ladder should also be secured at the bottom.

While working from ladders, workers should wear appropriate footwear.

The ladder should be free of slipping hazards (Subpart X-1926.1053(b)(2). Clean dirty soles of shoes before ascending a ladder and don't climb with wet soles. All footwear should be slip-resistant (Canadian Centre for Occupational Safety and Health).

References:

1. FACE report #82-4-2000- "Construction contractor killed by fall from a ladder-- Washington State, FACE, Safety and Health Assessment & Research for Prevention, Washington State Dept. of Labor and Industries, Olympia, WA.

2. FACE report #96MN08701- "Farmer dies of injuries sustained after falling 20 feet from silo. Minnesota FACE, Minnesota Dept of Health, St. Paul, MN.

3. Kentucky Occupational Safety and Health Standards for the Construction Industry, Kentucky Department of Labor, Frankfort, KY.

4. Canadian Centre for Occupational Safety and Health, Hamilton, Ontario, Canada.

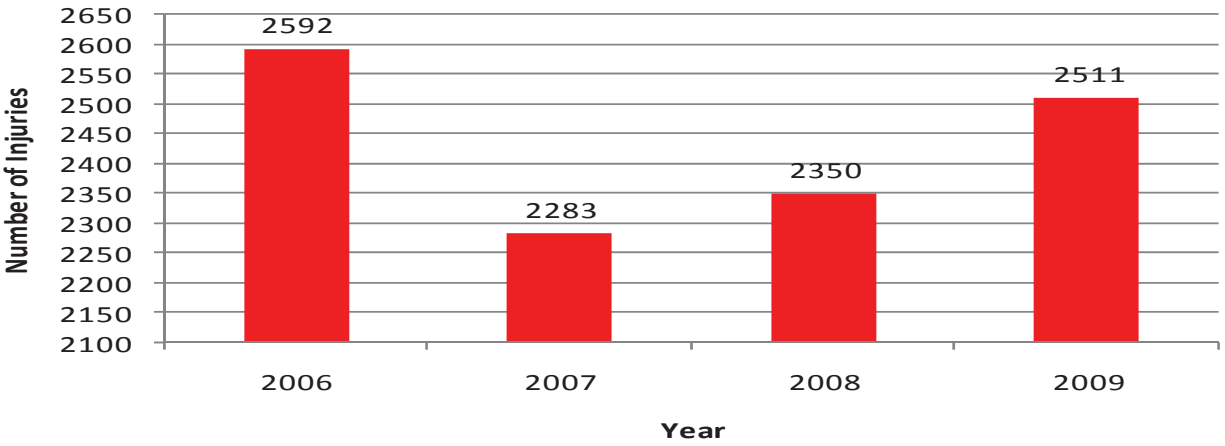
For more information, contact:
Kentucky Injury Prevention and Research Center (KIPRC)
333 Waller Ave., Suite 206
Lexington, KY 40504
1-800-204-3223 (toll-free)
www.kiprc.uky.edu

The KY Fatality Assessment and Control Evaluation (FACE) and Occupational Safety and Health surveillance (KOSHS) programs are funded by the National Institute for Occupational Safety and Health (NIOSH) (Cooperative Agreement No: 1U60OH008483-01).

Indicator #23: Public Sector Employee injuries (Kentucky- Specific)

Public sector employee injuries increased 7% from 2,350 injuries recorded in the year 2008 to 2,511 injuries recorded in the year 2009 (Figure 22). Kentucky public sector worker injuries were primarily due to: 1) lifting; 2) falls, slips, and trips on the same level; 3) combative patients; and 4) falls, slips, trips on ice or snow.

Figure 22. Number of Kentucky Public Sector Worker[a] Injuries, 2006-2009.



[a] All state government cabinets were included in the analysis except for Transportation Cabinet injuries.
Data source: Kentucky Personnel Cabinet, Office of Employee Relations

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NEWS RELEASE

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Media contact: (202) 691-5902 • PressOffice@bls.gov

NONFATAL OCCUPATIONAL INJURIES AND ILLNESSES REQUIRING DAYS AWAY FROM WORK FOR STATE GOVERNMENT AND LOCAL GOVERNMENT WORKERS, 2008

There were 277,680 occupational injuries and illnesses with days away from work reported for State and local government combined in 2008, according to the Bureau of Labor Statistics. Fifty percent occurred in service occupations, including health care support and protective service workers. In contrast, 22 percent of the injuries and illnesses in private industry occurred in service occupations.

State government workers sustained occupational injuries and illnesses at an incidence rate of 170 cases per 10,000 full-time workers and required a median of 8 days away from work to recuperate. The incidence rate for local government workers was 195 and the median days away from work was 9. For comparison, the incidence rate for private industry was 113 cases per 10,000 full-time workers.

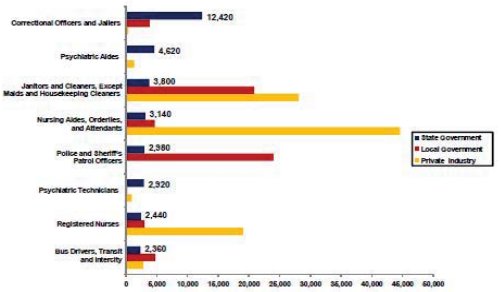
There were a total of 206,580 cases of days away from work in local government and 71,100 cases in State government. Sprains and strains comprised 43 percent of the injuries and illness in local government at an incidence rate of 83 cases per 10,000 full-time workers. For State government, sprains and strains comprised 39 percent of the cases at a rate of 67 per 10,000 full-time workers (see table 3).

Key findings for injuries and illnesses requiring days away from work for State government and local government in 2008:

- Local government workers accounted for 15 percent of the 1.4 million days-away-from-work cases reported for private industry; State government, and local government combined--higher than their share of employment (9 percent) (see chart A).
- The incidence rate per 10,000 full-time workers for assaults and violent acts by person in State government was 27 (compared to 2 for private industry) (see table 3). Fifty-three percent of these assaults and violent acts by a person occurred to the following three occupations: correctional officers and jailers; psychiatric aides; and psychiatric technicians (see table 5).
- The incidence rate for falls on the same level in local government was 36 (compared to 17 for private industry). Thirty-seven percent of falls to the same level (see table 5) occurred to the following five occupations: janitors and cleaners; police and sheriff's patrol officers; elementary school teachers; teacher assistants; and secondary school teachers.
- The proportion of injuries and illnesses occurring to workers with over five years of service with an employer was greater for both State government (58 percent) and local government (60 percent) than for private industry (31 percent) (see table 6).

The 2008 results announced today present the first national data for State government and local government on the case circumstances and worker characteristics for nonfatal occupational injuries and illnesses requiring days away from work. Data for total recordable cases for State and local government were reported in the *Workplace Injuries and Illnesses, 2008* news release issued in October 2009.

Chart B. Injuries and illnesses with days away from work for occupations in State government with 2,000 or more cases, by ownership, 2008



Local government. Workers in protective service occupations suffered the most injuries and illnesses with days away from work with 57,790 cases (see table 2) in local government; followed by building and grounds cleaning and maintenance occupations with 29,390 cases; and education, training, and library occupations with 27,260 cases. Combined these occupational groups accounted for 55 percent of the days-away-from-work cases in local government. Protective service workers needed 11 median days away from work to recuperate from injuries and illnesses and building and grounds cleaning workers needed 10 days. Education, training, and library workers required only 4 days to recuperate.

- Among detailed occupations, police and sheriff's patrol officers had the most cases with 24,020 (see chart C). Men accounted for 87 percent of these cases. Transportation accidents accounted for 20 percent of the cases to this occupation and assaults and violent acts by person accounted for 17 percent. The median number of days away from work for this occupation was 9 days.
- Three detailed occupations, police and sheriff's patrol officers, janitors and cleaners, and fire fighters each had more than 15,000 injuries and illnesses with days away from work and together accounted for 30 percent of all cases in local government.

3