

# Occupational Health Indicators

*Louisiana 2012-2016*

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1

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## Table of Contents

<b>Introduction and Background</b> .....	1
<b>Methods</b> .....	1
<b>Louisiana Employment Demographics Profile</b> .....	2
<b>Indicator 1: Non-Fatal Work-Related Injuries and Illnesses Reported by Employers</b> .....	4
<b>Indicator 2: Work-Related Hospitalizations</b> .....	6
<b>Indicator 3: Fatal Work-Related Injuries</b> .....	7
<b>Indicator 4: Work-Related Amputations with Days Away from Work Reported by Employers</b> .....	8
<b>Indicator 5: State Workers’ Compensation Claims for Amputations with Lost Work-Time</b> .....	9
<b>Indicator 6: Hospitalizations for Work-Related Burns</b> .....	10
<b>Indicator 7: Work-Related Musculoskeletal Disorders (MSDs) with Days Away from Work Reported by Employers</b> .....	11
<b>Indicator 8: State Workers’ Compensation Claims for Carpal Tunnel Syndrome with Lost Work-Time</b> .....	13
<b>Indicator 9: Hospitalizations from or with Pneumoconiosis</b> .....	14
<b>Indicator 10: Mortality from or with Pneumoconiosis</b> .....	16
<b>Indicator 11: Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers</b> .....	17
<b>Indicator 12: Incidence of Malignant Mesothelioma</b> .....	18
<b>Indicator 13: Elevated Blood Lead Levels (BLL) among Adults</b> .....	19
<b>Indicator 14: Workers Employed in Industries at High Risk for Occupational Morbidity</b> .....	20
<b>Indicator 15: Workers Employed in Occupations at High Risk for Occupational Morbidity</b> .....	21
<b>Indicator 16: Workers Employed in Industries and Occupations at High Risk for Occupational Mortality</b> ..	22
<b>Indicator 17: Occupational Safety and Health Professionals</b> .....	24
<b>Indicator 18: OSHA Enforcement Activities</b> .....	25
<b>Indicator 19: Workers’ Compensation Awards</b> .....	27
<b>Indicator 20: Work-Related Low Back Disorder Hospitalizations</b> .....	28
<b>Indicator 21: Asthma among Adults Caused or Made Worse by Work</b> .....	30
<b>Indicator 22: Work-Related Severe Traumatic Injury Hospitalizations</b> .....	31
<b>Indicator 23: Influenza Vaccination Coverage among Hospital Care Personnel</b> .....	32
<b>Indicator 24: Occupational Heat-Related Emergency Department (ED) Visits</b> .....	33
<b>Indicator 25: Hospitalizations for or with Occupational Eye Injuries</b> .....	35
<b>References</b> .....	36

## Introduction and Background

There are almost two million workers in Louisiana, and every year thousands of them are injured on the job or become ill as a result of exposure to health and/or safety hazards at work. Work-related injuries and illnesses can decrease work-productivity and lead to excessive healthcare costs for both employers and employees. Workers' compensations claims alone in Louisiana cost more than \$795 million in 2016. Many of work-related injuries and illnesses are preventable. Generating a baseline report of occupational injuries and illnesses is the first step to successful identification and intervention of current and future health hazards.

The Louisiana Department of Health (LDH), Office of Public Health (OPH), Section of Environmental Epidemiology and Toxicology's (SEET) Occupational Health and Injury Surveillance Program conducts surveillance of injuries, illnesses, deaths, and hazards among Louisiana workers. This project began in 2006 through a cooperative agreement funded by the Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH). A set of occupational health indicators was developed by a State-Federal Workgroup composed of representatives from state occupational health programs, the Council of State and Territorial Epidemiologists (CSTE), and NIOSH to help states with their surveillance activities. An **occupational health indicator** is a specific measure of a work-related disease or injury, or a factor associated with occupational health, such as workplace exposures, hazards, or interventions, in a specified population. Indicators allow a state to compare its health or risk status to that of other states, to evaluate trends over time within the state, and to guide priorities for prevention and intervention efforts. These indicators are collected and compiled annually.

This document summarizes the occupational health status of Louisiana workers including influential factors such as demographics and industry characteristics for the years 2012-2016.

## Methods

The CSTE document entitled "Using the CSTE Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and their Determinants" ([www.cste.org](http://www.cste.org)) served as the guideline for data collection. The CSTE guide provides detailed methods for each indicator on how to collect data and calculate frequency measurements that are consistent at a national level. The majority of the data were collected from publicly available, national datasets; however, some data was acquired through sources that are specific to Louisiana, such as emergency department, hospital discharge, and Vital Records databases.

This report describes the significance, methods, results, and limitations for each occupational health indicator (OHI). When appropriate, state-to-national comparisons are presented to demonstrate where Louisiana ranks on occupational health and safety. Several Indicators should NOT be used to make state-to-state or state-to-national comparisons. This is noted in the limitations section for each of those indicators.

An explanation discussing why data from certain possible indicators are not included can be found in the limitation section for each. All data sources and websites can be found in the appendix at the end of this report.

# Louisiana Employment Demographics Profile

From 2012-2016, there was an annual average of 1,985,400 employed persons in Louisiana aged 16 years and older. The workforce was fairly evenly split along sex lines, with 52.56% being male and 47.44% being female. These closely follow US national trends, with 53.3% of the general workforce being male and 47.1% being female. Virtually all of the workforce was between the ages of 18-64 years, at 93.94%. Most of the workforce was white at 68.46%, with the next highest race being black at 27.68%. The general US workforce has a higher overage percentage of whites, at 79.78%, but a smaller percentage of black employed persons, at 11.78%. Almost half of those employed, 46.2%, work a standard 40 hour work week.

**Table P.1** Number of Employed Persons in Louisiana, 2012-2016

	2012	2013	2014	2015	2016
<b>Employed Persons</b>	1,930,000	1,949,000	2,021,000	2,032,000	1,995,000

**Table P.2** Louisiana Demographics Profile, 2012-2016

Percentage of civilian employment	Annual Average
<b>Workforce Unemployment</b>	6.58
<b>Self-employment</b>	5.98
<b>Part-time employment*</b>	16.58
<b>Number of hours worked</b>	
< 40 hours	31.38
40 hours	46.2
41+ hours	22.46
<b>Sex</b>	
Males	52.56
Females	47.44
<b>Age group</b>	
16 to 17	0.88
18 to 64	93.94
65+	5.24
<b>Race</b>	
White	68.46
Black	27.68
Other	3.86
<b>Hispanic origin**</b>	5.00

Note: Percentages may not add up to 100, due to rounding. \*Individuals employed part-time work 1 to 34 hours per week. \*\*Persons identified as Hispanic may be of any race.

## SIGNIFICANCE

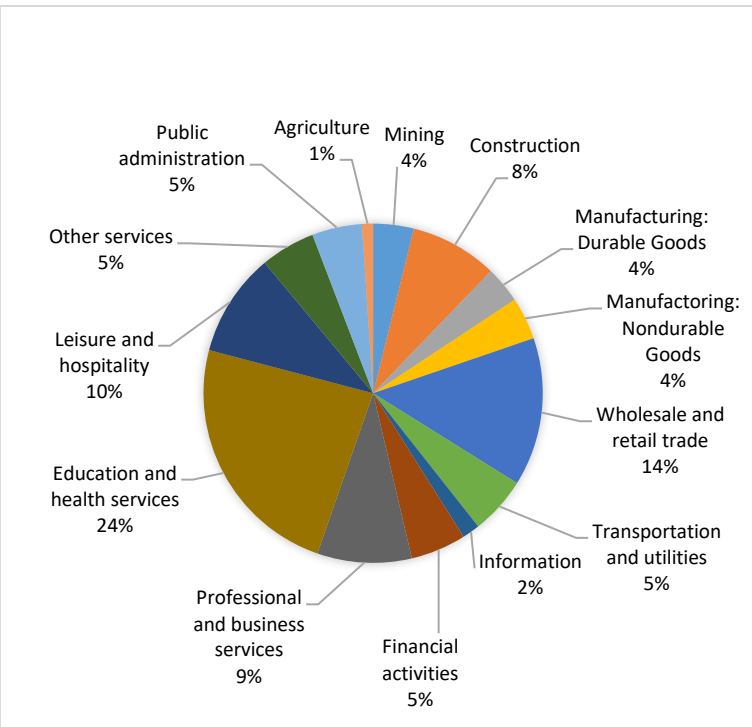
Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention. Research has shown relationships between demographic characteristics of workers and the risk of occupational injury or illness. Understanding the characteristics of a state's workforce will guide

development and implementation of preventive strategies and target research efforts.

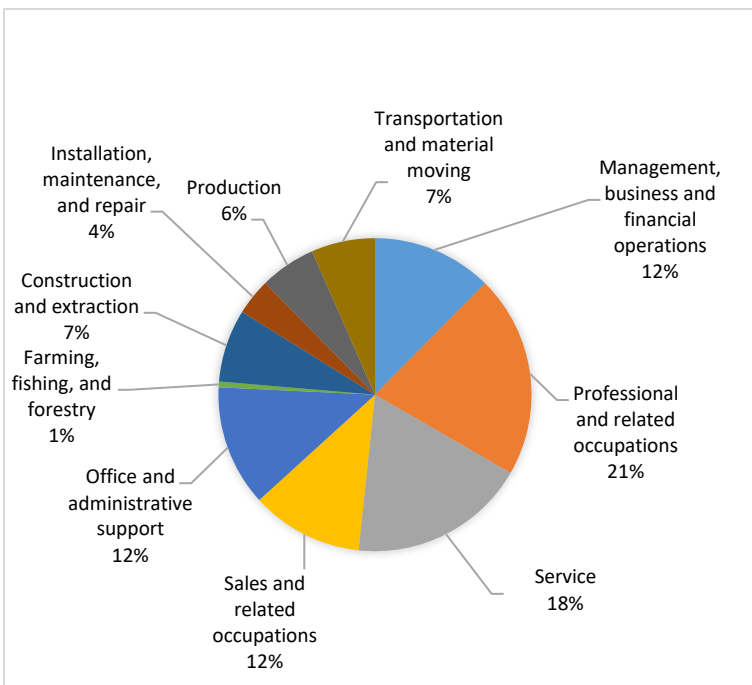
## METHODS

Age, sex, race/ethnicity, and employment characteristics are described for the years 2012-2016 for Louisiana and the United States. The Bureau of Labor Statistics' (BLS) Geographic Profiles of Employment and Unemployment estimates, which

are derived from the Current Population Survey (CPS), provided demographic (except for age group) and employment data. Because employment data by detailed age category are not available in the Geographic Profiles, the CDC's Employed Labor Force (ELF) query system was used to obtain the percent of civilian employment by age



**Figure P.1** Percentage of Civilian Employment by industry



**Figure P.2** Percentage of Civilian Employment by Occupation

group. Data include all persons aged 16+ years employed in the civilian non-institutional population. State demographic and employment stratifications percentages may not add up to 100 due to rounding.

### LIMITATIONS

- The Geographic Profiles estimates are derived primarily from the CPS, which is a monthly probability sample of households across the United States. As such, the estimates are subject to a sampling error, meaning there is potential for over- or under-sampling the number of workers in each of the demographic categories listed.
- Geographic Profiles exclude workers less than 16 years of age, active-duty members of the military, and people living in institutions (i.e., prisoners, living institutions for the elderly).
- Data may underestimate the percentage of certain racial or ethnic worker populations that do not have permanent residences, or are migratory in nature.
- The ELF system uses a subset of CPS data that uses slightly different methods to apply population controls from those used by BLS. As a result, demographic estimates obtained through ELF will differ slightly from estimated provided by BLS.
- The Geographic Profiles estimates are only available for major industry and occupational groups; however, ELF can be used to obtain industry and occupation sub-sector estimates.

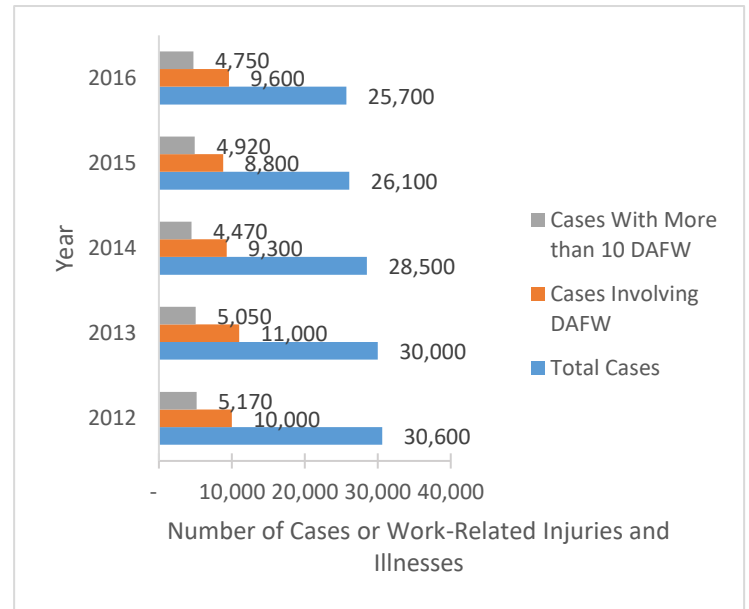
# Indicator 1: Non-Fatal Work-Related Injuries and Illnesses Reported by Employers

There was a linear decrease in Louisiana’s count and rate of all non-fatal work-related injury and illness from 2012-2016, with an overall rate decrease of 17.4%. There was also a 4% overall decrease in the number of non-fatal work-related injuries and illnesses involving days away from work; however, the rate did not change. There was an 8.1% decrease in the number of non-fatal work-related injuries and illnesses involving more than 10 days away from work.

**Table 1** Non-Fatal Work-Related Injuries and Illnesses Reported by Employers

Year	All injuries and illnesses		Injuries and illnesses involving days away from work	
	Count	Rate*	Count	Rate*
2016	25,700	1,900	9,600	700
2015	26,100	1,900	8,800	600
2014	28,500	2,000	9,300	700
2013	30,000	2,200	11,000	800
2012	30,600	2,300	10,000	700

\*per 100,000 Full-Time Equivalents



**Figure 1.1** Number of cases of work related injuries and illnesses  
\*DAFW (days away from work)

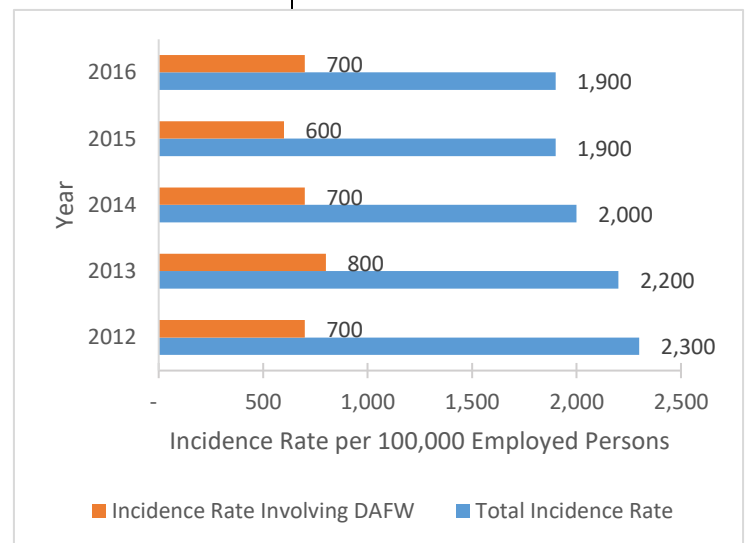
## SIGNIFICANCE

Work-related injuries and illnesses are largely preventable, and control of occupational hazards is the most effective means of prevention. Estimating the burden and tracking these injuries can help target prevention programs and activities. Information on reported cases can be used to further identify contributory factors and to develop improved or new prevention strategies or regulations to protect workers.

## METHODS

Numbers and incidence rates of non-fatal work-related injuries and illnesses were obtained from the BLS Survey of Occupational Injuries and Illnesses (SOII). Employers are required to record events that resulted in death, loss of consciousness, days away from work, restricted work activity or job

transfer, medical treatment beyond first aid, or a significant injury or illness diagnosed by a physician or other licensed health care professional. The incidence rate describes the number of new injuries and illnesses per 100,000 Full-Time Equivalents (FTE) in Louisiana in each listed year. FTE measures time on the



**Figure 1.2** Incidence rate of work related injuries and illnesses per 100,000 employed persons  
\*DAFW (days away from work)

job, which gives a more accurate representation of at-risk experience than employment status would.

## LIMITATIONS

- Due to differences in industry concentration and sample size, caution should be taken when making direct state-to-state and state-to-national comparisons of these data.
  - The SOII is based on a probability sample of employer establishments, not a census of all employers. As such, SOII estimates are subject to sampling error, meaning that the estimates may differ from the true population values they represent.
- SOII estimates are also subject to non-sampling error, such as mistakes in recording or coding data that are not measured.
  - The SOII relies on employer reporting of injuries and illnesses and is therefore subject to both willful and unintentional underreporting of cases.
  - Employers may place affected workers on restricted work activity, thereby avoiding the reporting of cases as lost workday cases.
- Employers may not be aware of work-related conditions for which employees obtained medical care from their personal health care providers, or for conditions that have long latencies and are diagnosed after an employee leaves their employment.
  - The SOII only collects data for the incident year, and does not capture lost work-time that may carry over to a new calendar year.
  - This indicator is limited to the private sector workforce only.

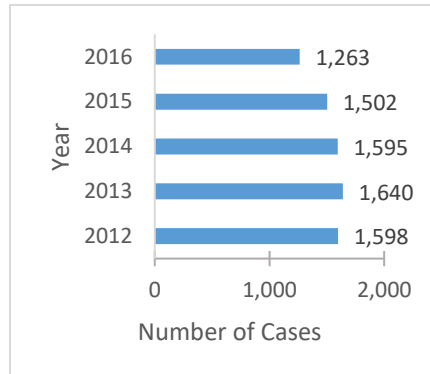
## Indicator 2: Work-Related Hospitalizations

In Louisiana, the number of hospitalizations remained relatively stable from 2012-2015, with between 1,500 to nearly 1,650 hospitalizations per year. In 2016, there was an almost 16% decrease in the number of hospitalizations from 2015. With the exception of 2013, there was a yearly drop in the rate of work-related hospitalizations, with an overall decrease in rate from 2012-2016 of 23.6%.

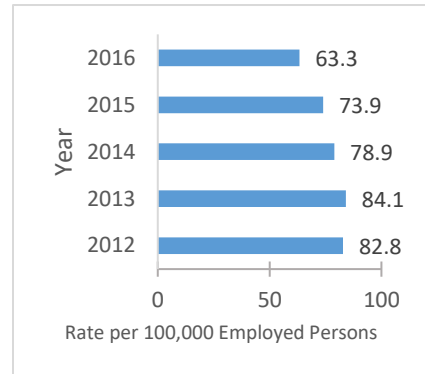
**Table 2** Work-Related Hospitalizations in Louisiana

Year	Count	Rate*
2016	1,263	63.3
2015	1,502	73.9
2014	1,595	78.9
2013	1,640	84.1
2012	1,598	82.8

\*per 100,000 Employed Persons



**Figure 2.1** Annual Number of Work-Related Hospitalizations in Louisiana



**Figure 2.2** Annual Crude Rate of Work-Related Hospitalizations in Louisiana

### SIGNIFICANCE

Individuals hospitalized with work-related injuries and illnesses have some of the most serious and costly work-related adverse health outcomes. Tracking of these significant adverse health effects is undertaken to document the burden of occupational injuries and illnesses. Tracking efforts are also useful for designing, targeting, and evaluating prevention efforts over time.

### METHODS

The number of work-related hospitalizations were obtained from the Louisiana Hospital Inpatient Discharge Database (LAHIDD). Cases were Louisiana residents, aged 16 years or older who had workers' compensation listed as the primary payer. Crude rates of hospitalizations per 100,000 employed persons were

calculated for each year from 2012-2016 using BLS CPS civilian employment estimates as the denominator.

### LIMITATIONS

- Inpatient hospital discharge records are only available for non-federal, acute care hospitals.
- Individuals hospitalized for work-related injuries and illnesses represent less than 10% of all workers who receive workers' compensation.
- The majority of individuals with work-related illnesses and many others with injuries do not file for workers' compensation.
- Self-employed individuals, federal employees, and railroad or longshore and maritime workers are not covered by workers' compensation systems.

- Attribution of payer in hospital discharge may not be accurate.
- Due to the differences in states' workers' compensation programs caution should be taken when making state-to-state and state-to-national comparisons of these data.
- Practice patterns and payment mechanisms may affect decisions by health care providers to hospitalize patients, to correctly diagnose work-related conditions, and/or to list the condition as a discharge diagnosis.
- State residents may be hospitalized in another state and not reflected in LAHIDD data.
- All admissions are counted, including multiple admissions for a single individual.



## Indicator 3: Fatal Work-Related Injuries

The work-related fatality rate in Louisiana has been consistently above the national rate each year. The national average rate from 2012-2016 was 3.4 per 100,000 FTE. Rates in Louisiana during this time ranged from 1.4-1.9 times the national average rate each year. In 2013, the rate in Louisiana rose 12.5% to a 5-year high of 6.3 deaths per 100,000 FTE. Over 2015 and 2016, the rate fell over 20% to a 5-year low of 4.9 deaths per 100,000 FTE in 2016.

**Table 3** Work-Related Fatalities in Louisiana and the United States

Year	Louisiana	United States
	Count (Rate)*	Count (Rate)*
2016	95 (4.9)	5,190 (3.6)
2015	112 (5.8)	4,836 (3.4)
2014	120 (6.3)	4,821 (3.4)
2013	114 (6.3)	4,585 (3.3)
2012	116 (5.6)	4,628 (3.4)

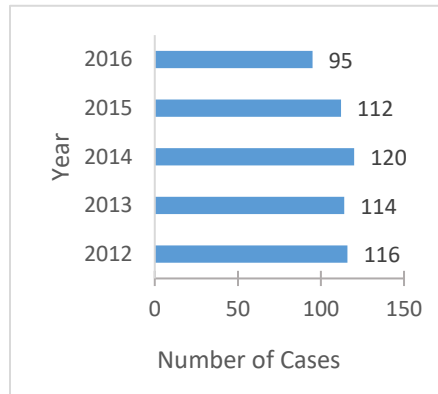
\* per 100,000 FTE

### SIGNIFICANCE

Multiple factors and risks contribute to work-related fatalities, including workplace/process design, work organization, worker characteristics, economics, and other social factors. Surveillance of work-related fatalities can identify new hazards and case clusters, leading to the development of new interventions and development of new or revised regulations to protect workers.

### METHODS

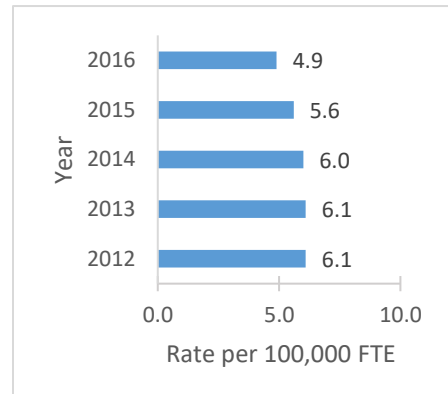
Cases were obtained from the BLS Census of Fatal Occupational Injuries (CFOI). The average annual number of FTEs aged 16 years or older, the denominator for rate calculations, was obtained using NIOSH's ELF query system, which is based on the CPS.



**Figure 3.1** Annual Number of Work-Related Traumatic Fatalities

### LIMITATIONS

- Fatalities of people younger than 16 years of age may be included in the numerator (CFOI data) but not in the denominator (ELF CPS estimates), since employment statistics are only available for those 16+ years of age.
- CFOI reports data on work-related fatalities by the state in which they occurred, which is not necessarily the state of death or the state of residence. CPS estimates are based on state of residence, thus rates may overestimate risk if fatal incidents involved victims who were out of state residents. Likewise, rates may be underestimated if fatal incidents occurred in other states.



**Figure 3.2** Annual Crude Fatality Rate in Louisiana

- Deaths among military personnel and volunteers are included in the numerator but not the denominator.
- The BLS uses a different methodology to calculate fatal work-related rates from what is presented here; therefore, these rates may differ from rates published by BLS.

### FOR MORE INFORMATION/ FURTHER READING

[Tracking Work-Related Fatal Injuries in Louisiana, 2015-2016](#)

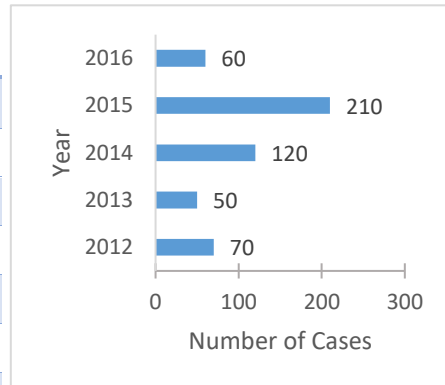
# Indicator 4: Work-Related Amputations with Days Away from Work Reported by Employers

From 2013 to 2014 the rate of work-related amputations in Louisiana doubled, and nearly doubled again the following year in 2015 to 5-year high of 15.0 amputations per 100,000 FTE. The work-related amputation rate reported by employers for 2016 decreased to 4.0 amputations per 100,000 FTE.

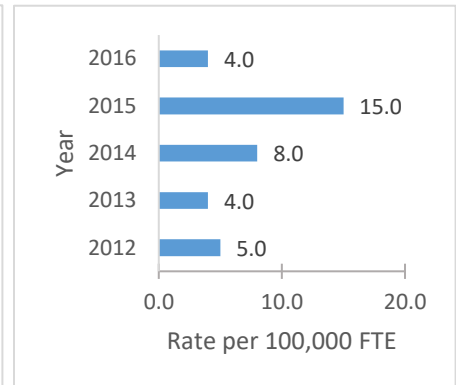
**Table 4** Work-Related Amputations with Days Away from Work

Year	Count (Rate*)
2016	60 (4.0)
2015	210 (15.0)
2014	120 (8.0)
2013	50 (4.0)
2012	70 (5.0)

\* per 100,000 FTE



**Figure 4.1** Estimated Annual Number of Amputations Involving Days Away from Work



**Figure 4.2** Estimated Annual Rate of Amputations Involving Days Away from Work

## SIGNIFICANCE

Work-related amputations are serious yet preventable injuries, and control of occupational hazards is the most effective means of prevention. Estimating the burden and tracking these injuries can help target prevention programs and activities. Information on reported cases can be used to identify contributory factors and to develop improved or new prevention strategies or regulations to protect workers.

## METHODS

Data was obtained from the annual BLS SOII that provides annual estimates on the number and incidence rates of work-related amputations involving at least one day away from work.

## LIMITATIONS

- Due to differences in industry concentration and sample size, caution should be taken when making direct state-to-state and state-to-national comparisons of these data.
- The SOII is based on a probability sample of employer establishments, not a census of all employers. As such, SOII estimates are subject to sampling error, meaning that the estimates may differ from the true population values they represent.
- SOII estimates are also subject to non-sampling error, such as mistakes in recording or coding data that are not measured.
- The SOII relies on employer reporting of injuries and illnesses and is therefore subject to both

- willful and unintentional underreporting of cases.
- Employers may place affected workers on restricted work activity, thereby avoiding the reporting of cases as lost workday cases.
- Employers may not be aware of work-related conditions for which employees obtained medical care from their personal health care providers, or for conditions that have long latencies and are diagnosed after an employee leaves their employment.
- The SOII only collects data for the incident year, and does not capture lost work-time that may carry over to a new calendar year.
- This indicator is limited to the private sector workforce only.

## Indicator 5: State Workers' Compensation Claims for Amputations with Lost Work-Time

In Louisiana, there was a decrease in the number of workers' compensation claims for amputations with lost work-time for 2014-2016. The rate remained stable from 2014-2015 but dropped in 2016 by 0.5 cases per 100,000 employed persons. In Louisiana, the workers' compensation first report of injury did not begin electronic reporting until 2014; therefore, data prior to this year is not available.

**Table 5** State Workers' Compensation Claims for Amputations with Lost Work-Time

Year	Count	Rate*
2016	64	3.4
2015	74	3.9
2014	73	3.9
2013	N/A	N/A
2012	N/A	N/A

\*per 100,000 Workers Covered by State Workers' Compensation

### SIGNIFICANCE

Work-related amputations are preventable, and control of occupational hazards is the most effective means of prevention. Estimating the burden and tracking these injuries can help target prevention programs and activities. Information on reported cases can be used to identify contributory factors and to develop improved or new prevention strategies or regulations to protect workers.

### METHODS

The annual number of amputation cases with lost work-time workers'

compensation claims filed was obtained from the Louisiana Workforce Commission. Population data for rate calculations was obtained from the National Academy of Social Insurance (NASI), which tracks the overall number of workers covered by workers' compensation across the United States.

### LIMITATIONS

- Workers' compensation eligibility criteria varies among states, caution should be taken when making state-to-state and state-to-national comparisons of these data.

- Workers' compensation data are not complete, as the majority of individuals with work-related illnesses and many with work-related injuries do not file for workers' compensation.
- Workers' compensation claims may be denied.
- Self-employed individuals, federal employees, railroad, and longshore or maritime workers may not be covered by state workers' compensation systems.

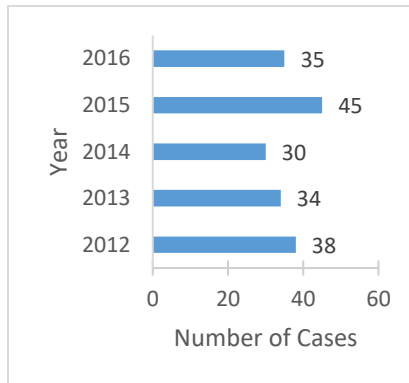
## Indicator 6: Hospitalizations for Work-Related Burns

On average, about 36 workers were hospitalized annually for work-related burns from 2012-2016 in Louisiana. The average annual rate during this time period was 1.8 cases per 100,000 workers. The rate of hospitalizations for work-related burns remained relatively unchanged during the 5-year period, but was highest in 2015 with 2.2 cases per 100,000 workers.

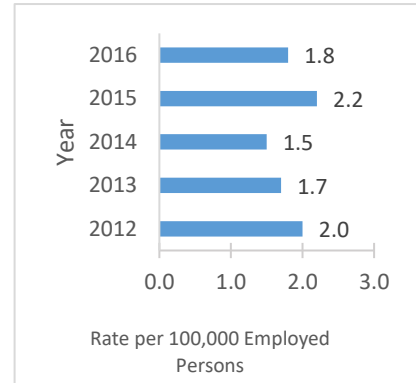
**Table 6** Work-Related Burn Hospitalizations

Year	Count (Rate*)
2016	35 (1.8)
2015	45 (2.2)
2014	30 (1.5)
2013	34 (1.7)
2012	38 (2.0)

\*per 100,000 Employed Persons



**Figure 6.1** Annual Number of Work-Related Burn Hospitalizations



**Figure 6.2** Annual Rate of Work-Related Burn Hospitalizations

### SIGNIFICANCE

Work-related burns are some of the most devastating injuries affecting workers. Although hospitalized burns are unusual events, they are painful, disabling, and expensive to treat. Many result in significant disfigurement. In addition, burns are the most common cause of work-related hospitalization for young workers.

### METHODS

The number of hospitalizations due to work-related burns was obtained from the Louisiana Hospital Inpatient Discharge Database (LAHIDD). Criteria for inclusion were Louisiana residents aged 16+ years with a principle ICD-9-CM diagnosis code (for 2012-Q3 2015) or principle ICD-10-CM diagnosis code (Q4 2015-2016) indicative of a burn injury and workers' compensation was the primary payer. The data does not include cases of unknown age,

out-of-state residents, unknown residence, and out-of-state hospitalizations. Rates per 100,000 employed persons were calculated using BLS CPS data from the Geographic Profiles of Employment and Unemployment for the denominator.

### LIMITATIONS

- Inpatient hospital discharge records are only available for non-federal, acute care hospitals.
- Individuals hospitalized for work-related injuries and illnesses represent less than 10% of all workers who receive workers' compensation.
- The majority of individuals with work-related illnesses and many others with injuries do not file for workers' compensation.
- Self-employed individuals, federal employees, and railroad or longshore and maritime workers

are not covered by workers' compensation systems.

- Attribution of payer in hospital discharge may not be accurate.
- Due to the differences in states' workers' compensation programs caution should be taken when making state-to-state and state-to-national comparisons of these data.
- Practice patterns and payment mechanisms may affect decisions by health care providers to hospitalize patients, to correctly diagnose work-related conditions, and/or to list the condition as a discharge diagnosis.
- State residents may be hospitalized in another state and not reflected in LAHIDD data.
- All admissions are counted, including multiple admissions for a single individual.

## Indicator 7: Work-Related Musculoskeletal Disorders (MSDs) with Days Away from Work Reported by Employers

There was an overall decline in the annual counts of all work-related musculoskeletal disorders (MSDs) with days away from 2012-2016. Compared to 2012, there was a rate increase for the years 2013 and 2014, which return to the baseline (2012) level by 2015 and 2016. Counts and rates of MSDs of the neck shoulder & upper extremities had a large spike from 2012-2013, then had a steady decline in cases from 2014-2016. MSDs of the back followed the same trends as those of the upper torso, in both case counts and rates. Carpal tunnel syndrome cases and rates also seemed to follow the same trend, with 2015 being the odd year out with no reported cases.

**Table 7** Work-Related Musculoskeletal Disorders (MSDs) with Days Away from Work Reported by Employers

	All MSDs	MSDs of the neck, shoulder & upper extremities	Carpal tunnel syndrome cases	MSDs of the back
Year	Count (Rate*)	Count (Rate*)	Count (Rate*)	Count (Rate*)
2016	2,210 (162.0)	600 (43.0)	30 (2.0)	920 (68.0)
2015	2,350 (167.0)	620 (45.0)	0 (---)	1,010 (71.0)
2014	2,640 (186.0)	780 (56.0)	20 (1.0)	1,280 (91.0)
2013	3,100 (231.0)	820 (61.0)	70 (5.0)	1,580 (117.0)
2012	2,530 (187.0)	590 (44.0)	30 (2.0)	1,180 (88.0)

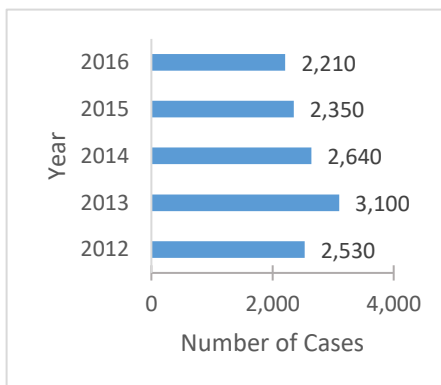
\* per 100,000 FTE

### SIGNIFICANCE

Work-related musculoskeletal disorders (MSD) are preventable and control of occupational hazards is the most effective means of prevention. Estimating the burden and tracking these injuries helps target prevention programs and activities. Information on reported cases can be used to identify contributory factors and develop improved or new prevention strategies or regulations to protect workers.

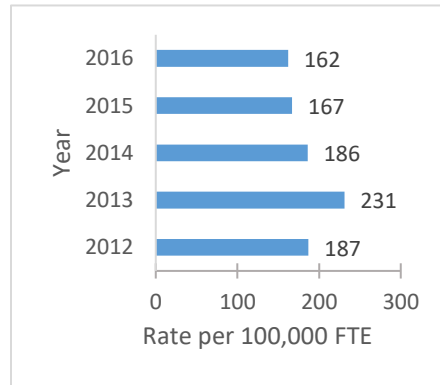
### METHODS

The BLS Annual Survey of Occupational Injury and Illness (SOII) provided data for musculoskeletal disorders in Louisiana. The BLS definition of musculoskeletal disorders involving days away from work includes persons with one or more nature code in combination with an event code. Occupational Injury and Illness Codes include: musculoskeletal system and connective tissue diseases and



**Figure 7.1** Estimated annual number of all musculoskeletal disorders

disorders, carpal tunnel syndrome, tarsal tunnel syndrome, hernia, pinched nerve, herniated disk, meniscus tear, and Raynaud's syndrome as well as other symptoms such as numbness, swelling, and sprains. If these occurred from overexertion, repetitive motion, or via constant vibration, then it is counted as a musculoskeletal disorder.



**Figure 7.2** Estimated annual rate of all musculoskeletal disorders

### LIMITATIONS

- Due to differences in industry concentration and sample size, caution should be taken when making direct state-to-state and state-to-national comparisons of these data.
- The SOII is based on a probability sample of employer establishments, not a census of all employers. As such, SOII estimates are subject to sampling error, meaning that the estimates

may differ from the true population values they represent.

- SOII estimates are also subject to non-sampling error, such as mistakes in recording or coding data that are not measured.
- The SOII relies on employer reporting of injuries and illnesses and is therefore subject to both willful and unintentional underreporting of cases.

- Employers may place affected workers on restricted work activity, thereby avoiding the reporting of cases as lost workday cases.
- Employers may not be aware of work-related conditions for which employees obtained medical care from their personal health care providers, or for conditions that have long latencies and are

diagnosed after an employee leaves their employment.

- The SOII only collects data for the incident year, and does not capture lost work-time that may carry over to a new calendar year.
- This indicator is limited to the private sector workforce only.

## Indicator 8: State Workers' Compensation Claims for Carpal Tunnel Syndrome with Lost Work-Time

In Louisiana from 2014-2016 there was a yearly decrease in both the count and rate of workers compensation claims related to carpal tunnel syndrome that resulted in time away from work. Overall, the count decreased by 11 cases over the years, and the rate by decrease by 0.6 claims per 100,000 employed persons. In Louisiana, the workers' compensation first report of injury did not begin electronic reporting until 2014; therefore, data prior to this year is not available.

**Table 8** State Workers' Compensation Claims for Carpal Tunnel Syndrome with Lost Work-Time

Year	Count	Rate*
2016	30	1.6
2015	39	2.1
2014	41	2.2
2013	N/A	N/A
2012	N/A	N/A

\*per 100,000 Worker's Covered by State Workers' Compensation

### SIGNIFICANCE

Carpal tunnel syndrome is preventable, and control of occupational hazards is the most effective means of prevention. Estimating the burden and tracking carpal tunnel syndrome can help target prevention programs and activities. Information on reported cases can be used to identify contributory factors and to develop improved or new prevention strategies or regulations to protect workers.

### METHODS

The annual number of carpal tunnel syndrome cases with lost work-time workers' compensation claims filed

was obtained from the Louisiana Workforce Commission. Population data for rate calculations was obtained from the National Academy of Social Insurance (NASI) tracks the overall number of workers covered by workers' compensation across the United States.

### LIMITATIONS

- Workers' compensation eligibility criteria varies among states, caution should be taken when making state-to-state and state-to-national comparisons of these data.
- Workers' compensation data are not complete, as the majority of individuals with work-related

illnesses and many with work-related injuries do not file for workers' compensation.

- Workers' compensation claims may be denied and thus not counted.
- Self-employed individuals such as farmers and independent contractors, federal employees, railroad, and longshore or maritime workers may not be covered by state workers' compensation systems.

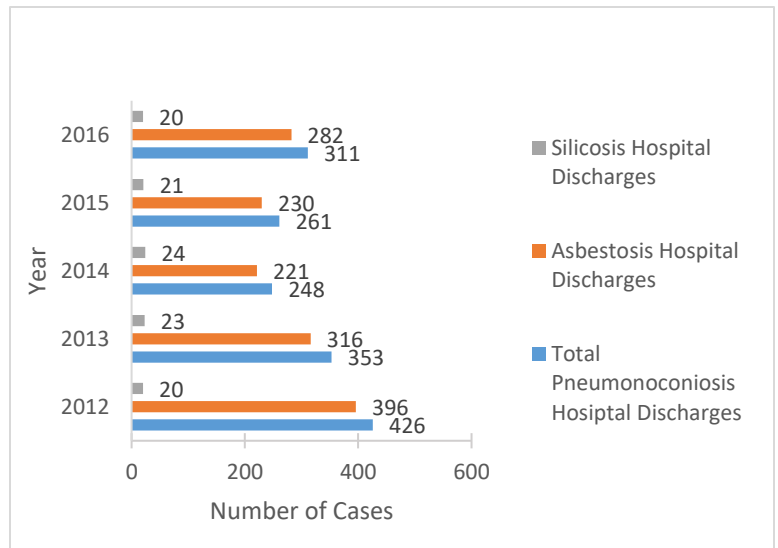
## Indicator 9: Hospitalizations from or with Pneumoconiosis

From 2012-2015, there was a yearly decrease in the age-adjusted rate of total pneumoconiosis hospitalizations in Louisiana, with a total decrease of 43.3% over those four years; however the rate increased 21% from 2015-2016. It is evident from the case numbers that asbestosis cases make up the majority of all pneumoconiosis cases in Louisiana. There was a similar pattern with age-adjusted asbestosis hospitalization rates. From 2012-2015, there was a 46.3% increase in the rate of asbestosis hospitalizations in Louisiana, but from 2015 to 2016 the rate jumped 24.6%. Silicosis rates in Louisiana have remained relatively stable over the past five years and been within the range of 5.1-5.8 hospitalizations per 1,000,000 residents. The Occupational Health and Injury Surveillance Program also collects data on hospitalizations from or with coal workers' pneumoconiosis and other/unspecified types of pneumoconioses, which are not reported here due to low case numbers.

**Table 9** Hospitalizations from or with Pneumoconiosis

Year	Total Pneumoconiosis Count (Rate*)	Asbestosis Count (Rate*)	Silicosis Count (Rate*)
2016	311 (80.0)	282 (72.9)	20 (5.1)
2015	261 (66.1)	230 (58.5)	21 (5.3)
2014	248 (64.6)	221 (58.0)	24 (5.7)
2013	353 (93.5)	316 (84.2)	23 (5.8)
2012	426 (116.5)	396 (109.0)	20 (5.1)

\*Age-adjusted rate per 1,000,000 residents

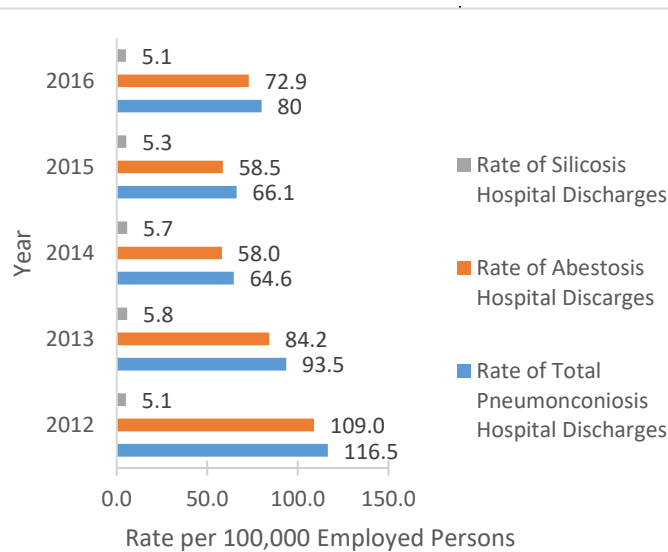


**Figure 9.1** Annual number of cases of hospitalizations from or with pneumoconiosis

mineral dusts. Nearly all pneumoconioses are attributable to occupational exposures, and millions of workers in the U.S. are at risk. Common types include asbestosis, coal workers' pneumoconiosis, and silicosis. Complications of various pneumoconioses

respiratory infections (including tuberculosis), chronic bronchitis, emphysema, lung cancer, pleuritis, progressive systematic sclerosis, renal disease, and respiratory failure. Pneumoconiosis usually develops after many years of continuous exposure; therefore, hospitalizations usually involve individuals at least 45 years of age. Pneumoconiosis frequency varies geographically, being largely determined by local industrial activities and migration of affected individuals. **Control of occupational dust exposure is the single most effective means of preventing pneumoconiosis.** Tracking of pneumoconiosis is essential for measuring progress towards elimination of the disease, as well as

and other conditions associated with exposure to the same dusts that cause pneumoconiosis include



**Figure 9.2** Annual, age adjusted, rates of hospitalizations from or with pneumoconiosis

### SIGNIFICANCE

Pneumoconiosis is a term for lung diseases caused by the inhalation of



for targeting prevention and disease management programs.

## METHODS

The number of hospitalizations for total pneumoconiosis, asbestosis, and silicosis was obtained from the Louisiana Hospital Inpatient Discharge Database (LAHIDD). Hospital records were limited to Louisiana residents aged 15+ years. ICD-9-CM diagnostic codes were used for 2012-Q3 2015 LAHIDD records and ICD-10-CM diagnostic codes were for Q4 2015-2016 LAHIDD records. These data exclude patients whose age is unknown, out-of-state residents, unknown state of residence, and out-of-state hospitalizations. State population estimates for rate calculations were obtained from the

U.S. Census Bureau, and the Year 2000 U.S. Standard population was used for age-adjustment of rates.

## LIMITATIONS

- Because pneumoconioses are typically diseases of long latency, current incidence is not necessarily indicative of current exposure, and it may be many years before reductions in occupational exposures affect the number of hospitalizations.
- The number of diagnoses listed on discharge summaries may vary by regional practice patterns and by the persons completing the summaries.
- Practice patterns and payment mechanisms may affect decisions by health care providers to

hospitalize patients, to diagnose pneumoconiosis, and/or to list pneumoconiosis as a discharge diagnosis.

- Residents of one state may be hospitalized in another state and not be reflected in his/her state's inpatient hospitalization data.
- All admissions are counted, including multiple admissions for a single individual.
- Hospital discharge records are only available for non-federal, acute care hospitals. Veterans Affairs and institutionalized (e.g., prison) population records are not included in these data.

## Indicator 10: Mortality from or with Pneumoconiosis

There was a yearly decrease in the age-adjusted mortality rate in Louisiana from all types of pneumoconiosis, with an overall decrease of 25%; however, there was a rate increase of 19.6% from 2015 to 2016. By looking at the counts, it is obvious that asbestosis accounts for nearly all of the pneumoconiosis deaths that occurred in Louisiana. There was a yearly decrease in the age-adjusted asbestosis mortality rate in Louisiana from 2012-2015, with an overall decrease of 27.9%, but the rate did increase 12.2% from 2015 to 2016. Louisiana's age-adjusted asbestosis mortality rate has been consistently higher than that of the U.S. for the last several years. The Occupational Health and Injury Surveillance Program also collects data on mortality from or with coal workers' pneumoconiosis, silicosis, and other/unspecified types of pneumoconioses, which are not reported here due to low case numbers.

**Table 10** Mortality from or with Pneumoconiosis

Year	Louisiana		United States	
	Total Pneumoconiosis Deaths (Rate*)	Asbestosis Deaths (Rate*)	Total Pneumoconiosis Deaths (Rate*)	Asbestosis Deaths (Rate*)
2016	24 (6.1)	21 (5.5)	1,662 (5.6)	1,142 (3.9)
2015	20 (5.1)	19 (4.9)	1,735 (6.0)	1,188 (4.2)
2014	24 (6.6)	21 (5.8)	1,790 (6.4)	1,218 (4.3)
2013	24 (6.5)	22 (6.0)	1,859 (6.8)	1,229 (4.5)
2012	24 (6.8)	24 (6.8)	1,850 (6.8)	1,208 (4.4)

\*Age-adjusted rate per 1,000,000 residents

### SIGNIFICANCE

Nearly all pneumoconioses are attributable to occupational exposures, and millions of workers in the U.S. are at risk. Pneumoconiosis is more commonly listed as a contributing cause of death than as the underlying cause of death; therefore, this indicator monitors all listed causes of death on the death certificate. Pneumoconiosis frequency varies geographically, being largely determined by local industrial activities and migration of affected individuals. **Control of occupational dust exposure is the single most effective means of preventing pneumoconiosis.**

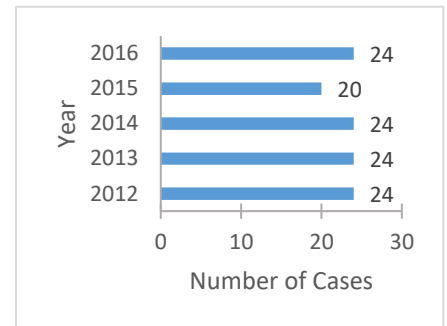
### METHODS

Pneumoconiosis mortality cases were obtained from death records which are maintained by LDH's Office of Vital Records. Total pneumoconiosis and asbestosis mortality cases were selected based on the presence of an

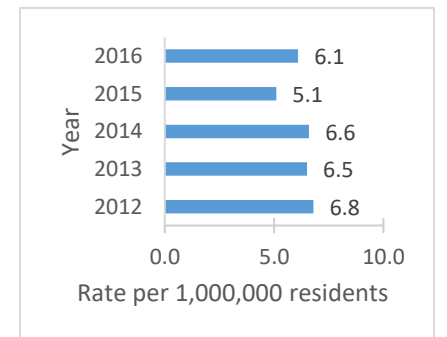
appropriate ICD-10 code as any cause of death. Additional inclusion criteria were that decedents were aged 15+ years and were Louisiana residents. Records were excluded if the decedent's age was unknown, they were an out-of-state resident or their residence was undetermined. State population estimates for rate calculations were obtained from the U.S. Census Bureau, and the Year 2000 U.S. Standard population was used for age-adjustment of rates.

### LIMITATIONS

- Because pneumoconioses are typically chronic diseases with a long latency, current incidence is not necessarily indicative of current exposures, and it may be several years before reduction in exposures affect mortality.
- Causes of death listed on the death certificate and coding of those causes may be inaccurate.
- The number of contributing causes of death listed on the



**Figure 10.1** Annual number of total pneumoconiosis deaths in Louisiana



**Figure 10.2** Annual, age-adjusted, total pneumoconiosis death rate

- death certificate may vary by person completing the death certificate and geographic region.
- Death certificates identify only a small percentage of the individuals who develop pneumoconiosis.
- The state of residence of the decedent may not have been the state of exposure.

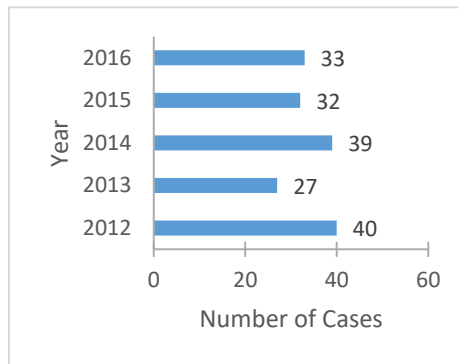
# Indicator 11: Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers

On average there were around 34 cases of work-related pesticide-associated illnesses reported in Louisiana from 2012-2016. The annual rate during this time period was 1.7 cases per 100,000 workers. The annual rate in Louisiana fluctuated from 2.1 to 1.7 cases per 100,000 workers. Louisiana's annual average case rate (1.7) was virtually no different than the US average for 2012-2015 (1.8).

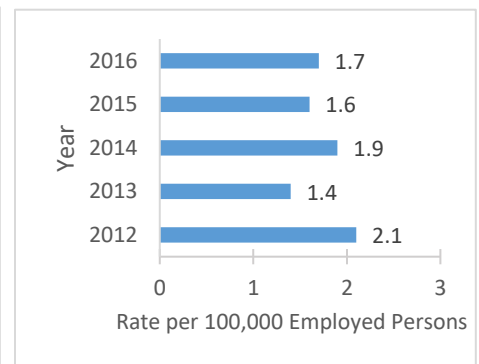
**Table 11** Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers

Year	Louisiana Count (Rate*)	United States Count (Rate*)
2016	33 (1.7)	N/A
2015	32 (1.6)	2,490 (1.6)
2014	39 (1.9)	2,484 (1.7)
2013	27 (1.4)	2,631 (1.8)
2012	40 (2.1)	2,696 (1.9)

\* per 100,000 Employed Persons



**Figure 11.1** Annual number of reported work-related pesticide poisoning cases



**Figure 11.2** Annual incidence rate of reported work-related pesticide poisoning cases

## SIGNIFICANCE

Pesticides are among the few chemicals that are specifically designed to kill and cause harm. In the U.S., about one billion pounds of pesticide, contained in more than 160,000 products, are used annually.<sup>1</sup> Workers who handle pesticides are at increased risk for exposure. The Environmental Protection Agency estimates 20,000 to 40,000 work-related pesticide poisonings each year.<sup>2</sup> Poison Control Centers (PCCs) are important sources of reports of acute poisonings and chemical exposures. These data can be useful to target prevention. The type of data collected is comparable across states due to the uniformity in case handling by PCC.

## METHODS

The American Association of Poison Control Centers collects information on reported cases of work-related pesticide poisoning resulting in acute illness. Pesticide poisonings include exposures to disinfectants, fungicides, fumigants, herbicides, insecticides, repellents and rodenticides. The incidence of reported work-related pesticide poisonings per 100,000 employed persons age 16 years and older was calculated for Louisiana for the years 2012 to 2016 using the BLS Current Population Survey data for the denominator.

## LIMITATIONS

- PCCs capture only a small proportion of acute occupational pesticide-related illness cases, an estimated 10%.

- PCCs do not systematically collect information on industry and occupation; however, cases associated with occupational exposures can be identified.
- Not all states have PCCs.
- State health agencies may have to enter into an agreement with their state-based PCC to obtain local data, or may obtain less timely PCC data from the Toxic Exposure Surveillance System, which is administered by the American Association of Poison Control Centers.

## FOR MORE INFORMATION/ FURTHER READING:

[Summary of Pesticide Surveillance Data: Louisiana, 2006-2014](#)

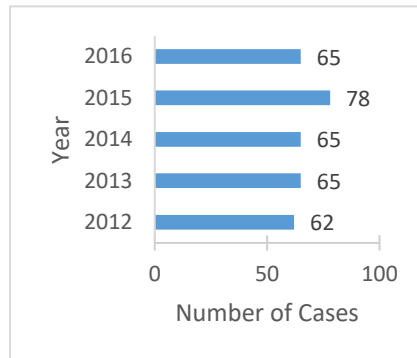
## Indicator 12: Incidence of Malignant Mesothelioma

On average there were around 67 cases of malignant mesothelioma reported in Louisiana from 2012-2016. The average annual rate during this time period was 16.8 cases per 100,000 workers. The rate in Louisiana fluctuated from 19.1 to 15.2 cases per 100,000 workers. Louisiana's case rate was higher than the US average for 2012-2015. Malignant mesothelioma incidence data for the U.S. for 2016 was not available at the time of publication.

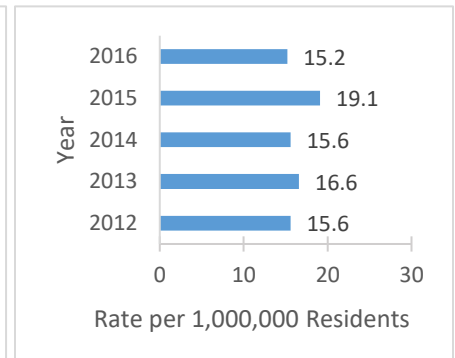
**Table 12** Incidence of Malignant Mesothelioma, Ages 15 and Older

Year	Louisiana Count (Rate*)	United States Count (Rate*)
2016	65 (15.2)	N/A
2015	78 (19.1)	3,098 (11.1)
2014	65 (16.6)	3,127 (11.6)
2013	65 (16.6)	3,114 (11.7)
2012	62 (15.6)	3,109 (12.0)

\*Age-adjusted rate per 1,000,000 residents



**Figure 12.1** Annual number of incident mesothelioma cases



**Figure 12.2** Annual, age-adjusted mesothelioma incidence rate

### SIGNIFICANCE

Malignant mesothelioma, while relatively rare, is a fatal cancer that occurs in the thin membranes surrounding the chest or abdominal cavity. The only well-established risk factor for malignant mesothelioma is exposure to asbestos and related fibers. It has been estimated that as much as 90% of cases are caused by exposure to asbestos. Most asbestos exposures occur in the workplace. Mesothelioma is a disease of long latency, typically with 20-60 years between exposure and onset of disease.<sup>3</sup> Tracking of malignant mesothelioma should be undertaken to document the burden of occupational disease, to design, target, and evaluate the impact of prevention efforts over time, and to identify previously unrecognized settings in which workers may continue to be at risk for asbestos exposure. Tracking may also assist with designing, targeting, and

evaluating the impact of prevention efforts over time.

### METHODS

Incident mesothelioma case data for 2012-2016 was obtained from the Louisiana Tumor Registry (LTR), which is a population-based Surveillance, Epidemiology, and End Results (SEER) cancer registry operated and maintained by the Louisiana State University Health Sciences Center in New Orleans. By law, every health care provider is required to report newly diagnosed cancers to the Tumor Registry. Cases were limited to Louisiana residents aged 15+ years, and were excluded if the patients' age or state of residence was unknown, or if the patient resided out of state. State population estimates for rate calculations were obtained from the U.S. Census Bureau and the Year 2000 U.S. Standard population was used for age-adjustment of rates.

### LIMITATIONS

- Not all cases of malignant mesothelioma are caused by occupational exposures.
- Because cancer is a disease of long latency, current incidence is not indicative of current exposures and it may be many years before reductions in occupational exposures affect incidence.
- State of residence of the decedent may not have been the state of exposure.
- Data from some existing statewide central cancer registries do not yet meet standards for data completeness and quality; therefore, nationwide estimates may be incomplete.
- CSTE may use a different methodology for calculating state specific incidence rates than the LTR; therefore, rates published here may differ from those published by the LTR.

## Indicator 13: Elevated Blood Lead Levels (BLL) among Adults

Louisiana law requires healthcare providers and laboratories to report the results of all blood lead tests, regardless of level, to the Louisiana Department of Health. In Louisiana the overall case count and prevalence rates have decreased steadily from 2012-2016 in the  $\geq 10$  and  $\geq 25$   $\mu\text{g}/\text{dL}$  BLL (blood lead level). The  $\geq 40$   $\mu\text{g}/\text{dL}$  BLL experienced a small uptick from 2012-2013 in both count and rate, then stabilized across 2014-2016. In the overall US both the count and prevalence rates of both the  $\geq 10$  and  $\geq 25$   $\mu\text{g}/\text{dL}$  BLL experienced a steady decline from 2012-2016. Data on  $\geq 40$   $\mu\text{g}/\text{dL}$  was not available at the US level.

**Table 13** Number and Prevalence Rate of Reported Adult Residents with Elevated BLL

Year	Louisiana			United States		
	$\geq 10$ $\mu\text{g}/\text{dL}$ Count (Rate*)	$\geq 25$ $\mu\text{g}/\text{dL}$ Count (Rate*)	$\geq 40$ $\mu\text{g}/\text{dL}$ Count (Rate*)	$\geq 10$ $\mu\text{g}/\text{dL}$ Count (Rate*)	$\geq 25$ $\mu\text{g}/\text{dL}$ Count (Rate*)	$\geq 40$ $\mu\text{g}/\text{dL}$ Count (Rate*)
2016	239 (12.0)	44 (2.2)	15 (0.8)	18,903 (15.8)	3,213 (2.8)	N/A
2015	308 (15.2)	65 (3.2)	15 (0.7)	17,474 (16.1)	2,907 (2.8)	N/A
2014	328 (16.2)	84 (4.2)	17 (0.8)	17,468 (19.2)	4,260 (4.5)	N/A
2013	380 (19.5)	92 (4.7)	16 (0.8)	20,880 (19.7)	5,504 (6.6)	N/A
2012	382 (19.8)	67 (3.5)	10 (0.5)	26,034 (22.5)	7,332 (22.5)	N/A

\*per 100,000 Employed Persons

### SIGNIFICANCE

Lead adversely affects multiple organ systems and can cause permanent damage. Among adults, lead poisoning is a persistent, mainly occupational, health issue that continues to be an important public health problem. The most reliable test for exposure is the blood lead level (BLL). The average BLL for the general US population is below 1  $\mu\text{g}/\text{dL}$  of venous whole blood. BLLs  $\geq 5$   $\mu\text{g}/\text{dL}$  are considered elevated according to the case definition used by CSTE, NIOSH, and the CDC.

### METHODS

The Occupational Health and Injury Surveillance Program participates in CDC's ABLES program. To this end, the Occupational Health Program maintains database of all blood lead laboratory test results for adult (aged 16+ years) Louisiana residents. Cases were retrieved from this database. Annual prevalence (existing case) and incidence (new case) rates were calculated using the BLS CPS estimates with numbers of employed

persons aged 16 years and older serving as the denominator.

### LIMITATIONS

- BLLs reflect the combination of acute external exposure to lead as well as the release of internal bone lead stores to the blood. For persons without a significant lead body burden, a BLL is a good indicator of recent (preceding 3-5 weeks) external lead exposure. For persons with a significant body burden, a single BLL may not be an accurate indicator of recent external exposure, as lead is also being released into the blood from bone stores.

This indicator likely underestimated the true burden of lead exposure for several reasons:

- Louisiana law requires healthcare providers and laboratories to report the results of all blood lead tests, regardless of level, to LDH; however, even with a reporting requirement, data from

laboratories are frequently incomplete.

- Not all employers offer BLL testing to employees, even if employees are exposed to lead.
- Some workers may not be tested using appropriate methods.
- Although most elevated BLLs are presumed to be occupationally-related, approximately 10-15% come from non-occupational exposures. It may not be possible to distinguish occupational exposures from non-occupational exposures.

### FOR MORE INFORMATION/ FURTHER READING:

[Prevent Lead Exposure in Indoor Shooting and Firing Ranges](#)

[Work-related Lead Exposures and U.S. 190 Old Mississippi River Bridge Renovations - Louisiana - 2013-2014](#)

[Tracking Exposures Through Louisiana's Adult Blood Lead Epidemiology Surveillance \(ABLES\), 2012-2016](#)

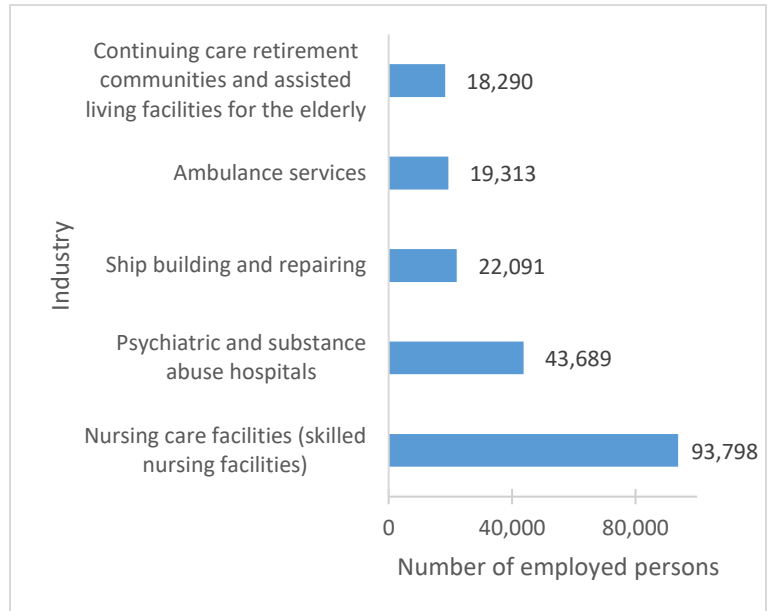
# Indicator 14: Workers Employed in Industries at High Risk for Occupational Morbidity

In 2012, the percentage of Louisiana workers employed in industries at high-risk for occupational morbidity was highest of all 5 years covered in this report, at 7.7%. The percentage fell 36.4% in 2013; however, there was also a change in the composition of high-risk industries for this indicator that year. From 2013-2016, the percentage of workers in high-risk industries remained relatively unchanged (4.8 - 4.9%).

**Table 14** Workers Employed in Industries at High Risk for Occupational Morbidity

Year	Count (%)
2016	81,790 (4.8)
2015	83,448 (4.8)
2014	81,906 (4.8)
2013*	83,472 (4.9)
2012	125,910 (7.7)

\*The composition of high-risk industries changed in 2013



**Figure 14.1** Industries at High Risk for Occupational Morbidity with Highest Employed Person Count 2013-2016

## SIGNIFICANCE

Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention. Concentrating on high-risk industries for non-fatal injuries and illnesses helps prioritize limited resources

## METHODS

Data was obtained from the U.S. Census Bureau’s County Business Patterns (CBP). High morbidity risk industries were identified based on BLS “total reportable cases incidence rates” for private sector workers.

These industries had rates that were more than double the national rate.

The percentage of workers in Louisiana employed in industries with high risk for occupational morbidity is described for the years 2012-2016.

## LIMITATIONS

- It is possible that some new employers are not counted in the CBP mid-March survey.
- Differences in regional industrial practices could mean that industries considered “high-risk” according to national BLS estimates may be more or less risky in an individual state. The list of high-risk industries was constructed using an across-the-

board threshold for “high-risk” based on national data; therefore, this indicator is not a direct estimate of how much risk workers in a particular state experience at work. It only provides an aggregate estimate of how many workers are employed in industries which, at the national level, have been deemed high-risk.

- The list of high-risk industries is based on SOII data, and are therefore subject to the limitations inherent in SOII data (see limitations for OHI # 1).

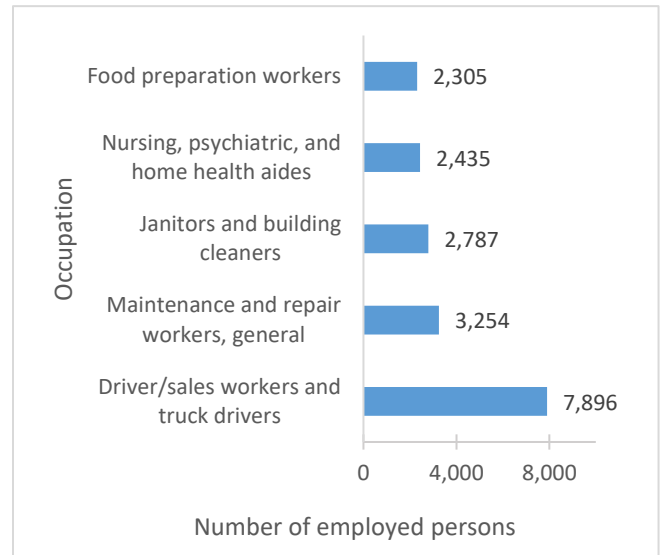
## Indicator 15: Workers Employed in Occupations at High Risk for Occupational Morbidity

On average 15.8% of employed people in Louisiana worked in high risk occupations from 2012-2016. It should be noted that the composition of high-risk occupations changed in 2013. A large spike in the case count occurred from 2013-2014, followed by a steady decline from 2014-2016. The rate experienced a dip from 2012-2013 then returned to previous levels in 2014, from where it experienced a slight decline from 2015-2016

**Table 15** Workers Employed in Occupations at High Risk for Occupational Morbidity

Year	Count (%)
2016	233,252 (15.7)
2015	243,186 (16.0)
2014	253,514 (16.5)
2013*	212,692 (14.5)
2012	241,212 (16.5)

\*The composition of high-risk occupations changed in 2013



**Figure 15.1** Occupations at High Risk for Occupational Morbidity with Highest Employed Person Count 2013-2016

### SIGNIFICANCE

Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention. Concentrating on high-risk occupations for non-fatal injuries and illnesses helps prioritize limited resources.

### METHODS

Data were obtained from the BLS CPS using the NIOSH ELF query system. High-risk morbidity occupations are based on the BLS “days away from work” cases and employment estimates for private sector workers. These occupations had rates that were more than double the rate for

all workers nationwide. The percentage of workers employed in high-risk occupations is reported for 2012-2016 based on 2010 Bureau of Census Occupation Codes for employed persons age 16 years and older in Louisiana.

### LIMITATIONS

- Differences in regional industrial practices could mean that occupations considered “high-risk” according to national BLS estimates may be more or less risky in individual states. The list of high-risk occupations was constructed using an across-the-board threshold for “high-risk”

based on national data. It is possible that certain occupations are more or less risky in an individual state; therefore, this indicator is not a direct estimate of how much risk workers in a particular state experience at work. It only provides an aggregate estimate of how many workers are employed in occupations, which, at the national level, have been deemed high-risk.

- The list of high-risk industries is based on SOII data, and are therefore subject to the limitations inherent in SOII data (see limitations for OHI # 1)

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

On average, 21.7% of workers in Louisiana were employed in industries with high-risk for occupational mortality from 2012-2016. The percentage of workers in these high-risk industries fluctuated slightly over the years, 2014 is the peak year at 24.5% followed by a decreasing trend to 2016 at 19.3%. On average, there were 15.5% of Louisiana workers in high mortality risk occupations from 2012-2016. This percentage remained fairly stable across that time span.

**Table 16.1** Workers Employed in Industries at High Risk for Mortality

Year	Count (%)
2016	324,310 (19.3)
2015	363,522 (21.2)
2014	426,898 (24.5)
2013*	376,056 (22.4)
2012	350,415 (21.2)

\*The composition of high-risk industries changed in 2013

**Table 16.2** Workers Employed in Occupations at High Risk for Mortality

Year	Count (%)
2016	239,605 (14.3)
2015	265,559 (15.5)
2014	272,996 (15.7)
2013*	260,793 (15.5)
2012	268,724 (16.3)

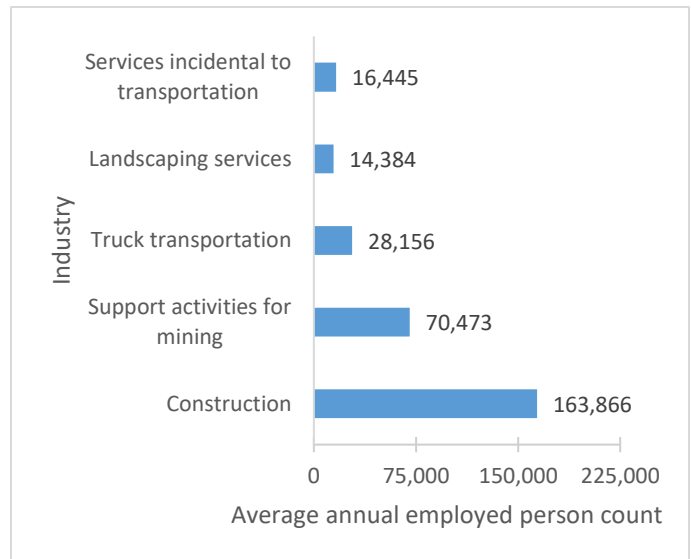
\*The composition of high-risk occupations changed in 2013

## SIGNIFICANCE

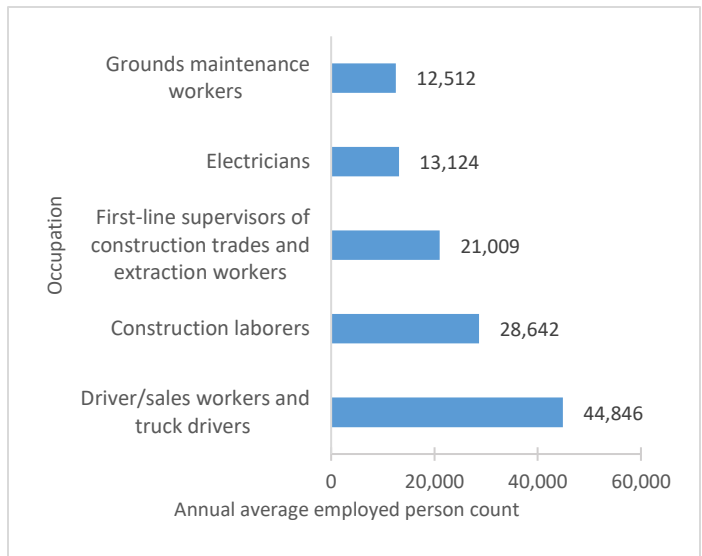
Multiple factors and risks contribute to work-related fatalities, including workplace and process design, work organization, worker characteristics, economics, and other social factors. Surveillance of work-related fatalities can identify new hazards and case clusters, leading to the development of new interventions and development of new or revised regulations to protect workers. Concentrating on high-risk occupations and industries for fatalities helps prioritize limited resources.

## METHODS

All data were obtained from the BLS CPS using the NIOSH ELF query system. High-risk mortality industries and occupations are based on the BLS CFI for private sector workers aged 16+ years. These industries and occupations had rates at least twice as high as the national rate. The percent of workers in



**Figure 16.1** Top Five Industries at High Risk for Occupational Mortality, 2013-2016



**Figure 16.2** Top Five Occupations at High Risk for Occupational Mortality, 2013-2016

Louisiana employed in industries and occupations with high risk for occupational mortality is reported for the years 2012-2016.



## LIMITATIONS

- Differences in regional industrial practices may cause the ranking of high-risk industries and occupations within a specific state to differ from national data. The list of high-risk industries and occupations were constructed using across-the-board thresholds for “high-risk” based

on national data. It is possible that certain industries and occupations on this list are more or less risky in an individual state; therefore, this indicator is not a direct estimate of how much risk the workers in a particular state experience at work. It only provides an aggregate estimate of how many workers are employed in industries and

- occupations, which, at the national level, have been deemed high-risk.
- The list of high-risk industries and occupations is based on SOII data, and are therefore subject to the limitations inherent in SOII data (see limitations for OHI # 1).

## Indicator 17: Occupational Safety and Health Professionals

Occupational safety and health professionals share the common goal of identifying workplace hazards and preventing or reducing workers' risks to these hazardous conditions or processes. Due to the difficulty obtaining consistent, reliable data, the CSTE Occupational Health Subcommittee voted to discontinue this indicator following the 2015 data collection year in 2018. Indicator data is available for 2001-2012 on the [Health Data Portal](#).

### SIGNIFICANCE

Work-related injuries and illnesses are preventable. It is important to determine if there are sufficient trained personnel to implement occupational health preventative services.

### METHODS

NIOSH routinely collected and distributes the number of occupational safety and health professionals in each category for the current Occupational Health Indicator development year to state surveillance grantees. **Due to the difficulty obtaining consistent, reliable data, the CSTE Occupational**

**Health Subcommittee voted to discontinue this indicator following the 2015 data collection year in 2018.**

### LIMITATIONS

- Other important occupational health specialties such as fire prevention, health physicists, and ergonomists are not included.
- The numerator data include retired individuals and individuals who may devote the majority of their time to research and limited or no time to provision of actual preventive services.
- An individual may practice part-time or even full-time in the field of occupational health and not be

board certified or a member of the organization representing occupational health professionals.

- The completeness and frequency of updating addresses varies by each organization.
- Members are often listed in a database by a preferred address, which may not be the address there they practice.
- Due to privacy concerns, individuals may opt out of being listed in membership rolls.

## Indicator 18: OSHA Enforcement Activities

OSHA is federal regulatory agency that sets and enforces standards to protect workers safety and health. OSHA's federal and state plan jurisdictions (Louisiana is a federal OSHA state) includes private sector employers and excludes the mining industry, the self-employed, the agricultural industry, and government workers, with some exceptions. The State OSHA Office in Baton Rouge conducts OSHA worksite inspections in Louisiana. The overall number of establishments OSHA inspected in Louisiana has fluctuated from 2012-2016, but overall has decreased. The overall number of establishments has decrease by a count of 204, this represents a 0.1% change in Louisiana. In general, there was a similar overall decrease observed in the US, from 2012-2016 there was a 12,269 count loss, also a 0.1% decrease. The number of employees that had their workplace inspected however has experienced an increase over the years. In Louisiana, from 2012-2016 there were 13,459 workplace inspected, representing a 1% increase over time. This could possibly be due to a smaller number of companies employing more people. For the entire US, there was an overall decrease of 0.5% in the number of workplaces inspected from 2012-2016.

**Table 18** Number of OSHA-Covered Establishments that are Eligible for OSHA Inspection (excluding mines & farms)

Year	Establishments Inspected by OSHA*		Employees whose Work Areas were Inspected by OSHA**	
	Louisiana Count (%)	United States Count (%)	Louisiana Count (%)	United States Count (%)
2016	470 (0.4)	DNR	30,605 (1.9)	DNR
2015	521 (0.4)	79,281 (0.9)	20,832 (1.3)	3,262,194 (2.8)
2014	644 (0.6)	83,701 (0.9)	17,797 (1.1)	4,235,194 (3.7)
2013	564 (0.5)	88,239 (1.0)	24,587 (1.3)	3,301,630 (3.0)
2012	674 (0.5)	91,550 (1.0)	17,146 (0.9)	3,637,571 (3.3)

\* Reports the number and percentage of establishments inspected out of all establishments under OSHA jurisdiction and eligible for inspection. \*\*Reports the number and percentage of OSHA-covered employees eligible for inspection whose work areas were inspected by OSHA. DNR = Data Not Ready

### SIGNIFICANCE

Under OSHA law, employers are responsible for providing a safe and healthful workplace for their workers. To this end, OSHA targets workplace inspections by identifying high-hazard industries and employers that have the highest injury and illness rates. Inspections can also be triggered by a fatality, a hospitalization of at least one worker, a work-related amputation, a work-related injury resulting in the loss of an eye, or a worker complaint or referral. The measures of frequency for this indicator may approximate the added health and safety benefits and

protections felt by workers because of their worksites being inspected.

### METHODS

Enforcement activities conducted on establishments under OSHA jurisdiction (excluding mines and farms) are reported for Louisiana for 2012-2016. Data sources included OSHA annual reports on inspections and the number of workers covered by these inspections. The BLS' data on Covered Employers and Wages (ES-202/QCEW) was used to estimate the number of workers employed and establishments in the public and private sectors.

### LIMITATIONS

- This indicator measures only enforcement activity, not other measures of OSHA activity such as education and compliance assistance.
- Because OSHA may conduct multiple inspections of the same establishment during the calendar year, the percentage of establishments inspected may be slightly overestimated. In addition, if OSHA conducts multiple inspections of the same worksite during the year, the number of workers covered by OSHA inspections may be over-counted.

- In federal OSHA states and some OSHA stat plan states, OSHA does not inspect farms with 10 or fewer employees.
- Agricultural establishments are excluded from the denominator; therefore, the percentage of

establishments and employees covered may be overestimated.

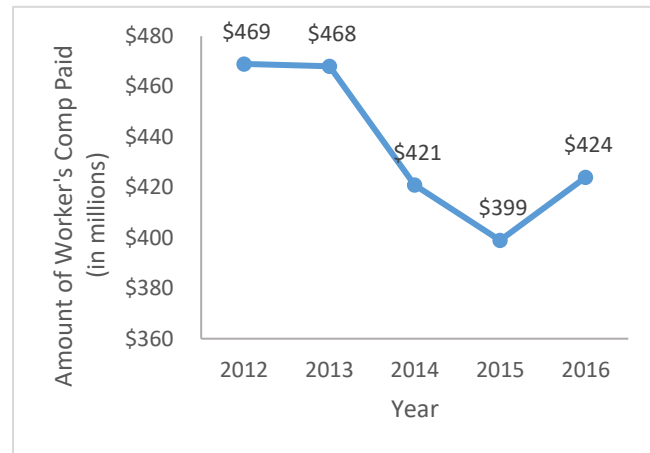
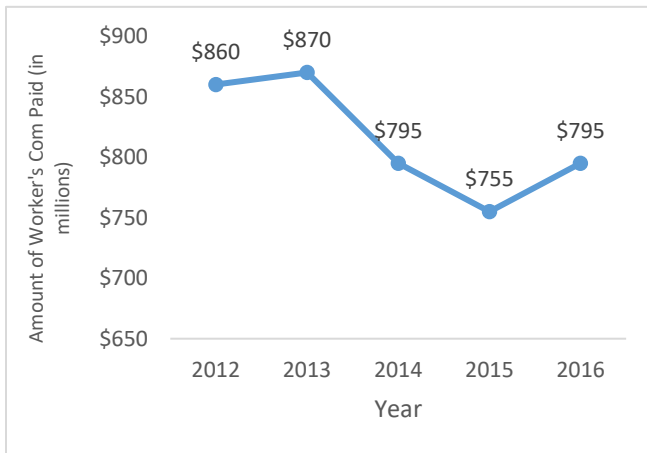
- Employers participating in an OSHA Voluntary Protection Program (VPP) or the Safety and Health Achievement and Recognition Program (SHARP) are exempted from routine

inspections. Excluding workers from these programs will reduce the numerator, resulting in an underestimate of the protective function.

- In QCEW data, individuals holding more than one job are counted multiple times.

## Indicator 19: Workers' Compensation Awards

Workers' compensation, introduced in the U.S. in 1911, is a state-based social insurance program that guarantees financial compensation for workers who become injured or ill on job and limits employers' liability.<sup>4</sup> The amount of benefits paid is directly related to the financial costs of work-related injuries and illnesses, yet it does not reflect the true burden. The average annual amount of workers' compensation claims paid in Louisiana from 2012-2016 was \$815,333,800 per year. On average, about \$436 of workers' compensation benefits were paid per covered worker during this time. The amount of workers' compensation claims were highest in 2012-2013, decreased in both 2014 and 2015, and increased in 2016.



**Figure 19.1** Total amount of worker's compensation benefits paid

**Figure 19.2** Average amount of workers' compensation benefits paid per covered worker

### SIGNIFICANCE

Workers' compensation awards are reviewed to establish whether the reported medical condition is work-related. Accepted awards represent known work-related injuries and illnesses, and often more severe cases. The total and average amounts of benefits paid estimate the burden of these events, which can help justify prevention programs and activities.

### METHODS

The National Academy of Social Insurance (NASI) collects and reports estimated annual benefits, coverage and costs associated with workers' compensation programs. The total amount of workers' compensation benefits paid and the average benefit paid per covered worker in Louisiana are reported for 2012-2016.

### LIMITATIONS

- This is a gross indicator of the burden of occupational injury and illness. It does not include human, noneconomic costs nor all the economic costs associated with occupational injuries and illnesses.
- These data are appropriate for evaluating trends within a state rather comparisons between states because of differences in wages and medical costs, the compensation determination, industry types and risks, and policies on permanent disability payments. Even within a state, changes in policies, wages, and medical care expenses must be considered.
- Workers' compensation data are not complete, as many individuals with work-related

illnesses do not file for workers' compensation.

- Workers' compensation claims may be denied.
- The number of days away from work required before a case is recorded in the workers' compensation system varies by state.
- Self-employed individuals, corporate executives, and domestic and agricultural workers may be exempt from coverage. Federal employees, railroad, and longshore or maritime workers are not covered by state workers' compensation systems.
- Compensation award payments are frequently made over time, thus annual awards may not reflect the full cost of, injuries and illnesses for a given year.

## Indicator 20: Work-Related Low Back Disorder Hospitalizations

From 2012-2014 there was an annual average of 158 cases of work-related hospitalizations **surgical** for lower back disorders among workers aged 16 and up, and the rate of hospitalizations was 8 cases per 100,000 employed persons. From 2012-2014 the annual number of work-related low back disorder hospitalizations for persons age 16 years or older was on average 213 cases. The average rate for these incidents was 10.8 cases per 100,000 employed persons. ICD-10—CM codes for this indicator are not yet finalized; therefore, data for Q4 2015 and 2016 are not reported here. When CSTE and NIOSH make the ICD-10-CM codes available, this report will be updated.

**Table 19** Number and Rate of Work-Related **Surgical** Low Back Disorder Hospitalizations for Persons Age 16 Years or Older

Year	Count	Rate*
2016	DNR	DNR
2015	123**	DNR
2014	184	9.1
2013	181	9.3
2012	110	5.7

\*per 100,000 Employed Persons; \*\*Quarters 1-3

**Table 20** Number and Rate of Work-Related Low Back Disorder Hospitalizations for Persons Age 16 Years or Older

Year	Count	Rate*
2016	DNR	DNR
2015	141**	DNR
2014	222	11.0
2013	232	11.9
2012	187	9.7

\*per 100,000 Employed Persons; \*\*Quarter 1-3

### SIGNIFICANCE

Each year 15-20% of Americans report back pain, resulting in over 100 million lost workdays and more than 10 million physician visits. The National Health Interview Survey data estimates that two-thirds of all low back pain cases are attributable to occupational activities.

Hospitalizations for work-related back disorders have serious and costly effects including high direct medical costs, significant functional impairment and disability, high absenteeism, reduced work performance, and lost productivity. Well-recognized prevention efforts can be implemented for high risk job

activities and reduce the burden of work-related low back disorders.

### METHODS

All lower back disorder hospitalizations and lower back disorder hospitalizations that required surgery were obtained from the Louisiana Hospital Inpatient Discharge Database (LAHIDD). All cases were Louisiana residents aged 16+ years with a primary payer code indicating workers' compensation. Lower back disorder hospitalizations were identified with a relevant diagnostic code (ICD-9-CM diagnostic code categories: herniated disc, probable degenerative changes, spinal stenosis,

possible instability, and miscellaneous). Surgical low back disorder hospitalizations were identified with the same ICD-9-CM diagnostic codes in combination with a relevant surgical procedure code (procedural code categories: laminectomy, discectomy, fusion, other). Excluded data included patient age unknown, out-of-state residents, unknown state of residence and out-of-state hospitalizations. **Effective October 1, 2015 (Q4 2015) healthcare organizations and providers were required to start using ICD-10-CM coding system. At this time, the CSTE Occupational Health Subcommittee is still working to finalize ICD-10-CM**

**codes for this indicator; therefore, only data through Q3 of 2015 is presented in this report.** This report will be updated when ICD-10-CM codes for this indicator become available.

#### LIMITATIONS

- Inpatient hospital discharge records are only available for non-federal, acute care hospitals.
- Individuals hospitalized for work-related injuries and illnesses represent less than 10% of all workers who receive workers' compensation.
- The majority of individuals with work-related illnesses and many

others with injuries do not file for workers' compensation.

- Self-employed individuals, federal employees, and railroad or longshore and maritime workers are not covered by workers' compensation systems.
- Attribution of payer in hospital discharge may not be accurate.
- Due to the differences in states' workers' compensation programs caution should be taken when making state-to-state and state-to-national comparisons of these data.
- Practice patterns and payment mechanisms may affect decisions

by health care providers to hospitalize patients, to correctly diagnose work-related conditions, and/or to list the condition as a discharge diagnosis.

- State residents may be hospitalized in another state and not reflected in LAHIDD data.
- All admissions are counted, including multiple admissions for a single individual.

## Indicator 21: Asthma among Adults Caused or Made Worse by Work

The data source for this indicator is the Behavioral Risk Factor Surveillance System Asthma Callback Survey. Louisiana ended participation in the Asthma Callback Survey in 2014. Indicator data is available for 2009-2014 on the [Health Data Portal](#).

### SIGNIFICANCE

Asthma is characterized by chronic inflammation of the lungs, wheezing, shortness of breath, chest tightness, and persistent cough. More than 18 adults in the U.S., and one in ten adults in Louisiana has asthma.<sup>5,6</sup> Work-related asthma is diagnosed when asthma symptoms are aggravated or caused by the work environment. From 36-58% of adult asthma cases in the U.S. may be work-related.<sup>7</sup> Work-related asthma is preventable but often goes undiagnosed by physicians. If detected early and further exposures are reduced, work-related asthma may be reversible.<sup>8</sup> Research has shown that work-related asthma can have adverse effects on the worker, including increased morbidity, adverse socioeconomic impacts, and difficulty getting and sustaining work. Estimating the burden of asthma caused or made worse by work can help target prevention programs and activities.

### METHODS

Data on asthma was collected from the Behavioral Risk Factor Surveillance System (BRFSS) Asthma Call-back Survey (ACBS). The ACBS gathers data that are more detailed from BRFSS respondents who originally indicated that they had ever been diagnosed with asthma, including asking participants whether their asthma was caused or made worse by exposures at work for current asthma status. The ACBS results reflect the number and percentage of adults who responded that their current asthma status was caused or made worse by exposures at work.

### LIMITATIONS

- Louisiana's ACBS data was collected for landline use only from 2011-2014.
- The data represent a population-based estimate of asthma caused or made worse by work and are subject to measurement, nonresponse, and sampling errors.

- The indicator does not distinguish between new-onset and work-aggravated asthma.
- The ACBS began new weighting methods in 2011 and the wording and order of questions changed in 2012; therefore, any trend analysis should be restricted to 2012 forward.
- States using landline only vs. landline and cellphone methodology do not have comparable estimates.
- Not all states participate in the ACBS, and the number of states that participate varies by year.
- Because it is a telephone health survey, individuals must have a telephone to participate.
- The ACBS is only conducted in select languages that can vary by state; therefore, it does not include individuals who speak all languages.
- The data is subject to the bias of self-reported data.



## Indicator 22: Work-Related Severe Traumatic Injury Hospitalizations

From 2012-2015 there was an annual average of 203 cases of work-related severe traumatic injury hospitalizations among workers aged 16 and up. The average rate for these incidents from 2012-2014 was 11.4 cases per 100,000 employed persons. ICD-10—CM codes for this indicator are not yet finalized; therefore, data for Q4 2015 and 2016 are not reported here. When CSTE and NIOSH make the ICD-10-CM codes available, this report will be updated.

**Table 21** Work-Related Severe Traumatic Injury Hospitalizations

Year	Count	Rate*
2016	DNR	DNR
2015	139**	DNR
2014	269	13.3
2013	204	10.5
2012	200	10.4

\*per 100,000 Employed Persons; \*\*Quarter 1-3

### SIGNIFICANCE

Changes in hospitalization practices and workers' compensation coverage/reporting may increasingly reduce capture of minor injuries but have little effect on severe injuries. Use of a severity threshold can decrease the impact of changing utilization and service delivery patterns on observed injury trends.<sup>9</sup> When hospitalization data are used to calculate occupational injury trends in the absence of severity restriction, observed trends are biased downward.<sup>10</sup> Accurate characterization of injury trends is critical to understanding how we are doing as a nation with regard to occupational injury prevention.

### METHODS

Severe work-related hospitalization records were obtained from the Louisiana Hospital Inpatient Discharge Database (LAHIDD). Cases are Louisiana residents, aged 16+ years, workers' compensation as primary payer, and the primary diagnosis of a severe traumatic injury and an estimated Abbreviated Injury Scale (AIS) severity score of 3 or above or that have high probability of hospital admission. The list excludes late effects of injury, superficial injuries,

foreign bodies, burns, and traumatic complications. BLS CPS data was used to estimate the worker population for rate calculations. **Effective October 1, 2015 (Q4 2015) healthcare organizations and providers were required to start using ICD-10-CM coding system. At this time, the CSTE Occupational Health Subcommittee is still working to finalize ICD-10-CM codes for this indicator; therefore, only data through Q3 of 2015 is presented in this report.**

### LIMITATIONS

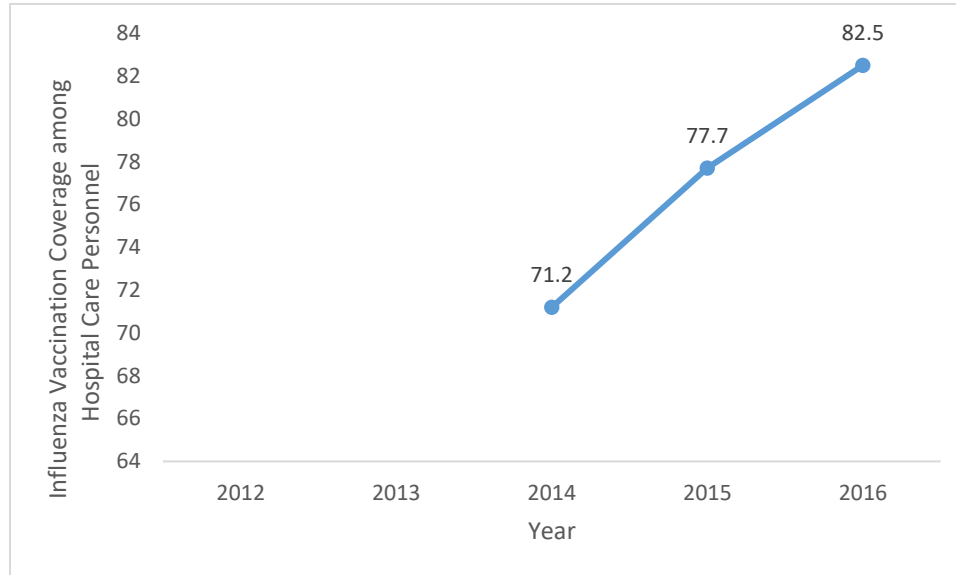
- Inpatient hospital discharge records are only available for non-federal, acute care hospitals.
- Individuals hospitalized for work-related injuries and illnesses represent less than 10% of all workers who receive workers' compensation.
- The majority of individuals with work-related illnesses and many others with injuries do not file for workers' compensation.
- Self-employed individuals, federal employees, and railroad or longshore and maritime workers are not covered by workers' compensation systems.
- Attribution of payer in hospital discharge may not be accurate.

- Due to the differences in states' workers' compensation programs caution should be taken when making state-to-state and state-to-national comparisons of these data.
- Practice patterns and payment mechanisms may affect decisions by health care providers to hospitalize patients, to correctly diagnose work-related conditions, and/or to list the condition as a discharge diagnosis.
- State residents may be hospitalized in another state and not reflected in LAHIDD data.
- All admissions are counted, including multiple admissions for a single individual.
- Severe traumatic injury hospitalizations are based only on first-listed ICD-9-CM diagnoses that have been estimated to have an AIS severity of 3 or above. As a result, some severe traumatic injuries will not be counted.

**FOR MORE INFORMATION/  
FURTHER READING:**  
[Traumatic Injury Hospitalizations among Louisiana Workers, 2006-2014: Results of a Severity Threshold](#)

## Indicator 23: Influenza Vaccination Coverage among Hospital Care Personnel

From 2014-2016 influenza vaccination coverage among hospital care personnel saw a dramatic increase. Coverage increased from 71.2% to 82.5% in a 3-year time span. Data from before 2014 was not available at the time of analysis.



**Figure 23** Influenza Vaccination Coverage Percentage among Hospital Care Personnel

### SIGNIFICANCE

Influenza, especially among vulnerable populations, is a significant cause of morbidity and mortality. Influenza virus infections caused, on average, 23,607 deaths directly related to influenza complications from 1976 to 2007; approximately 90% of the deaths were among persons aged 65 years and older. Healthcare personnel may have an important role in influenza transmission, since they are at high risk of getting influenza through contact with patients and potentially

spreading the virus to patients when they go to work while ill.

### METHODS

Data was obtained from the Healthcare Safety Network (NHSN) web page.

### LIMITATIONS

- Calculation of overall mean influenza vaccination coverage for all facilities will not provide specific information on significant predictors for vaccination coverage for each group of HCP.
- Results of pilot testing of reporting of influenza vaccination

coverage among HCP in acute care facilities has demonstrated that acute care hospitals were more likely than other types of facilities to be unable to report denominator data for credentialed non-employees and other non-employees, as were larger healthcare institutions (as measured by number of employees). Measure specifications were modified by the CDC to include a more limited number of non-employee healthcare personnel

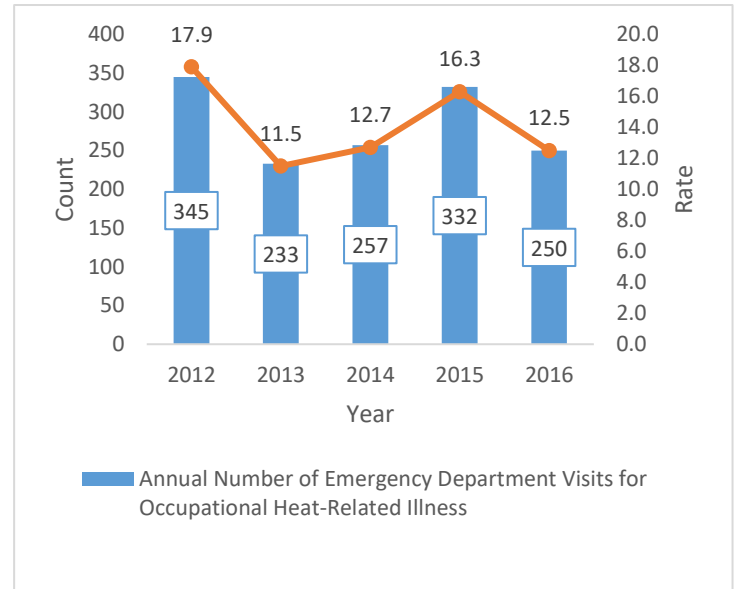
# Indicator 24: Occupational Heat-Related Emergency Department (ED) Visits

From 2013-2016, on average, there were 283 occupational heat-related emergency department visits annually. The average annual rate was 14 cases per 100,000 employed persons. The count across the years experienced a sharp fall from 2012-2013 followed by a climb from 2014-2015 followed by a second steep drop off. The rate, in turn, followed a similar pattern.

**Table 24** Occupational Heat-Related Emergency Department (ED) Visits, Louisiana 2012-2016

Year	Count	Rate*
2016	250	12.5
2015	332	16.3
2014	257	12.7
2013	233	11.5
2012	345	17.9

\*Per 100,000 Employed Persons



**Figure 24.1** Occupational Heat-Related Emergency Department (ED) Visits

## SIGNIFICANCE

Exposure to environmental heat is a clear recognized hazard for many occupations where individuals are not able to maintain thermal equilibrium due to their work environment (e.g., hot and humid), required clothing type, and usage of protective equipment. Minimal epidemiological information about occupational heat-related morbidity is available. Tracking occupational heat-related illness using ED data establishes a baseline to understand the magnitude of the disease burden in the population and support implementation and evaluation of prevention measures.

## METHODS

Data was obtained from the State ED records database. Cases were defined as work-related (ED) visit records for Louisiana residents aged 16+ years containing an ICD-9-CM/ICD-10-CM diagnostic code or external cause of injury (e-code) indicating heat-related illness. A record was defined as work-related if workers' compensation was the primary payer or it contained a work-related e-code. ICD-9-CM codes were used for finding cases in 2012-Q3 2015 ED records, and ICD-10-CM codes were used for finding Q4 2015-2016 ED records. Annual rates per 100,000 workers were calculated using BLS CPS population estimates as the denominator.

## LIMITATIONS

This indicator likely underestimates the burden of work-related heat illness.

- Residents of outside states, or cases with unknown residents are not counted, even if their heat illness occurred while working in the state where care was sought.
- Patients of unknown age are not counted.
- The attribution of payer in ED discharge records may not be accurate.
- The number of diagnostic fields in ED records vary by state.
- Utilization of EDs varies geographically.
- The majority of individuals with work-related illnesses and many

others with injuries do not file for workers' compensation.

- Self-employed individuals, federal employees, and railroad or
- to-national comparisons of these data.
- This indicator uses ICD-9-CM/ICD-10-CM e codes as a supplement to workers' compensation, to identify additional work-related cases. However, the effectiveness

longshore and maritime workers are not covered by workers' compensation systems.

of e codes for identifying work-relatedness is not well established and will vary by code usage within each medical facility.

- All visits are counted, including multiple visits for a single individual.

- Due to the differences in states' workers' compensation programs caution should be taken when making state-to-state and state-

**FOR MORE INFORMATION/  
FURTHER READING:**

[Extreme Heat and Heat-related Illness. Environmental and Occupational Edition. Louisiana Morbidity Report. November 2019.](#)

## Indicator 25: Hospitalizations for or with Occupational Eye Injuries

This is a new indicator for 2016, so data is only available for one year.

**Table 25** Hospitalizations for or With Work-Related Eye Injuries

Year	Count (Rate*)
2016	21 (1.1)

\* per 100,000 employed persons

### SIGNIFICANCE

Occupational eye injuries (OEs) are commonly treated in hospital emergency departments. The more severe cases are complicated, expensive to treat, and have poor prognoses.<sup>11</sup> Although it is widely recognized that protective eyewear can reduce the risk of OEI, identification of other potential risk factors is integral in the prevention of OEIs.<sup>12</sup>

### METHODS

Hospitalization records were obtained from the Louisiana Hospital Inpatient Discharge Database (LAHIDD). Cases were defined as inpatient hospitalizations of Louisiana residents aged 16+ years with an ICD-10-CM diagnosis or procedure code consistent with OEI. Workers' compensation as the primary payer was used to determine work-relatedness.

### LIMITATIONS

This indicator likely underestimates the burden of work-related eye injuries.

- Although the indicator likely undercounts work-related eye injuries, some of the cases it captures may be hospitalizations for head injuries (affecting the eyes) that may not have been preventable by standard precautions against eye injuries.
- Inpatient hospital discharge records are only available for non-federal, acute care hospitals.
- Individuals hospitalized for work-related injuries and illnesses represent less than 10% of all workers who receive workers' compensation.
- The majority of individuals with work-related illnesses and many others with injuries do not file for workers' compensation.
- Self-employed individuals, federal employees, and railroad or

longshore and maritime workers are not covered by workers' compensation systems.

- Attribution of payer in hospital discharge may not be accurate.
- Due to the differences in states' workers' compensation programs caution should be taken when making state-to-state and state-to-national comparisons of these data.
- Practice patterns and payment mechanisms may affect decisions by health care providers to hospitalize patients, to correctly diagnose work-related conditions, and/or to list the condition as a discharge diagnosis.
- State residents may be hospitalized in another state and not reflected in LAHIDD data.
- All admissions are counted, including multiple admissions for a single individual.

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