

Occupational Health in Louisiana: Review of Indicator Data

Oct 2011

Louisiana Department of Health & Hospitals/Office of Public Health/Section of Environmental Epidemiology & Toxicology/ Occupational Health & Injury Surveillance Program

Almost two million individuals work in Louisiana. Every year, thousands of these workers are injured on the job or become ill as a result of exposure to health and safety hazards at work. These work-related health conditions have high human and economic costs not only for workers and employers but also for society at large.¹ Workers' compensation claims alone in Louisiana cost approximately \$580 million in 2007.² Work-related injuries and illnesses can be prevented. Successful approaches to making the workplace safer begin with having the data necessary to understand the problems.

The Louisiana Office of Public Health/Section of Environmental Epidemiology and Toxicology's Occupational Health & Injury Surveillance Program (OPH/SEET) conducts **surveillance of injuries, illnesses, deaths, and hazards among Louisiana workers**. This project began in 2006 through funding from the Center for Disease Control and Prevention/National Institute of Occupational Safety and Health (CDC/NIOSH). To help state health departments with their surveillance activities, 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 CDC/NIOSH. 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 briefly summarizes some of Louisiana's occupational indicator data. When available, national data are presented for comparison purposes. The reporting period may vary by indicator due to differences in the number of years of data available from the various data sources. Because no single data source adequately characterizes the occupational health issues for Louisiana, multiple data sources were used. Technical notes and a description of the data sources are included at the end of the document

For more detailed analysis of these indicators and other occupational health issues, visit OPH/SEET's website: www.seet.dhh.louisiana.gov.



Louisiana Workforce Characteristics

From 1997 through 2010, Louisiana's annual workforce included, on average, 1,926,000 individuals. About 52% of the workforce is male, and 48% female. While the percent of Louisiana workers age 16-17 and 18-64 decreased over the 14-year time period, workers age 65 years and older increased 79%. Seventy-one percent of the workforce is white, 27% is black, and about 3% is of Hispanic ethnicity. About 26% of Louisianans work more than 40 hours per week.

Louisiana Civilian Worker Demographics & Employment Characteristics; Ages 16 & Older; Annual Averages

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number Employed (in thousands)	1,917	1,928	1,883	1,904	1,934	1,973	1,870	1,917	1,981	1,929	1,935
	%	%	%	%	%	%	%	%	%	%	%
Male	52.5	52.9	53.7	51.8	52.1	50.8	53.2	52.2	52.4	52.2	52
Female	47.5	47.1	46.3	48.1	47.9	49.2	46.8	47.8	47.6	47.8	48.1
Age (in years)											
16 - 17	1.9	1.6	1.4	1.3	0.9	1.4	1.8	1.4	1.1	1.2	1
18 - 64	95.3	94.9	94.8	95.4	96.0	95.0	93.7	94.1	94.5	93.4	93.6
>= 65	2.8	3.6	3.8	3.3	3.1	3.6	4.5	4.5	3.7	4.3	4.3
Race/ethnicity											
White	71.4	71.4	71.2	69.6	70.9	71.2	71.3	72.9	71.1	70	70.5
Black	27.5	27.4	27.1	28.5	27.6	26.3	26.2	25.5	26.8	27	26.6
Other	1.1	1.2	1.7	1.9	1.5	2.5	2.5	1.6	2.1	3	2.9
Hispanic*	2.4	2.3	3.9	3.3	2.4	-	2.7	3.5	3.2	3.6	3.6
Unemployed	5.5	6.0	6.1	6.6	6.0	6.0	4.6	4.3	5	7.1	7.8
Self-employed	7.0	6.7	7.0	8.0	7.9	6.3	6.7	7.7	6	6.4	6.8
Employed part-time**	15.2	15.0	14.7	15.1	15.2	15.2	14.8	14.1	13.4	13.8	17.2
Work hours/ week											
<40 hrs	30.5	32.4	31.0	30.7	33.4	33.4	29.1	30.4	29	30.6	32.4
40 hrs	42.6	41.4	42.5	43.0	39.6	40.4	42.2	43.3	45.8	46.1	44.4
>40 hrs	26.9	26.2	26.4	26.4	27.1	26.2	28.8	26.2	25.2	23.2	23.2

*Persons identified as Hispanic may be of any race.

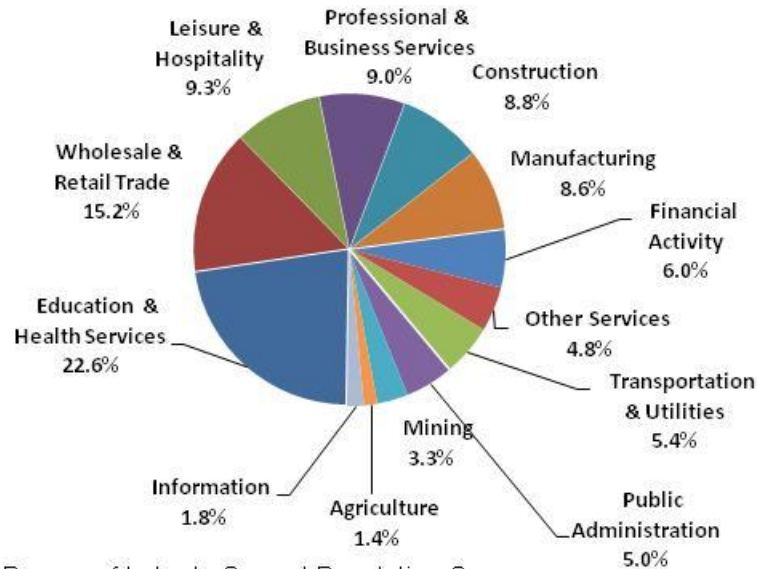
**"Employed part-time" are individuals who work 1 to 34 hours per week

Data Sources: Bureau of Labor Statistics' Geographic Profile of Employment and Unemployment and Current Population Survey (age distribution only).

Louisiana's Workforce by Industry & Occupation

The industries in which Louisianans worked from 2003 through 2010 were evaluated using Census Industry Codes. Education and Health Services is the largest industry sector (22.6%), followed by wholesale and retail trade (15.2%) and leisure and hospitality (9.3%).

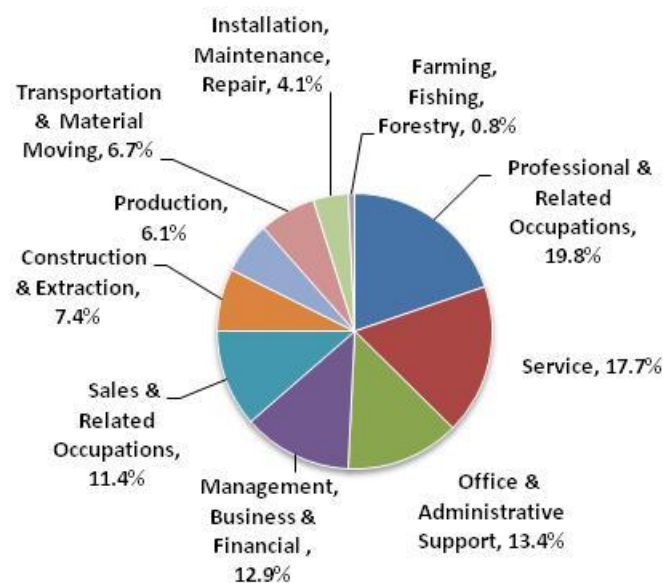
**Distribution of Civilian Workforce by Industry Sectors
Louisiana, 2003-2010 Percent Average**



Source: Bureau of Labor's Current Population Survey

Workers' occupational group was evaluated using Census Occupation codes. The largest occupational groups are Professional and Related Occupations (19.8%), followed by Service (17.7%), and Office and Administrative Support (13.4%).

**Distribution of Civilian Workforce by Occupation Group
Louisiana, 2003-2010 Percent Average**

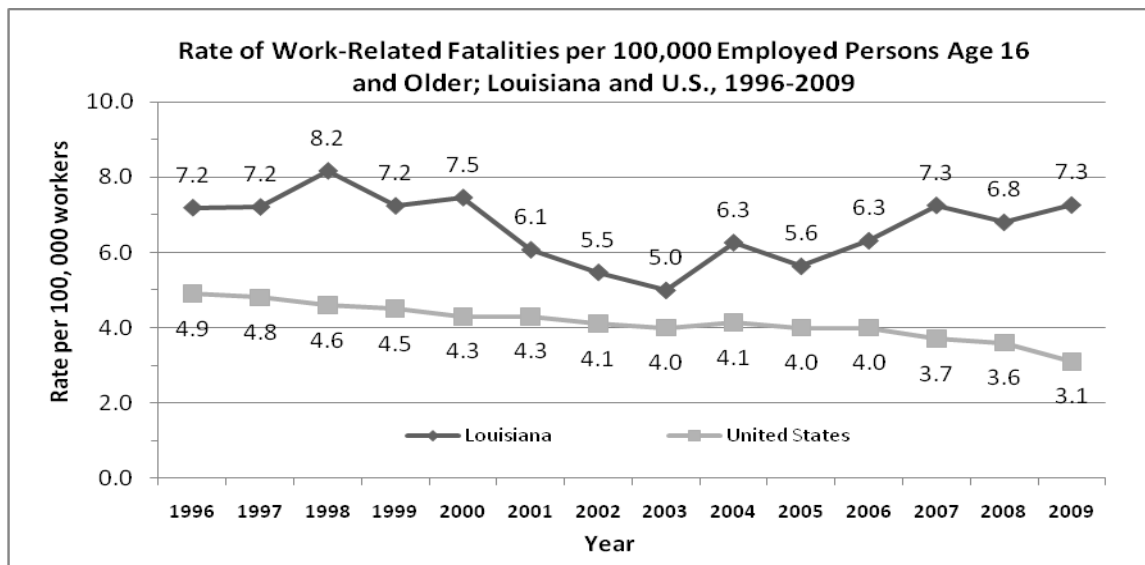


Source: Bureau of Labor's Current Population Survey

Work-Related Fatalities

A fatal work-related injury is an injury occurring at work that results in death. This includes fatalities from non-intentional injuries such as falls, electrocutions, and acute poisonings as well as fatal injuries from motor vehicle crashes that occurred during travel for work. Intentional injuries (i.e., homicides and suicides) that occurred at work are also included.

There was an annual average of 128 fatal work-related injuries from 1996 through 2009. Louisiana's rate was significantly greater than the mean U.S. rate for this 14-year period (6.6 deaths per 100,000 workers versus 4.1, $P < .0001$).



Sources: Bureau of Labor's Census of Fatal Occupational Injuries and Geographic Profile of Employment and Unemployment.

Industries & Occupations at High Risk of Work-Related Mortality

Workers in certain industries and occupations sustain fatal injuries at much higher rates than the overall workforce. The proportion of the workforce employed in these high-risk industries and occupations varies by state which can help explain differences in injury mortality rates among states. Overall, about 19% of Louisiana's workers are employed in high risk industries. These industries include construction, mining, and transportation and utilities. About 13% of Louisiana's workers are employed in high risk occupations. These include construction and extraction, transportation and material moving, and installation, maintenance and repair.

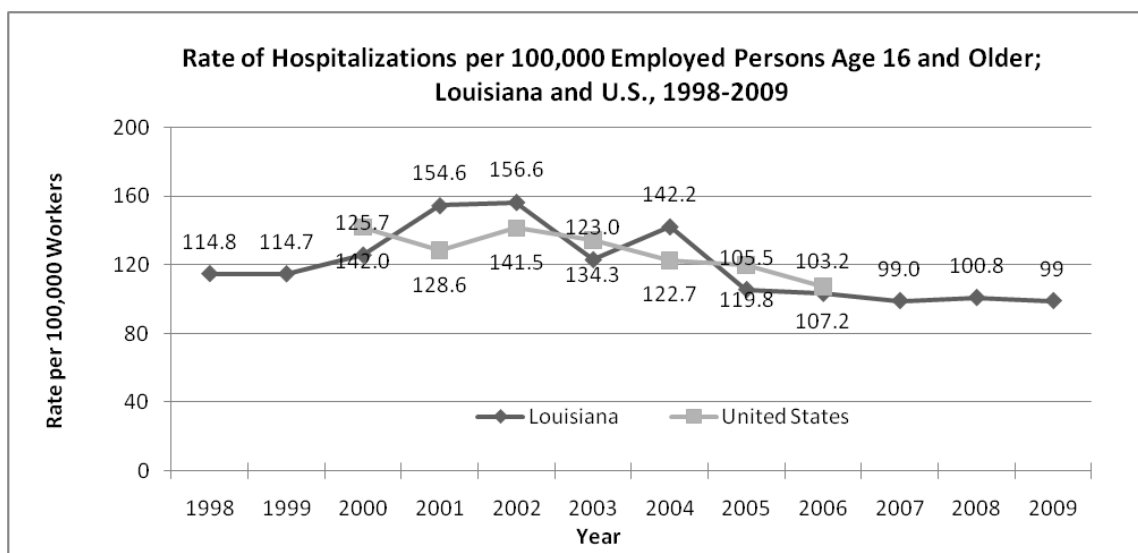


Source: Bureau of Labor's Current Population Survey

* The increase in 2008 was due to changes in the designation of high risk industries and occupations.

Work-Related Hospitalizations

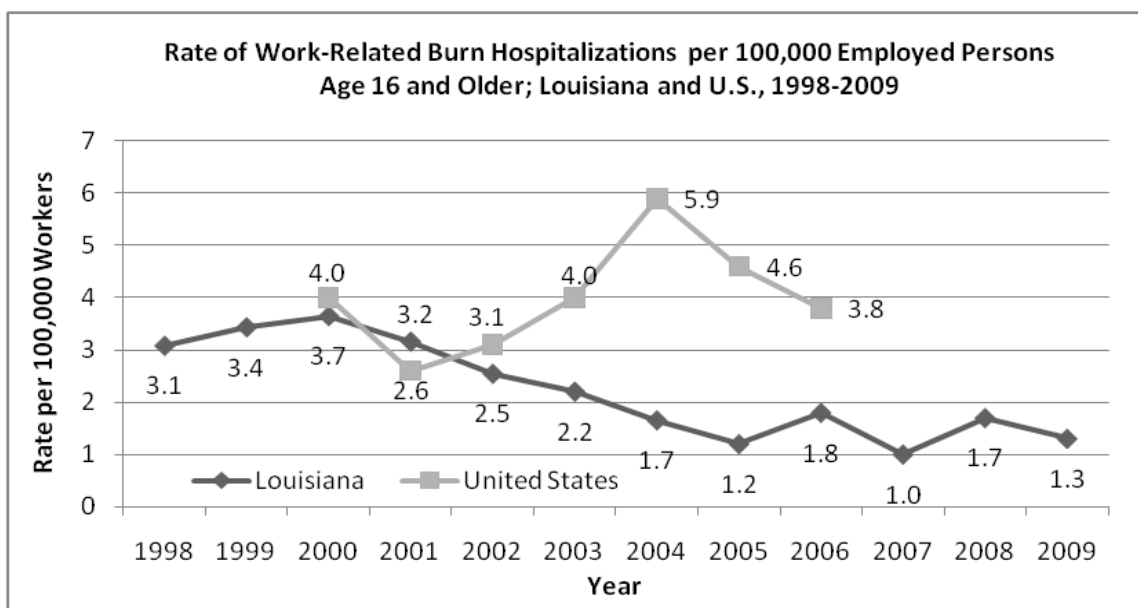
During the twelve-year period, there were about 2,300 hospitalizations per year for which workers' compensation was the primary payer. Louisiana's rates did not significantly change ($P > .05$), nor was there a significant difference in rates between Louisiana and the U.S.



Sources: Louisiana Hospital Inpatient Discharge Database, BLS's Geographic Profile of Employment and Unemployment, & National Hospital Discharge Survey. National rates were unavailable for 1998-1999 and 2007-2009.

Work-Related Burn Hospitalizations

Burns encompass injuries to tissues caused by contact with dry heat (fire), moist heat (steam), chemicals, electricity, friction, or radiation. Burns are among the most expensive work-related injuries to treat and can result in significant disability. Thermal and chemical burns are the most frequent types of work-related burn injury. Nationally, an estimated that 150,000 people with work-related burns are treated in emergency rooms annually and approximately 30% to 40% of hospitalizations for burns among adults have been found to be work-related.³ Louisiana's rate has been trending downward.



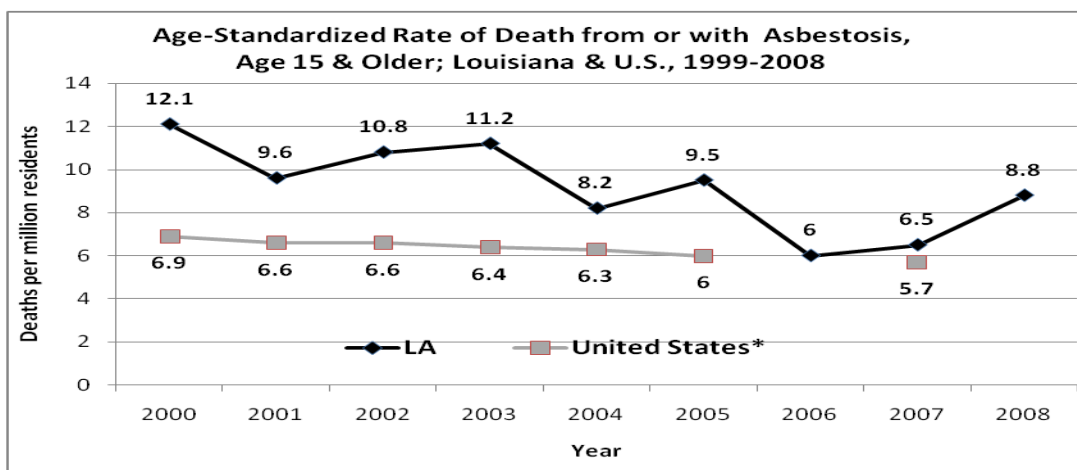
Sources: Louisiana Hospital Inpatient Discharge Database, BLS's Geographic Profile of Employment and Unemployment, & National Hospital Discharge Survey. National rates were unavailable for 1998-1999 and 2007-2009.

Asbestos

Asbestos was widely used in a large number of industrial applications and types of manufactured products until the 1970s when federal regulations regulated its uses. In Louisiana, the use of asbestos has changed over the years from ship building to railroad and construction materials. Inhaled asbestos fibers have been linked to several diseases including asbestosis, lung cancer and mesothelioma.

Asbestosis Mortality

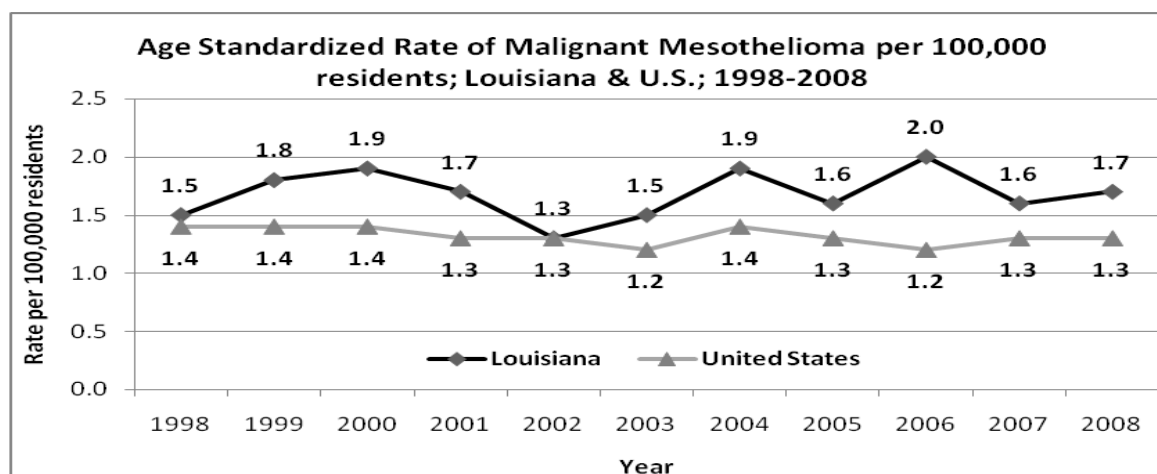
Asbestosis is a debilitating, chronic, lung disease with no known treatment. It most commonly occurs among workers in certain occupational settings where asbestos is used or manufactured. The disease is usually diagnosed in older individuals, often long after the onset of exposure.⁴ In Louisiana, about 29 people die each year with asbestosis as the underlying or contributing cause of death. Louisiana's asbestosis death rate was almost 1.5 times greater than the U.S. rate ($P < 0.001$).



Sources: Louisiana Vital Records (mortality), National Center for Health Statistics, & US, Census Bureau's Population Estimates
* US data not available for years 2006 and 2008.

Mesothelioma

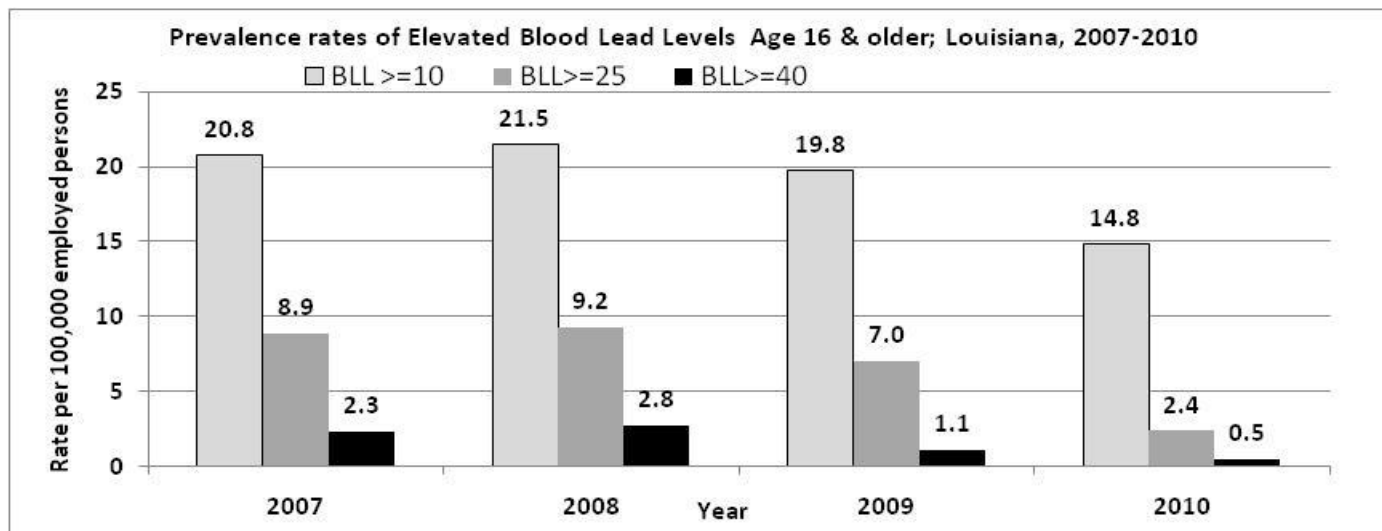
Malignant mesothelioma is a rare but highly fatal cancer that usually occurs in the thin membranes surrounding the chest cavity or abdominal cavity. The only well-established risk factor for mesothelioma is exposure to asbestos fibers.⁵ Mesothelioma is a disease of long latency, typically with 20-40 years between exposure and onset of disease⁶. There are approximately 56 newly diagnosed mesothelioma cases every year in Louisiana. Over the eleven-year period, Louisiana's rate remained significantly higher than the U.S. rate ($P < 0.001$).



Sources: Louisiana Tumor Registry, US Census Bureau's Population Estimates

Elevated Blood Lead Levels among Adults

Blood lead is a measure of recent exposure to lead. Over 90% of adults with elevated blood lead levels are exposed in the workplace and the majority of these through the inhalation of lead-containing dust and fumes. Occupations at greatest risk of exposure include battery manufacturing, soldering (electrical components and automobile radiators), refinery workers, lead smelters, sandblasters, and bridge and construction workers.⁷ Every year in Louisiana, there is an average of 125 workers with blood leads greater than or equal to 25 micrograms per deciliter (mcg/dL), and approximately 33 of those have results greater than or equal to 40 mcg/dL.

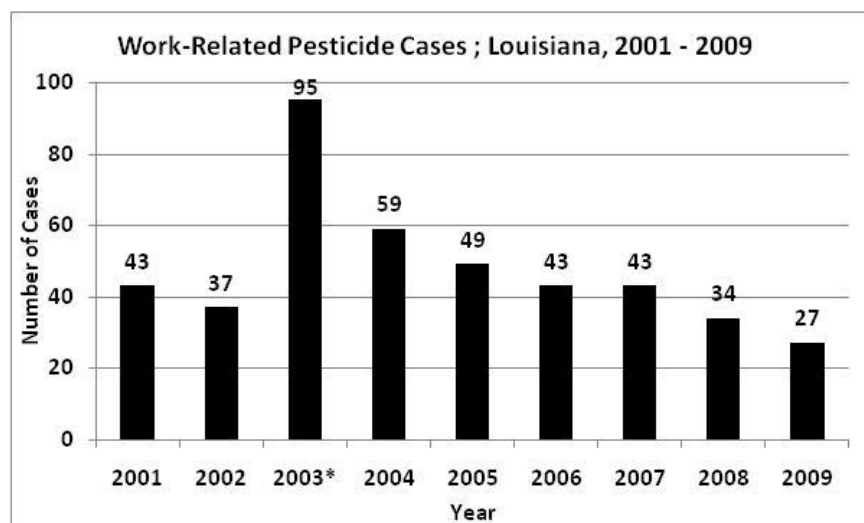


Sources: Louisiana's Adult Blood Lead Epidemiology & Surveillance System (ABLES) & Bureau of Labor's Current Population Survey

Pesticide Poisoning Cases

A pesticide is a substance or mixture of substances used to prevent or control undesired insects, plants, animals, or fungi. In the U.S., approximately one billion pounds of pesticides are used annually, contained in more than 16,000 pesticide products.⁸ Adverse health effects from exposure vary depending on the amount and route of exposure and the type of chemical used. Agricultural workers and pesticide applicators are at greatest risk for the more severe pesticide poisonings.

Reports of acute pesticide poisoning are captured from calls made to the Louisiana Poison Center. During the 9-year period, there was on average 48 work-related pesticide poisonings per year.



Source: Toxic Exposure Surveillance System and Bureau of Labor's Current Population Survey.

* In 2003, there were several incidents involving many cases.

Bureau of Labor Statistics (BLS): Workforce Demographics

Statistics on Louisiana's workforce distribution by demographic and employment characteristics were obtained from the Bureau of Labor Statistics' (BLS) Current Population Survey (CPS) and Geographic Profile of Employment and Unemployment.

Current Population Survey

The CPS is a monthly probability sample of about 60,000 households designed to represent the civilian non-institutional population of the U.S. It is conducted by the U.S. Census Bureau for the Bureau of Labor Statistics (BLS). The CPS collects information on demographics, employment status, weekly hours worked, and industry and occupation of each household member 15 years of age and older. .

Limitations: Excluded from the survey are active-duty members of the military and inmates in institutions. The CPS undercounts certain racial or ethnic workers who do not have a permanent address or are migratory in nature. Because CPS estimates are based on a random sampling of the population rather than a complete census, they are subject to sampling error.

Geographic Profile of Employment and Unemployment

Each year, the BLS produces annual average employment information for census regions, states, and metropolitan areas in its "Geographic Profile of Employment and Unemployment" series. The profiles contain information on the employed and unemployed by select demographic and economic characteristics based on data from the CPS.

Limitations: The profiles exclude workers less than 16 years of age, active duty members of the military and inmates in institutions.

Bureau of Labor Statistics (BLS): Census of Fatal Occupational Injuries (CFOI)

The *Census of Fatal Occupational Injuries (CFOI)*, a Federal/State cooperative program administered by BLS, is charged with annually collecting detailed information on all work-related fatalities occurring in the U.S. The CFOI uses diverse State and Federal data sources to identify, verify, and profile fatal work-related injuries. Information about each workplace fatality (e.g., circumstance of the event, industry, occupation, type of machinery or equipment involved, and other worker characteristics) is obtained by cross-referencing source documents, such as death certificates, workers' compensation records, medical examiner reports, and police reports as well as news and other non-governmental reports.

Louisiana's Adult Blood Lead & Epidemiology Surveillance System (ABLES)

Disease reporting requirements mandate that laboratories and physicians report all adult lead test results to the Office of Public Health's (OPH) Section of Environmental Epidemiology & Toxicology (SEET). Test results are received weekly. Blood lead results greater than or equal to 25 micrograms per deciliter are investigated to determine the source of exposure. Data from Louisiana's ABLES program, and other state programs, are periodically forwarded to NIOSH's Adult Blood Lead Epidemiology and Surveillance program for inclusion in the national dataset.

Limitations: The Occupational Safety and Health Administration (OSHA) requires blood lead monitoring of workers who are at risk for lead exposure. Not all employers comply with the law, and self-employed workers may not seek testing. As a result, some workers with elevated blood lead levels are not captured by ABLES.

Louisiana Hospital Inpatient Discharge Database

The Louisiana Hospital Inpatient Discharge Database, or LaHIDD, serves as the state registry containing inpatient discharge data from Louisiana hospitals. LaHIDD contains detailed information on all hospital admissions: patient demographics, age, admission and discharge date, diagnosis (ICD-9 codes), cost of hospitalization, and payer information. The designation of workers' compensation payment as primary payer on hospital discharge records is a good proxy for the work-relatedness of hospitalized injuries.⁹

Limitations: Hospital discharge records are only available for non-federal, acute care hospitals. Selecting work-related hospitalizations based on payer source is not a complete measure of work-related illness as the majority of individuals with work-related illnesses and many others with injuries do not file for workers' compensation. Additionally, self-employed individuals such as farmers and independent contractors, federal employees, and railroad, longshore and maritime workers are not covered by state workers' compensation systems.

Louisiana Tumor Registry

The Louisiana Tumor Registry, operated by the Louisiana State University Health Sciences Center, is a population-based Surveillance, Epidemiology, and End Results (SEER) cancer registry covering the entire state of Louisiana. The registry has been in operation in the New Orleans metropolitan area since 1974, in South Louisiana since 1983 and in the rest of the state since 1988. By law, every health care provider is required to report newly diagnosed cancers to the Tumor Registry. The Tumor Registry database contains information about cancer cases including patient demographics, primary site of cancer, histology codes, and location at date of diagnosis.

Toxic Exposure Surveillance System

Poison Control Centers (PCC) are an important data source for case reports of exposure to toxic substances, including pesticides. PCCs receive calls from health care providers and the general public. The majority of calls involve an acute exposure to a toxic substance and the PCCs' primary function is to provide the caller with toxicologic and treatment information. Information collected by the PCC includes demographic, circumstance and site of exposure (e.g., workplace), route of exposure, medical care received, substance(s), severity, number of individuals involved, clinical effects, and medical outcome. If medical care is received, health care facility information is also collected. Every 5 minutes, information on all calls made to a PCC are uploaded to a central repository at the American Association of Poison Control Centers (AAPCC). The AAPCC uses this data to produce an aggregated dataset, which is called the *Toxic Exposure Surveillance System (TESS)*.

Limitations: PPC cases only represent reported cases. To report a case, the exposed individual or healthcare provider must know about the PCC and how to contact them. Also, healthcare providers with more experience in diagnosing and treating pesticide cases are less likely to contact the PCC for assistance. Because of these factors, PCC data likely underestimate the true extent of work-related pesticide exposure.

References

- 1) Leigh JP, Leigh JP, Markowitz SB, Fahs M, Shin C, Landrigan PJ. Occupational Injury and Illness in the United States: Estimates of Costs, Morbidity and Mortality. *Arch of Intern Med.* 1997; 157:1557-1568.
- 2) National Academy of Social Insurance (www.nasi.org)
- 3) Rossignol AM, Locke JA, Burke JF. Employment status and the frequency and causes of burn injuries in New England. *J Occup Med.* 1989; 31:751-757. Baggs J, Curwick C, Silverstein B. Work-related burns in Washington State, 1994-1998. *J Occup Environ Med.* 2002; 44:692-9.
- 4) Christiani DC, Wegman DH. Respiratory disorders in occupational health: recognizing and preventing work-related disease (3rd Ed.) Levy BS, Wegman DH (eds.) Little Brown, 1995:427-454.
- 5) Albin, M, Magnani, C, Krstev, S, Rapiti, E, and Shefer, I. Asbestos and cancer: An overview of current trends in Europe. *Environ Health Perspect.* 1999; 107(2): 289-298.

- 6) Price, B and Ware, A. Mesothelioma trends in the United States: an update based on Surveillance, Epidemiology, and End Results Program data for 1973 through 2003. *Am J Epidemiol.* 2004;159 (2): 107-112.
 - 7) ATSDR, 2007. Toxicological profile for Lead, 2007. U.S. Department of Health & Human Services, Centers for Disease Control & Prevention, Agency for Toxic Substances and Disease Registry.
 - 8) Calvert GM, Plate DK, Das R, Rosales R, Shafey O, Thomsen C, Males D, Beckman J, Arvizu, E, Lackovic M. Acute occupational pesticide-related illness in the US, 1998-1999: Surveillance findings from the SENSOR-pesticides program. *Am J Ind Med.* 2004; 45:114-23
 - 9) Sorock GS, Smith E, Hall N. An evaluation of New Jersey's hospital discharge database for surveillance of severe occupational injuries. *Am J Ind Med.* 1993; 23:427-437
-

Acknowledgements

This report was prepared by the Louisiana Department of Health & Hospitals/Office of Public Health/Section of Environmental Epidemiology & Toxicology/ Occupational Health & Injury Surveillance Program with funding from the National Institute for Occupational Safety and Health Cooperative Agreement #U60 OH008470.