



Texas Occupational Health Indicators Report 2003-2012

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BACKGROUND

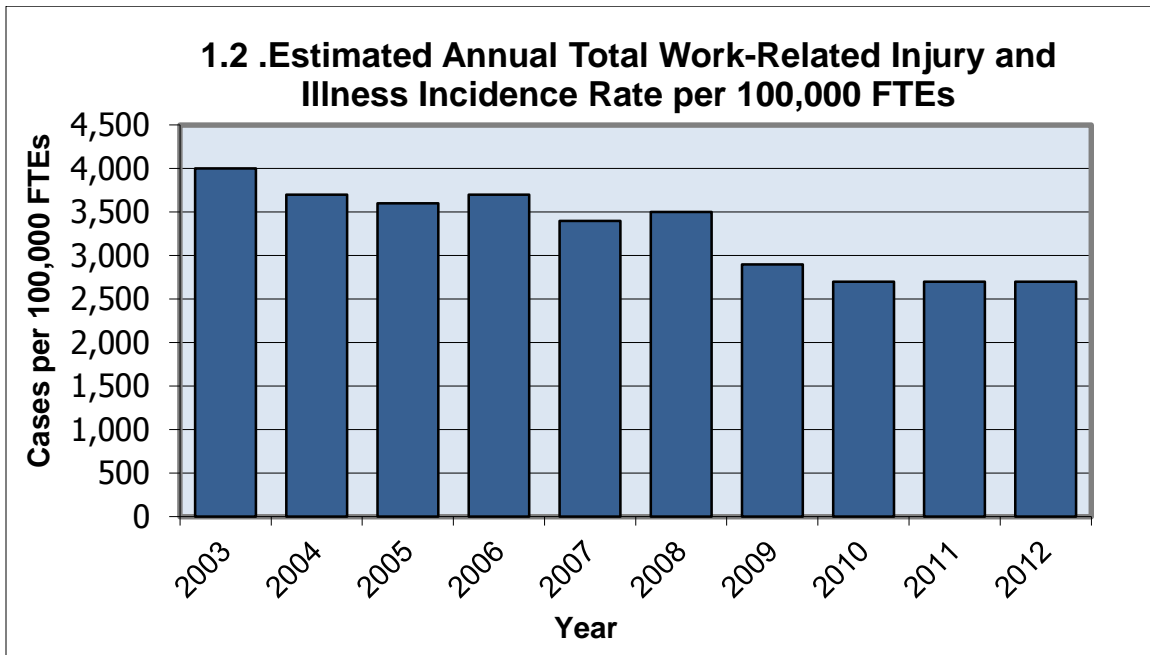
Occupational injuries and illnesses affect millions of employees in the U.S. each year, and result in significant costs to our nation, both in terms of quality of life of employees and economic losses experienced by affected employees, employers, and society in general. State-based occupational health surveillance provides information necessary to identify and characterize work-related injury, illness, and fatality cases within the state.

Occupational Health Indicators (OHIs) are specific measures related to the health of a specific population, such as the prevalence of a health event or factors associated with that event. OHIs allow a state to monitor trends over time, identify high-risk groups, and develop targeted interventions to reduce worker morbidity and mortality. In 2006, the Texas Department of State Health Services (DSHS) was awarded a cooperative agreement from the National Institute of Occupational Safety and Health (NIOSH) to implement a state-based occupational condition surveillance system. Since then, DSHS has followed the Council of State and Territorial Epidemiologists' (CSTE) methodology for tracking OHIs. This report presents selected OHIs for the state of Texas for the years 2003-2012, calculated as specified by CSTE's 2015 guidance document.¹

TEXAS OCCUPATIONAL HEALTH INDICATORS

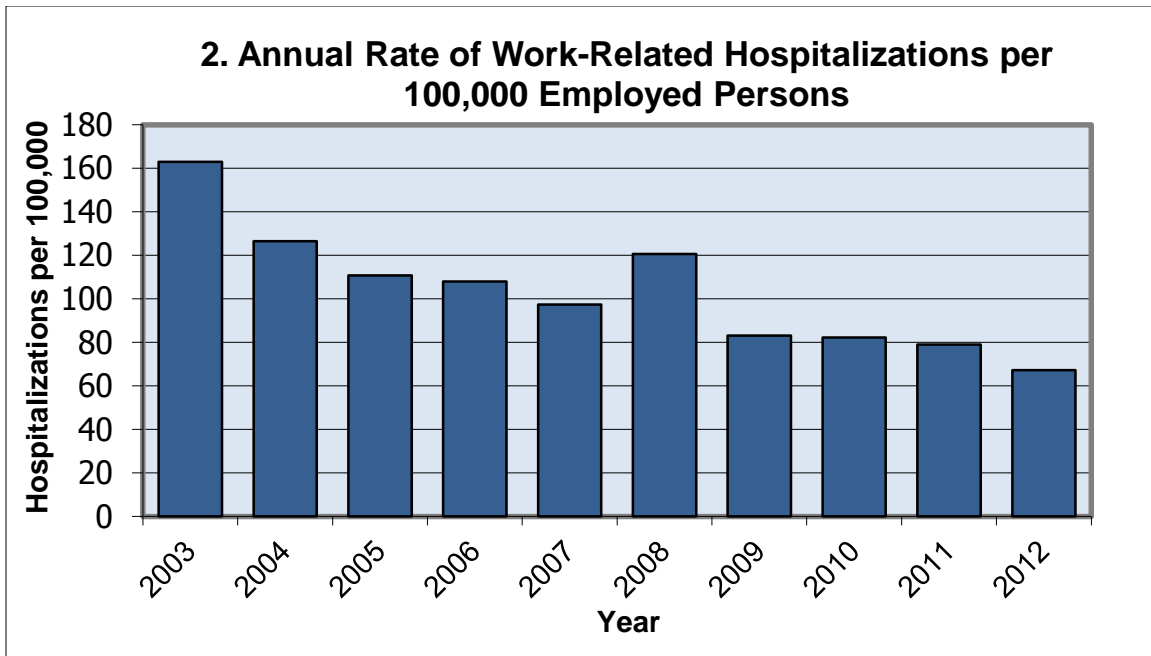
OHI 1. Non-Fatal Work-Related Injuries and Illnesses

In 2012, the U.S. Bureau of Labor and Statistics (BLS) reported an estimated total of nearly 3.0 million non-fatal workplace injury and illness cases within the private sector workforce, an estimated incidence rate of 3.4 cases per 100 FTE workers. Approximately 94.8% of these cases involved workplace injuries and the remaining 5.2% resulted from workplace illnesses.²



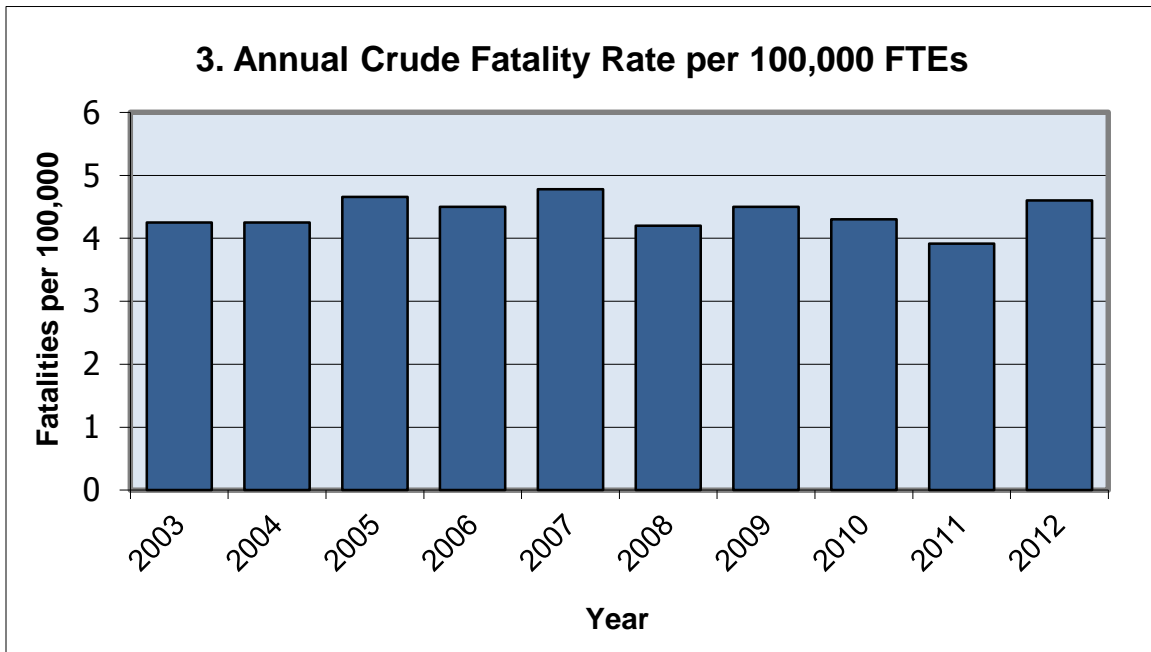
OHI 2. Work-Related Hospitalizations

Work-related injuries and illnesses that result in hospitalizations are some of the most serious and costly work-related adverse health outcomes. Using the Texas hospital discharge data, DSHS performed a basic cost analysis of work-related hospitalizations in Texas for 2007–2012. Over that period, work-related hospitalization cost various insurance payers, taxpayers, and/or Texas residents an average of approximately \$592 million per year. Since Texas is not a workers'-compensation state, use of this payment source alone may significantly under-estimate work-related hospitalizations.



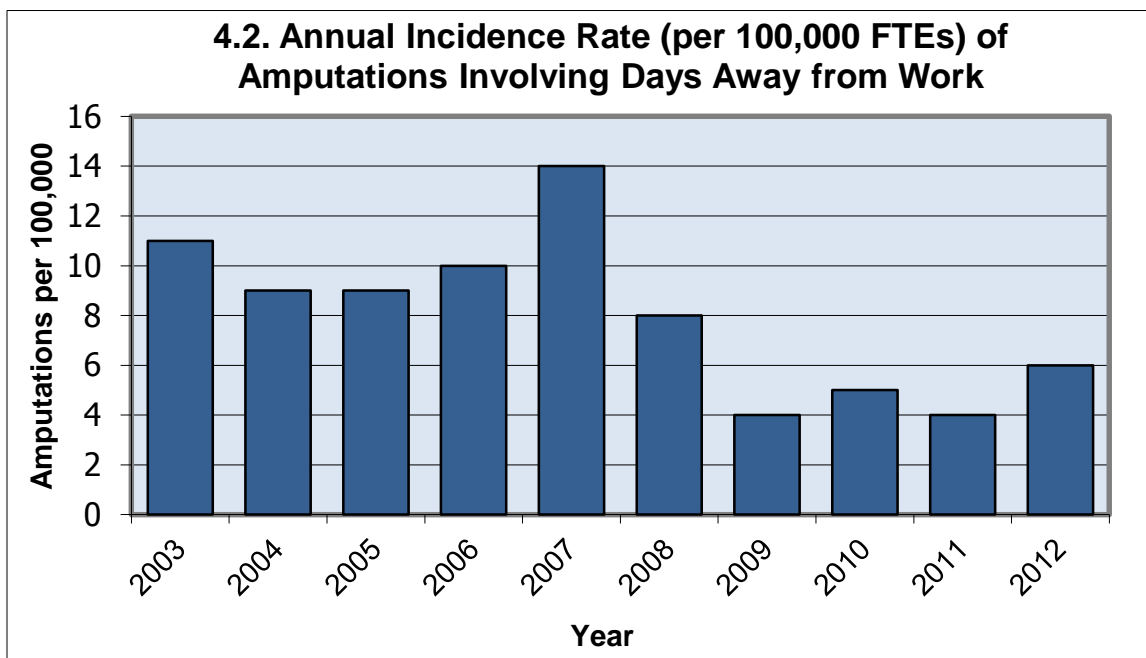
OHI 3. Fatal Work-Related Injuries

Over the period 2007–2012, the most frequent causes of work-related fatal events in Texas were transportation incidents (41%), violence by person/ animal (16%), falls/slips (14%), and struck by object/equipment (14%).³ Loss of life due to a potentially preventable fatal occupational injury is a devastating adverse health outcome that DSHS is working to prevent. In addition to tracking this indicator, DSHS conducts outreach and educational activities to help increase worker awareness of safety issues and reduce fatal work-related injuries.



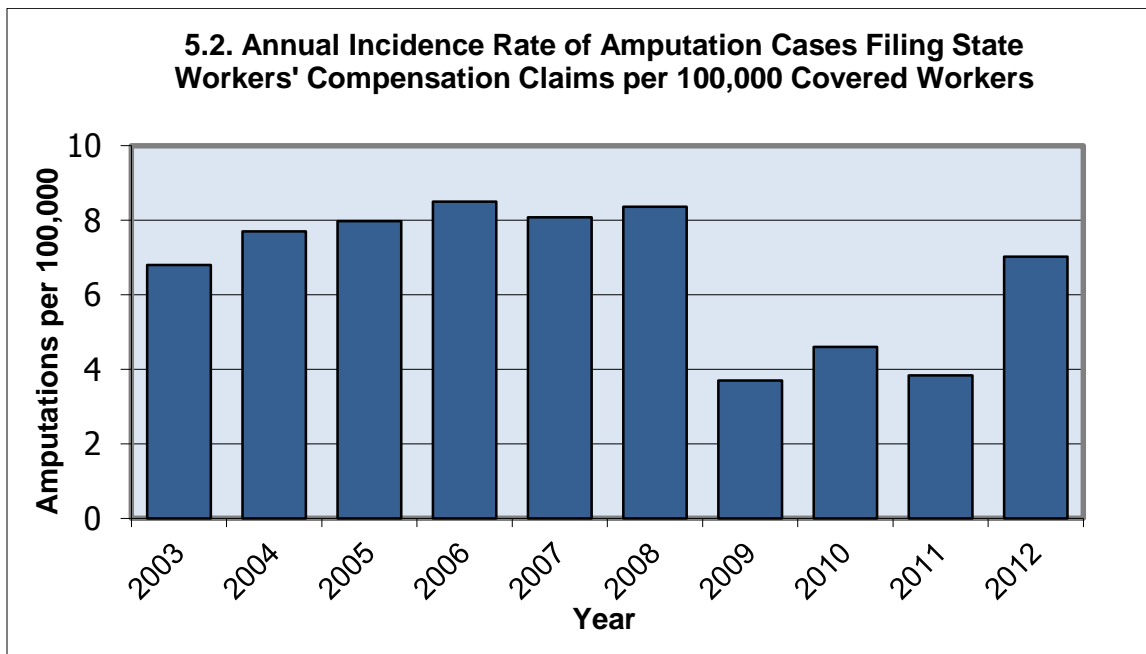
OHI 4. Work-related Amputations with Days away from Work Reported by Employers

Over the period 2003-2012, the estimated average number of amputation cases in Texas with days away from work was 589, and the average incidence rate was 8.0 per 100,000 FTEs.



OHI 5. State Workers' Compensation Claims for Amputations with Lost Work-Time

From 2003-2012, the average number of amputation injuries reported through workers' compensation claims in Texas was 508. Texas employers are not required by state law to provide workers' compensation coverage for their employees; therefore, the number of amputations filed with the Texas Department of Insurance (TDI) likely underestimates the true number of work-related amputations.



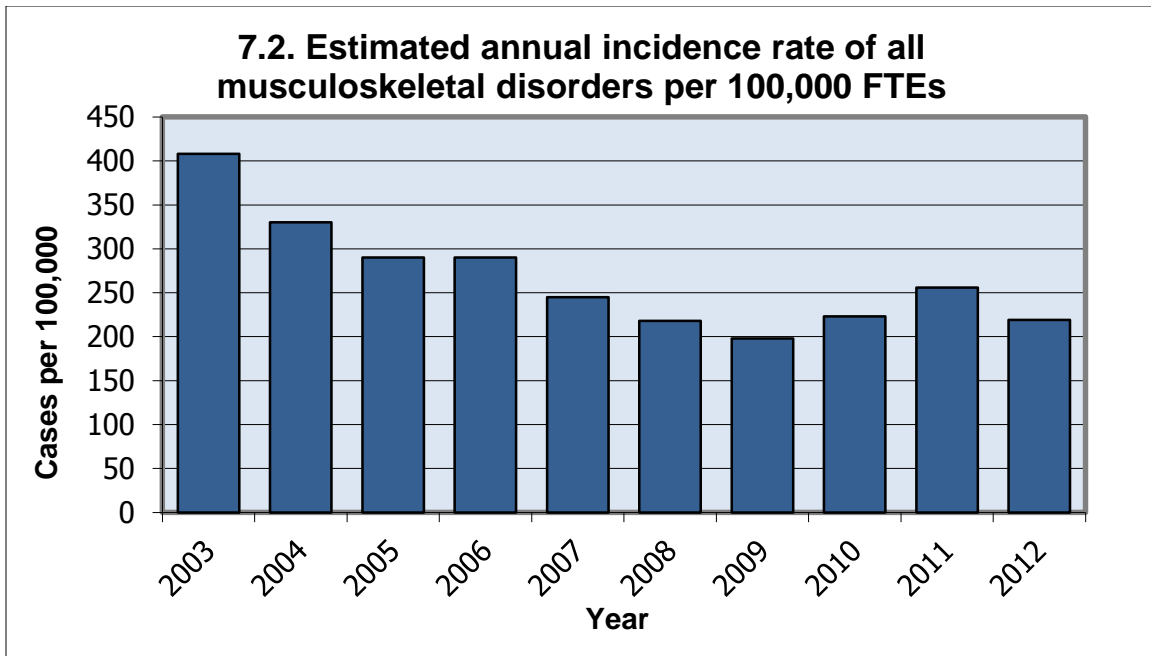
OHI 6. Hospitalizations for Work-related Burns

Burns are devastating to workers; they are painful, disabling, expensive to treat, and may result in significant disfigurement. Due to persistent pain, neurologic problems, and psychiatric problems (including anxiety, post-traumatic stress disorder, and depression), up to 44% of workers having burns affecting an average of 16% of total body surface area may remain unemployed up to one year after their burn.⁴ From 2003–2012, DSHS has identified an annual average of 209 cases of work-related burn hospitalizations, with an average incidence rate of 1.91 cases per 100,000 workers.



OHI 7. Work-related Musculoskeletal Disorders with Days away from Work Reported by Employers

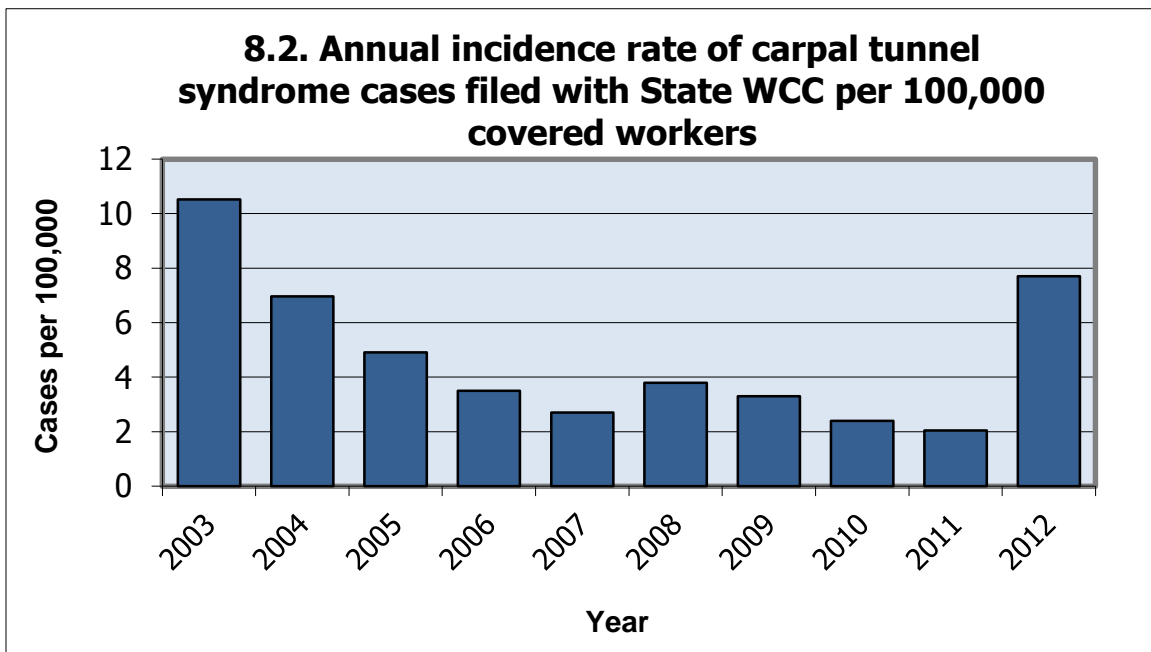
Musculoskeletal disorders (MSDs) generally involve an injury to muscles, nerves, tendons, joints, cartilage, and/or spinal discs; with pain, swelling, and/or numbness; that is caused by overexertion, repetitive motion, and/or jarring vibrations. Over the period from 2003–2012, annual numbers of MSD cases in Texas workers averaged 18,966, producing an average annual incidence rate of 268 cases per 100,000 FTEs.



OHI 8. Carpal Tunnel Syndrome Cases Filed with State Workers' Compensation Commission

Carpal Tunnel Syndrome (CTS) is a compression neuropathy that occurs when the median nerve is squeezed where it crosses the wrist. This results in the symptoms of numbness, tingling, and weakness. In a recent meta-analysis of the relationship between CTS and occupation, risk factors for CTS in exposed workers included vibration (OR 5.40, 95% CI 3.14–9.31), hand force (OR 4.23 95% CI 1.53–11.68), and repetition (OR 2.26, 95% CI 1.73–2.94).⁵

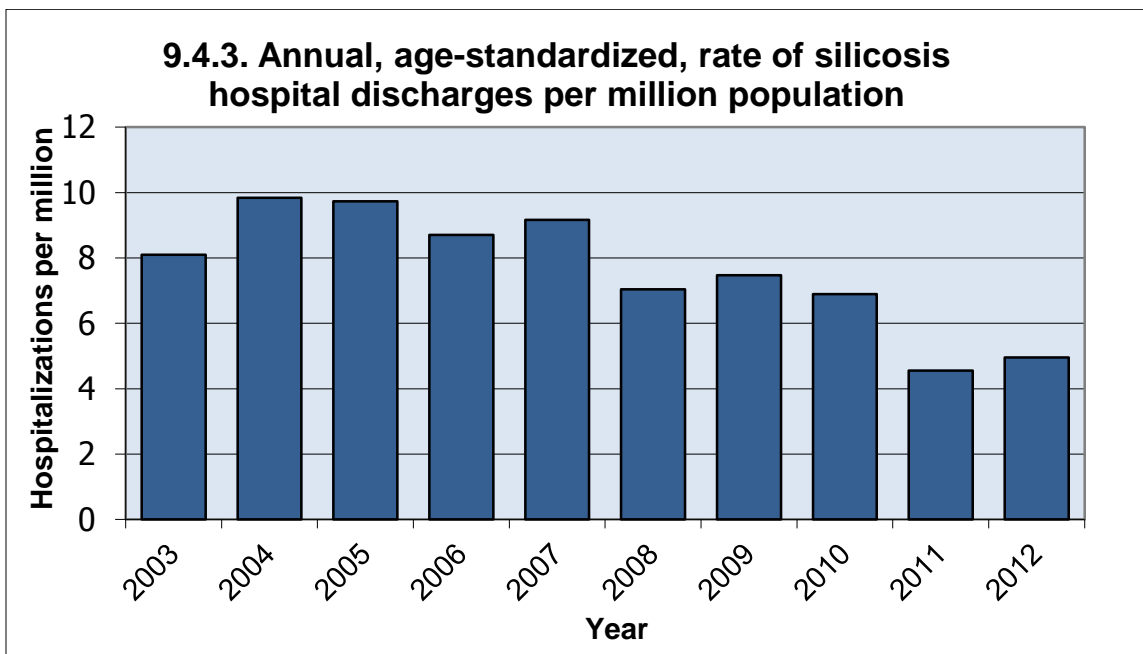
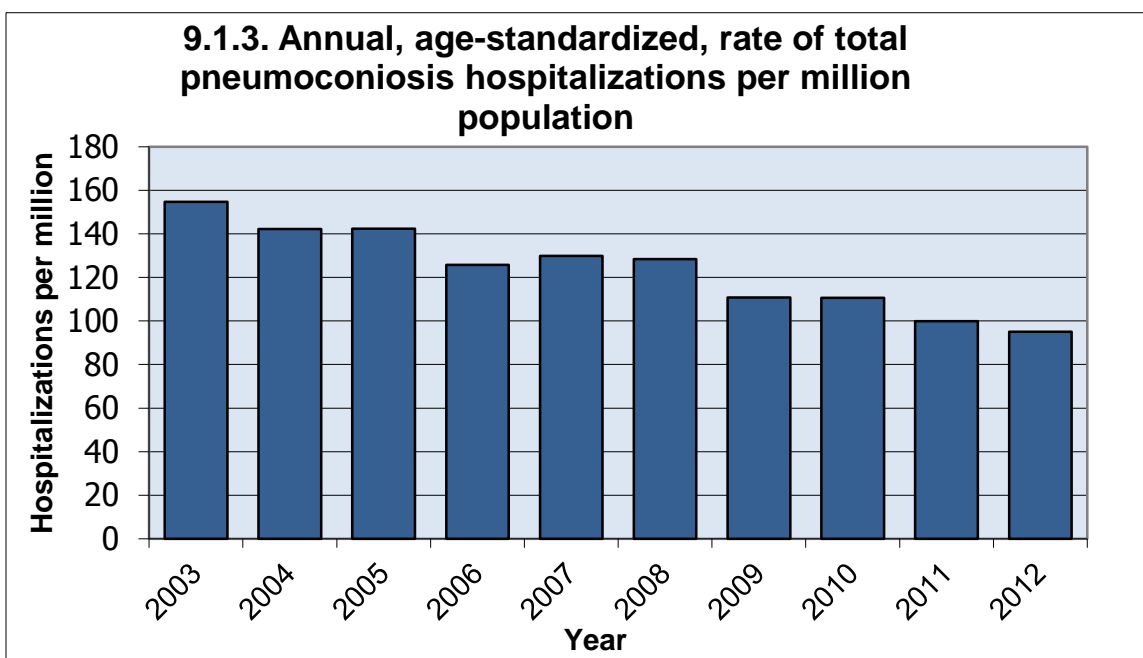
In Texas, over the period 2003–2012, there was an annual average of 362 cases. Texas does not require employers to provide workers' compensation; thus, these data likely underestimate the occurrence of this injury among the Texas workforce.

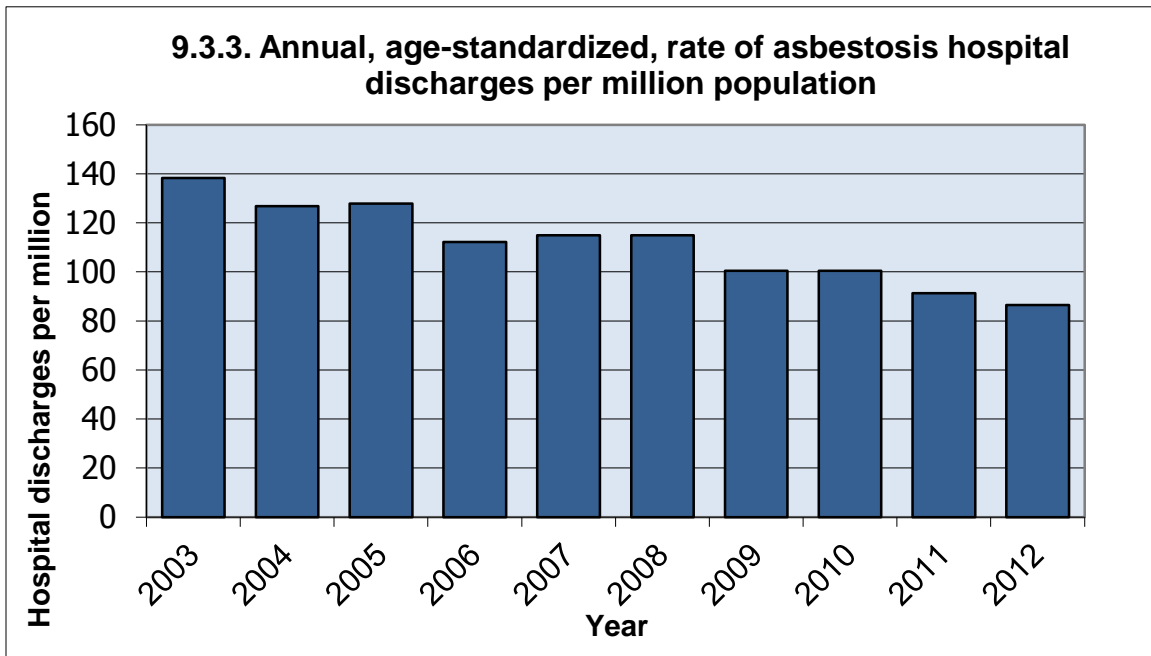


OHI 9. Hospitalizations from or with Pneumoconiosis

The pulmonary pneumoconioses are a family of chronic lung diseases caused by the chronic inhalation of various forms of organic and inorganic dust particles, particularly in industrial workplaces. All pneumoconioses are largely attributable to occupational exposures, and the prevalence of each varies considerably in different parts of the country depending on local industrial activities. The three major types of pneumoconioses include asbestosis, silicosis, and coal-workers' pneumoconiosis.

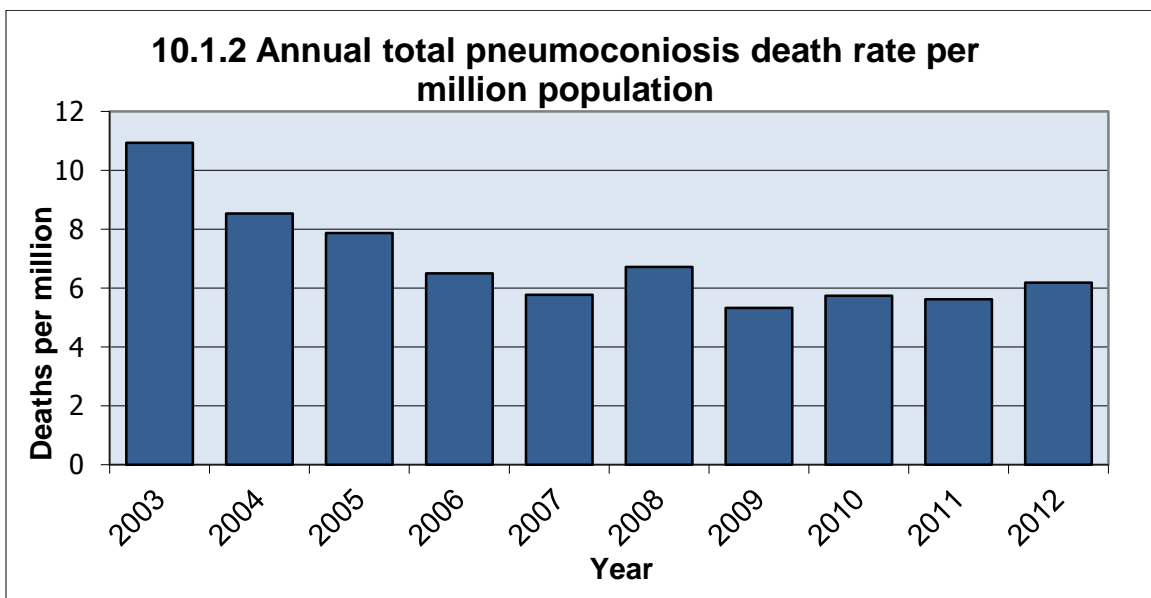
Over the period from 2003–2012, DSHS has identified an average of 1,942 hospitalizations per year of all pneumoconioses combined. Most of these cases are asbestosis (average 1,730 cases), followed by silicosis (average 127 cases), coal-workers' pneumoconiosis (average 64.1 cases), and other and unspecified pneumoconioses (average 39.4 cases).





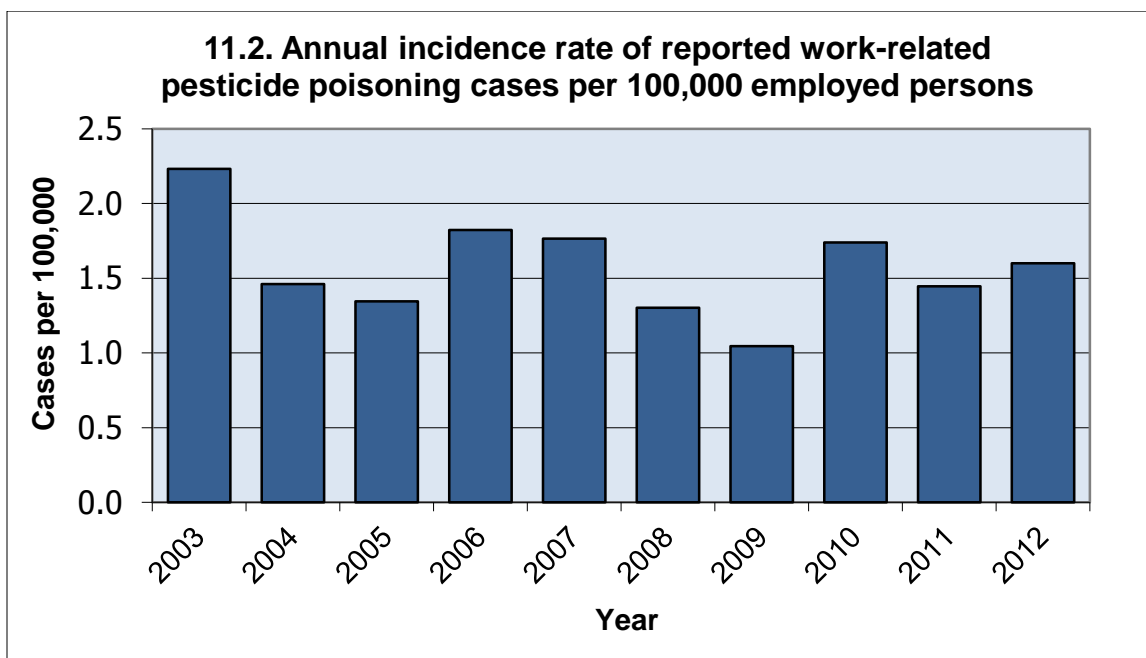
OHI 10. Mortality from or with Pneumoconiosis

Over the period 2004–2012, the number of deaths in Texas with pneumoconiosis as a contributing or underlying cause ranged from 102 to 185 deaths, producing an average of 127.2 deaths per year. There has been a gradual decline in the number of pneumoconiosis-related deaths from 2004 to 2012. Similarly, the age-standardized mortality rates in Texas with pneumoconiosis as a contributing or underlying cause ranged from 6.4 to 10.6 deaths per million population.



OHI 11. Acute Work-related Pesticide-Associated Illness and Injury

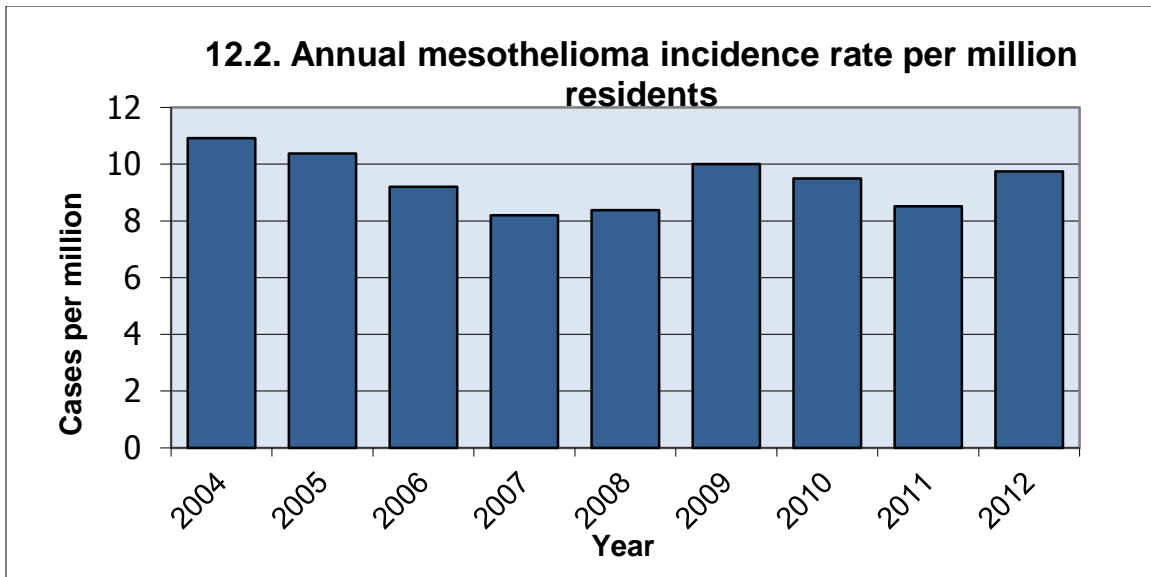
In the U.S. more than one billion pounds of pesticide active ingredients are used annually, and the EPA estimates that 20,000-40,000 work-related poisonings occur per year. Over the period from 2003–2012, Texas identified an average of 172 cases of occupational pesticide exposure per year.



OHI 12. Incidence of Malignant Mesothelioma

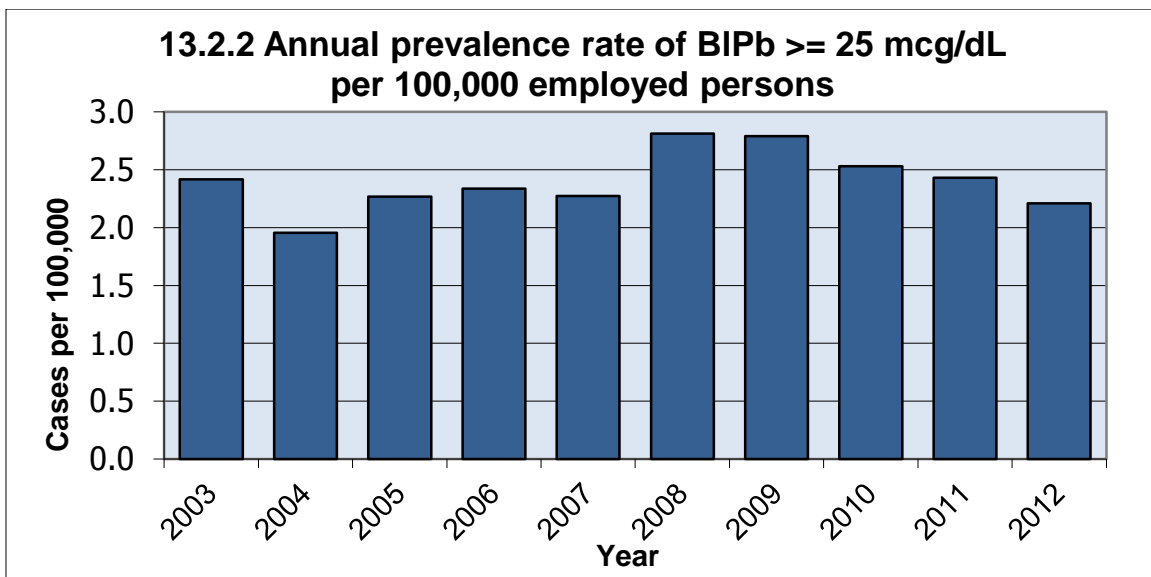
Malignant mesothelioma is a cancer involving the cells that line the abdominal and/or pleural cavities. With a latency period of 20–40 years after exposure begins; this cancer is primarily attributed to occupational exposure to asbestos.⁶ In Texas, an average of 176 cases of malignant mesothelioma cases per year (over the period 2004–2012) have been identified, for an average annual age-standardized incidence rate of 10.8 cases per million population.

Despite the sharp decline in use of asbestos, the potential for exposure continues. New cases may result from exposure to asbestos during inappropriate remediation and/or demolition of buildings with existing asbestos.



OHI 13. Elevated Blood Lead Levels among Adults

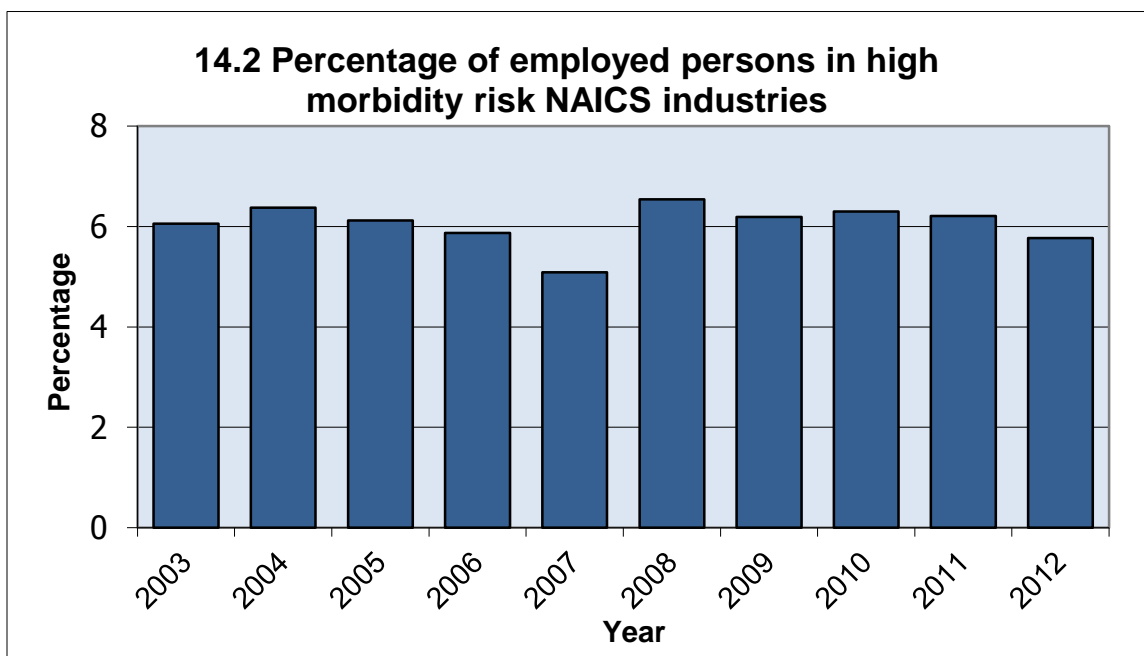
Lead is a toxic metal that accumulates in the body and can affect multiple body systems, including the neurologic, hematologic, gastrointestinal, cardiovascular, and renal systems. Workers exposed to lead may contaminate their homes and expose their children through take-home exposure. DSHS has conducted occupational blood lead surveillance in Texas since 1986. The Adult Blood Lead Epidemiology and Surveillance (ABLES) program at DSHS uses a tiered approach for follow-up of elevated blood lead levels, with progressively more aggressive actions to find and stop the exposure with progressively higher blood lead levels greater than or equal to 10 µg/dL. Actions may include letters to the patient, employer, or provider; or mail or phone interviews with the patient and/or the provider depending on the level. Over the period from 2003–2012, ABLES received an average of nearly 32,400 adult blood lead reports per year. After elimination of duplicate tests per person, ABLES saw an average of 264 persons per year with levels greater than 25 µg/dL and 49.7 with levels greater than 40 µg/dL; the majority of elevated blood lead levels among adults were a result of occupational exposures.



OHI 14. Numbers and Percentage of Workers in High Morbidity Risk Industries

In 2008, the BLS reported an estimated total of 3.7 million injury and illness cases within the U.S. private sector workforce, and an estimated incidence rate of 3.9 cases per 100 FTE workers. Fifty-five industries had occupational injury and illness rates of more than double the national rate, or 7.8 cases per 100 FTE workers or higher. For this OHI, these industries are classified as “high risk industries”.⁷

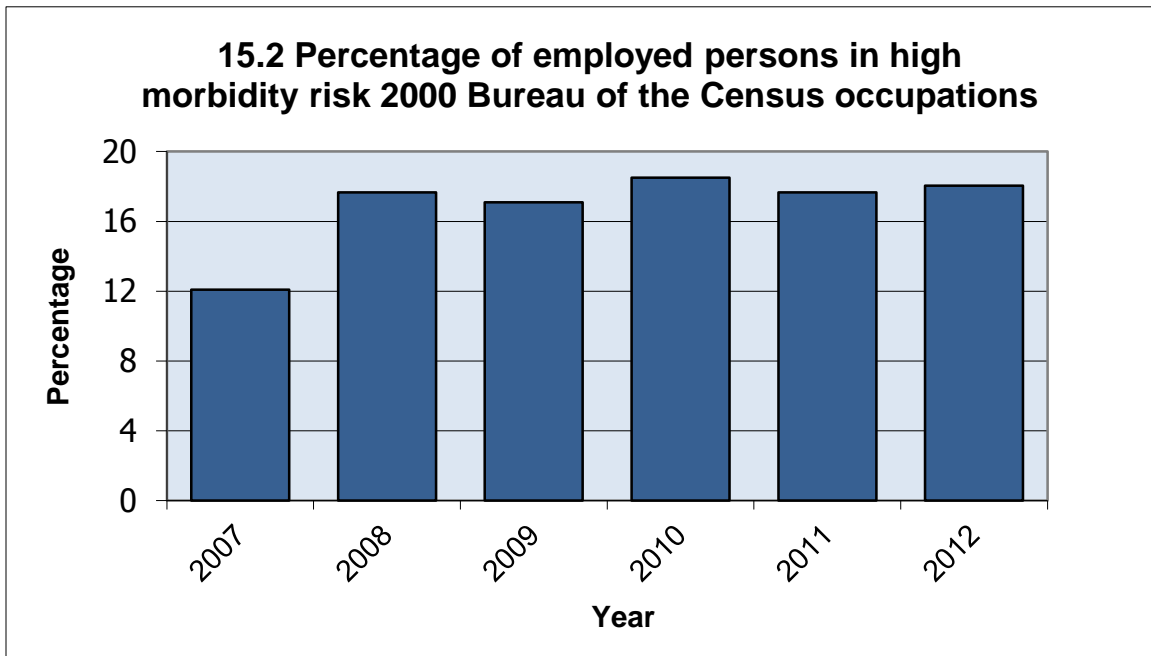
Over the period 2003–2012, Texas identified an average of 530,819 persons per year employed in the North American Industry Classification System (NAICS) industries, having the top 55 highest BLS incidence rates for total reportable occupational morbidity. These “high morbidity risk industries” account for an average of 6.08% of employed persons in Texas. With continued tracking, DSHS will be able to determine trends and develop targeted education and outreach activities to reduce worker morbidity in these industries.



OHI 15. Numbers and Percentage of Workers in High Morbidity Risk Occupations

In 2008, the BLS reported an estimated 1.1 million injuries and illnesses that resulted in “days away from work”, and a rate of 113 “days away from work” cases per 100,000 FTE workers. The risk of these injuries and illnesses are significantly higher in certain occupations. Sixty-one occupational categories had “days away from work” injury and illness rates higher than 226 cases per 10,000 FTE workers. These occupations accounted for approximately 18.4 million private sector workers in the U.S. (16.1% of the private sector employment, excluding self-employed and unpaid workers), but 44.1% of OSHA “days away from work” cases.⁸

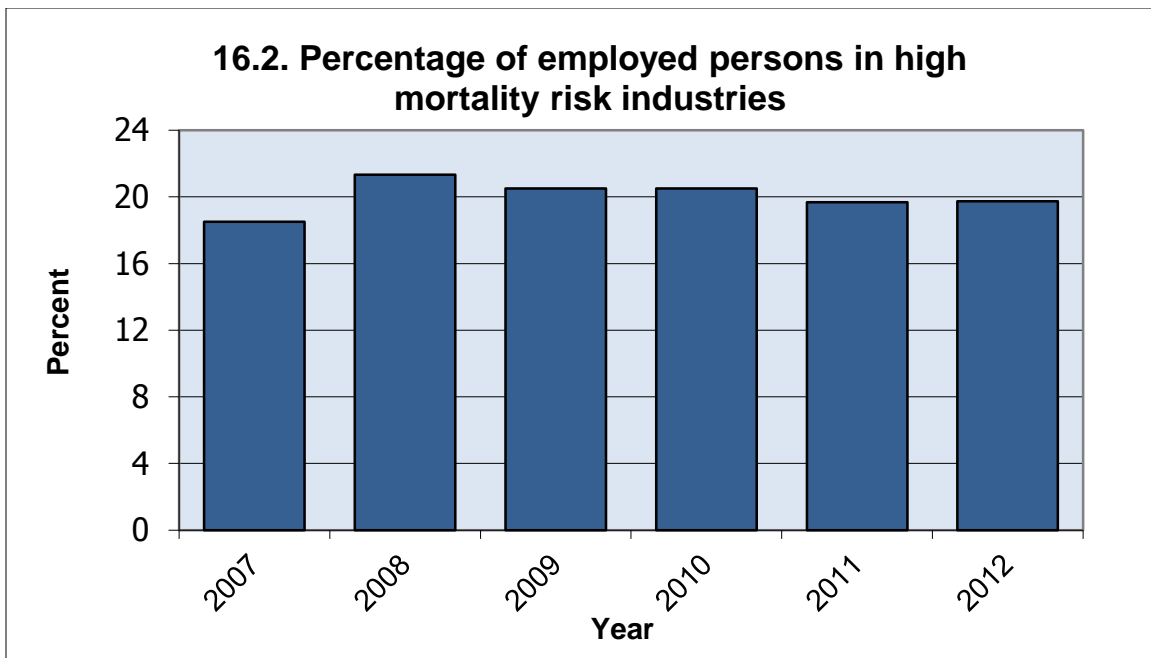
Since 2007, Texas has identified an average of over 1.49 million persons per year employed in 2000 Bureau of Census occupations, classified as having a high risk for morbidity; this amounts to an average of 16.8% of employed persons. With continued tracking, DSHS will be able to determine trends and develop targeted education and outreach activities to reduce morbidity in these occupational groups.



OHI 16. Percentage of Workers in Industries & Occupations with High Mortality Risk

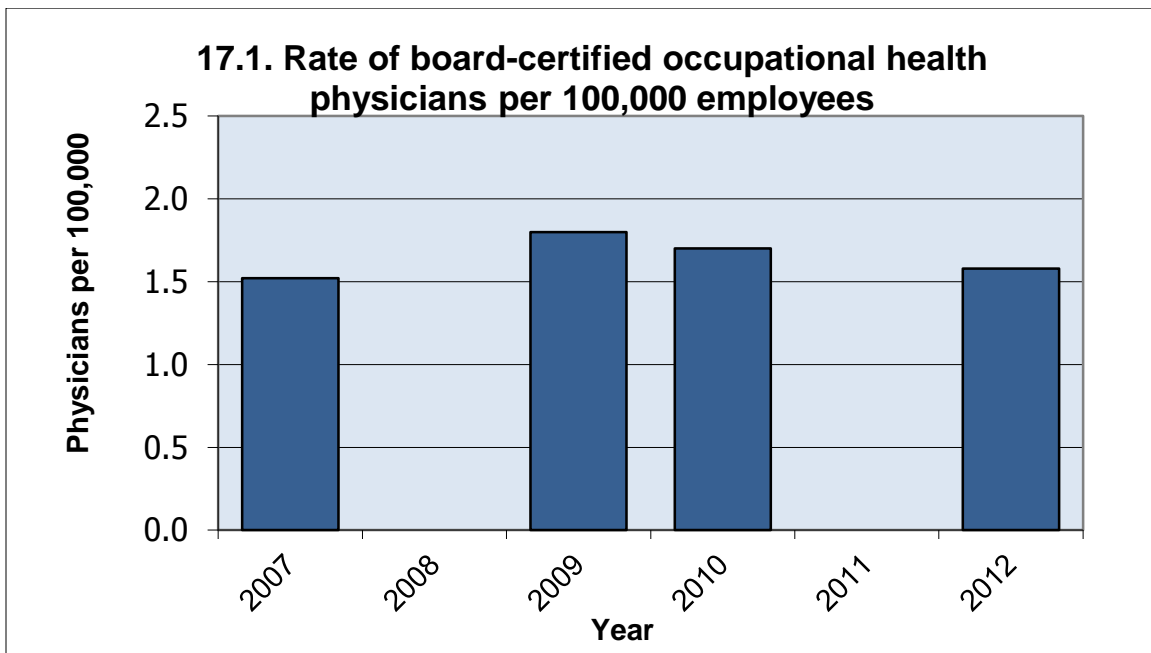
Each year, over 4,500 cases of work-related fatalities are reported to BLS under the Census of Fatal Occupational Injuries (CFOI) program. On an average day, 13 workers die as a result of injuries sustained at work. The risks for these occupational fatalities are significantly higher in certain industries and occupations. In 2008, 40 industries had fatality rates of 7.5 deaths per 100,000 workers or higher, and employed approximately 20.6 million workers (16.6% of the private sector employment), but accounted for 64% of the occupational fatalities. There were 62 occupations that had fatality rates of 7.5 deaths per 100,000 workers or higher. These occupations accounted for approximately 16.1 million workers in the U.S. (13% of the private sector employment), but 66% of the occupational fatalities in 2008.⁹

Since 2007, Texas has identified an average of nearly 1.99 million persons per year employed in 2007 Bureau of Census occupations classified as having a high risk for mortality; this amounts to an average of 20.0% of employed persons in Texas.



OHI 17. Occupational Safety and Health Professionals

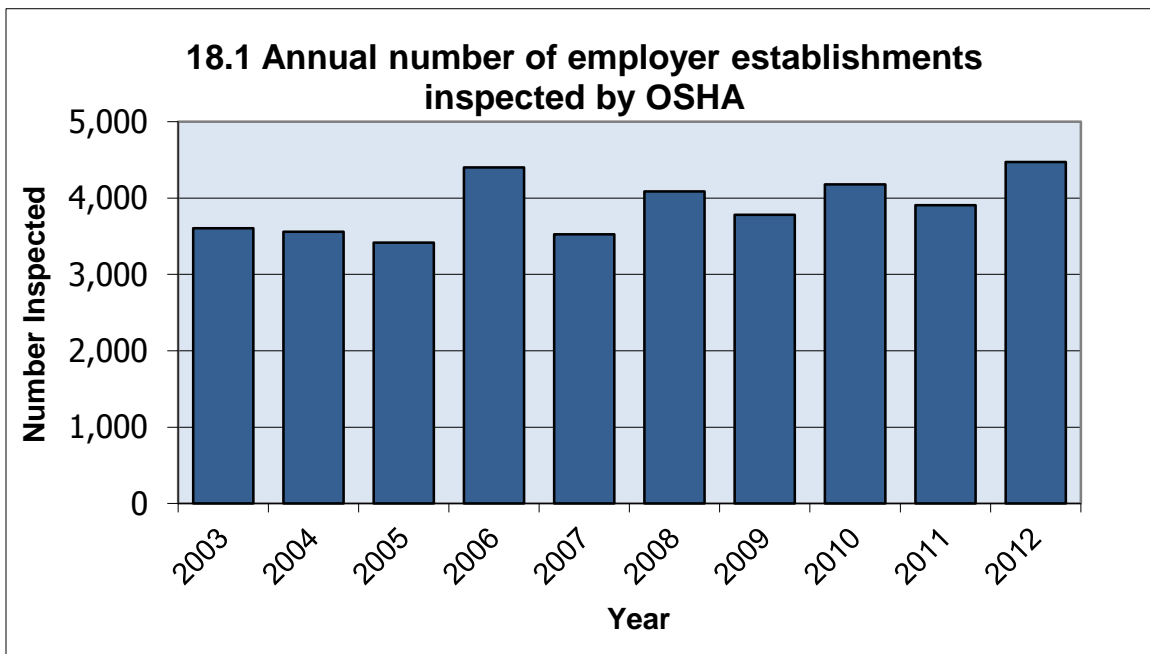
Physicians with training and/or special interest in occupational medicine provide primary, secondary, and tertiary occupational health preventive services. In 1989, the American Medical Association recommended that there be one physician per 1,000 employees. Currently, occupational health nurses provide a great deal of the onsite occupational health care. Industrial hygienists and safety professionals are typically the primary individuals responsible for evaluating workplaces and making recommendations to prevent occupational injuries and illnesses. In Texas, these data are available only sporadically (4 out of the last 10 years) and are reported when available.



OHI 18. OSHA Enforcement Activities

Under the OSHA law, employers are responsible for providing a safe and healthful workplace for their workers. To this end, OSHA targets with inspections workplaces in high-hazard industries and employers with the highest injury and illness rates. Inspections can also be triggered by a fatality, hospitalization of three or more workers, worker complaint or referral (including outside health/safety agency or media).

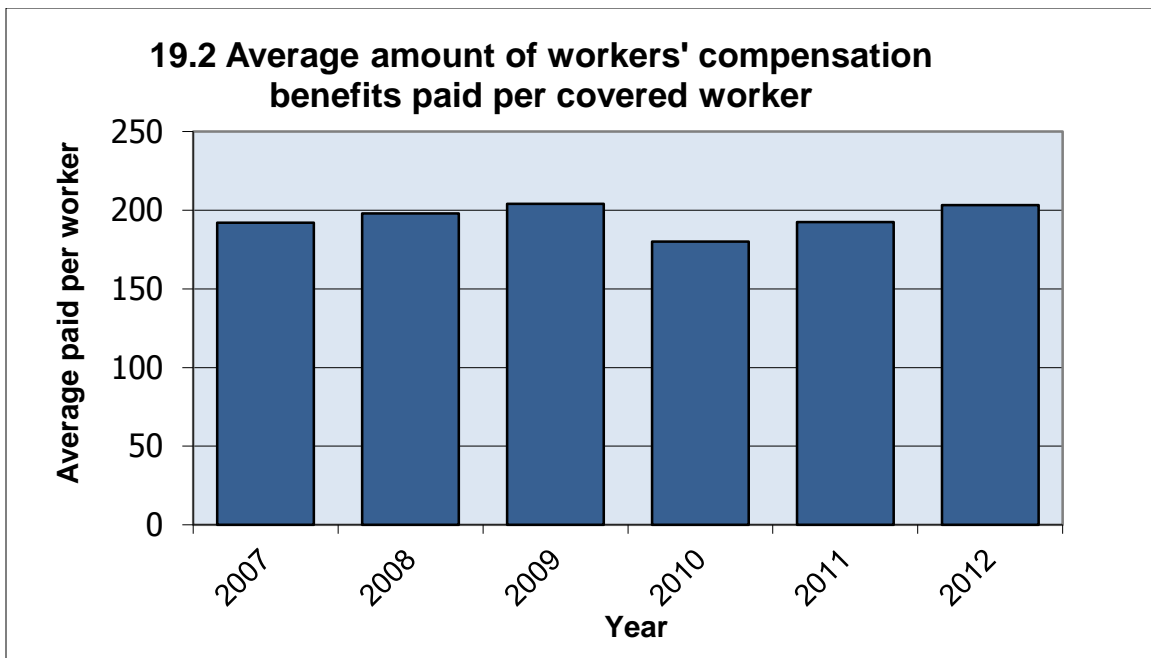
In Texas from 2003–2012, an average of 3,893 employer establishments per year were inspected by OSHA out of an average of 528,930 covered establishments that were eligible for OSHA inspection. Over the same period, an average of 131,295 workers out of 8.33 million covered employees had their work areas inspected by OSHA (1.65%).



OHI 19. Workers' Compensation Awards

In 2011, \$60.2 billion in workers' compensation benefits were paid to workers with occupational injuries or illnesses. Employer costs of workers' compensation claims increased by 7.1% to \$77.1 billion, medical payments to providers increased by 4.5 percent, to \$29.9 billion, and cash benefits to injured workers increased by 2.6 percent, to \$30.3 billion.¹⁰

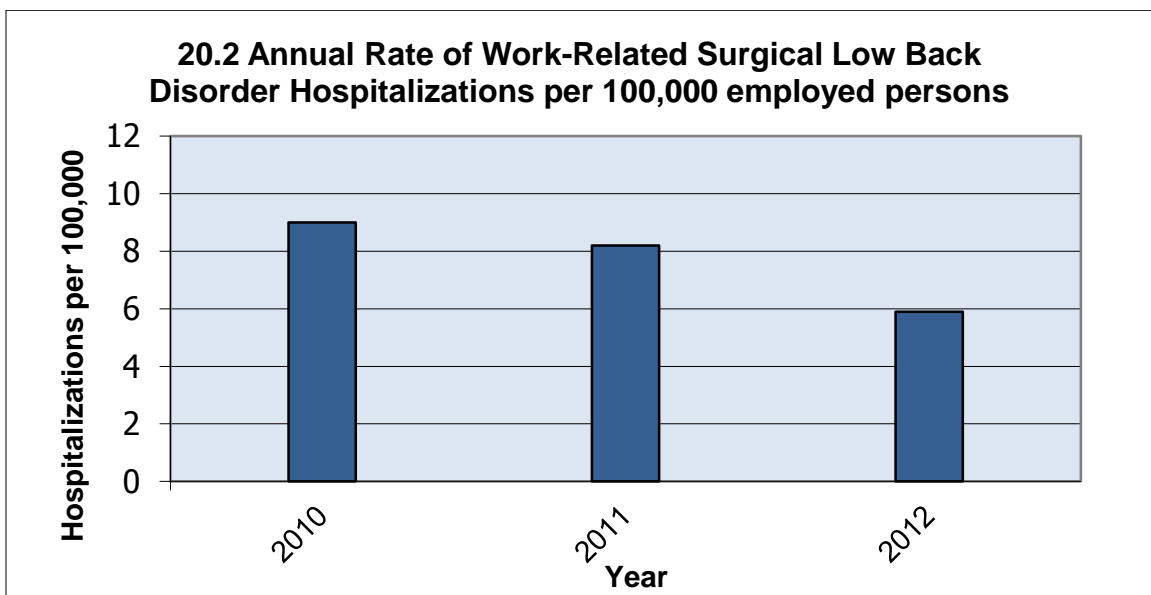
From 2007–2012, Texas employers paid an annual average of \$1.57 billion to an average of 7.94 million workers, averaging approximately \$195 in payments per worker. Since Texas employers are not required by state law to provide workers' compensation coverage for their employees, these figures underestimate the costs of work-related illnesses and injuries in Texas.



OHI 20. Work-Related Low Back Disorder Hospitalizations

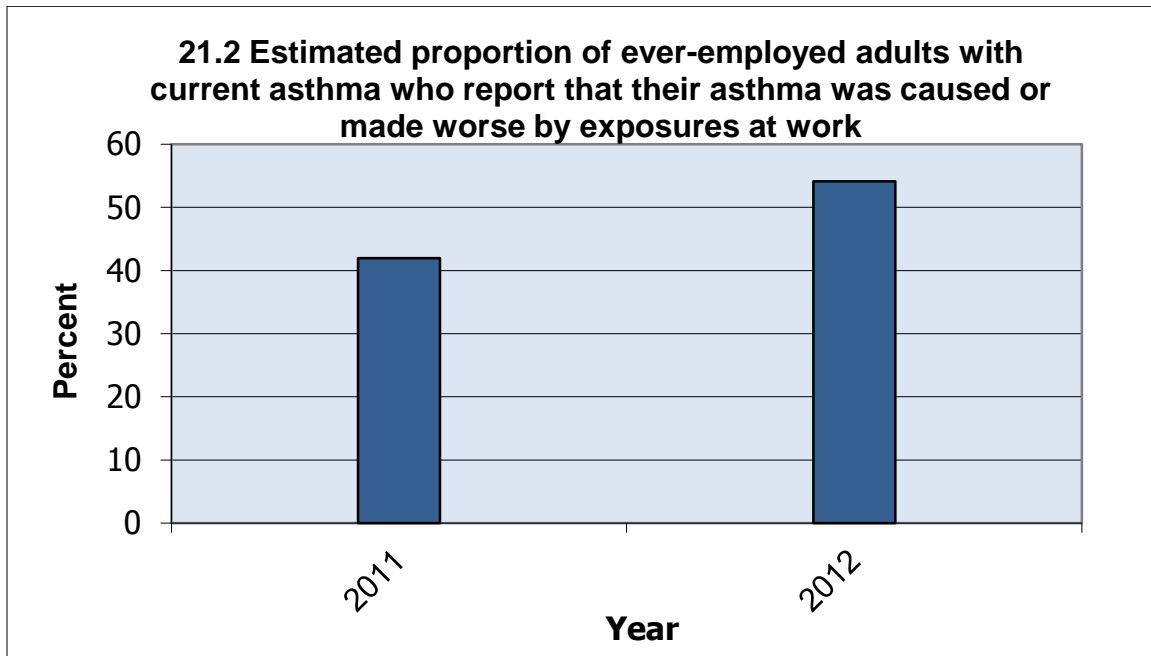
Each year 15-20% of Americans report back pain, resulting in over 100 million workdays lost and more than 10 million physician visits. In 2003, 3.2% of the total U.S. workforce experienced a loss in productive time due to back pain. The total cost of this productive time lost to back pain is estimated to be in excess of \$19.8 billion dollars.¹¹ 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 work productivity.

Texas identified an average of 1,051 workers hospitalized in 2010–2012 with surgical low-back disorders and 1,282 workers hospitalized with surgical and/or non-surgical low back disorders and an average annual rate of 9.21 low back disorder hospitalizations per 100,000 employed persons.



OHI 21. Asthma in Adults Caused or Made Worse by Work

Asthma is a chronic inflammatory disease of the airways that affects more than 18 million adults in the U.S.¹² Work-related asthma is a term used to describe asthma that has a temporal association between asthma symptoms and the work environment. If the condition is diagnosed early and the causal agent(s) are identified, exposures can be reduced or eliminated, and work-related asthma may be partially or completely reversible.¹³ In 2011 in Texas, an estimated 513,994 ever-employed adults were identified whose asthma was caused or made worse by exposures at work (41.9%).



OHI 22. Work-Related Severe Traumatic Injury Hospitalizations

Acute work-related trauma is a leading cause of death and disability for U.S. workers. In 2010, more than 4,500 U.S. workers died from occupational injuries [NIOSH, 2012]. Severe traumatic injury can lead to long-term pain and disability and is very costly for workers' compensation systems and society as a whole. The total national medical and productivity cost for occupational injuries was recently estimated at \$192 billion annually [Leigh, 2011].

In 2012 (the first year in which this indicator was included), Texas OHSS observed a total of 1,344 work-related severe traumatic injury hospitalizations, producing an annual rate of 11.4 per 100,000 workers.

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- ¹ Council of State and Territorial Epidemiologists. Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and their Determinants. March 2015. Available at http://www.cste.org/resource/resmgr/PDFs/2015_Ed_of_OHI_Guidance_Manual.pdf
- ² BLS News Release. Employer-Reported Workplace Injuries and Illnesses – 2012. Bureau of Labor Statistics. U.S. Department of Labor, November 7, 2013. Available at <http://www.bls.gov/news.release/pdf/osh.pdf> Last accessed 7/25/2014.
- ³ Bureau of Labor Statistics. Census of Fatal Occupational Injuries, State Data. Available at <http://www.bls.gov/iif/oshwc/cfoi/tgs/2011/iiffw48.htm> Last accessed 7/22/2014.
- ⁴ Schneider JC, Bassi S, and Ryan CM. Employment outcomes after burn injury: A comparison of those burned at and those outside of work. *Journal of Burn Care & Research* 2011; 32(2):294–301.
- ⁵ Barcenilla A, March LM, Chen JS, and Sambrook PN. Carpal tunnel syndrome and its relationship to occupation: a meta-analysis. *Rheumatology* 2012; 51:250–261.
- ⁶ Lanphear BP, Buncher CR. Latent period for malignant mesothelioma of occupational origin. *J Occup Med* 1992; 34:718–721.
- ⁷ Bureau of Labor Statistics. Occupational Injuries/Illnesses and Fatal Injuries Profiles – 2008. Available at <http://data.bls.gov/gqt/InitialPage> Last accessed 7/24/2014.
- ⁸ Bureau of Labor Statistics. Occupational Injuries/Illnesses and Fatal Injuries Profiles – 2008. Available at <http://data.bls.gov/gqt/InitialPage> Last accessed 7/24/2014.
- ⁹ Bureau of Labor Statistics. Census for Fatal Occupational Injuries (CFOI) – Current and Revised Data – 2008. Available at <http://www.bls.gov/iif/oshcfoi1.htm> Last accessed 7/25/2014.
- ¹⁰ Sengupta I, Baldwin M, and Reno V. Workers’ Compensation: Benefits, Coverage, and Costs, 2011. National Academy of Social Insurance. Washington DC. August 2013. Available from <http://www.workcompcentral.com/pdf/2013/misc/nasiRptWkrsComp11v3b.pdf> Last accessed 7/26/2014.
- ¹¹ Stewart WF, Ricci JA, Chee E, et al. Lost productive time and cost due to common pain conditions in the U.S. workforce. *JAMA* 2003; 290:2443–2454.
- ¹² Centers for Disease Control and Prevention. Current asthma prevalence, National Health Interview Survey (NHIS), National Center for Health Statistics (NCHS 2010) 2010.
- ¹³ Tarlo SM, Balmes J, Balkissoon R, et al. Diagnosis of Work-Related Asthma: ACCP Consensus Statement. *Chest* 2008; 134:1S–41S.