Occupational Injury and Illness in New Hampshire:

2011 Data Report to Inform Programs and Policies

New Hampshire Department of Health and Human Services
Division of Public Health Services
Bureau of Public Health Statistics and Informatics
Occupational Health Surveillance Program

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John H. Lynch, Governor
Nicholas A. Toumpas, Commissioner, Department of Health and Human Services
José Thier Montero, Director, Division of Public Health Services

Requests for additional copies should be directed to:
Karla R. Armenti, ScD, Principal Investigator
Occupational Health Surveillance Program
Bureau of Public Health Statistics & Informatics
Division of Public Health Services
29 Hazen Drive
Concord, NH 03301
Phone (603) 271-8425
www.dhhs.nh.gov/dphs/hsdm/ohs
karmenti@dhhs.state.nh.us

An electronic version of this report is available on the DPHS web site:
http://www.dhhs.nh.gov/dphs/hsdm/ohs/publications.htm

Acknowledgments

Contributors:

Karla Armenti, ScD., Principal Investigator, Occupational Health Surveillance Program
JoAnne Miles, MPH, Health Statistics and Data Management Section
Sai S. Cherala, MD, MPH, Health Statistics and Data Management Section, NH State Cancer Registry
Michael Laviolette, PhD, MPH, Health Statistics and Data Management Section
Paul L. Lakevicius, MBA, MS, Healthy Homes & Lead Poisoning Prevention Program
Suzanne Allison, RN, BSN, Healthy Homes & Lead Poisoning Prevention Program
Susan Knight, MSPH, NH Asthma Control Program
David Swenson, Infectious Disease Surveillance Section
Melissa Heinen, RN, MPH, CPH, Northern New England Poison Center
Colin Smith, Administrative Associate, Northern New England Poison Center
Henry Vincent, NH Department of Labor, Workers' Compensation Division
George Kilens, NH Occupational Safety and Health Administration
Steve Wurtz, NH Department of State, Division of Vital Records Administration
Yaritza Roberts, University of Massachusetts Lowell

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Executive Summary

This report contains data and information on occupational injuries and illnesses in New Hampshire, which marks an important step on the path to a safer and healthier work environment for New Hampshire workers. The report format used is based on the Council of State and Territorial Epidemiologists (CSTE) and the National Institute for Occupational Safety and Health—Centers for Disease Control and Prevention (NIOSH-CDC) *"Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and Their Determinants."*[1] This guide was produced by the NIOSH-States Occupational Health Surveillance Work Group, which was created to make recommendations to NIOSH concerning fundamental State-based surveillance activities, beginning with recommendations to identify occupational injuries, illnesses, and hazards to be placed under surveillance by states. The resulting 20 occupational health indicators have been utilized by many states to produce state occupational health surveillance reports.

What is an Occupational Health Indicator?

An occupational health indicator is a specific measure of work-related disease or injury, or a factor associated with occupational health such as workplace exposures, hazards, or interventions, in a specified population. These indicators can be generated by states to track trends in the occupational health status of the working population.

Using the above framework, this report includes available New Hampshire data on many of the established occupational health injury and illness indicators. These indicators illustrate the importance of collecting occupational health injury and illness data to inform prevention efforts aimed at eliminating or reducing these work-related events.

Report Highlights

- Manufacturing industries are on the decrease in New Hampshire.
- From 2000 to 2008 there were 127 work-related fatalities in New Hampshire.
- The average workers' compensation award per covered New Hampshire worker in 2008 was $354.
- There were over 133,000 emergency department hospital discharges for persons age 16 years and older, where the expected payer is workers' compensation (2000 to 2007).
- Of the 328 total hospital discharges between 2002 and 2007, over 80% of amputations were fingers, over 13% were thumbs.
- More than 47,000 New Hampshire workers are employed in high mortality risk occupations.
- More than 78,000 New Hampshire workers are employed in high mortality risk industries.
- 10 of the 20 CSTE/NIOSH occupational health indicators are Healthy People 2020 objectives.

[1] Available from http://www.cste.org/pdffiles/howoguide8.3.06.pdf.

Introduction

There are an estimated 740,000 civil, non-institutional workers in New Hampshire (all sectors). In 2010, more than 513,500 individuals worked in New Hampshire in over 45,600 private sector workplaces.[2] Each 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 events result in substantial human and economic costs, not only for workers and employers, but also for society as a whole. A new study, funded by the National Institute for Occupational Safety and Health (NIOSH), determined the cost of work-related injuries and illnesses in the United States to be $250 billion. This cost has risen by $33 billion since 1992, the last time a similar study was conducted.[3] In New Hampshire, workers' compensation claims alone cost approximately $239 million in 2008.[4]

Work-related injuries and illnesses can be prevented with appropriate and targeted interventions. Successful approaches to making the workplace safer begin with having the most accurate and current occupational health surveillance data, which are necessary to understand the root causes of the problems that lead to occupational injury and illness.[5] Unfortunately federal occupational health surveillance reporting requirements result in data gaps and shortfalls that do not accurately capture the true nature of occupational health and illness. This results in an inaccurate view that occupational health and illness is on a downward trend.

Underreporting to OSHA of occupational injuries and illnesses has been documented within the occupational health academic field. The House Committee on Education and Labor has held extensive hearings on this issue with first-hand testimony from worker victims and OSHA employees.[6] These hearings on underreporting of occupational health events in the workplace highlight the need to improve occupational health surveillance at the national and state level.

Indicators

Occupational health indicators can provide information about a population's health status with respect to workplace injuries and illnesses or to factors that can influence health. These indicators can either be measures of health (work-related disease or injury) or factors associated with health, such as workplace exposures, hazards or interventions, and socio-economic impact. The indicators represent a core set of data that, if collected at the state level, would assist in the development of programs to prevent workplace injuries and illnesses. While analyzing these core data points is part of a fundamental surveillance program, it is expected that states use them in conjunction with other guidelines for state-based surveillance and as a complement to overall state and national goals to improve the health of the population.

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[2] Bureau of Labor Statistics (BLS), *Quarterly Census of Employment and Wages*, 2010, http://stats.bls.gov/cew/cewbultn10.htm, assessed 4/9/2012.

[3] Leigh, J. Paul, Economic Burden of Occupational Injury and Illness in the United States. The Milbank Quarterly, Vol. 89, No. 4, 2011 (pp. 728–772), http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0009.2011.00648.x/pdf

[4] Sengupta, I., Reno V, Burton JF., *Workers Compensation: Benefits, Coverage, and Costs, 2008, September 2010*, National Academy of Social Insurance.

[5] Friedman, L.S. and L. Forst, *The impact of OSHA recordkeeping regulation changes on occupational injury and illness trends in the US: a time-series analysis.* Occupational Environmental Medicine, 2007. **64**(7): p. 454-60.

[6] U.S. House of Representatives Education and Labor Committee, "The Hidden Tragedy: Underreporting of Workplace Injuries and Illnesses". June 19, 2008, available from http://www.cste.org/dnn/Portals/0/House%20Ed%20Labor%20Comm%20Report%20061908.pdf

The occupational health indicators are estimated from many data sources. They are meant to provide an overview and general assessment of the occupational health status of New Hampshire over a span of years for which data are available. Each data source has its strengths and limitations.

This report includes a State Employment Profile and many of the core occupational health indicators for New Hampshire based on the most recent data available for each indicator. No single data source is currently adequate to characterize occupational health profiles in the State. Since not all 20 indicators can be analyzed according to the prescribed guidelines, we have included a variety of other data points and health outcomes using existing data sources. A description of the data sources used in generating these indicators is found on page 36.

Notes

Data are specific to New Hampshire unless indicated otherwise. All charts, graphs, tables, and maps are called "Figures." Following the figure, information is given on the source of the data. Where applicable, differences in health indicators (for instance, between New Hampshire and the U.S.) are referred to as "significant" in the statistical sense. A statistically significant difference is one that would occur with less than five percent probability in the absence of a true difference. Differences computed from small samples or populations are less likely to be significant than those computed from larger numbers. The word "significant" is used only with this technical meaning and does not speak to the impact of a health condition on an individual, family, or community.

"Incidence" of a health condition refers to the number of new cases revealed or diagnosed during a specified time period. "Prevalence" refers to the number of cases existing at a specific time. "Mortality" refers to a health event resulting in death. Incidence, prevalence, and mortality are often presented as rates: the number of events per 1,000, 10,000, or 100,000 population.

Many of the rates presented are "age-adjusted," that is, the given rates are those that would occur if the population of New Hampshire had the same age distribution as that of the US in the 2000 Census (the most recent available at this writing). Age adjustment allows for comparison between populations with different age distributions.

A "confidence interval" (CI) is a range of values within which the true rate is expected to fall. If the confidence intervals of two groups (such as New Hampshire and the U.S.) overlap, then any difference between the two rates is not statistically significant. All rates in this report are calculated at a 95 percent confidence level. For example, the age-adjusted New Hampshire inpatient hospital discharge rate is 72.1 (95% CI, 65.9–78.4) per 100,000 population. There is a 95 percent probability that the confidence interval contains the true adjusted rate.

New Hampshire Employment Profile 2000–2008

There are an estimated 740,000 civil, non-institutional workers in New Hampshire. Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention. Research has shown that relationships exist between the demographic characteristics of workers and the risk of occupational illness or injury. Understanding the basic characteristics of the New Hampshire workforce is vital to assessing possible occupational health risks for New Hampshire's workers. The following data show the most recent demographic profile for New Hampshire.

Employment status of the NH civilian non-institutionalized population aged 16 and older

Year	Civilian non-institutional population	Civilian labor force		Employment		Unemployment	
		Number	Percent	Number	Percent	Number	Percent
2000	939,000	686,000	73.0	666,000	71.0	19,000	2.8
2001	954,000	689,000	72.2	664,000	69.7	24,000	3.5
2002	989,000	706,000	71.4	672,000	68.0	33,000	4.7
2003	1,005,000	719,000	71.5	688,000	68.5	31,000	4.3
2004	1,018,000	724,000	71.1	698,000	68.5	27,000	3.7
2005	1,033,000	738,000	71.4	711,000	68.8	27,000	3.7
2006	1,044,000	741,000	70.9	716,000	68.6	25,000	3.4
2007	1,040,000	737,000	70.8	710,000	68.1	27,000	3.6
2008	1,045,000	740,000	70.8	712,000	68.1	28,000	3.8

Source: Bureau of Labor Statistics, Current Population Survey: http://www.bls.gov/gps/#tables

Workforce characteristics ages 16 and Older New Hampshire and United States, 2004 and 2008

Characteristic	New Hampshire 2004	New Hampshire 2008	United States 2004	United States 2008
Total Work Force, Age 16 and older	698,000	712,000	139,252,000	145,095,000
% Male	53.3	52.5	53.5	53.2
% Female	46.7	47.5	46.5	46.8
% Ages 16-17	2.3	2.2	1.6	1.4
% Ages 18-64	94.5	93.8	94.9	94.4
% Ages 65 and older	3.2	4.0	3.5	4.2
% Self-employed	7.7	7.2	7.5	6.3
% Employed part-time*	19.6	19.9	17.8	17.4
% Work < 40 hrs/week	36.0	38.2	33.7	33.4
% Work 40 hrs/week	31.7	33.3	39.4	41.1
% Work > 40 hrs/week	32.4	28.5	26.9	25.5

* "Employed part-time" are individuals who work 1 to 34 hours per week.
Source: Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment
http://www.bls.gov/opub/gp/pdf/gp04full.pdf, pages 105, 145, 149
http://www.bls.gov/opub/gp/pdf/gp08full.pdf, pages 101, 142, 149

Distribution of New Hampshire workforce by major industry sectors 2004 and 2008

Industry	2004	2008	Change
Number Employed*	698,591	714,981	NA
% Agriculture, forestry, fishing, and hunting	0.9	0.8	-0.12
% Mining	0.03	0.05	0.51
% Construction	7.5	7.4	-0.01
% Manufacturing	15.2	13.8	-0.10
% Wholesale and retail trade	16.8	15.3	-0.09
% Transportation and utilities	4.0	3.9	-0.04
% Information	2.2	2.7	0.18
% Financial activities	7.0	6.7	-0.04
% Professional and business services	9.6	10.6	0.09
% Educational and health services	21.2	21.9	0.03
% Leisure and hospitality	7.5	8.0	0.06
% Other services	4.3	4.3	0.00
% Public administration	3.6	4.6	0.23

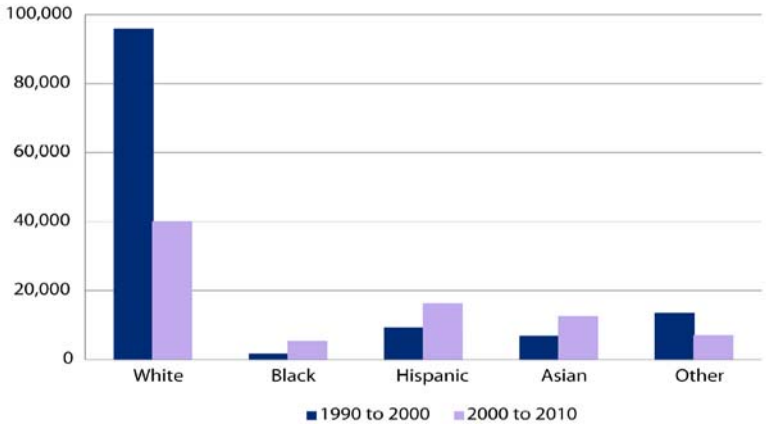
Source: Bureau of Labor Statistics, "Current Population Survey" 2004 and 2008, from Data Ferret. Assessed on 8/24/2011.
Source: Bureau of Labor Statistics, "Geographic Profile of Employment and Unemployment" 2004 and 2008, from Data Ferret. Assessed on 8/24/2011.

Distribution of New Hampshire workforce by major occupation sectors 2004 and 2008

Occupation	2004	2008	Change
Number Employed*	698,591	714,981	NA
% Management, business, and financial occupations	15.1	16.8	0.11
% Professional and related occupations	23.6	23.4	-0.01
% Service occupations	13.4	14.6	0.08
% Sales and related occupations	12.4	10.9	-0.13
% Office and administrative support occupations	13.1	13.6	0.03
% Farming, fishing, and forestry occupations	0.4	0.4	-0.03
% Construction and extraction occupations	6.0	5.6	-0.07
% Installation, maintenance, and repair occupations	4.0	3.6	-0.12
% Production occupations	7.5	6.6	-0.13
% Transportation and material moving occupations	4.4	4.6	0.04

Source: Bureau of Labor Statistics, "Current Population Survey" 2004 and 2008, from Data Ferret. Assessed on 8/24/2011.
Source: Bureau of Labor Statistics, "Geographic Profile of Employment and Unemployment" 2004 and 2008, from Data Ferret. Assessed on 8/24/2011.
*Number Employed found on Data Ferret is higher than number employed found in static reports because the Bureau of Labor Statistic rounds numbers down to the nearest 1,000 and Data Ferret has the exact count.

Population Change in New Hampshire from 1990 to 2010



(US Census 1990, 2000, and 2010, from http://www.carseyinstitute.unh.edu/publications/Report-Johnson-Demographic-Trends-NH-21st-Century.pdf)

American Community Survey Demographic Data

Although the American Community Survey (ACS) produces population, demographic, and housing unit estimates, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities, and towns. For 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties. ACS estimates are subject to sampling variation and will not exactly match similar estimates from other sources.[7, 8]

Estimated number of linguistically isolated households in New Hampshire by language, 2009

Primary language spoken at home	Estimated households	Margin of error (90%)
Total:	**506,342**	**4,336**
English only	**452,044**	**5,196**
Spanish:	**14,585**	**1,657**
Linguistically isolated	1,567	683
Not linguistically isolated	13,018	1,641
Other Indo-European languages:	**32,330**	**2,564**
Linguistically isolated	3,971	1,051
Not linguistically isolated	28,359	2,287
Asian and Pacific Island languages:	**4,960**	**974**
Linguistically isolated	1,161	545
Not linguistically isolated	3,799	827
Other languages:	**2,423**	**753**
Linguistically isolated	628	449
Not linguistically isolated	1,795	669

Source: ACS Table B16002, Household Language by Linguistic Isolation

[7] 2009 American Community Survey One-Year Estimates Summary File (machine-readable data file), New Hampshire, American Community Survey Office, U.S. Census Bureau, January 19, 2011. http://www2.census.gov/acs2009_1yr/summaryfile/Entire_States/NewHampshire.zip

[8] 2009 ACS 1-Year Summary File: Technical Documentation, American Community Survey Office, U.S. Census Bureau, Version 1.0, September 27, 2010. http://www2.census.gov/acs2009_1yr/summaryfile/ACS_2009_SF_Tech_Doc.pdf

Ability to speak English for people who speak another language at home, by occupation-- American Community Survey, New Hampshire, 2006 - 2010

Major Occupational Group	Estimated population size	Percent of total	Speaks English only at home, %	Speaks another language at home, speaks English well or very well, %	Speaks another language at home, speaks English not well or not at all, %
Total	**696,749**	**100.00**	**92.49**	**6.69**	**0.82**
Management	74,498	10.69	93.40	6.51	0.09
Business and Financial Operations	32,914	4.72	93.70	5.93	0.37
Computer and Mathematical	22,581	3.24	85.68	14.22	0.11
Architecture and Engineering	19,006	2.73	93.54	5.97	0.49
Life, Physical and Social Science	5,828	0.84	87.15	12.35	0.50
Community and Social Service	10,446	1.50	91.69	7.92	0.39
Legal	5,613	0.81	95.53	4.04	0.43
Education, Training and Library	46,632	6.69	94.54	5.29	0.17
Arts, Design, Entertainment, Sports and Media	10,837	1.56	92.68	6.50	0.82
Health Care Practitioners and Technical	39,608	5.68	92.15	7.28	0.57
Health Care Support	15,604	2.24	91.71	7.65	0.64
Protective Service	11,306	1.62	95.11	4.89	0.00
Food Preparation and Serving Related	34,554	4.96	90.62	6.57	2.82
Building and Grounds Cleaning and Maintenance	23,887	3.43	89.17	7.57	3.26
Personal Care and Service	21,936	3.15	92.57	6.97	0.46
Sales and Related	83,821	12.03	93.80	5.87	0.33
Office and Administrative Support	94,012	13.49	93.98	5.52	0.50
Farming, Fishing and Forestry	2,405	0.35	94.22	4.66	1.12
Construction and Extraction	40,238	5.78	93.56	5.37	1.07
Installation, Maintenance and Repair	22,405	3.22	96.76	3.24	0.00
Production	44,975	6.45	85.73	11.17	3.10
Transportation and Material Moving	33,643	4.83	92.52	6.35	1.13

Source: Custom analysis of the 2006-2010 5-year American Community Survey (ACS) Public Use Microdata Sample (PUMS) file for New Hampshire. The ACS data can be accessed at: http://www.census.gov/acs/www/data_documentation/pums_data/.

Estimated number of NH residents, age 25 and up, by education and employment status, 2009

Educational attainment and employment status	Estimated persons	Margin of error (90%)
Total	**902,747**	**1,753**
Less than high school graduate	**78,694**	**4,831**
In labor force	34,979	3,112
Not in labor force	43,715	3,583
High school graduate (includes equivalency)	**270,372**	**7,714**
In labor force	177,324	6,886
Not in labor force	93,048	3,912
Some college or associate's degree	**264,808**	**7,531**
In labor force	201,859	6,539
Not in labor force	62,949	3,790
Bachelor's degree or higher	**288,873**	**6,998**
In labor force	227,290	6,806
Not in labor force	61,583	3,658

Source: ACS Table B16010, Educational Attainment and Employment Status for the Population 25 Years and Over

Median income by work experience in the past 12 months,
NH population, 15 years old and over, by sex, 2009

Gender and work type	Estimated income (in 2009 inflation-adjusted dollars)	Margin of error (90%)
Total (dollars):	**$29,054**	**$444**
Male --		
Total (dollars)	$37,454	$747
Worked full-time, year-round in the past 12 months (dollars)	$51,953	$728
Other (dollars)	$17,800	$769
Female --		
Total (dollars)	$22,296	$489
Worked full-time, year-round in the past 12 months (dollars)	$38,531	$832
Other (dollars)	$13,087	$383

Source: ACS Table B19326, Median Income in the Past 12 Months (in 2009 Inflation-Adjusted Dollars) by Sex by Work Experience in the Past 12 Months for the Population 15 Years and Over with Income

Class of NH Resident Civilian Employed Workers, 16 Years Old and Over, by Gender, 2009

Gender by class of worker age 16 and over	Estimated number of males	Estimated number of females
Total Per Gender	**360,237**	**334,938**
Private for-profit wage and salary workers	269,496	212,124
Employee of private company workers	251,975	207,949
Self-employed in own incorporated business workers	17,521	4,175
Private not-for-profit wage and salary workers	20,002	46,350
Local government workers	19,250	36,494
State government workers	8,831	16,168
Federal government workers	8,527	5,205
Self-employed in own not incorporated business workers	34,050	18,398
Unpaid family workers	81	199

Source: ACS Table B24080, Sex by Class of Worker for the Civilian Employed Population 16 Years and Over

Percentage of ACS respondents, NH residents, Age 16 years and over, Annual earnings in 2009, by employment type, gender, and race

Type of Work (Males)	2009 Inflation-Adjusted Dollars	Population 16 years and over	White alone, not Hispanic or Latino	Black or African American alone	Asian alone	Hispanic or Latino
Full-time	$1 to $9,999 or less	0.54%	0.49%	0.00%	0.01%	0.02%
Full-time	$10,000 to $19,999	1.68%	1.35%	0.06%	0.06%	0.20%
Full-time	$20,000 to $29,999	3.88%	3.53%	0.07%	0.06%	0.16%
Full-time	$30,000 to $49,999	10.57%	9.99%	0.12%	0.12%	0.29%
Full-time	$50,000 to $74,999	8.41%	7.92%	0.04%	0.11%	0.18%
Full-time	$75,000 or more	9.40%	8.99%	0.04%	0.25%	0.07%
Not Full-time	$1 to $9,999 or less	7.84%	7.10%	0.11%	0.14%	0.35%
Not Full-time	$10,000 to $19,999	3.75%	3.51%	0.06%	0.05%	0.07%
Not Full-time	$20,000 to $29,999	2.11%	1.97%	0.06%	0.02%	0.03%
Not Full-time	$30,000 to $49,999	2.02%	1.96%	0.04%	0.00%	0.00%
Not Full-time	$50,000 to $74,999	0.81%	0.78%	0.00%	0.01%	0.03%
Not Full-time	$75,000 or more	0.80%	0.78%	0.00%	0.02%	0.01%

Type of work (females)	2009 Inflation-adjusted dollars	Population 16 years and over	White alone, not Hispanic or Latino	Black or African American alone	Asian alone	Hispanic or Latino
Full-time	$1 to $9,999 or less	0.41%	0.38%	0.00%	0.01%	0.01%
Full-time	$10,000 to $19,999	2.38%	2.24%	0.03%	0.04%	0.05%
Full-time	$20,000 to $29,999	5.00%	4.69%	0.10%	0.07%	0.07%
Full-time	$30,000 to $49,999	9.74%	9.31%	0.12%	0.10%	0.14%
Full-time	$50,000 to $74,999	4.15%	4.03%	0.00%	0.02%	0.07%
Full-time	$75,000 or more	2.63%	2.43%	0.01%	0.08%	0.05%
Not Full-time	$1 to $9,999 or less	11.01%	10.32%	0.08%	0.15%	0.30%
Not Full-time	$10,000 to $19,999	6.19%	5.79%	0.09%	0.07%	0.20%
Not Full-time	$20,000 to $29,999	2.94%	2.81%	0.02%	0.01%	0.05%
Not Full-time	$30,000 to $49,999	2.45%	2.37%	0.01%	0.06%	0.01%
Not Full-time	$50,000 to $74,999	0.94%	0.92%	0.00%	0.01%	0.01%
Not Full-time	$75,000 or more	0.33%	0.33%	0.00%	0.00%	0.00%
	Total (Males and Females)	**100%**	**93.99%**	**1.06%**	**1.47%**	**2.36%**

Source: ACS Table C20005, Sex by Work Experience in the Past 12 Months by Earnings in the Past 12 Months (In 2009 Inflation-Adjusted Dollars) for the Population 16 Years and Over

Occupational Health Indicators for New Hampshire

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

Introduction: Thousands of workers are injured each day in the United States. The U.S. Bureau of Labor Statistics (BLS) annual Survey of Occupational Injury and Illness (SOII) estimates state non-fatal occupational injuries and illnesses (available from http://www.bls.gov/respondents/iif/). Because of funding/resource limitations, New Hampshire does not participate in the SOII program so there are no New Hampshire–specific data for evaluation of this indicator.

Indicator 2: Work-Related Hospitalizations (NH Hospital Data)

Introduction: More severe occupational injuries and illnesses may result in hospitalization. Since hospital discharge data are categorized by payer, it is possible to limit the data to just those patients whose discharges were billed to the state workers' compensation system. However, work-related hospitalizations may be under-represented due to utilization of other payer sources (out of pocket, patient's private insurance).

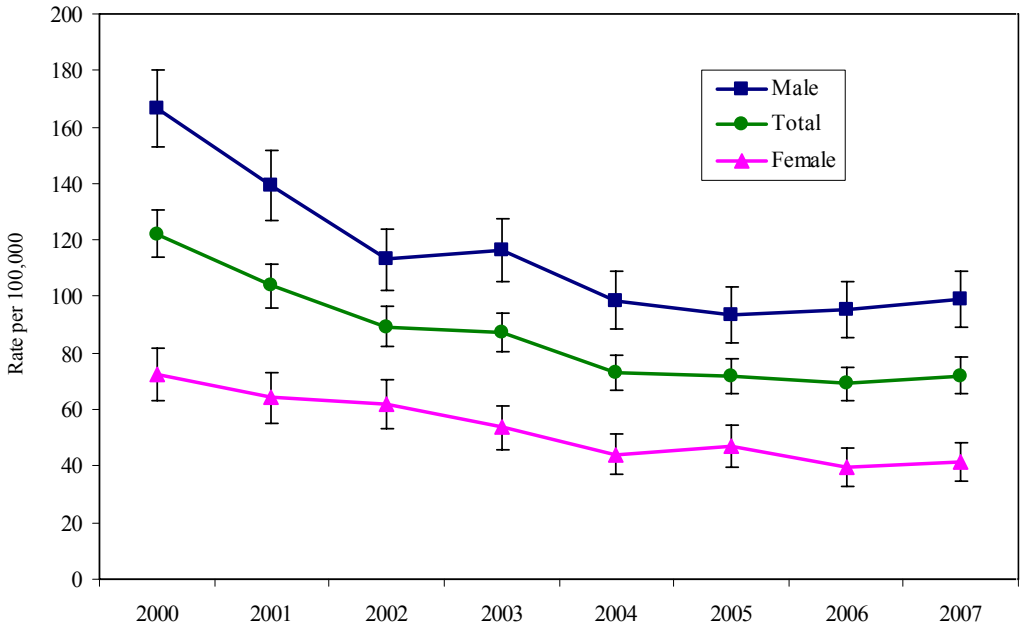
Indicator #2: Work-Related Hospitalizations
Numerator: Hospital discharges with primary payer coded as workers' compensation
Denominator: Employed persons age 16 years or older for the same calendar year
Measure: Annual crude rate per 100,000 employed persons age 16 and older
Exclude: Unknown age, out-of-state residents, and out-of-state hospitalizations

Annual number and rate* of inpatient hospitalizations for persons age 16 years and older, Expected payer workers' compensation, 2000–2007

	Male			Female			Total		
Year	n	*Rate	95% CI	n	*Rate	95% CI	n	*Rate	95% CI
2000	586	166.5	153 - 180	227	72.3	62.9 - 81.7	813	122.1	113.7 - 130.5
2001	488	139.4	127.1 - 151.8	202	64.1	55.3 - 73	690	103.9	96.2 - 111.7
2002	405	113.1	102.1 - 124.1	195	62.1	53.4 - 70.8	600	89.3	82.1 - 96.4
2003	428	116.3	105.3 - 127.3	172	53.6	45.6 - 61.6	600	87.2	80.2 - 94.2
2004	367	98.7	88.6 - 108.7	144	44.2	37 - 51.4	511	73.2	66.9 - 79.6
2005	354	93.4	83.7 - 103.1	157	47.3	39.9 - 54.7	511	71.9	65.6 - 78.1
2006	360	95.5	85.6 - 105.4	133	39.5	32.8 - 46.2	493	69.0	63.0 - 75.1
2007	374	99.2	89.1 - 109.3	138	41.4	34.5 - 48.4	512	72.1	65.9 - 78.4

Source: NH Health Statistics and Data Management Section, NH Inpatient Hospital Discharge Data
n = number of hospitalizations
*Crude rate per 100,000 NH employees age 16 years and older

Annual rate of inpatient hospitalizations for persons age 16 years and older, Expected payer workers' compensation, 2000–2007



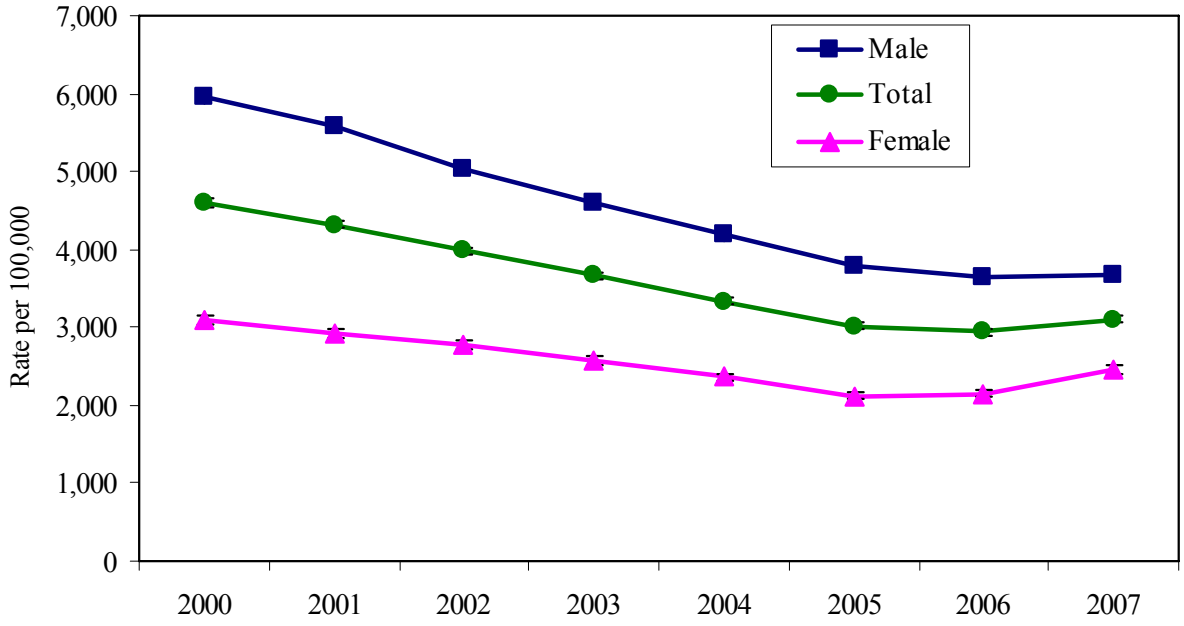
Emergency Department Discharge Data

Annual number and rate* of emergency department discharges for persons age 16 years and older, Expected payer workers' compensation, 2000–2007

	Male				Female				Total			
Year	n	*Rate	95% CI		n	*Rate	95% CI		n	*Rate	95% CI	
2000	20,991	5,963	5,883	- 6,044	9,687	3,085	3,024	- 3,146	30,678	4,606	4,555	- 4,658
2001	19,577	5,593	5,515	- 5,672	9,163	2,909	2,849	- 2,968	28,740	4,322	4,272	- 4,372
2002	18,058	5,044	4,971	- 5,118	8,729	2,780	2,722	- 2,838	26,787	3,986	3,938	- 4,034
2003	16,936	4,602	4,533	- 4,671	8,287	2,582	2,526	- 2,637	25,223	3,661	3,616	- 3,706
2004	15,573	4,186	4,121	- 4,252	7,687	2,358	2,305	- 2,411	23,260	3,332	3,290	- 3,375
2005	14,359	3,799	3,737	- 3,861	7,031	2,124	2,075	- 2,174	21,390	3,017	2,976	- 3,057
2006	13,786	3,657	3,596	- 3,718	7,245	2,150	2,100	- 2,199	21,031	2,946	2,906	- 2,985
2007	13,849	3,673	3,612	- 3,735	8,205	2,464	2,411	- 2,517	22,054	3,106	3,065	- 3,147

Source: NH Health Statistics and Data Management Section, NH Emergency Department Discharge Data
*Crude rate per 100,000 NH employees age 16 years and older
n = number of hospitalizations

Annual rate of emergency department discharges for persons age 16 years and older, Expected payer workers' compensation, 2000–2007



Total* Injury Hospital Discharges
Paid by Workers Compensation by Age Group, 2004 and 2008

*Total Emergency Department plus Inpatient Hospital Discharges
**2008 Emergency Department data is preliminary and subject to change.

Indicator 3: Fatal Work-Related Injuries

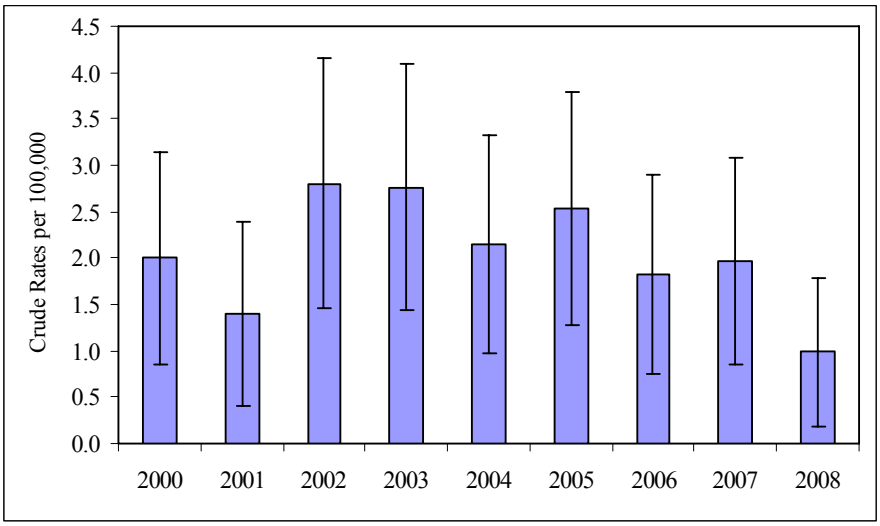
Introduction: New Hampshire workers die each year from injuries received at work or illnesses caused by the work environment. One death is too many. Data tracking the number of workplace deaths is from the Census of Fatal Occupational Injuries (CFOI) administered by the Bureau of Labor Statistics. CFOI gathers data for all states and is a reliable count (not estimate) of all traumatic injury deaths related to work. Most of these deaths are transportation related, or have occurred in the manufacturing, production/transportation and service industries.

Indicator #3: Fatal Work-Related Injuries
Numerator: Fatal Occupational Injuries as reported by the Bureau of Labor Statistics
Denominator: Employed persons age 16 years or older for the same calendar year
Measure: Annual crude death rate per 100,000 employed persons age 16 and older

Annual number and rate of fatal work-related injuries in NH, 2000–2008

Year	n	*Rate	95% CI		
2000	13	2.0	1.0	-	3.3
2001	9**	1.4	0.6	-	2.6
2002	19	2.8	1.7	-	4.4
2003	19	2.8	1.7	-	4.3
2004	15	2.1	1.2	-	3.5
2005	18	2.5	1.5	-	4.0
2006	13	1.8	1.0	-	3.1
2007	14	2.0	1.1	-	3.3
2008	7**	1.0	0.4	-	2.0

Annual rate of fatal work-related injuries in NH, 2000–2008



Source: Census of Fatal Occupational Injuries, Bureau of Labor Statistics, http://www.bls.gov/iif/oshstate.htm#NH Assessed on 2/14/2012
n = number of work-related fatalities
*Crude rate per 100,000 NH employees age 16 years and older
**Counts lower than 10 events do not produce statistically reliable rates

Indicators 4-5: (Modified) Work-Related Amputations

Introduction: Data for work-related amputations with days away from work is not available through the U.S. Bureau of Labor Statistics as recommended for the construction of this indicator. In addition, data collected in the New Hampshire Workers' Compensation System on cases with days away from work are not currently available. Since the denominator of the number of full-time equivalent (FTE) employees is not available, rates cannot be generated.

As an alternate way of enumerating the number of work-related, non-fatal, amputations in New Hampshire, hospital inpatient and Emergency Department (ED) discharge data were used. The ICD-9 diagnosis codes selected to define amputations are between 885 and 88799 for arm/hand/finger/thumb or between 895 and 89779 for leg/foot/toe. Principle Diagnosis and all Secondary Diagnosis Fields were used in this query.

Of the 328 total of inpatient and ED discharges between 2002 and 2007, over 80% of the amputations were fingers, and over 13% were thumbs. Total discharges for work-related amputations between year groupings 2002–2004 and 2005–2007 did not show a statistically significant change.

Number and percent of patients, who arrived at the hospital with an amputated appendage. Expected payer workers' compensation, 2002–2007

Year group	2002–2004			2005–2007		
Amputation of…	n	Percent	95% CI	Count	Percent	95% CI
Arm above elbow	1	0.6	0.0 - 3.2	0		-
Arm below elbow	2	1.1	0.1 - 4.1	0		-
foot	0		-	1	0.7	0.0 - 3.7
toe	3	1.7	0.4 - 5.0	1	0.7	0.0 - 3.7
thumb	28	15.9	10.6 - 23.0	21	13.8	8.6 - 21.1
finger	142	80.7	67.4 - 94.0	129	84.9	70.2 - 99.5
Grand total	**176**			**152**		

Indicator #4-5, Modified: Work-Related Amputations
Numerator: Hospital discharges who arrived at hospital with amputated appendage, with primary payer coded as workers' compensation
Denominator: Employed persons age 16 years or older for the same calendar year
Measure: Annual crude rate per 100,000 employed persons age 16 and older
Excluded: Patients with other injuries that later required an amputation

Annual number and rate of patients, who arrived at the hospital with an amputated appendage, Expected payer workers' compensation, 2000–2007

	Emergency department discharges			Inpatient hospitalization discharges		
Year	n	*Rate	95% CI	n	*Rate	95% CI
2000	72	10.8	8.5 - 13.6	6**	0.9	0.3 - 2.0
2001	54	8.1	6.1 - 10.6	4**	0.6	0.2 - 1.5
2002	57	8.5	6.4 - 11.0	0	0.0	0.0 - 0.0
2003	53	7.7	5.8 - 10.1	4**	0.6	0.2 - 1.5
2004	61	8.7	6.7 - 11.2	2**	0.3	0.0 - 1.0
2005	63	8.9	6.8 - 11.4	1**	0.1	0.0 - 0.8
2006	36	5.0	3.5 - 7.0	1**	0.1	0.0 - 0.8
2007	48	6.8	5.0 - 9.0	2**	0.3	0.0 - 1.0

Source: NH Health Statistics and Data Management Section, NH Emergency Department and Inpatient Discharge Data
n = number of hospitalizations, out-of-state hospitalizations included
*Crude rate per 100,000 NH employees age 16 years and older
**Counts lower than 10 events do not produce statistically reliable rates

There is no graph shown for the above data because there were no statistically significant differences between years.

Indicator 6: (Modified) Hospitalizations for Work-Related Burns

Introduction: Work-related burns are not only extremely painful but also result in large amounts of lost work time. Hospital discharge data are useful to estimate the number of hospitalized burns in New Hampshire. Cases are identified by using standard diagnosis codes for burns with those injuries where the expected payer is workers' compensation. Benefit adequacy of the state workers' compensation program may influence the proportions of hospitalizations paid for by the workers' compensation program.

The CSTE recommendations for this indicator exclude out-of-state hospitalizations. For this indicator, out-of-state inpatient hospitalizations of New Hampshire residents were included because New Hampshire is a small state. Hospitals with specialized burn units are close to its borders. Many serious burns would be transported to these hospitals even if the injury occurred in New Hampshire.

Indicator #6: Hospitalizations for Work-Related Burns
Numerator: Hospital discharges with primary diagnosis of burn injury (ICD-9 code between 940 and 94999) and with primary payer coded as workers' compensation.
Denominator: Employed persons age 16 years or older for the same calendar year
Measure: Annual crude rate per 100,000 employed persons age 16 and older
Exclude: Unknown age, out-of-state residents, and out-of-state hospitalizations, secondary diagnosis

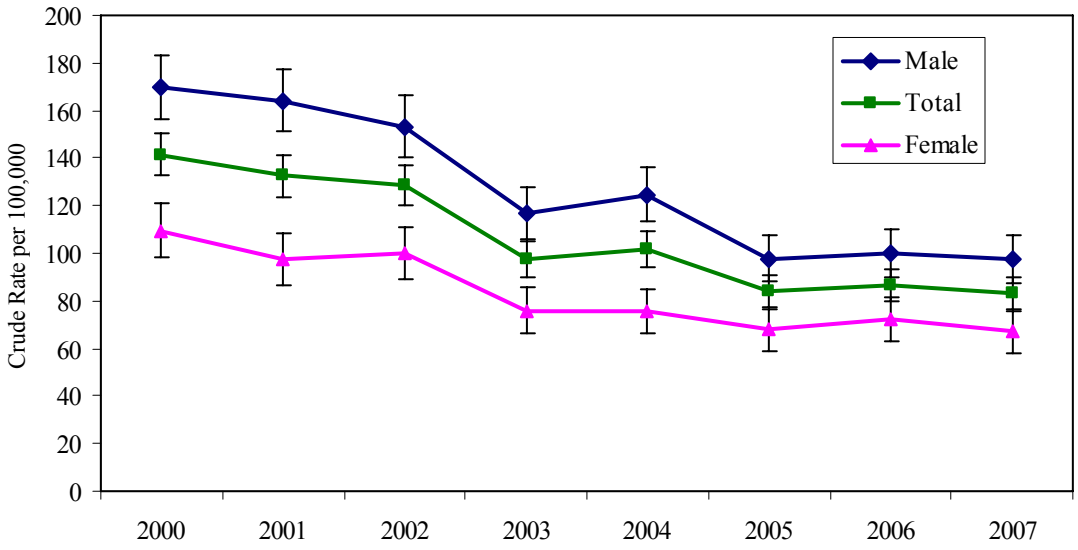
Annual number and crude rate of NH employees, hospitalizations for burns, Expected payer workers' compensation paid, 2000–2007

	Emergency Department Discharges					Inpatient Hospitalization Discharges				
Year	n	*Rate	95% CI			n*	*Rate	95% CI		
2000	942	141.4	132.4	-	150.5	8**	1.2	0.5	-	2.4
2001	882	132.6	123.9	-	141.4	9**	1.4	0.6	-	2.6
2002	863	128.4	119.9	-	137.0	16	2.4	1.4	-	3.9
2003	673	97.7	90.3	-	105.1	16	2.3	1.3	-	3.8
2004	710	101.7	94.2	-	109.2	8**	1.1	0.5	-	2.3
2005	595	83.9	77.2	-	90.7	9**	1.3	0.6	-	2.4
2006	619	86.7	79.9	-	93.5	20	2.8	1.7	-	4.3
2007	590	83.1	76.4	-	89.8	12	1.7	0.9	-	3.0

Source: NH Health Statistics and Data Management Section, NH Inpatient and Emergency Department Hospital Discharge Data
n = number of hospitalizations
n*= out-of-state inpatient hospitalizations included
*Crude rate per 100,000 NH employees age 16 years and older
**Counts lower than 10 events do not produce statistically reliable rates

Only the crude rates for emergency department discharges are shown in the graph below because there are no statistically significant changes in the inpatient discharge rates.

Annual rate of emergency department discharges for persons age 16 years and older for burns, Expected payer workers' compensation, 2000–2007



Indicator 7: Work-Related Musculoskeletal Disorders With Days Away from Work Reported by Employers

Introduction: Work-related musculoskeletal disorders 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. These data are collected via the U.S. Bureau of Labor Statistics (BLS) annual survey of occupational injury and illness (SOII).[9] Because of financial/resource limitations, New Hampshire does not participate in SOII so there are no data for evaluation of this indicator.

Indicator 8: Carpal Tunnel Syndrome Cases Filed with State Workers' Compensation System

Introduction: The New Hampshire Workers' Compensation System collects these data but carpal tunnel syndrome cases with days away from work are not currently available (see Indicator 19 Workers' Compensation Awards on page 30).

[9] Available from http://www.bls.gov/respondents/iif/

Indicator 9: Hospitalizations for Pneumoconiosis (Asbestosis)

Introduction: Asbestos is known to cause significant lung disease. A common disease resulting from asbestos exposure is asbestosis, a condition in which there is reduction in an individual's lung capacity. Asbestosis is one of many occupational lung diseases caused by dust exposure. These dust-related lung diseases are commonly referred to as 'pneumoconiosis.' In New Hampshire. the most common pneumoconiosis is asbestosis. Measuring morbidity and mortality from asbestosis is related to capturing hospitalizations with asbestosis (Indicator 9) and deaths with asbestosis (Indicator 10). There is a long interval between asbestos exposure and the occurrence of lung disease; therefore, rate trends may reflect exposure controls implemented 20 or more years ago.

Indicator #9: Hospitalizations from or with Pneumoconiosis
Numerators: All Hospital Discharges with primary or contributing (secondary) diagnosis of the following:
1. Total Pneumoconiosis, ICD9 Code: between 500.0 and 505.9
2. Coal workers' pneumoconiosis, ICD9 Code: 500
3. Asbestosis, ICD9 Code: 501
4. Silicosis, ICD9 Code: 502
5. Other and Unspecified pneumoconiosis, ICD9 Codes: Between 503 and 505.99

Denominator: Resident population age 15 years and older per calendar year
Measure of Frequency:
1. Annual number of hospitalizations, NH residents
2. Annual crude rate per 100,000 resident population 15 year old and older

Note: The parameter of primary payer being workers' compensation is not included. Out-of-State hospitalizations excluded.

Number inpatient discharges from or with pneumoconiosis

	2000	2001	2002	2003	2004	2005	2006	2007
1. Inpatient total pneumoconiosis	69	63	95	102	88	86	70	81
2. Inpatient coal workers' pneumoconiosis	4	8	6	12	4	6	2	2
3. Inpatient asbestosis	63	52	76	76	77	75	67	73
4. Inpatient silicosis	2	1	13	10	7	3	1	6
5. Inpt other and unspecified pneumoconiosis	0	2	0	4	0	2	0	0

Number emergency department discharges from or with pneumoconiosis

	2000	2001	2002	2003	2004	2005	2006	2007
1. ED total pneumoconiosis	27	36	45	40	43	37	27	30
2. ED coal workers' pneumoconiosis	2	2	2	0	3	3	2	0
3. ED asbestosis	24	34	43	39	40	31	24	30
4. ED silicosis	1	0	0	1	1	3	1	0
5. ED other and unspecified pneumoconiosis	0	0	0	0	0	1	0	0

Rate of hospital discharges from or with pneumoconiosis

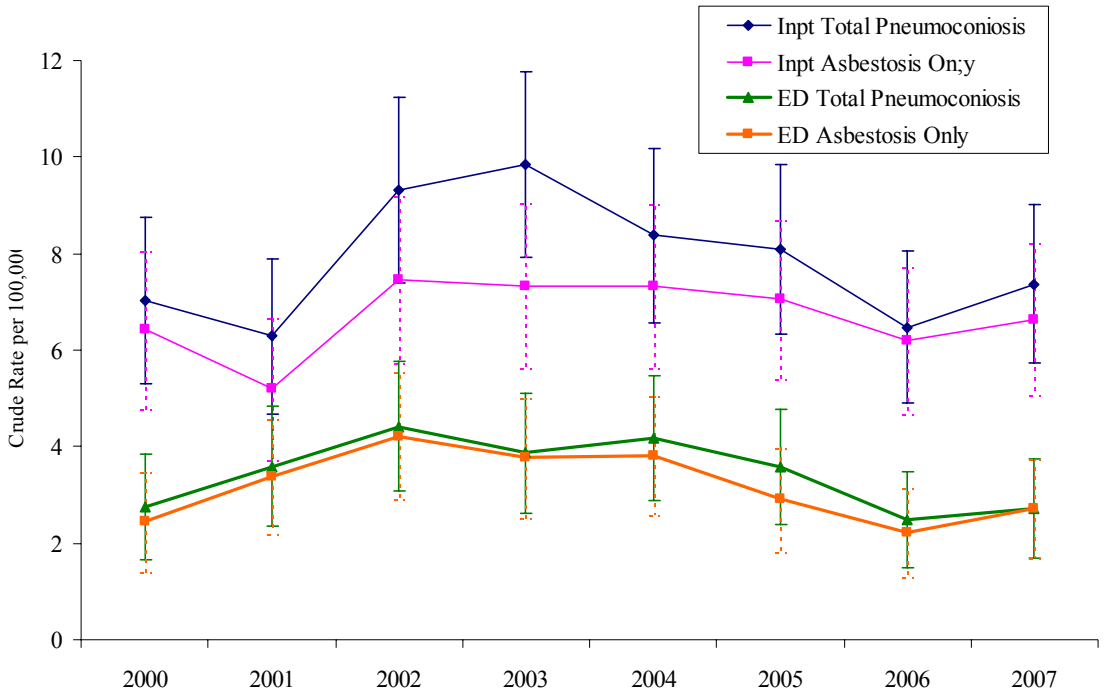
	Inpatient hospital discharges					Emergency department hospital discharges				
Year	n	*Rate	95% CI			n	*Rate	95% CI		
2000	69	7.0	5.5	-	8.9	27	2.7	1.8	-	4.0
2001	63	6.3	4.8	-	8.0	36	3.6	2.5	-	5.0
2002	95	9.3	7.5	-	11.4	45	4.4	3.2	-	5.9
2003	102	9.8	7.9	-	11.8	40	3.9	2.8	-	5.3
2004	88	8.4	6.7	-	10.3	43	4.2	3.0	-	5.6
2005	86	8.1	6.5	-	10.0	37	3.6	2.5	-	4.9
2006	70	6.5	5.0	-	8.2	27	2.5	1.6	-	3.6
2007	81	7.4	5.9	-	9.2	30	2.7	1.8	-	3.9

Rate of hospital discharges from or with asbestosis

	Inpatient hospital discharges					Emergency department hospital discharges				
Year	n	*Rate	95% CI			n	*Rate	95% CI		
2000	63	6.4	4.9	-	8.2	24	2.4	1.6	-	3.6
2001	52	5.2	3.9	-	6.8	34	3.4	2.4	-	4.7
2002	76	7.5	5.9	-	9.3	43	4.2	3.1	-	5.7
2003	76	7.3	5.8	-	9.2	39	3.8	2.7	-	5.1
2004	77	7.3	5.8	-	9.2	40	3.8	2.7	-	5.2
2005	75	7.0	5.5	-	8.8	31	2.9	2.0	-	4.1
2006	67	6.2	4.8	-	7.9	24	2.2	1.4	-	3.3
2007	73	6.6	5.2	-	8.4	30	2.7	1.8	-	3.9

Source: NH Health Statistics and Data Management Section, NH Inpatient and Emergency Department Hospital Discharge Data
n = number of hospitalizations of New Hampshire residents
*Crude rate per 100,000 NH resident population age 15 years and older per calendar year

Total pneumoconiosis and asbestosis, hospital discharges, NH residents, 2000–2007



There are no statistically significant changes from year to year in the rate of hospitalizations for total pneumoconiosis or asbestosis. Between 2003 and 2007, total inpatient and emergency department discharges for pneumoconiosis cases, 95% are males. Totaling males and females for the same period, 85% of the cases are 65 years old or older, and 15% are between 35 and 64 years old, less than 1% are ages 15 to 34 years.

Indicator 10: Mortality from or with Pneumoconiosis

New Hampshire's data between 2000 and 2007 show there is no statistically significant difference in pneumoconiosis deaths. Since the numbers are too small to generate statistically significant rates, we cannot report if the rate of death is increasing or decreasing. No graph is provided for the table below because the rates are not significantly different between years. Pneumoconiosis has a long latency period. People suffering from this health condition may have been exposed many years ago.

Indicator #10: Mortality from or with Pneumoconiosis
Numerator: Deaths with ICD10 Codes between J60 and J66.9
Denominator: Resident population age 15 years and older per calendar year
Measures of Frequency: Annual number of deaths and Annual Crude Rate per 100,000 residents

Annual death count and rate of NH residents, age 15 years and older, from or with pneumoconiosis, 2000–2007

Year	**n	*Rate	95% CI
2000	6	0.6	0.2 - 1.3
2001	6	0.6	0.2 - 1.3
2002	6	0.6	0.2 - 1.3
2003	7	0.7	0.3 - 1.4
2004	5	0.5	0.2 - 1.1
2005	9	0.8	0.4 - 1.6
2006	2	0.2	0.0 - 0.7
2007	6	0.5	0.2 - 1.2

Source: NH Vital Records, NH Health Statistics and Data Management Section, Death Certificate Data
n = number of work-related fatalities
*Crude rate per 100,000 NH resident population age 15 years and older per calendar year
**Counts lower than 10 events do not produce statistically reliable rates

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

Introduction: Pesticides are workplace chemicals purposely designed to harm certain life forms. Hence, the active ingredients can pose risk of an acute exposure if not carefully applied. Pesticide-associated calls to poison control centers (PCCs) give counts of the types of pesticides involved in workplace exposures. However, PCC calls are thought to capture only a small percentage of actual exposures, and generally do not record any long-range symptoms or health effects. The NIOSH/AAPCC (American Association of Poison Control Centers) criteria classifies as 'pesticides' certain disinfectants, fungicides, fumigants, herbicides, insecticides, repellents, and rodenticides. While PCCs capture the types and active ingredients of a pesticide, the circumstance, occupation, and business and industrial identification associated with a call are not systematically known.

Indicator #11: Incidence of Acute Work-Related Pesticide-Associated Illness and Injury Reported to Poison Control Centers
Numerator: Reported cases of work-related pesticide poisoning
Denominator: Employed persons age 16 years and older for the same calendar year
Measures of Frequency:
1. Annual number of reported cases of work-related pesticide poisoning (numerator)

2. Annual incidence rate of reported cases of work-related pesticide poisoning per 100,000 employed persons age 16 years or older

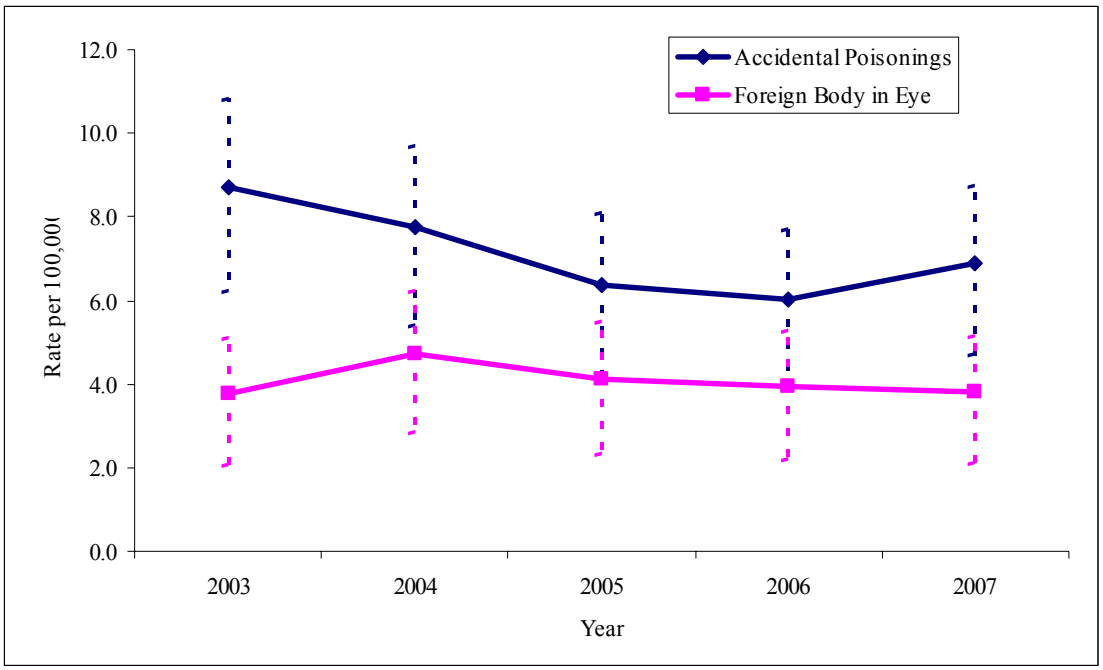
New Hampshire occupational pesticide cases 2000–2009

Year	n	*Rate
2000	12	1.80
2001	9**	1.36
2002	18	2.68
2003	7**	1.02
2004	14	2.00
2005	3**	0.42
2006	7**	0.98
2007	8**	1.11
2008	7**	0.98
2009	5**	0.72

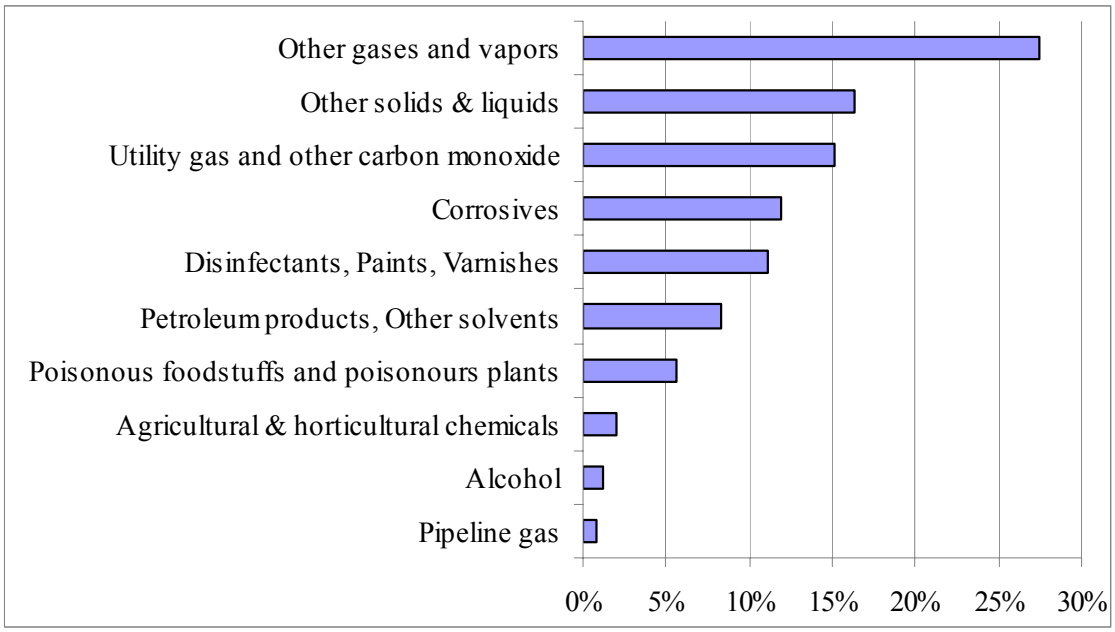
Source: Bureau of Labor Statistics
N = Number of work-related poisonings reported to poison control center
*Crude rate per 100,000 NH employees age 16 years and older
**Counts lower than 10 events do not produce statistically reliable rates

In addition to the indicator for pesticide poisoning using data form the poison control center, below are data on hospital discharges for patients with poisoning that were paid by workers' compensation. Foreign body in the eye was most often a chemical exposure.

New Hampshire hospital discharge rates (ED and inpatient), accidental poisonings and foreign body in the eye, workers' compensation as expected payer



Hospitalizations caused by accidental poisonings, workers' compensation as expected payer
Years 2003–2007 (n = 251)



Indicator 12: Incidence of Malignant Mesothelioma

Introduction: Malignant mesothelioma, while relatively rare, is a fatal cancer largely attributable to workplace exposures to asbestos. Tracking 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 of asbestos exposure.

In New Hampshire, counts per year by gender are too small and produce unreliable rates. Only the Crude Incidence Rate for the total incidences by year is shown in the graph below. The total rate has not significantly changed from year to year. Even the total numbers are small and may not produce reliable, statistically significant rates. No graph is provided for the table below because the rates are not significantly different between years. Mesothelioma has a long latency period (10–20 years) so current rates may not be indicative of current exposures and it may be many years before reductions in occupational exposures affect the rates of mesothelioma in New Hampshire.

Indicator #12: Incidence of Malignant Mesothelioma
Numerator: Incident Cases with Mesothelioma (from the New Hampshire Cancer Registry)
Denominator: Resident population age 15 years and older per calendar year
Measures of Frequency: Annual number of deaths and Annual Crude Rate per 100,000 residents

Annual count and rate per 100,000 NH residents, age 15 years and older, with malignant mesothelioma, 2000–2008

Year	n	*Rate	95% CI		
2000	18	1.8	1.1	-	2.9
2001	14	1.4	0.8	-	2.3
2002	13	1.3	0.7	-	2.2
2003	14	1.4	0.7	-	2.3
2004	18	1.7	1.0	-	2.7
2005	11	1.0	0.5	-	1.9
2006	15	1.4	0.8	-	2.3
2007	22	2.0	1.3	-	3.1
2008	22	2.0	1.3	-	3.1

Source: NH Health Statistics and Data Management Section, Cancer Registry Data
n = number of Mesothelioma cases
*Crude rate per 100,000 NH employees age 15 years and older
**Counts lower than 10 events do not produce statistically reliable rates

Indicator 13: Elevated Blood Lead Levels among Adults

Introduction: Lead poisoning among adults is primarily due to occupational or hobby-related exposure. Lead adversely affects multiple organ systems and can cause permanent damage. Exposure to lead in adults can cause anemia, nervous system dysfunction, kidney damage, hypertension, decreased fertility, and miscarriage. Workers bringing lead dust home on their clothing can expose their children to lead. The blood lead level (BLL) is the best biological indicator of recent lead exposure. A BLL of 25 micrograms per deciliter (µg/dL) or greater for adults is considered "elevated." The Federal Occupational Safety and Health Administration (OSHA) requires that employers regularly monitor the BLLs of workers where airborne lead in the workplace exceeds certain levels. When a worker's BLL is 40 µg/dL or greater, the employer is required to offer an annual medical exam and other medical interventions, depending on the BLL. However, adverse health effects have been found with cumulative exposure at BLLs lower than 40 µg/dL29 and 25 µg/dL. The average BLL for the general population is less than 2 µg/dL. Individuals with ongoing elevated BLLs are at greater risk for adverse health effects and are an indication that long-term airborne lead exposure continues to be a problem in lead industries.

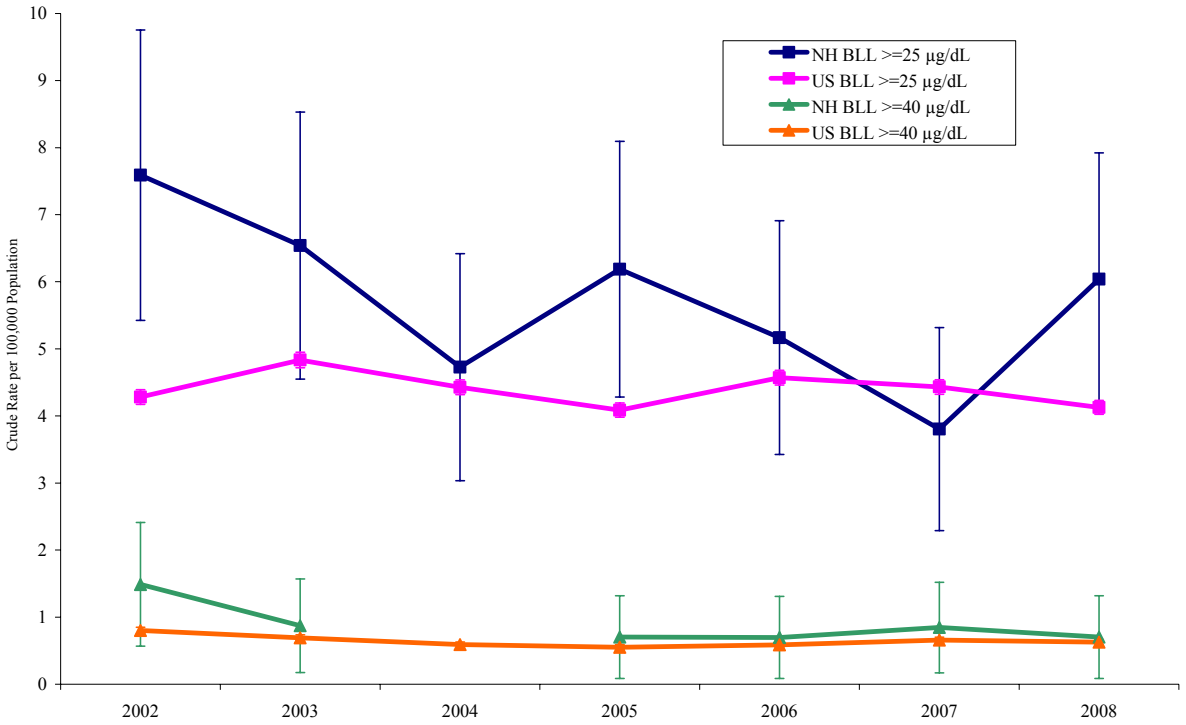
Indicator #13: Elevated Blood Lead Levels among Adults
Numerator: Annual number of residents with elevated blood lead levels
1. All reported state residents age 16 years or older, with a blood lead level of > 25 µg/dL due to occupation
2. All reported state residents age 16 years or older, with a blood lead level of > 40 µg/dL due to occupation
Denominator: Employed population age 16 years or older for the same calendar year
Measures of Frequency: Annual prevalence rate per 100,000 employed persons age 16 years or older

Annual prevalence count and rate of elevated blood lead levels per 100,000 employed workers, age 16 years and older, New Hampshire, 2002–2008

	BLL >= 25 mcg/dL			BLL>= 40 mcg/dL		
Year	**n**	**Rate**	**95% CI**	**n**	**Rate**	**95% CI**
2002	51	7.6	5.7 - 10.0	10	1.5	0.6 - 2.4
2003	45	6.5	4.8 - 8.8	6**	0.9	0.2 - 1.6
2004	33	4.7	3.3 - 6.6	0		-
2005	44	6.2	4.5 - 8.3	5**	0.7	0.1 - 1.3
2006	37	5.2	3.6 - 7.1	5**	0.7	0.1 - 1.3
2007	27	3.8	2.5 - 5.5	6**	0.8	0.2 - 1.5
2008	43	6.0	4.4 - 8.1	5**	0.7	0.1 - 1.3

Source: http://www.cdc.gov/niosh/topics/ABLES/ables.html
**Counts lower than 10 events do not produce statistically reliable rates

Prevalence rate of blood lead levels >=25 mcg/dL and >=40 mcg/dL in Employed persons aged 16 years and older in New Hampshire and the United States, 2002–2008



The graph and tables above show the prevalence rates of elevated blood lead levels due to occupation. As part of a contract with the National Institute of Occupational Safety and Health (NIOSH), the New Hampshire Adult Blood Lead Epidemiology and Surveillance program follows up with healthcare providers of cases to determine if the lead exposure was occupational or non-occupational.

Technical Note:
A prevalent case is a person reported at least once in the calendar year with a BLL ≥ 25 µg/dL (or 40 µg/dL).

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

In New Hampshire, there were 28,389 workers employed in industries with a high risk for occupational morbidity in 2005. That is 5% of the workforce in New Hampshire. In 2008, there were 35,548 workers employed in industries with a high risk for occupational morbidity. That is 6% of the workforce in New Hampshire.

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

In New Hampshire, there were 73,156 workers employed in occupations with a high risk for occupational morbidity in 2005. That is 10.5% of the workforce in New Hampshire. In 2008, there were 53,762 workers employed in occupations with a high risk for occupational morbidity. That is 10% of the workforce in New Hampshire.

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

Introduction: In New Hampshire, there were 78,735 workers employed in industries with a high risk for occupational mortality in 2008. That is 12.7% of the workforce in New Hampshire. Occupations with high risk of mortality employed 47,194 workers in 2008. That is 7.6% of the workforce in New Hampshire. All four of these indicators are independent of each other. So, for example, a secretary who works in the logging industry would be counted as working in a high risk industry for mortality even though this person is at low risk of mortality from an occupational standpoint. The same is true for occupations.

Indictors 14–16, New Hampshire workers employed in occupations and industries with high risk of morbidity or mortality, 2008

New Hampshire workers employed in…	2005 n	Percent	2008 n	Percent
Indicator #14: Industries with High Risk for Occupational Morbidity	28, 389	5.0%	35,548	6.0%
Indicator #15: Occupations at High Risk for Occupational Morbidity	73, 156	10.2%	53,726	10.0%
Indicator #16: Industries with High Risk for Occupational Mortality	88, 586	12.4%	78,735	12.7%
Indicator #16: Occupations at High Risk for Occupational Mortality	58, 826	8.2%	47,194	7.6%

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

Indicator 17: Occupational Safety and Health Professionals

Introduction: Physicians with training and/or special interest in occupational medicine provide primary, secondary, and tertiary occupational health preventative services. In 1989, the American Medical Association recommended that there be one physician per 1,000 employees. Occupational health nurses provide a great deal of 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.

Occupational safety and health professionals New Hampshire 2008

Professional Organization	Members	*Rate
American Board of Preventive Medicine	11	1.5
American College of Occupational and Environmental Medicine	16	2.2
American Board of Occupational Health Nurses	55	7.7
American Association of Occupational Health Nurses	68	9.6
American Board of Industrial Hygiene	37	5.2
American Industrial Hygiene Association	29	4.1
Board Certified Safety Health Professionals	81	11.4
American Society of Safety Engineers	205	28.8
Total	502	70.5

Source: CSTE and BLS, *Crude Rate per 100,000 Employed People 16+ years old

Indicator 18: OSHA Enforcement Activities

Introduction: In 1970, Congress established the Occupational Safety and Health Administration (OSHA). The OSHA mission is to "assure so far as possible every working man and woman in the nation safe and healthful working conditions." This mandate involves the application of a set of tools by OSHA (e.g., standards development, enforcement, compliance assistance). OSHA conducts both referral and non-referral inspections on work sites. Work sites are selected into an emphasis program for non-referred inspections, randomly and on the basis of industry incidence rates of injuries. Investigations are inspections triggered by three events: fatality, catastrophe, or referral (including outside health/safety agency or media). All of the above on-site activities are called inspections for statistical databases. Comprehensive information about inspections is found in the OSHA Field Inspection Reference Manual CPL 2.103.[10]

Estimated annual number and percentage of private sector establishments and employees in New Hampshire inspected under OSHA jurisdiction 2000–2008

Year	Number of Inspections	Number of Establishments	Percent of Establishments Inspected	Number of Employees Inspected	Number of Employees Under OSHA Jurisdiction	Percent of Employees Inspected
2000	323	44,001	0.73	11,876	529,654	2.24
2001	304	44,032	0.69	9,269	530,972	1.74
2002	371	43,829	0.85	10,228	521,454	1.96
2003	455	44,230	1.03	13,732	520,458	2.63
2004	359	45,383	0.79	7,390	536,129	1.38
2005	344	45,693	0.76	7,397	542,816	1.36
2006	526	46,589	1.13	12,320	548,226	2.25
2007	515	47,085	1.10	12,896	550,481	2.34
2008	346	47,355	0.73	7,532	548,316	1.37

Source: OSHA inspection data and Bureau of Labor Statistics

[10] Available on the OSHA website http://osha.gov/Firm_toc_by_sect.html

Indicator 19: Workers' Compensation Awards (Modified)

Introduction: In 2008, workers' compensation awards to injured New Hampshire employees totaled $239,290,000. That is an average cost of $385 per covered New Hampshire employee. The benefits include payments for medical care and wage-replacement to workers or their surviving dependants. The number of workers covered by workers' compensation insurance has increased and while the frequency of claims has declined, the medical and wage-replacement costs per worker have increased, assuring continued economic impact of work-related injuries and illnesses on workers and employees.[11]

Total Injuries Reported to New Hampshire Workers' Compensation, Fiscal Year 2001–2011

Injuries reported to the Department of Labor increased to 39,954 in FY 2011 with an incidence rate of 6.3. The table and graph below represent the overall decrease in the incidence rate of injuries reported over the past 11 years. There is a statistically significant decrease in reported injuries between 2001 and 2006. Between 2006 and 2008 the rate remained stable at 7.3. There has not been a statistically significant rate decrease since 2009.

The pattern of incidence rates of lost time cases consistently decreased between fiscal years 2001–2009. The rate remained stable in FY2008 and 2009 at 0.56. The rate then increased in 2010 to 0.62 and decreased in 2011 to 0.60[12]

Injury rate from the New Hampshire Department of Labor, 56th to 59th biennial reports

Reported injuries						Compensable disabilities	
Fiscal year	Injuries reported	Non-agricultural employees	*Rate	Lower 95% CI	Upper 95% CI	Lost time	*Rate
2001	57,077	628,450	9.1	9.0	9.2	5,289	0.84
2002	52,765	620,800	8.5	8.4	8.6	4,665	0.75
2003	52,366	617,775	8.5	8.4	8.5	4,650	0.75
2004	50,334	620,508	8.1	8.0	8.2	3,916	0.63
2005	47,711	632,783	7.5	7.5	7.6	3,733	0.59
2006	46,473	638,425	7.3	7.2	7.3	3,644	0.57
2007	46,832	642,408	7.3	7.2	7.4	3,543	0.55
2008	46,921	644,442	7.3	7.2	7.3	3,574	0.56
2009	42,184	654,008	6.5	6.4	6.5	3,860	0.56
2010	39,399	623,300	6.3	6.3	6.4	3,863	0.62
2011	39,954	631,200	6.3	6.3	6.4	3,810	0.60

Source: New Hampshire Department of Labor, 56th to 59th Biennial Reports
*Incidence rates are per 100 employees.

[11] Sengupta, I., Reno V, Burton JF., *Workers Compensation: Benefits, Coverage, and Costs, 2008, September 2010*, National Academy of Social Insurance.

[12] State of New Hampshire, Department of Labor, Data for FY2001 to FY2004 are from the "56th Biennial Report, July 1, 2003-June 30, 2005." November 2005. Data for FY2005 and FY2006 are from the "57th Biennial Report, July 1, 2005-June 30, 2007." November 2007. Data for FY2007 to FY 2011 are from the "59th Biennial Report, July 1, 2009 -June 30, 2011." December 2011.

Total annual worker's compensation benefit paid out for direct losses in New Hampshire, 1997–2010

Year	Total Paid Out
1997	$149,252,541
1998	$146,366,459
1999	$155,752,534
2000	$157,765,656
2001	$171,805,723
2002	$173,592,437
2003	$181,268,664
2004	$176,355,359
2005	$178,870,260
2006	$179,237,459
2007	$175,263,530
2008	$196,043,393
2009	$194,768,531
2010	$198,794,947

Source: New Hampshire Department of Labor, 56th to 59th Biennial Reports

Injuries Reported to New Hampshire Worker's Compensation, 2001–2011

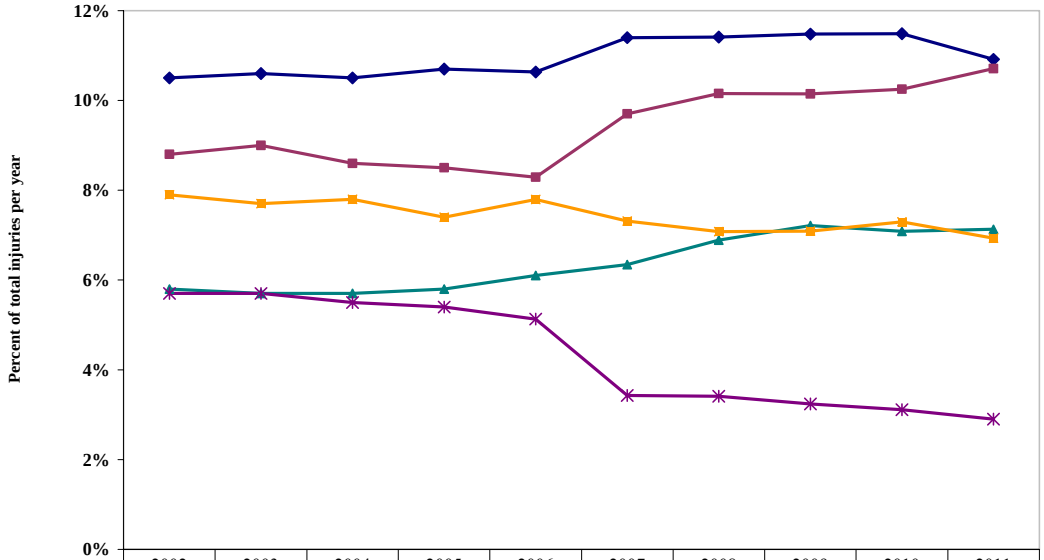
The following information includes statistics developed from the First Reports of Injury (FROI) received from employers. These reports must be sent in within 5 days of the employer receiving notice of the injury. The number of "unknown outcome" in the third report is large since the employer may not know the outcome at the time of completing the report.[13]

Injuries reported to the Department of Labor decreased to 39,399 in FY 2010 with a low incidence rate of 6.3. In FY 2011, the number of injuries reported was 39,950 with an incidence rate of 6.3**.** The chart below represents a decrease in the incidence rate of injuries reported over the past 5 years with a decrease in non-agricultural employment in fiscal year 2010. The pattern of incidence rates of lost time cases seems to be consistent over the period of the last five fiscal years, which is reflected in the section below. In FY 2010, there were 3,863 injuries that represented cases where the employee was disabled from work or out of work due to their injury for four or more days. There were 3,810 lost time cases in FY 2011.

The graphs below show the percent of total injuries for the top 5 body parts and causes and outcomes of injury. When "other, unknown, or not applicable" ended up in the top five, the next identifiable item was selected from the list. Those unidentified categories are usually a compilation of several less significant injury causes or outcomes. There were changes made to the data collection and coding system between 2006 and 2007, which most likely accounts for the sharp variations in rates.
For more detailed information, refer to the NH Department of Labor Biennial Reports that can be found on the internet at: http://www.labor.state.nh.us/BiennialRpt.pdf.

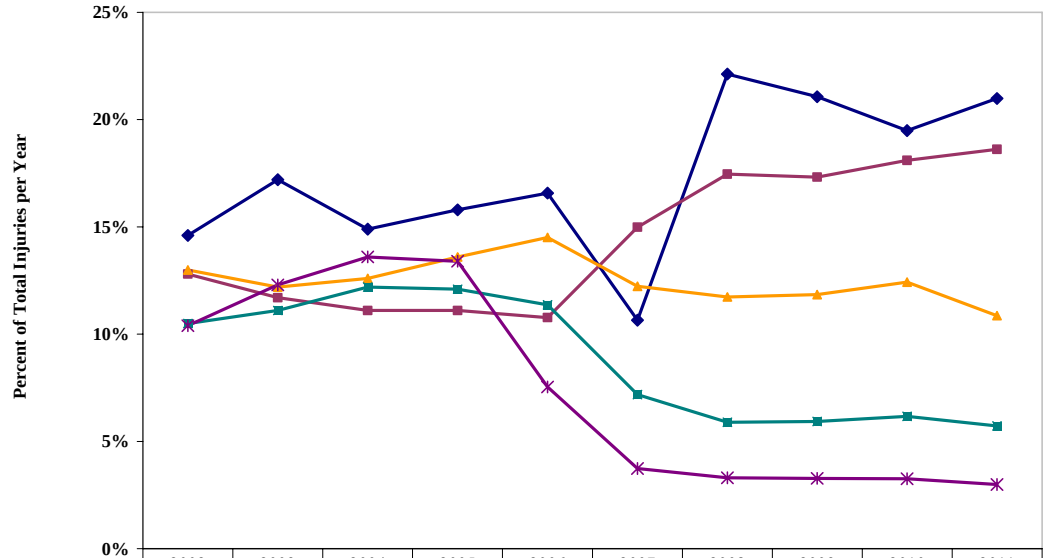
[13] State of New Hampshire, Department of Labor, Biennial Reports, http://www.labor.state.nh.us/BiennialRpt.pdf

Top 5 body parts injured, annual percent of total injuries reported, 2002–2011



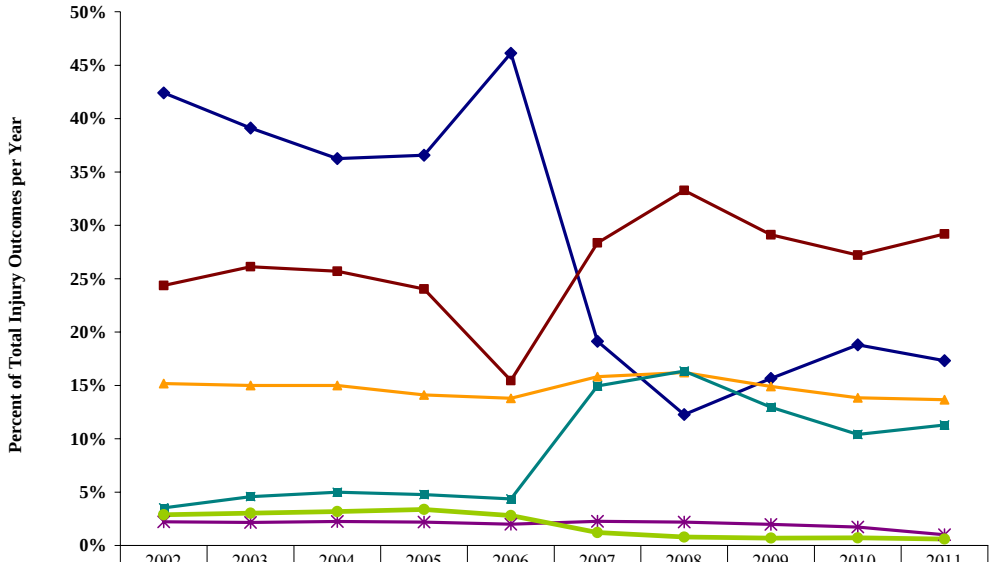
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Finger	10.5%	10.6%	10.5%	10.7%	10.6%	11.4%	11.4%	11.5%	11.5%	10.9%
Lower Back	8.8%	9.0%	8.6%	8.5%	8.3%	9.7%	10.2%	10.1%	10.3%	10.7%
Knee	5.8%	5.7%	5.7%	5.8%	6.1%	6.3%	6.9%	7.2%	7.1%	7.1%
Hand	7.9%	7.7%	7.8%	7.4%	7.8%	7.3%	7.1%	7.1%	7.3%	6.9%
Back	5.7%	5.7%	5.5%	5.4%	5.1%	3.4%	3.4%	3.2%	3.1%	2.9%

Top 5 causes of injury, annual percentage of total injuries reported, 2002–2011



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Slip or Fall	14.6%	17.2%	14.9%	15.8%	16.6%	10.7%	22.1%	21.1%	19.5%	21.0%
Lifting Action	12.8%	11.7%	11.1%	11.1%	10.8%	15.0%	17.5%	17.3%	18.1%	18.6%
Hit by Object	13.0%	12.2%	12.6%	13.6%	14.5%	12.2%	11.7%	11.8%	12.4%	10.9%
Sharp Object	10.5%	11.1%	12.2%	12.1%	11.4%	7.2%	5.9%	5.9%	6.2%	5.7%
Twist	10.4%	12.3%	13.6%	13.4%	7.5%	3.7%	3.3%	3.3%	3.3%	3.0%

Top 5 outcomes of injury and unknown outcomes of injury, Annual percentage of total injuries reported, 2002–2011



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Unknown, N/A, Other	42%	39%	36%	37%	46%	19%	12%	16%	19%	17%
Muscle Pull/Strain	24%	26%	26%	24%	15%	28%	33%	29%	27%	29%
Cut or Puncture	15%	15%	15%	14%	14%	16%	16%	15%	14%	14%
Bruise	4%	5%	5%	5%	4%	15%	16%	13%	10%	11%
Burn	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%
Bites and/or Scratches	3%	3%	3%	3%	3%	1%	1%	1%	1%	1%

Indicator 20: Work-Related Low Back Disorder Hospitalizations

Introduction: Each year 15–20% of Americans report back pain, resulting in over 100 million workdays lost and more than 10 million physician visits. National Health Interview survey data estimates that two-thirds of all low back pain cases are attributable to occupational activities. The cost of back pain is also disproportionate, as it represents about 20% of workers' compensation claims, but nearly 40% of the costs. 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.[14]

This indicator has two measures: 1) Surgical low back disorder hospitalizations; and 2) all low back disorder hospitalizations. Initially surgical cases are identified. Then to obtain all low back disorder hospitalizations, non-surgical cases are identified and added to the surgical cases. Certain hospitalizations—those listed in Table 3—are excluded because the conditions are likely related to trauma or a non-occupational disease.

[14] http://www.cdc.gov/nchs/nhis/about_nhis.htm

Indicator #20: Work-Related Low Back Disorder Hospitalizations
Numerator: Hospital discharges for low back disorders with primary payer coded as workers' compensation.
Denominator: Resident population age 16 years and older per calendar year
Measure of Frequency:

1. Surgical Low Back Disorder: Annual number and rate of work-related surgical low back disorder hospitalizations for persons age 16 years or older.

ICD9 Codes:

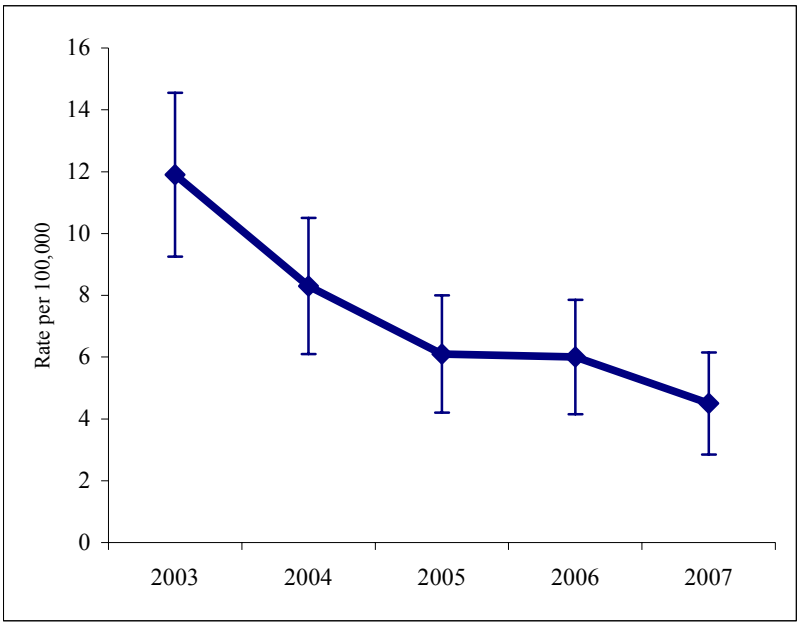
2. Low Back Disorders: Annual number and rate of work-related low back disorder hospitalizations for persons age 16 years or older

Annual number and crude rate of NH employees, hospitalizations for low back disorder, Expected payer workers' compensation, 2003–2008

	Non-Surgical			Surgical			Total		
Year	n	*Rate	95% CI	n	*Rate	95% CI	n	*Rate	95% CI
2003	13	1.9	1.0 – 3.2	82	11.9	9.5 – 14.8	95	13.8	11.2 – 16.9
2004	13	1.9	1.0 – 3.2	58	8.3	6.3 – 10.7	71	10.2	7.9 – 12.8
2005	13	1.8	1.0 – 3.1	43	6.1	4.4 – 8.2	56	7.9	6.0 – 10.3
2006	12	1.7	0.9 – 2.9	43	6.0	4.4 – 8.1	55	7.7	5.8 – 10.0
2007	9	1.3	0.6 – 2.4	32	4.5	3.1 – 6.4	41	5.8	4.1 – 7.8

Source: NH Health Statistics and Data Management Section, NH Inpatient Hospital Discharge Data
n = number of hospitalizations
*Crude rate per 100,000 NH employees age 16 years and older

Annual rate of NH employees, hospitalizations for low back disorder surgical procedures, Expected payer workers' compensation, 2003–2007



Between 2003 and 2007, surgical procedures of low back disorders declined significantly.

Conclusion and Recommendations

The indicators presented in this report provide an overview of the occupational health status of New Hampshire workers over a span of years. However, these data are far from complete and do not give a totally accurate picture of the true nature of occupational illnesses and injuries in New Hampshire. The trends suggest a decrease in many of the occupational injury and illness rates in New Hampshire, but due to chronic underreporting and lack of enforcement at the federal and state level, we are unable to document the true incidence and severity of the problem. Data are often unavailable to specifically identify the industries at highest risk and to document the type of industry or occupation a person might work in. Detailed information about subgroups of the working population at risk and how the injury occurred are also absent from these data systems. Information about less common injuries is poorly estimated.

Given what we do know, however, we can at least identify higher risk populations and industries to target for prevention measures. We must be proactive as industries and jobs change in our State and vigilant in collecting accurate, timely and meaningful data to better inform our intervention efforts. We will continue to collaborate with our partners and key stakeholders to ensure that resources continue to be invested in occupational health surveillance at the state level.

Data Source Descriptions

Hospital Discharge Data (Inpatient and Emergency Department): Health Statistics and Data Management Section (HSDM), Bureau of Disease Control and Health Statistics (BDCHS), Division of Public Health Services (DPHS), New Hampshire Department of Health and Human Services (NH DHHS), and the Bureau of Data and Systems Management (BDSM), Office of Medicaid Business and Policy (OMBP), New Hampshire Department of Health and Human Services (NH DHHS), with assistance from a DHHS contractor.

Mortality Data: Health Statistics and Data Management Section (HSDM), Bureau of Disease Control and Health Statistics (BDCHS), Division of Public Health Services (DPHS), New Hampshire Department of Health and Human Services (NH DHHS), and the Bureau of Data and Systems Management (BDSM), Office of Medicaid Business and Policy (OMBP), New Hampshire Department of Health and Human Services (NH DHHS), and the New Hampshire Department of State, Division of Vital Records Administration. Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1979-98 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10).

Cancer Incidence Data: Health Statistics and Data Management Section (HSDM), Bureau of Disease Control and Health Statistics (BDCHS), Division of Public Health Services (DPHS), New Hampshire Department of Health and Human Services (NH DHHS), and the New Hampshire State Cancer Registry (NHSCR). Invasive Cancer is classified in accordance with the International Classification of Disease-Oncology-Third Edition (ICD-O-3) and SEER Staging as defined in 2000.

Employment estimates used to calculate rates: Bureau of Labor Statistics' Current Population Survey.
Adult Blood Lead Data: Numbers of cases with elevated blood lead levels: Adult Blood Lead Epidemiology Surveillance (ABLES) program.

Poison Center Data: Northern New England Poison Center with assistance from Health Statistics and Data Management Section (HSDM), Bureau of Disease Control and Health Statistics (BDCHS), Division of Public Health Services (DPHS), New Hampshire Department of Health and Human Services (NH DHHS) and University of Massachusetts Lowell Graduate Student. Funding for data sharing project was provided by U.S. Health Services Administration.

Behavioral Risk Factor Surveillance System Survey Data (BRFSS): Health Statistics and Data Management Section (HSDM), Bureau of Disease Control and Health Statistics (BDCHS), Division of Public Health Services (DPHS), New Hampshire Department of Health and Human Services (NH DHHS), and the Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, Georgia.

State of New Hampshire, Department of Labor. Data for FY2001 to FY2004 are from the "56th Biennial Report, July 1, 2003–June 30, 2005." November 2005. Data for FY2005 and FY2006 are from the "57th Biennial Report, July 1, 2005–June 30, 2007." November 2007. Data for FY2007 to FY 2011 are from the "59th Biennial Report, July 1, 2009–June 30, 2011." December 2011.

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Other Data Sources

American Community Survey (ACS) www.census.gov/acs/
Council of State and Territorial Epidemiologists (CSTE) http://www.cste.org/dnn/
Current Population Survey (CPS) http://www.census.gov/cps/
US Department of Labor Bureau of Labor Statistics (BLS) http://www.bls.gov/
US Department of Labor Occupational Safety and Health Administration (OSHA) http://www.osha.gov/
The National Institute for Occupational Safety and Health (NIOSH) http://www.cdc.gov/NIOSH/

The New Hampshire Economic and Labor Market Information Bureau
http://www.nh.gov/nhes/elmi/covempwag.htm
The New Hampshire Department of Labor http://www.labor.state.nh.us/