

Occupational Health Indicators in Wyoming: A Baseline Occupational Health Assessment 2001-2005

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Table of Contents

Executive Summary	4-5
Introduction	6-7
Methods	7
Wyoming Demographic Profile	8-11
Figure P.1 Employed WY and US civilian workers by age, 2001-2005	
Figure P.2 Employed WY and US civilian workers by sex, 2001-2005	
Figure P.3 Employed WY and US civilian workers by race and ethnicity, 2001-2005	
Table P.1 Number of civilian workers employed, WY and US, 2001-2005	
Figure P.4 Employed WY and US civilian workers by employment status, 2001-2005	
Figure P.5 Employed WY and US civilian workers by hours worked, 2001-2005	
Figure P.6 Employed WY civilian workers by industry, 2003-2005	
Figure P.7 Employed WY civilian workers by occupation, 2003-2005	
Indicator 1: Non-fatal Injuries and Illnesses	12-13
Table 1.1 Non-fatal work-related injury and illness claims filed, WY, 2001-2005	
Figure 1.1 Non-fatal work-related injury and illness claims filed, WY, 2001-2005	
Indicator 2: Work-related Hospitalizations	14-15
Table 2.1 Total Workers' Compensation Hospital Discharges, WY, 2001-2005	
Indicator 3: Fatal Work-related Injuries	16-17
Table 3.1 Fatal work-related injuries, WY and US, 2001-2005	
Figure 3.1 Rate of fatal work-related injuries per 100,000 workers, WY and US, 2001-2005	
Indicator 4: Work-related Amputations with Days Away from Work Reported by Employers	18-19
Table 4.1 Estimated Work-related Amputations Involving Days Away from Work, WY and US, 2002-2005	
Figure 4.1 Estimated Annual Incidence Rate of Work-related Amputations Involving Days Away from Work, 2002-2005	
Indicator 5: Amputations Identified in State Workers' Compensation Systems	20-21
Table 5.1 State workers' compensation claims for amputations with lost work-time, WY, 2001-2005	
Figure 5.1 Annual incidence rate of amputations filed with workers' compensation per 100,000 workers covered, WY, 2001-2005	
Indicator 6: Hospitalizations for Work-related Burns	22-23
Table 6.1 Hospital Discharges for Work-related Burns, WY, 2001-2005	
Figure 6.1 Annual Crude Hospitalization Rate for Work-related Burns per 100,000 workers, WY, 2001-2005	
Indicator 7: Work-related Musculoskeletal Disorders with Days Away from Work Reported by Employers	24-25
Table 7.1 Musculoskeletal Disorders Involving Days Away from Work, WY, 2002-2004	
Indicator 8: Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation Systems	26-27
Table 8.1 Carpal tunnel syndrome filed with state workers' compensation, WY, 2001-2005	
Figure 8.1 Annual incidence rate of carpal tunnel syndrome cases filed with workers' compensation per 100,000 workers covered, WY, 2001-2005	

Indicator 9: Pneumoconiosis Hospitalizations	29
Indicator 10: Pneumoconiosis Mortality	31
Indicator 11: Acute Work-related Pesticide Poisonings Reported to Poison Control Centers	32-33
Table 11.1 Work-related pesticide poisonings reported to poison control centers and rate per 100,000 employed, WY and US, 2001-2005	
Figure 11.1 Rate of work-related pesticide poisonings reported to poison control centers per 100,000 employed, WY and US, 2001-2005	
Indicator 12: Incidence of Malignant Mesothelioma	35
Table 12.1 Incidence of malignant mesothelioma, WY, 2001-2005	
Indicator 13: Elevated Blood Lead Levels Among Adults	36-37
Table 13.1 Elevated Blood Lead Levels, WY, 2002-2005	
Figure 13.1 Elevated Blood Lead Levels, WY, 2002-2005	
Indicator 14: Workers Employed in Industries with High Risk for Occupational Morbidity	38-39
Table 14.1 Percentage of workers employed in industries with high risk for occupational morbidity, WY and US, 2001-2005	
Figure 14.1 Workers employed in industries with high risk for occupational morbidity, WY and US, 2001-2005	
Indicator 15: Workers Employed in Occupations with High Risk for Occupational Morbidity	40-41
Table 15.1 Percentage of workers employed in occupations with high risk for occupational morbidity, WY and US, 2003-2005	
Figure 15.1 Workers employed in occupations with high risk for occupational morbidity, WY and US, 2003-2005	
Indicator 16: Workers Employed in Industries and Occupations with High Risk for Occupational Mortality	42-43
Table 16.1 Workers employed in industries and occupations at high risk for occupational mortality, WY and US, 2001-2005	
Figure 16.1 Workers employed in industries at high risk for occupational mortality, WY and US, 2003-2005	
Figure 16.2 Workers employed in occupations at high risk for occupational mortality, WY and US, 2003-2005	
Indicator 17: Occupational Safety and Health Professionals	45
Table 17.1 Number of occupational safety and health professionals and rate per 100,000 employees	
Indicator 18: OSHA Enforcement Activities	46-47
Table 18.1 Establishments under OSHA jurisdiction inspected and employees whose work areas were inspected by OSHA, WY, 2001-2005	
Figure 18.1 Establishments under OSHA jurisdiction inspected and employees whose work areas were inspected by OSHA, WY, 2001-2005	
Indicator 19: Workers' Compensation Awards	48-49
Table 19.1 Average workers' compensation benefit paid per covered worker, WY and US, 2001-2005	
Figure 19.1 Average workers' compensation benefit paid per covered worker, WY and US, 2001-2005	
Conclusions, Data Sources and References	51-53

Executive Summary

The Mountain and Plains Education and Research Center (MAP ERC), in collaboration with the National Institute for Occupational Safety and Health (NIOSH) Western States Office, Denver, has prepared this data-driven report to provide a baseline occupational health status of workers in Wyoming (WY). The purpose of this assessment is to provide the state with the data needed to examine the benefits of conducting state-wide occupational health surveillance, to help describe potential emerging issues, and to assist in determining priorities for prevention of work-related injuries and illnesses. The reader is cautioned that the data and analyses presented herein are descriptive in nature and are not intended to offer causal explanations or identify worker tasks, experience, training or control measures. Further, the design of the report does not account for changes in state or national economic and demographic conditions or changing workforce characteristics.

Highlights of the report are listed below:

- The average annual rate of fatal work-related injuries in WY is significantly higher when compared to the overall US rate.
- An estimated 10 per 100,000 WY workers per year experienced work-related pesticide poisoning during 2001-2005.
- The number of WY adults with reported elevated blood lead levels has increased since 2002.
- WY has a smaller percentage of workers employed in *Industries* with a high risk for occupational morbidity compared to the US.
- WY has a higher percentage of workers employed in *Occupations* with a high risk for occupational morbidity than the US.
- WY has a higher percentage of workers employed in *Occupations* and *Industries* with a high risk for occupational mortality when compared to US rates.

For the years 2001 to 2005, rates of work-related fatalities in WY were higher than overall US rates. The percent of workers employed in industries and occupations at high risk for occupational mortality was higher than national rates. Priorities and future directions for prevention and intervention should focus on industries and occupations experiencing a disproportional rate of fatal work-related injuries and illnesses.

Recommendations

The authors of this report believe that the collection of the Occupational Health Indicators, as developed by NIOSH and CSTE, is useful in improving specific data collection for Wyoming and that the resultant characterization of occupational injury and illness is instrumental in setting priorities for prevention efforts within the state. However, it is only a first step in developing a comprehensive occupational health surveillance program for Wyoming. The following recommendations are offered to help facilitate that process. The first four recommendations can be accomplished with minimal resources and within a short time frame. The remaining recommendations may take a longer period of time and expanded funding to complete.

- State-based occupational health surveillance and reporting is warranted. Recognition of the importance of occupational health surveillance by Wyoming state and county agencies and other entities involved in occupational health and safety is a first step in developing a comprehensive and effective program. A meeting of state agencies and other stakeholders should be held to discuss how to implement occupational health surveillance in Wyoming and what funding may be needed for this public health expansion.
- Examine key indicators presented in this report in greater depth to target future state-specific surveillance and intervention efforts in occupations and industries of greatest concern.
- Commit to establishing minimum state based-activities in occupational safety and health as recommended by the CDC and NIOSH (see Guidelines for Minimum and Comprehensive State-Based Public Health Activities in Occupational Safety and Health, NIOSH Publication No. 2008-148. Available at <http://www.cdc.gov/niosh/docs/2008-148/>) with plans to expand to comprehensive activities.
- Expand mandatory disease reporting in WY to include occupational and environmental disease and injury.
- Participate in meetings and other activities with NIOSH and other states collecting occupational health and safety data.
- Actively seek funding (state, federal and foundation) to support state-based occupational safety and health activities.
- Build a coalition of stakeholders to implement a comprehensive state-based occupational health surveillance program.
- Extend years of analysis and conduct trend analysis.

Please see individual indicators of this report for additional specific recommendations.

Introduction

Each year, thousands of workers in Wyoming (WY) are exposed to workplace conditions that result in occupational illnesses and injuries. At present, there is no comprehensive, state-wide system in WY that provides routine data collection, analysis and the development of intervention and prevention strategies for a variety of work-related health effects. The development of a comprehensive occupational health system is essential for prevention. Such data are necessary to assure that workplaces are safe and healthy.

In recognition of the need for state-based occupational health surveillance programs nationwide, the National Institute for Occupational Safety and Health (NIOSH) and the Council of State and Territorial Epidemiologists (CSTE) developed a list of occupational health indicators (OHI) for the purpose of describing worker demographics, measures of work-related health and factors that influence worker health. The goal is to guide state priorities in workplace injury and illness prevention and intervention. Of the 19 occupational health indicators established, 12 report injury and illness resulting from occupational hazards; 3 describe potential workplace health and safety hazards; 2 examine intervention activities; 1 measures harmful exposures in the workplace; and 1 describes the socio-economic impacts of work-related injuries and illnesses.

The purpose of this project is to describe the baseline occupational health status of workers in WY using the OHIs with the target objective of building capacity for occupational health surveillance in WY. Specifically, the goals of this report are to:

- Identify state and national data sets describing occupational

health pertinent to WY

- Develop a systematic approach to identify available data sources
- Collect and compile available data from 2001 to the most recent year for which data are available
- Describe the status of worker health in WY
- Determine gaps in the data
- Define the greatest needs for workplace health surveillance
- Determine priorities for prevention and workplace intervention efforts
- Recommend future directions

The indicators presented in this report describe core data to inform and guide the development of programs to prevent work-related injuries and illnesses. It is a product of the Mountain and Plains Education and Research Center (MAP ERC), a center to improve occupational and environmental health and safety through education, research, and community partnership, funded by the Centers for Disease Control and Prevention/NIOSH through grant #5T42OH009229-02. This report represents the views of the authors and should not be considered the official views of the sponsoring agency or any other institution.

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We would like to thank and acknowledge the WY Departments of Public Health and Employment for their help in accessing data that contributed to this report.

Methods

Using the CSTE *Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and their Determinants*, found at www.cste.org (March 2008 update), a core set of data was abstracted from existing WY and national datasets for the years 2001-2005. Exceptions for years are noted in the methods section of each OHI. When appropriate, state and national data are compared.

Detailed methods are described in the CSTE Guidelines. As of the date of this report, data for all 19 OHIs was available. Each OHI presented in this report is described in terms of its significance, specific methods, results, limitations, and recommendations. It should be noted that some of the OHIs are based on small numbers and resulting proportions and rates can therefore change dramatically from one year to the next. A list of data sources can be found at the end of this report.

Occupational Health Indicators

- Employment and Demographic Profile
- 1 Non-fatal Injuries and Illnesses
- 2 Work-related Hospitalizations
- 3 Fatal Work-related Injuries
- 4 Amputations Reported by Employers
- 5 Amputations Identified in State Workers' Compensation
- 6 Hospitalizations for Work-related Burns
- 7 Musculoskeletal Disorders Reported by Employers
- 8 Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation
- 9 Pneumoconiosis Hospitalizations
- 10 Pneumoconiosis Mortality
- 11 Acute Work-related Pesticide Poisonings Reported to Poison Control Centers
- 12 Incidence of Malignant Mesothelioma
- 13 Elevated Blood Lead Levels Among Adults
- 14 Workers Employed in Industries with High Risk Occupational Morbidity
- 15 Workers Employed in Occupations with High Risk for Occupational Morbidity
- 16 Workers in Occupations and Industries with High Risk for Occupational Mortality
- 17 Occupational Health and Safety Professionals
- 18 OSHA Enforcement Activities
- 19 Workers' Compensation Awards

Wyoming Employment Demographic Profile

Significance

Understanding the diversity of workers and the characteristics of working populations is essential in the assessment of occupational health and work-related injury and illness prevention. It allows for more detailed analysis of worker subgroups who may be experiencing higher than expected rates of work-related injuries or illnesses and helps in the planning and development of prevention activities that are culturally appropriate.

Methods

The demographic and employment characteristics for WY and US civilian workers were obtained from the Bureau of Labor Statistics (BLS) Current Population Survey and BLS Geographic Profiles of Employment and Unemployment. Age, sex, race/ethnicity and employment characteristics are described for the years 2001 to 2005 for both WY and the US. The percent of civilian workers employed by occupational and industry categories is only reported for 2003 to 2005 because of changes in BLS category definitions in 2003.

Results

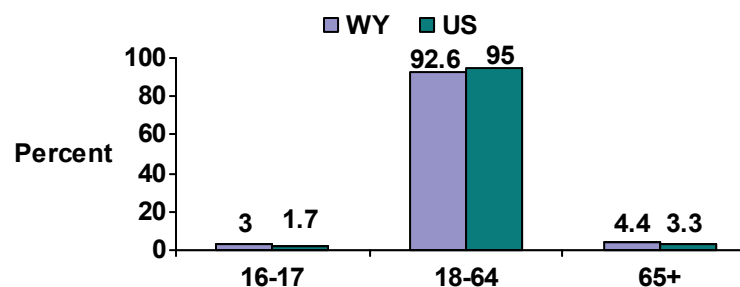
Demographics

Age

- Over 92% of civilian workers employed in both WY and the US from 2001 to 2005 were between the ages of 18 and 64 years.

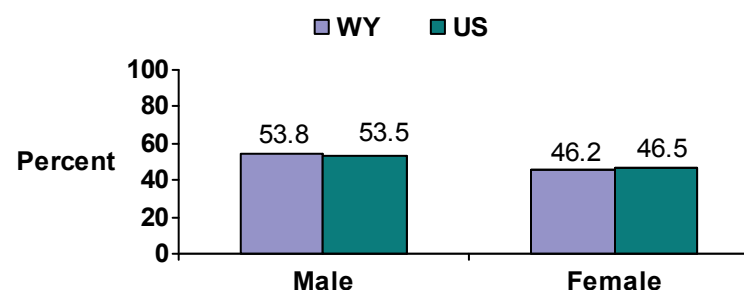
Age

Figure P.1 Employed WY and US civilian workers by age, 2001-2005



Sex

Figure P.2 Employed WY and US civilian workers by sex, 2001-2005

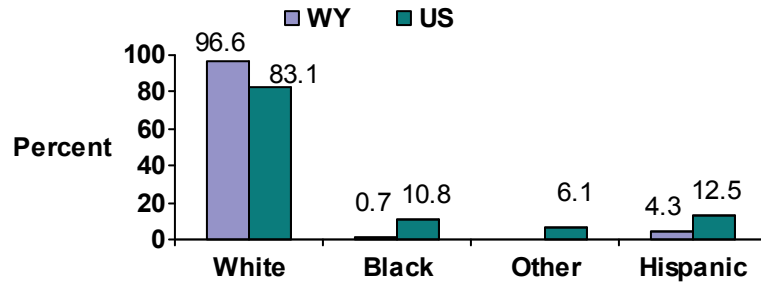


- The distribution of sex for WY and the US civilian workers from 2001 to 2005 was similar. Overall, there were more male workers than female workers.

Race/Ethnicity

- The majority of civilian workers in WY and the US from 2001 to 2005 were White.

Figure P.3 Employed WY and US civilian workers by race and ethnicity, 2001-2005



Limitations

- Demographic and workforce characteristics are helpful to describe the workforce, but do not directly measure occupational risks or hazards.
- Data from the Current Population Survey, a monthly probability sample of households in the United States, provide only an estimate.
- Workers under the age of 16, active-duty military and inmates are not included in the estimates.
- The percentage of racial or ethnic workers may be underestimated if they do not have permanent residences or are migratory. Thus, in states that experience high rates of seasonal employment, the demographic data are likely to underestimate the size of the population at risk for work-related injuries and illnesses.

Recommendations

- Determine how workforce demographics and characteristics impact work-related injuries and illnesses in WY.
- Develop methods for tracking migratory worker populations in order to assess the impact of work-related injuries and illnesses in WY.

Employment Characteristics

- More than 260,000 civilian workers per year were employed in WY for the years 2001 to 2005. Table P.1 shows the number of civilian workers in WY and the US by year.

Table P.1 Number of Civilian Workers Employed, WY and US, 2001-2005		
Year	Wyoming	United States
2001	261,000	136,933,000
2002	259,000	136,485,000
2003	266,000	137,736,000
2004	271,000	139,252,000
2005	273,000	141,730,000

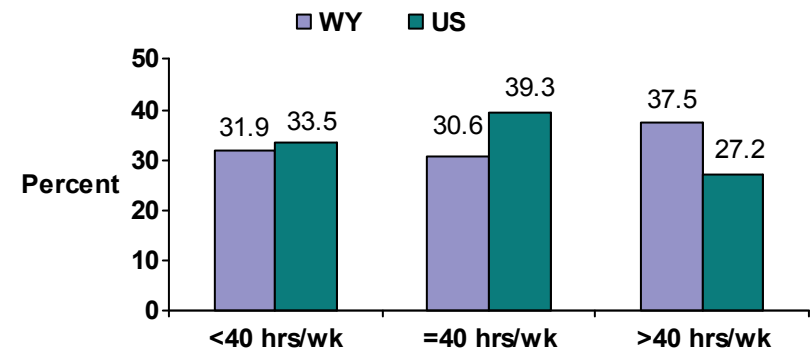
- In WY, the unemployment rate ranged from 3.9 in 2001 to 3.7 in 2005, with a rate as high as 4.4 in 2003. Average unemployment rates in WY and the US were similar. Figure P.4. shows the employment status of WY and US civilian workers for 2001-2005.
- Approximately 7.6% of civilian workers in WY were self-employed during 2001-2005, similar to the US (Figure P.4)
- Fewer than 21% of civilian workers in WY and the US were employed part-time during 2001-2005. However, the percent in WY was higher than the US for the years 2001-2005. (Figure P.4)

Figure P.4 Employed WY and US civilian workers by employment status, 2001-2005



- The majority of civilian workers employed in WY and the US from 2001 to 2005 were employed full time and worked at least a standard work week of 40 hours or greater. (Figure P.5)

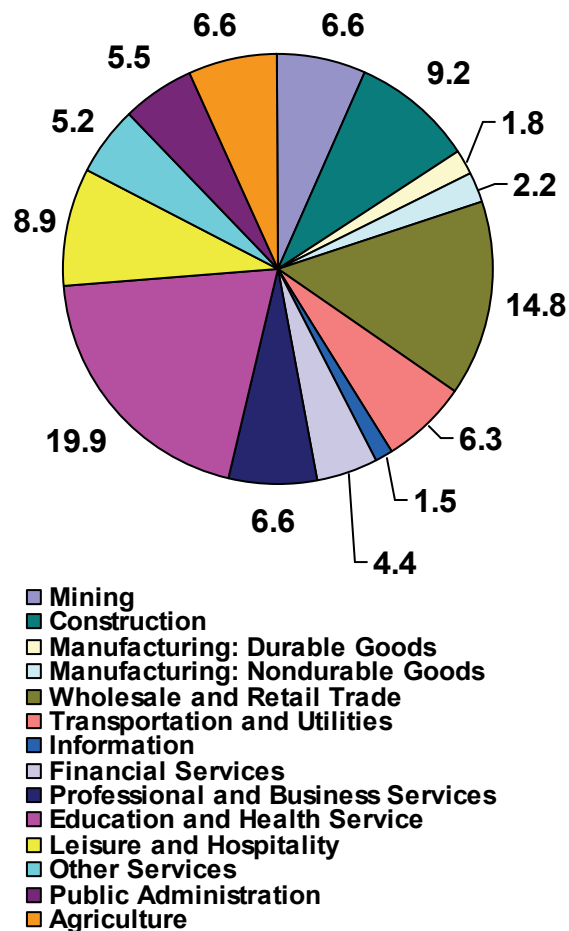
Figure P.5 Employed WY and US civilian workers by hours worked, 2001-2005



Industries and Occupations

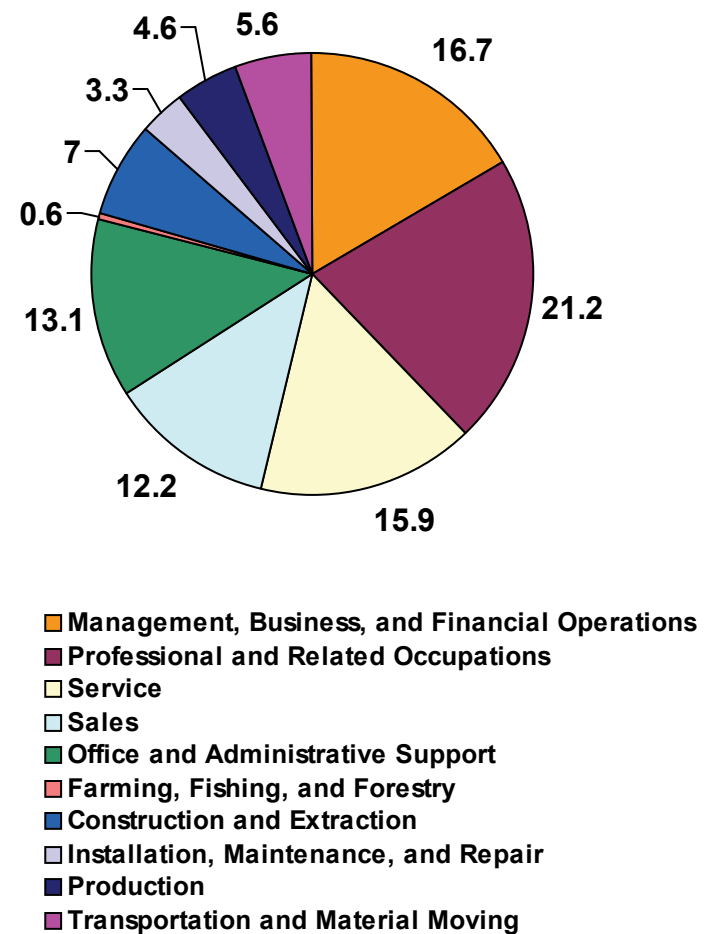
- Industries that employed the most civilian workers in WY and the US from 2003 to 2005 were Education and Health Services, Wholesale and Retail Trade and Construction. Figure P.6 presents the distribution of WY workers in each industry.

Figure P.6 Employed WY civilian workers by industry



- Occupational groups that employed the most civilian workers in WY and the US from 2003 to 2005 were Professional and Related Occupations, Management, Business and Financial Operations and Service. The following graph distribution represents the percentage of WY workers in each occupational group.

Figure P.7 Employed WY civilian workers by occupation



Indicator 1: Non-fatal Injuries and Illnesses

Significance

The identification of non-fatal work-related injuries and illnesses and associated factors, risks and exposures is useful for intervention, education, prevention and regulatory efforts. Work-related **injuries** are typically one-time events and include burns, falls, strains, sprains or fractures, electric shocks, being struck by a falling object or getting caught in machinery and associated amputation. Work-related **illnesses** are usually a result of cumulative exposure to hazardous materials or repetitive motions. Examples include occupational asthma, asbestosis, pneumoconiosis (dust-induced lung disease), mesothelioma, and carpal tunnel syndrome, among others.

Methods

The CSTE method to calculate Indicator 1 is based on data from the BLS Survey of Occupational Injuries and Illnesses (SOII). Data prior to 2002 are not available online for the state of Wyoming. Rates are based on Full-time Equivalents (FTEs) (i.e., hours worked), as opposed to employment, and are considered to be more accurate in measuring the risk of dying from an injury on the job.

Results

- Wyoming injury and illness rates were higher when compared to national rates for 2002-2005, with a high of 6,000 per 100,000 FTE's in 2003 and a low of 5,300 per 100,000 FTE's in 2004. (Table 1.1)
- Wyoming injury and illness rates with days away from work were higher when compared to national rates from 2002-2005, with a high of 2,500 per 100,000 FTE's in 2003 and a low of 2,200 per 100,000 FTE's in 2002. (Table 1.1)

Table 1.1 Estimated Annual Total Number of Work-related Injuries and Illnesses, WY and US, 2002-2005

Year	Estimated Annual Total Work-related Injury and Illness Incidence Rate Per 100,000 FTE's (WY)	Estimated Annual Total Work-related Injury and Illness Incidence Rate Per 100,000 FTE's (US)	Estimated Annual Incidence Rate Involving Days Away from Work Per 100,000 FTE's (WY)	Estimated Annual Incidence Rate Involving Days Away from Work Per 100,000 FTE's (US)
2002	5,600	5,200	2,200	1,600
2003	6,000	5,000	2,500	1,500
2004	5,300	4,800	2,300	1,400
2005	5,800	4,600	2,300	1,400

Figure 1.1 Annual incidence rate of nonfatal work-related injuries and illnesses, WY and U.S., 2002-2005



Limitations

- Work-related illness with longer latency periods or work-related illness difficult to associate with the workplace may not be included.
- Work-related illness and injuries not reported by the worker may not be included.

Recommendations

- Determine risk factors that contribute to work-related illness and injuries to guide intervention, education, prevention and regulatory efforts.

Indicator 2: Work-related Hospitalizations

Significance

Describing and tracking work-related hospitalizations is useful for identifying high-risk occupations and targeting prevention.

Methods

Data were obtained from the Wyoming Department of Health. The data include all hospital discharges with a primary payer of Workers' Compensation. The data excludes patients with age unknown, patients under 16 years of age, out-of-state residents or unknown residence and out-of-state hospitalizations.

Results

- The average annual number of hospitalizations was 677 per year from 2001 to 2005. (Table 2.1)
- The annual crude rate of hospital discharges with primary pay listed as 'workers' compensation' ranged from 237.4 in 2005 to 274.3 in 2001. (Table 2.1).

Limitations

- Practice patterns and payment mechanisms may affect decisions by health care providers to hospitalize patients, to correctly diagnose work-related conditions and/or to list the condition as a discharge diagnosis.
- Residents of one state may be hospitalized in another state and not be reflected in the hospitalization data for the state of residence. There may be over counts for patients who have been transferred from one medical facility to another within WY.

- All admissions are counted, including multiple admissions for a single individual.
- Until hospital discharge data are available in all states, aggregation of state data to produce nationwide estimates will be incomplete.
- Data on race/ethnicity are not collected in some states and are incomplete and/or of questionable validity in others.

Table 2.1 Total Workers' Compensation Hospital Discharges among Residents 16 Years of Age or Older , WY, 2001-2005

Year	Annual number of work-related hospitalizations (WY)	Annual crude rate of hospitalizations per 100,000 employed persons (WY)
2001	716	274.3
2002	694	268.0
2003	653	245.5
2004	674	248.7
2005	648	237.4

Recommendations

- Describe injuries and illnesses in Wyoming by industry, occupation, age, gender, race/ethnicity and type of injury/illness in hospital and ER discharge summaries and reports to WY surveillance programs.
- Determine the factors that contribute to work-related injury/illnesses to guide intervention, education, prevention and regulatory efforts.

Indicator 3: Fatal Work-related Injuries

Significance

Fatal work-related injuries are defined as injuries that occur at work and result in death. **Unintentional** injuries include falls, electrocutions, acute poisonings and motor vehicle crashes occurring during work-related travel. **Intentional** injuries include homicides and suicides that occur at work. Workplace fatalities involve many risk factors, including workplace design and procedures, and social interactions. The identification of these risk factors and exposures through surveillance of work-related fatalities is useful for intervention, education, prevention and regulatory efforts.

Methods

The rates of fatal work-related injuries are reported for the years 2001 to 2005 for both WY and the US. Numerator data were obtained from the Census of Fatal Occupational Injuries (CFOI) and rates were calculated using the BLS Current Population Survey as the denominator.

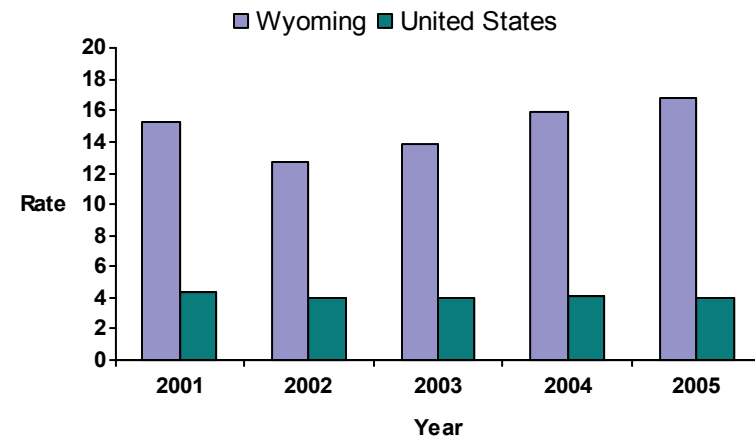
Results

- The average annual rate of fatal work-related injuries in WY was 14.9 per 100,000 workers. (Table 3.1 and Figure 3.1)
- Work-related injury fatality rates in WY were much higher than overall US rates for the time period 2001 to 2005.(Table 3.1 and Figure 3.1)

Table 3.1 Fatal Work-related Injuries, WY and US, 2001-2005

	Number and fatality rate of work-related injuries per 100,000 employed persons age 16 years and older	
Year	Wyoming	United States
2001	40 (15.3)	5,915 (4.3)
2002	33 (12.7)	5,534 (4.0)
2003	37 (13.9)	5,575 (4.0)
2004	43 (15.9)	5,764 (4.1)
2005	46 (16.8)	5,734 (4.0)

Figure 3.1 Rate of fatal work-related injuries per 100,000 workers, WY and US, 2001-2005



Limitations

- Work-related fatalities of people younger than 16 may be included in the numerator but not in the denominator.
- Since work-related fatalities are reported by the state in which the fatality occurred and not the state of the worker's residence, rates may overestimate risk if the work-related fatalities involved workers who were out-of-state residents. Likewise, rates may be underestimated if fatalities occurred in other states.
- Deaths in the military are included in the number of fatalities but not in the rates.

Recommendations

- Review fatal work-related injury and illness data in WY by industry cause, occupation, age, gender, race/ethnicity and injury/illness characteristics.
- Identify the primary risk factors which contribute to work-related fatalities to guide intervention, education, prevention and regulatory efforts.

Indicator 4: Amputations Reported By Employers

Significance

Most work-related amputations involve full or partial loss of fingers. Less common amputations involve the arm, leg, foot, toe, nose or ear. Work-related amputations can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

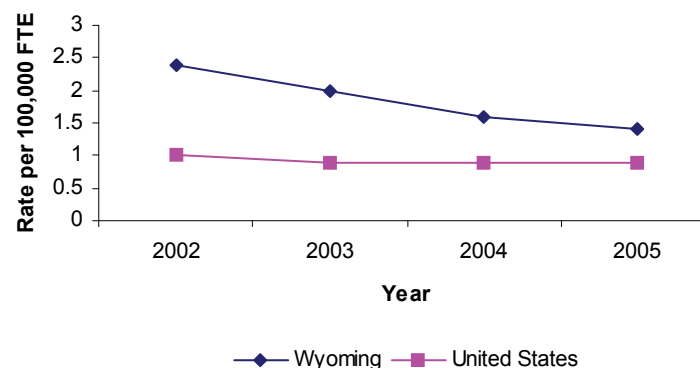
Data were obtained from the BLS Annual Survey of Occupational Injuries and Illnesses (SOII) which provides yearly state and national estimates on the number and incidence rates of work-related amputations involving at least one day away from work. Data are not available for years prior to 2002 for Wyoming.

Results

- The estimated annual number of work-related amputations involving days away from work decreased each year from 2002 to 2005. (Table 4.1 and Figure 4.1)
- Compared to US data, estimated annual incidence rates of work-related amputations involving days away from work per 100,000 full time WY employees were higher. (Table 4.1 and Figure 4.1)

Table 4.1 Estimated Work-related Amputations Involving Days Away from Work, WY and US, 2002-2005		
	Number and incident rate of work-related amputations per 100,000 full time employees	
Year	Wyoming	United States
2002	35 (24.0)	8,793 (10.0)
2003	30 (20.0)	8,150 (9.0)
2004	20 (16.0)	8,160 (9.0)
2005	20 (14.0)	8,450 (9.0)

Figure 4.1 Estimated Annual Incidence rate of Work-related Amputations Involving Days Away from Work, WY and US, 2002-2005



Limitations

- Employers do not always record all relevant events.
- Employers vary in their use of restricted work activity to reduce lost work days among their employees with work-related conditions, thereby avoiding cases involving days away from work.
- SOII data are a probability sample and not a census of all employers and are subject to sampling error.
- Military, self-employed individuals, farms with fewer than 11 employees and federal agencies are excluded from SOII data.

Recommendations

- Determine the primary risk factors that contribute to work-related amputations to guide intervention, education, prevention and regulatory efforts.

Indicator 5: Amputations Identified in Workers' Compensation System

Significance

Most work-related amputations involve full or partial loss of fingers. Less common amputations involve the arm, leg, foot, toe, nose or ear. Work-related amputations can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

The WY Department of Employment tracks the number of compensation claims filed for amputations resulting in "time loss." Annual incidence rates are calculated using the numbers of workers covered by workers' compensation provided by the National Academy of Social Insurance (NASI).

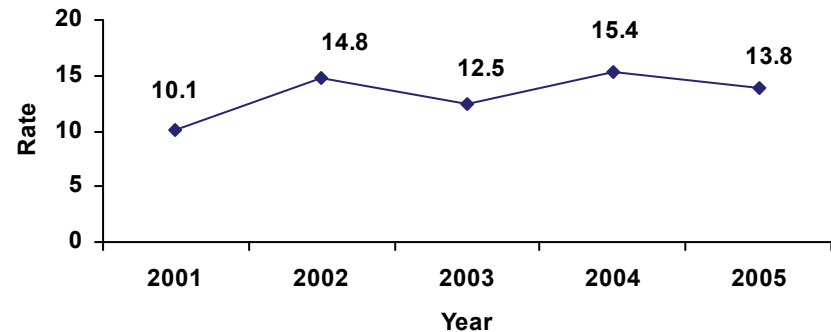
Results

- Annually, an average of 13 claims per 100,000 workers in WY were filed for an amputation on-the-job with lost work-time for the years 2001 to 2005. (Table 5.1 and Figure 5.1)
- The annual incidence rate of amputations filed with the Division of Workers' Compensation per 100,000 workers covered ranged from 10.1 to 15.4 for the years 2001 to 2005. (Table 5.1 and Figure 5.1)

Table 5.1 State Workers' Compensation Claims for Amputations with Lost Work-time, WY, 2001-2005

Year	Number of amputation claims filed	Annual incidence rate of amputation claims filed per 100,000 workers covered
2001	23	10.1
2002	34	14.8
2003	29	12.5
2004	37	15.4
2005	34	13.8

Figure 5.1 Annual incidence rate of amputations filed with workers' compensation per 100,000 workers covered, WY, 2001-2005



Limitations

- The number of workers' compensation claims filed may be underestimated because not all individuals with work-related injuries and illnesses file for workers' compensation.
- Those workers who are self-employed (farmers, independent contractors), who work in small businesses or who are federal employees may not be covered by state workers' compensation insurers and therefore are not included in these estimates.
- Differences in eligibility criteria and availability of data of workers' compensation programs limit these data from being compared with other states or overall US data.

Recommendations

- Review amputation data by industry, occupation, age, gender, race/ethnicity, and other characteristics to identify important risk factors and patterns and to help guide intervention, education, prevention and regulatory efforts.

Indicator 6: Hospitalizations From Work-related Burns

Significance

Hospitalizations from work-related burns include injuries to tissues caused by contact with dry heat (fire), moist heat (steam), chemicals, electricity, friction, or radiation. Describing and tracking hospitalizations from work-related burns are useful for identifying high risk occupations or work processes and targeting prevention.

Methods

Data were obtained from the Wyoming State Department of Health for the number of hospitalizations for work-related burns. Criteria for inclusion were any hospital discharge records with a primary payer of workers' compensation, principle ICD-9-CM diagnosis code between 940-949 and if the patient was 16 years of age or older. Rates were calculated using BLS Current Population Survey data for the denominator.

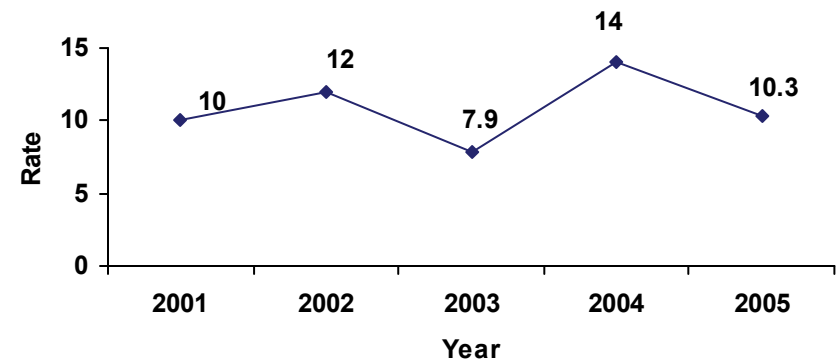
Results

- Annually from 2001-2005, an estimated 29 per 100,000 workers in WY, were hospitalized for work-related burns (Table 6.1 and Figure 6.1)
- The annual crude rate of work-related burn hospitalizations per 100,000 workers ranged from 7.9 to 14.0 for the years 2001 to 2005. (Table 6.1 and Figure 6.1)

Table 6.1 Hospital Discharges for Work-related Burns, WY, 2001-2005

Year	Number of hospitalizations for work-related burns	Annual crude rate of work-related burn hospitalizations per 100,000 workers
2001	26	10.0
2002	31	12.0
2003	21	7.9
2004	38	14.0
2005	28	10.3

Figure 6.1 Annual Crude Hospitalization Rate for Work-related Burns per 100,000 workers, WY, 2001-2005



Limitations

- Employed individuals less than 16 years old experience work-related burn injuries, but corresponding denominator data are not readily available.
- Practice patterns and payment mechanisms may affect decisions by health care providers to hospitalize patients.
- Residents of one state may be hospitalized in another state and therefore not be reflected in his/her state's hospitalization data.
- All admissions are counted, including multiple admissions for a single individual.
- Until hospital discharge data are available in all states, aggregation of state data to produce nationwide estimates will be incomplete.
- Data on race/ethnicity are not collected in some states and are incomplete and/or of questionable validity in others.
- Hospital discharge records are only available for non-federal, acute care hospitals.

Recommendations

- Review work-related burn hospitalizations by industries/occupations. Target those industries/occupations with the most hospitalizations for work-related burns to guide education, prevention and intervention efforts.

Indicator 7: Musculoskeletal Disorders Reported by Employers

Significance

Work-related musculoskeletal disorders and injuries affect the muscles, tendons, nerves, ligaments, joints and spinal discs and significantly impact the ability of workers to perform their jobs effectively. Contributing work activities include repetitive motion, placing hands or limbs in awkward positions, using equipment that vibrates and handling heavy objects. Work-related musculoskeletal disorders can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

Data were obtained from the BLS annual Survey of Occupational Injury and Illness (SOII). Data for WY were not available for 2001 or 2005. The BLS definition of musculoskeletal disorders involving days away from work includes persons with one or more of the following Occupational Injury and Illness Codes (OIIC): 021 (sprains, strains, tears), 0972 (back pain, hurt back), 0973 (soreness, pain, hurt, except the back), 1241 (carpal tunnel syndrome), 153 (hernia), any code that begins with 17 (musculoskeletal system and connective tissue diseases and disorders) and one of the following OIIC event codes: 211 (bending, climbing, crawling, reaching, twisting), 22 (overexertion) or 23 (repetitive motion).

**Table 7.1 Musculoskeletal Disorders
Involving Days Away from Work,
WY and US, 2002-2004**

Year	Total Number of Musculoskeletal Disorders-WY (Estimated Incidence Rate per 100,000 FTE)	Total Number of Musculoskeletal Disorders-US (Estimated Incidence Rate per 100,000 FTE)
2002	913 (658)	487,900 (553)
2003	1260 (863)	435,180 (496)
2004	950 (665)	401,700 (452)

Results

- The average number of workers, for the 3 year period, that suffered from a musculoskeletal disorder that involved days away from work between 2002 and 2004 was 1041 per 100,000.
- The estimated incidence rate per 100,000 FTE is higher in WY when compared to US rates.

Limitations

- Musculoskeletal disorders may be under-recorded on the Occupational Safety and Health Administration (OSHA) logs that serve as the basis of the annual SOII survey from which these data are extracted.
- Self-employed, household workers and workers on farms with fewer than 11 employees are excluded.
- The annual SOII survey is subject to sampling error.
- The definition of musculoskeletal disorder involving days away from work used by the BLS has changed over time.

Recommendations

- Examine work-related musculoskeletal disorders by industry, age, gender, race/ethnicity, occupation and source of injury/illness to help guide intervention and prevention efforts.

Indicator 8: Carpal Tunnel Syndrome Cases Identified in Workers' Compensation Systems

Significance

Work-related carpal tunnel syndrome (CTS) may be caused by trauma or fractures of the hand or wrist or physical hazards, such as high exertional force and high repetition, placing hands or limbs in awkward positions or using equipment that vibrates. Symptoms include burning, tingling and numbness of fingers which can lead to difficulty in gripping and holding objects. Work-related CTS can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

The WY Department of Labor, Division of Workers' Compensation, tracks the number of compensation claims filed for CTS for 2001 to 2005. Annual incidence rates were calculated using the number of workers covered by workers' compensation provided by the National Academy of Social Insurance (NASI).

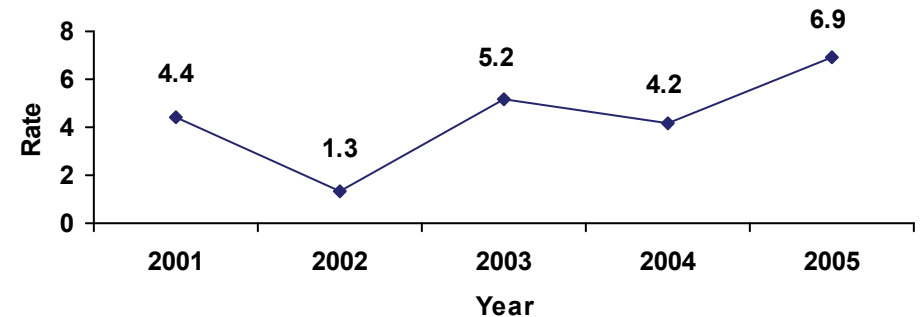
Results

- Annually, an estimated 6 per 100,000 WY workers reported work-related CTS for the years 2001 to 2005. (Table 8.1 and Figure 8.1)
- The annual incidence rate of CTS filed with the WY Division of Workers' Compensation per 100,000 workers covered ranged from 1.3 to 6.9, with an upward trend for the years 2001 to 2005. (Table 8.1 and Figure 8.1)
- The number of claims filed with workers' compensation for work-related CTS has risen over the 5 years.

Table 8.1 Carpal Tunnel Syndrome Claims Filed with State Workers' Compensation, WY, 2001-2005

Year	Number of carpal tunnel syndrome claims filed	Annual incidence rate of carpal tunnel claims filed per 100,000 workers covered
2001	4	4.4
2002	10	1.3
2003	3	5.2
2004	12	4.2
2005	10	6.9

Figure 8.1 Annual incidence rate of carpal tunnel syndrome cases filed with workers' compensation per 100,000 workers covered, WY, 2001-2005



Limitations

- The number of claims filed with workers' compensation may be underestimated because not all individuals with work-related injuries and illnesses file for workers' compensation.
- The number of claims filed with workers' compensation may be underestimated due to the fact that the treating physician may or may not recognize the condition as work-related.
- Those workers who are self-employed (farmers, independent contractors), who work in small businesses or who are federal employees may not be covered by state workers' compensation insurers and therefore are not included in these estimates.
- Differences in eligibility criteria and availability of data of workers' compensation programs limit these data from being compared with other states or overall US data.

Recommendations

- Review the incidence of CTS by industry, occupation, age, gender, race/ethnicity, and other characteristics.
- Identify primary risk factors that contribute to CTS to target prevention efforts.
- Identify and track other forms of repetitive motion injury.
- Educate primary care physicians and workers on the relationship between work-place exposure and risks and the development of CTS.

Indicator 9: Pneumoconiosis Hospitalizations

Significance

Pneumoconioses are lung diseases caused by dust exposure in the workplace. Pneumoconioses include silicosis, asbestosis, coal workers' pneumoconiosis and pneumoconiosis due to a variety of other mineral dusts including talc, aluminum, bauxite, and graphite. Complications of pneumoconiosis that may cause hospitalizations include respiratory infections, tuberculosis, chronic bronchitis, emphysema, lung cancer, pleuritis, progressive systemic sclerosis, renal disease and respiratory failure. Controlling and monitoring exposure to dust and ongoing medical surveillance are important in preventing pneumoconioses.

Methods

Pneumoconiosis hospitalization data was obtained from the Wyoming State Health Department. Pneumoconioses cases meeting the following criteria were requested: any diagnosis of ICD-9-CM code 500 through 505 (including asbestosis), and age 15 years and older. Excluded data included patient age unknown, out-of-state residents, unknown state of residence, and out-of-state hospitalizations.

Results

- Crude and age-standardized hospitalization rates were not calculated due to the small number (<5) of cases per year.

Limitations

- Due to the voluntary nature of the Wyoming inpatient hospital database the number of patients with a pneumoconiosis diagnosis cannot be accurately reflected.
- Discharge summaries may vary, including the number of diagnoses listed and who completed the summary, but may not include pneumoconiosis as the contributing cause of hospitalization.
- Not all cases of pneumoconiosis may be hospitalized for pneumoconiosis-related complications because of insurance coverage and how a physician may diagnose the condition. Typically, only the small number of the most severe cases are hospitalized. Therefore, hospitalization rates likely underestimate the true burden of pneumoconiosis among workers.
- Pneumoconioses occur many years after a worker's first exposure to hazardous dust. The latency from time of exposure to detection of disease averages 20 to 40 years. Therefore, rates in 2001 to 2005 may reflect past exposures from the 1960s to the 1980s.

Recommendations

- Identify data sources that estimate the rate of outpatient (non-hospitalized) cases of pneumoconiosis.
- Obtain pneumoconiosis hospitalization data from a source which is not voluntary.

Indicator 10: Pneumoconiosis Mortality

Significance

Pneumoconioses are lung diseases caused by dust exposure in the workplace. Pneumoconioses include silicosis, asbestosis, coal workers' pneumoconiosis and pneumoconiosis due to exposures to a variety of other mineral dusts, including talc, aluminum, bauxite, and graphite. Controlling occupational exposure through monitoring, surveillance and prevention programs can prevent pneumoconioses.

Methods

The Wyoming Department of Health's Vital Records Program provided information on pneumoconiosis mortality. Mortality rates and age-standardized rates were not calculated due to the small number of cases reported each year and multiple age groups.

Results

- Less than 5 pneumoconiosis deaths occurred per year in Wyoming from 2001 to 2005.

Limitations

- The estimated incidence of mortality from pneumoconiosis does not necessarily represent current exposures, primarily because of the long latency between a person's first dust exposure and development of disease.

Recommendations

- Review mortality by type of pneumoconiosis, age, gender and race/ethnicity.

Indicator 11: Acute Work-related Pesticide Poisonings Reported to Poison Control Centers

Significance

An estimated 1 billion pounds of pesticides are used each year in the United States to protect food and control disease. Agricultural workers and those applying pesticides have the highest risk of over-exposure to potentially harmful pesticides. The Environmental Protection Agency estimates that 20,000 to 40,000 work-related pesticide poisonings occur each year.

Methods

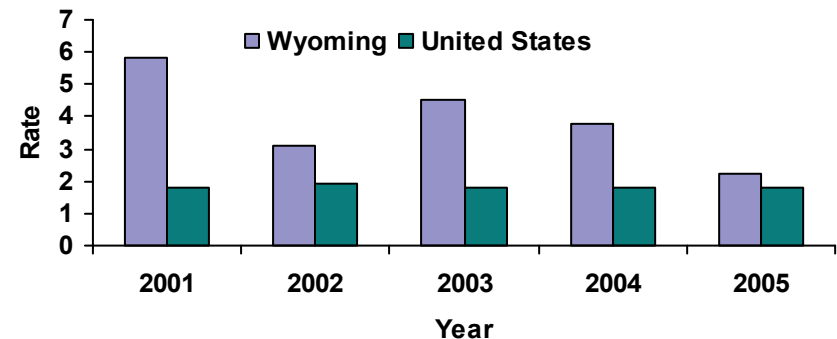
The American Association of Poison Control Centers collects information on reported cases of work-related pesticide poisoning resulting in acute illness. Pesticide poisonings include exposures to disinfectants, fungicides, fumigants, herbicides, insecticides, repellents and rodenticides. The incidence of reported work-related pesticide poisonings per 100,000 employed persons age 16 years and older is calculated for WY and the US for the years 2001 to 2005 using the BLS Current Population Survey data for the denominator.

Results

- An estimated 10 per 100,000 WY workers per year reported work-related pesticide poisoning from 2001 to 2005. (Table 11.1 and Figure 11.1)
- The rate of work-related pesticide poisonings in WY ranged from 2.2 to 5.8 per 100,000 workers per year for the years 2001 to 2005. (Table 11.1 and Figure 11.1)
- Rates in WY were higher compared to overall US rates which have remained stable between 1.8 and 1.9 from 2001 to 2005. (Table 11.1 and Figure 11.1)

Table 11.1 Work-related Pesticide Poisonings Reported to Poison Control Centers, WY and US, 2001-2005		
	Number and rate per 100,000 employed Over Age 16	
Year	Wyoming	United States
2001	15 (5.8)	2,492 (1.8)
2002	8 (3.1)	2,528 (1.9)
2003	12 (4.5)	2,503 (1.8)
2004	10 (3.8)	2,476 (1.8)
2005	6 (2.2)	2,593 (1.8)

Figure 11.1 Rate of work-related pesticide poisonings reported to poison control centers per 100,000 employed over age 16, WY and US, 2001-2005



Limitations

- Not all work-related pesticide exposures resulting in illness are reported to Poison Control Centers.
- Most reported work-related pesticide poisonings are acute exposures to pesticides; chronic long-term exposures are usually not reported to Poison Control Centers.

Recommendations

- Review reported work-related pesticide poisonings by age, gender, race/ethnicity, industry, occupation, severity and illness in order to better target prevention efforts.

Indicator 12: Incidence of Malignant Mesothelioma

Significance

Mesothelioma is a rare, fatal cancer of the lining that surrounds the chest and abdominal cavities. Primarily attributable to asbestos exposure, onset of the disease may not occur for 20 to 40 years after exposure. The number of mesothelioma deaths in the US is expected to peak in 2010. However, occupational and environmental exposure to asbestos continues to occur. Mesothelioma can be prevented by controlling occupational exposure through monitoring, surveillance and prevention programs.

Methods

Mesothelioma data by year and age group were provided by the Wyoming Department of Health. Age-standardized rates were not calculated due to the small number of cases for multiple age groups. State population estimates were obtained from the US Census Bureau for the denominator. Nationwide estimates are not available because not all states meet current reporting standards.

Results

- Annually, an estimated 15 per 1 million WY workers were diagnosed with mesothelioma from 2001 to 2005. (Table 12.1)
- Mesothelioma is primarily attributable to asbestos exposure. Rates have ranged from as low as 3.9 to as high as 25.8 per 1 million WY workers from 2001 to 2005. (Table 12.1)

Table 12.1 Incidence of Malignant Mesothelioma, WY, 2001-2005	
Year	Crude annual incidence rate per million residents
2001	14.2
2002	18.1
2003	14.0
2004	25.8
2005	3.9

Limitations

- The estimated incidence does not necessarily represent current exposures, primarily because of the long latency associated with the disease.

Recommendations

- Review the incidence of mesothelioma by age, gender, race/ethnicity, occupation, industry and exposure history for prevention efforts.

Indicator 13: Elevated Blood Lead Levels Among Adults

Significance

Exposure to elevated levels of lead in the workplace can cause anemia, hypertension, nerve and kidney damage and lead to fertility and pregnancy problems. Lead remains a substantial health problem in the United States due to occupational and environmental exposures. Occupational exposure may occur in workers engaged in the manufacture of storage batteries, mining of lead and zinc ores, working in firing ranges and painting and paper hanging. The average Blood Lead Level (BLL) of the general population is less than 2 micrograms per deciliter ($\mu\text{g}/\text{dL}$).

Methods

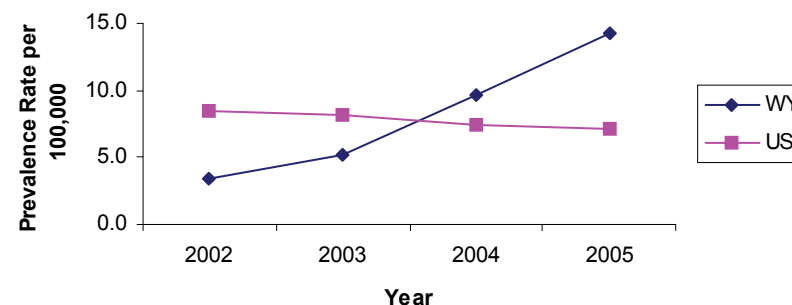
Data are collected on adult BLLs from laboratories and healthcare providers and are submitted to the NIOSH Adult Blood Lead Epidemiology and Surveillance (ABLES) program for adults with BLLs greater than 25 $\mu\text{g}/\text{dL}$ and greater than 40 $\mu\text{g}/\text{dL}$ among persons 16 years or older. ABLES data were not available for WY prior to 2002.

Results

- The number of WY adults with BLLs $\geq 25\mu\text{g}/\text{dL}$ and $\geq 40\mu\text{g}/\text{dL}$ increased during the time period of 2002 to 2005. (Table 13.1)
- The annual prevalence rate per 100,000 employed persons in WY ranged from 3.5 in 2002 to 15.0 in 2005. (Table 13.1 and Figure 13.1)
- National prevalence rates are slightly declining while WY rates are steadily rising. (Table 13.1 and Figure 13.1)

Year	Annual Number of Residents with Blood Lead Levels $\geq 25\mu\text{g}/\text{dL}$ ($\geq 40\mu\text{g}/\text{dL}$) (WY)	Annual Prevalence Rate per 100,000 Employed Persons (WY)	Annual Prevalence Rate per 100,000 Employed Persons (US)
2002	9 (0)	3.5	8.5
2003	15 (1)	5.6	8.2
2004	29 (3)	10.7	7.5
2005	41 (2)	15.0	7.2

Figure 13.1 Prevalence Rate of Elevated Blood Lead Levels, WY and US, 2002-2005



Limitations

- Not all employers provide BLL testing to all lead-exposed workers; underreporting may be a limitation.
- Many workers with significant occupational lead exposure are not appropriately tested.
- Approximately 10-15% of elevated BLLs among adults can be caused by non-occupational exposures.
- Distribution of jobs that include lead exposure varies among ABLES states; caution should be used if comparing states.
- Not all states may be able to distinguish occupationally exposed individuals from non-occupationally exposed individuals.
- Not all states may be able to determine both state of employment/ exposure and state of residence of their reported cases.

Recommendations

- Increase testing in Wyoming to accurately track rates of occupational lead exposure.
- Include age, gender, and race/ethnicity in specific counts and rates to better define the pattern of elevated BLLs.
- Follow-up selected cases and/or clusters to help identify where/ how individuals with high BLLs were exposed and if the exposure is related to an occupational exposure and institute a prevention plan.
- Work with identified industries to institute prevention plans.

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

Significance

Workers in certain industries sustain a higher percentage of injuries and illnesses resulting in days away from work. In 2003, the BLS reported an estimated total of 4.4 million occupational injury and illness cases within the private sector workforce, which converts to an estimated incidence rate of 5.0 cases per 100 FTEs. Many industries have significantly higher injury and illness rates than this national average and 37 industries with an occupational injury and illness rate of 10 cases per 100 FTEs or higher have been designated as “high risk industries.” Prevention efforts should focus on these high risk industries to reduce occupational injury and illnesses rates.

Methods

The US Census Bureau County Business Patterns reports the percentage of workers employed in industries at high risk for occupational morbidity. High morbidity risk industries are identified based on annual injury and illness incidence rates for private sector workers. The percent of workers in WY and US employed in industries with high risk for occupational morbidity is described for the years 2001 to 2005.

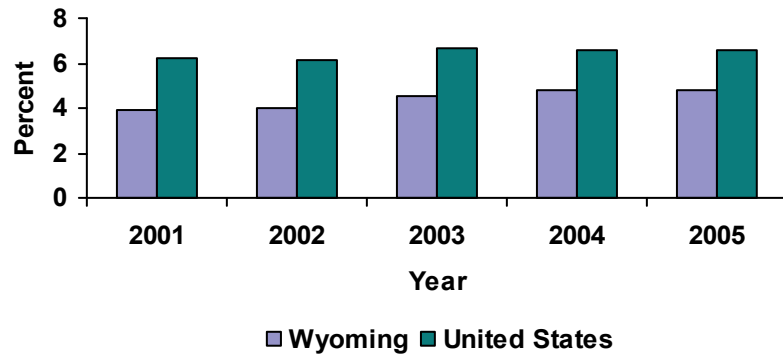
Results

- Approximately 4% of the workforce in WY and 6% of the workforce in the U.S. from 2001 to 2005 were employed in industries with a **disproportionately high** risk for non-fatal injuries and illnesses. (Table 14.1 and Figure 14.1)

- For the years 2001-2005, the highest morbidity industries in WY included:
 - Nursing and Residential Care Facilities
 - Wood Products Manufacturing
 - General Warehousing and Storage
 - Scheduled Air Transportation and Sugar Manufacturing
- Some of these industries, including Woods Products and Scheduled Air Transportation, have very small work forces.
- During 2003-2005, the Couriers and Messengers industry rose to one of the highest morbidity industries in WY as well.

Table 14.1 Percentage of Workers Employed in Industries with High Risk for Occupational Morbidity, WY and US, 2001-2005		
Year	Wyoming	United States
2001	3.9	6.2
2002	4.0	6.1
2003	4.5	6.7
2004	4.8	6.6
2005	4.8	6.6

Figure 14.1 Workers employed in industries with high risk for morbidity, WY and US, 2001-2005



Limitations

- Since the County Business Patterns estimates are calculated in March of each year, new employees for that year may not be counted.
- The ranking of high-risk industries may differ by region.
- Estimates are based on a probability sample of private sector employers and does not include all employers.
- Estimates are based on injury and illness data maintained by employers and are subject to sampling error.
- Estimates do not include the military, small farms and federal agencies.

Recommendations

- Identify high-risk industries in WY for prevention efforts.
- Identify regionally important high risk industries in WY for prevention activities.

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

Significance

Workers in certain occupations sustain a higher percentage of injuries and illnesses resulting in days away from work. In 2003, the BLS reported an estimated 1.3 million injuries and illnesses that resulted in days away from work, a rate of 1.3 days away from work cases per 100 workers. The risk of these injuries and illnesses is significantly higher in certain occupations. Eighty-two occupations had days away from work injury and illness rates higher than 2.6 cases per 100 workers in 2003 and are considered high-risk occupations for occupational morbidity. In 2003, these occupations accounted for approximately 12.6 million workers in the US; 12.2 % of the private sector employment but 41.3% of OSHA days away from work cases. Work-related injuries and illnesses are preventable, and control of occupational hazards is the most effective means of prevention. Concentrating on occupations at high-risk for non-fatal injuries and illnesses will help prioritize limited resources.

Methods

The percent of workers employed in high-risk occupations are reported from 2003 to 2005 based on 2000 census codes for employed persons age 15 or older in Wyoming and the United States. These data were collected from the BLS Current Population Survey.

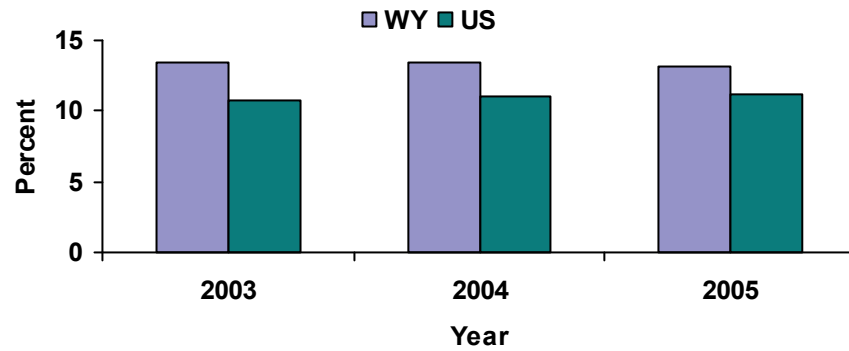
Results

- Approximately 13% of the workforce in WY from 2003-2006 were employed in occupations with high risk for occupational morbidity. (Table 15.1 and Figure 15.1)
- Approximately 11% of the workforce in the US from 2003-2005 were employed in occupations with a high risk for occupational morbidity. (Table 15.1 and Figure 15.1)
- For the years 2003-2005, the highest morbidity occupations in WY included:
 - Driver/Sales Workers and Truck Drivers
 - Laborers and Freight, Stock, and Material Movers
 - Construction Laborers
 - Carpenters
 - Nursing/Psychiatric, and Home Health Aides
 - Heavy Vehicle and Mobile Equipment Service Technicians and Mechanics

Table 15.1 Percentage of Workers Employed in Occupations with High Risk for Occupational Morbidity, WY and US, 2003-2005

Year	Wyoming	United States
2003	13.4	10.8
2004	13.4	11.0
2005	13.1	11.2

Figure 15.1 Workers employed in occupations with high risk for occupational morbidity, WY and US, 2003-2005



Limitations

- The ranking of high-risk occupations may differ by state and/or industry.
- Estimates do not include the military, small farms and federal agencies.

Recommendations

- Identify high-risk occupations in WY to help guide prevention efforts.

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

Significance

A number of industries and occupations have significantly higher rates of work-related fatalities. Each year, over 6,000 cases of work-related fatalities are reported to the CFOI Program administered by the BLS. On an average day, approximately 14 workers die as a result of injuries sustained at work. The risks for these occupational fatalities are significantly higher in certain industries and occupations. Thirty-one industries have fatality rates of 9.5 deaths per 100,000 workers or higher and, in 2003, they employed approximately 18 million workers (15% of the private sector employment), but accounted for 61% of the occupational fatalities. There are also 57 occupations that have fatality rates of 9.5 deaths per 100,000 workers or higher. These occupations and industries are considered at high risk for occupational mortality. Prevention efforts should target these industries and occupations.

Methods

The BLS collects information on the percentage of workers employed in industries and occupations at high risk for occupational mortality. The percent of workers in WY and US employed in industries and occupations with high risk for occupational mortality is reported for the years 2003 to 2005.

Results

- Approximately 29% of workers in WY and 14% in the US were employed in industries at high risk for mortality from 2003 to 2005. (Table 16.1 and Figure 16.1)
- For the years 2003-2005, the highest mortality industries in WY included:

- Construction
- Animal Production
- Support Activities for Mining
- Truck Transportation
- Coal Mining

- Approximately 21% of workers in WY and 10% in the US were employed in occupations at high risk for mortality from 2003 to 2005. (Table 16.1 and Figure 16.1)
- For the years 2003-2005, the highest mortality occupations in WY included:

- Drivers/Sales Workers and Truck Drivers
- Farmers and Ranchers
- First-line Supervisors/Managers of Construction Trades and Extraction Workers
- Operating Engineers and Other Construction Equipment Operators
- Construction Laborers
- Electricians

Table 16.1 Workers Employed in Industries and Occupations at High Risk for Occupational Mortality, WY and US, 2003-2005				
	% of workers employed in high risk <u>industries</u>		% of workers employed in high risk <u>occupations</u>	
Year	WY	US	WY	US
2003	26.1	13.5	20.1	10.1
2004	27.8	13.9	20.7	10.2
2005	30.4	14.2	22.4	10.5

Figure 16.1 Percent workers employed in industries at high risk for mortality, WY and US, 2003-2005

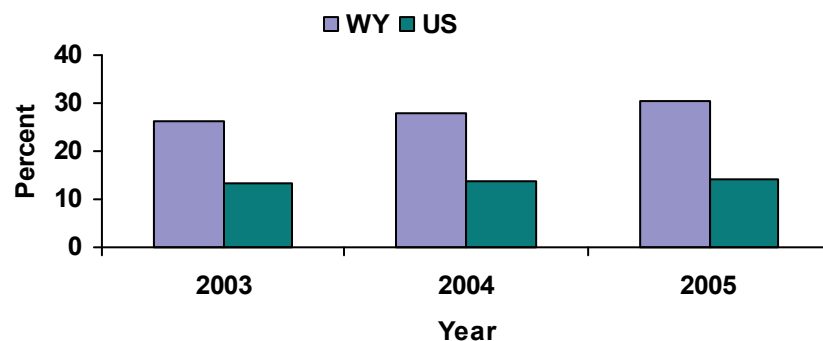
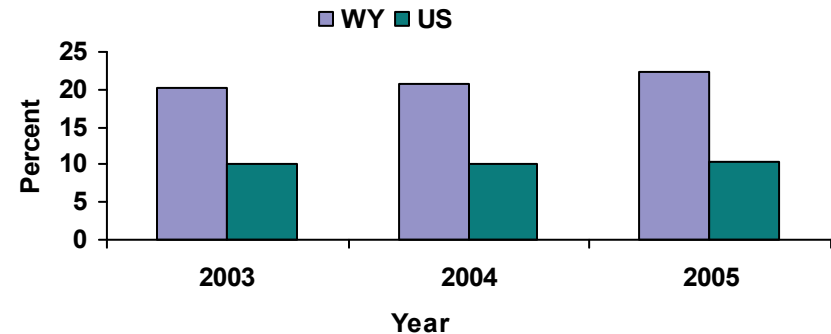


Figure 16.2 Percent workers employed in occupations at high risk for mortality, WY and US, 2003-2005



Limitations

- The ranking of high-risk occupations and industries may differ by state and/or industry.
- Determination of high risk industries and occupations based on Current Population Survey estimates may be unstable from year-to-year.
- Suicides that take place at the workplace are considered work-related fatalities even though these deaths may not be necessarily caused by work-related factors.
- Deaths reported are for the private sector only and exclude military deaths.

Recommendations

- Identify the primary risk factors that contribute to fatalities in high risk industries and occupations to develop prevention

Indicator 17: Occupational Health and Safety Professionals

Significance

The goals of occupational safety and health professionals are to identify hazardous conditions, materials and practices in the workplace and assist employers and workers in eliminating or reducing the attendant risks. An adequate number of these professionals in the fields of occupational medicine, occupational health nursing, industrial hygiene and safety is needed to ensure safe workplaces.

Methods

The number of professionals and rate per 100,000 employees in WY for 2003 to 2005 are reported using data from the American College of Occupational and Environmental Medicine (ACOEM), American Association of Occupational Health Nurses (AAOHN), American Industrial Hygiene Association (AIHA), American Society of Safety Engineers (ASSE) and the BLS Current Population Survey.

Results

- For every 100,000 employees in WY for the years 2003 to 2005, on average, there were 3 occupational medicine physicians and 2 occupational health nurses. For the same time period, on average, there were 6 industrial hygienists and 18 safety professionals. (Table 17.1)

Table 17.1 Number of Occupational Safety and Health Professionals

	2003	2004	2005
Occupational medicine physicians, # (rate)	3 (1.1)	3 (1.1)	3 (1.1)
ACOEM members, # (rate)	6 (2.3)	6 (2.2)	4 (1.5)
Occupational health nurses, # (rate)	2 (.8)	2 (.7)	2 (.7)
AAOHN members, # (rate)	4 (1.5)	4 (1.5)	5 (1.8)
Industrial hygienists, # (rate)	6 (2.3)	5 (1.8)	7 (2.6)
AIHA members, # (rate)	11 (4.1)	14 (5.2)	10 (3.7)
Safety professionals, # (rate)	16 (6.0)	19 (7.0)	20 (7.3)
ASSE members, # (rate)	97 (36.5)	101(37.3)	112 (41.0)

Limitations

- Other occupational safety and health fields are not included, such as health physics, ergonomics, or occupational health psychology.
- Member lists include retired and part-time professionals and therefore may overestimate the number of active occupational and safety professionals.

Recommendations

- Recruit and retain critical occupational health and safety professionals to work in WY.
- Increase the number of students in the occupational safety health professional curricula and training programs.

Indicator 18: OSHA Enforcement Activities

Significance

The US Department of Labor Occupational Safety and Health Administration (OSHA) conducts investigations and inspections at worksites to ensure compliance with employee safety and health standards and regulations. Investigations and inspections typically occur at worksites in the event of work-related fatal and non-fatal injuries, hospitalizations, employee complaints and outside referrals. Random inspections are also conducted at high-risk worksites. OSHA jurisdiction in WY includes private and federal employers and employees.

Methods

Enforcement activities within establishments under OSHA jurisdiction in WY (excluding mines and farms) for the years 2001 through 2005 are reported. Data sources were OSHA annual reports on inspections covered and the number of workers covered by these inspections and the BLS on Covered Employers and Wages (ES-202/CEW).

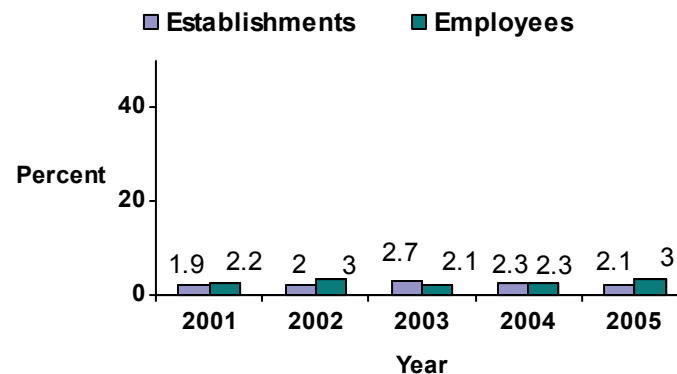
Results

- Approximately 2% of worksites in WY were inspected by OSHA each year between 2001 and 2005. (Table 18.1 and Figure 18.1)
- The percent of OSHA-covered employees whose work areas were inspected ranged from 2.1 to 3.0. (Table 18.1 and Figure 18.1)

Table 18.1 Percent of Establishments Under OSHA Jurisdiction Inspected and Employees Whose Work Areas Were Inspected by OSHA, WY, 2001-2005

Year	Establishments under jurisdiction	Establishments inspected, # (%)	Covered employees eligible for inspection	Covered employees inspected, # (%)
2001	21,209	407 (1.9)	230,160	4976 (2.2)
2002	21,459	439 (2.0)	232,103	7048 (3.0)
2003	21,763	584 (2.7)	234,292	5033 (2.1)
2004	22,340	521 (2.3)	240,607	5624 (2.3)
2005	22,955	491 (2.1)	246,675	7485 (3.0)

Figure 18.1 Percent of establishments under OSHA jurisdiction inspected and employees whose work areas were inspected by OSHA, WY, 2001-2005



Limitations

- The percent of worksites inspected may be overestimated since multiple inspections may occur at the same worksite in the same year.
- Only enforcement activities are measured.

Recommendations

- Obtain details of enforcement activities.
- Increase the number of inspections for better enforcement to help prevent future work-related injuries and illnesses.

Indicator 19: Workers' Compensation Benefits

Significance

Workers' compensation is a state-based social insurance program that covers work-related injuries and illnesses. Benefits include lost wages, related medical expenses, disability payments, and survivor benefits. Amounts of paid benefits represent the direct financial burden of work-related injuries and illnesses. A 'covered worker' is defined as a worker who is eligible for workers' compensation benefits in the event of a work-related injury or illness. Workers who may not be covered by state workers' compensation include those who are self-employed, corporate executives, federal employees, small business owners, farmers and agricultural workers.

Methods

The National Academy of Social Insurance (NASI) collects and reports estimated annual benefits, coverage and costs associated with workers' compensation programs. The average benefit paid per covered worker in WY and the US is reported for 2001 to 2005.

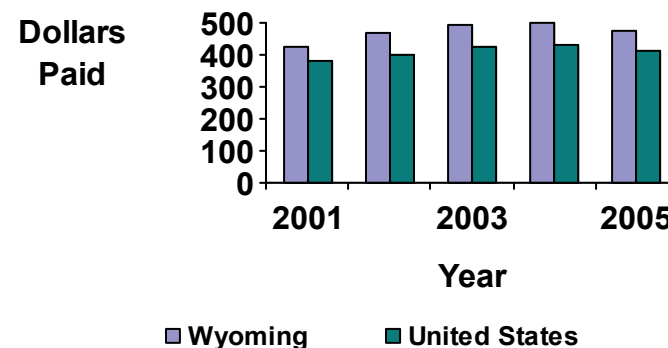
Results

- The average benefit paid to WY workers per year from 2001 to 2005 ranged from \$428 to \$500 and, nationwide, from \$384 to \$429. (Table 19.1 and Figure 19.1)
- The estimated total amount of benefits paid in WY from 2001 through 2005 ranged from \$100.1 million to \$120.1 million. (Table 19.1 and Figure 19.1)
- Nationwide, the estimated total amount of benefits paid ranged from \$44.7 billion to \$52.8 billion. (Table 19.1 and Figure 19.1)

Table 19.1 Average Workers' Compensation Benefit Paid per Covered Worker, WY and US, 2001-2005

Year	Total benefits paid in thousands, \$		Benefit paid per covered worker, \$	
	WY	US	WY	US
2001	100,076	47,757,688	428	384
2002	107,475	49,262,314	467	402
2003	114,252	51,881,754	492	426
2004	120,062	52,818,090	500	429
2005	116,528	52,049,021	471	415

Figure 19.1 Average Workers' Compensation Benefit Paid per Covered Worker, WY and US, 2001-2005



Limitations

- Not all individuals with work-related injuries and illnesses file a workers' compensation claim.
- Since payments are made over time, annual awards may not reflect the full cost of injuries and illnesses for that year.
- Data do not describe the indirect burden of work-related injuries or illnesses (retraining and replacement worker costs, lost wages, administrative costs).

Recommendations

- Ascertain details of awards including industry, occupation, and cost to employer to target prevention efforts and further describe the economic costs of occupational injuries.

Conclusions

Occupational injuries and illness remain a significant problem in the United States. The Bureau of Labor Statistics reported that 5,488 workers in private industry died as a result of work-related injuries in 2007, a rate of 4.0 per 100,000 workers. In 2006, there were 4.1 million cases of on-the-job injuries and illnesses reported to the BLS with 1.2 million of those cases requiring days away from work. The National Safety Council estimated that on-the-job injuries (both fatal and non-fatal) cost society \$142.2 billion in lost wages, productivity, administrative expenses, health care and other costs in 2004.

Occupational health surveillance, the systematic monitoring of health events and exposures among working populations in order to prevent occupational hazards and the associated diseases and injuries, uses the methods of collection of data on cases and exposures, distills and analyzes the data, disseminates the findings and plans interventions for prevention based on the data.

Of note, the rates of work-related fatalities in WY (2001-2005) were higher than overall US rates (WY 14.9 vs. US 4.1). The percent of workers employed in industries and occupations at high risk for occupational mortality was higher than the US rate but this may not totally explain why the WY rates remain high when the national rate has decreased over time. Occupationally-related fatalities result in a significant burden on individual WY families and society as a whole and being able to accurately characterize the type of risks that are associated with these industries and occupations is a first step in planning intervention for prevention.

Also of note is the prevalence rate of elevated blood lead levels among WY adults. ABLES surveillance results indicate a slightly decreasing trend in the national prevalence rate of elevated BLLs in adults between 2002-2005. During the same time period, the WY prevalence rate of elevated BLLs in adults jumped from 3.5 to 15.0 per 100,000.

The rate of work-related pesticide poisonings in WY was higher compared to overall US rates. Agricultural workers are often a minority population or are members of a farm family with little resources for safety programs. Workers in rural areas often have limited access to healthcare and occupational health and safety professionals and need a better surveillance system to help characterize the problem accurately to guide intervention prevention measures. The current occupational health indicators do not specifically address disparity issues but other data sources may be able to be analyzed to characterize health disparity issues in Wyoming.

Data Sources

American Association of Occupational Health Nurses (AAOHN) <http://www.aaohn.org/>

American Association of Poison Control Centers <http://www.aapcc.org/DNN/>

American College of Occupational and Environmental Medicine (ACOEM) <http://www.acoem.org/>

American Industrial Hygiene Association (AIHA) <http://www.aiha.org/Content>

American Society of Safety Engineers (ASSE) <http://www.asse.org/>

Annual Survey of Occupational Injuries and Illnesses (SOII) <http://www.bls.gov/iif/oshstate.htm>

Census Bureau County Business Patterns <http://www.census.gov/econ/cbp/index.html>

Census of Fatal Occupational Injuries (CFOI) <http://www.bls.gov/iif/oshcfoi1.htm>

Current Population Survey: <http://www.bls.gov/cps/>

Geographic Profiles of Employment and Unemployment <http://www.bls.gov/gps/>

Healthcare Cost and Utilization Project (H-CUP) <http://www.ahrq.gov/data/hcup/>

National Academy of Social Insurance (NASI) <http://www.nasi.org/>

Adult Blood Lead Epidemiology and Surveillance (ABLES) <http://www.cdc.gov/niosh/topics/ABLES/ables.html>

Occupational Safety and Health Administration <http://www.osha.gov/>

Wyoming Department of Employment <http://wydoe.state.wy.us/>

Wyoming Department of Health <http://wdh.state.wy.us/>

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<http://www.bls.gov/news.release/osh.nr0.htm>

Bureau of Labor Statistics. 2007. News: Nonfatal occupational injuries and illnesses requiring days away from work. Accessed 3 September 2008. <http://www.bls.gov/news.release/osh2.nr0.htm>

Bureau of Labor Statistics. 2008. News: National census of fatal occupational injuries in 2007. Accessed 3 September 2008.
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Council of State and Territorial Epidemiologists (CSTE). 2001. The Role of the States in a Nationwide, Comprehensive Surveillance System for Work-Related Diseases, Injuries and Hazards. A Report from NIOSH-CSTE Surveillance Planning Group. P 1-123.

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Council of State and Territorial Epidemiologists (CSTE). 2005. Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000. September 2005: p. 1-76.

National Institute for Occupational Safety and Health (NIOSH). 2008. Guidelines for Minimum and Comprehensive State-Based Public Health Activities in Occupational Safety and Health, NIOSH Publication No. 2008-148.
Also available at <http://www.cdc.gov/niosh/2008-148/>.

National Safety Council. 2006. Injury Facts, 2005-2006 Edition. Itasca, IL. p 48-83.

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