Occupational Health Indicators in Colorado
2012 Update

Reported by:

Colorado Department of Public Health and Environment
Occupational Health and Safety Surveillance Program

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SUMMARY

Introduction

Occupational health is an important public health issue in Colorado. Our employment landscape encompasses some of the nation's highest risk occupations, including mining, construction and agriculture. Colorado is also leading the way in developing new technologies and manufacturing methods in the emerging fields of nanotechnology, oil and gas extraction and "green" technology. Impacts to worker health from these new industries are not well understood.

Occupational injuries, illnesses and fatalities are preventable, yet, every year, thousands of people in Colorado are injured on the job or become ill from work-related exposures. The individuals and families affected by occupational injury bear substantial burdens that come with loss of life, income and independence. These injuries, illnesses and fatalities also cost businesses hundreds of millions of dollars each year. The aims of the Colorado Department of Public Health and Environment (CDPHE) Occupational Health and Safety Surveillance Program are to:

- Highlight occupational safety and health trends and determine priorities for prevention and workplace intervention efforts in Colorado;
- Determine data gaps and identify new or additional sources of data to better characterize the occupational health status of Colorado's working population;
- Develop educational activities, identify policies to make Colorado's workplaces healthier and promote newer and safer practices and technologies to prevent injury, illness and fatality.

Occupational Health Indicators

The Council of State and Territorial Epidemiologists (CSTE) and the National Institute for Occupational Safety and Health (NIOSH) recommend a standardized set of Occupational Health Indicators (OHIs) to measure work-related illnesses, injuries and other factors associated with occupational health.[1] These measures are generated using existing population-based data. Currently, the CSTE/NIOSH provide guidance for 20 OHI measures:

1. Non-fatal injuries reported by employers
2. Work-related hospitalizations
3. Fatal work-related injuries
4. Amputations reported by employers
5. Amputations identified in state workers' compensation systems
6. Hospitalizations for work-related burns
7. Musculoskeletal disorders reported by employers
8. Carpal tunnel syndrome cases identified in state workers' compensation systems
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 for occupational morbidity
15. Workers employed in occupations with high risk for occupational morbidity
16. Workers in occupations with high risk of occupational mortality
17. Occupational health and safety professionals
18. OSHA enforcement activities
19. Workers' compensation awards
20. Hospitalizations for low-back disorders

Methods

Data for the OHIs are collected according to the CSTE guidance, *Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and Their Determinants*. [1] All measures are collected according to the CSTE/NIOSH framework, with the exception of OHI #1 (Non-fatal injuries and illnesses), which is collected by an alternate method in partnership with the Colorado Department of Labor and Employment, Division of Workers' Compensation. The CDPHE is unable to monitor two OHIs which require data from the Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII).[i] The OHI data are abstracted from multiple existing Colorado and national datasets. Specific methodology is described within each indicator report.

Summary of Findings

Approximately 2.4 million individuals are employed in Colorado each year. The majority of civilian workers in Colorado are White (92.2%) and 16.1% of workers are Hispanic *(Note race and Hispanic ethnicity are not mutually exclusive categories)*. On average, from 2003-2011, a total of 19.8% of workers held jobs in Farming/Fishing/Forestry (0.5%), Maintenance/Repair (3.2%), Production (4.4%), Transportation (5.1%), and Construction/Extraction (6.6%). The percent of workers employed in industries and occupations at high risk for mortality and morbidity was similar in Colorado compared to the United States.

Every year in Colorado, approximately 112 workers are killed on the job. This is the equivalent of one worker fatality every three to four days, resulting in a rate of 4.7 deaths for every 100,000 in the workforce. (United States rate = 3.9/100,000 workers). Both Colorado and Unites States rates have been trending down since 2000, but appeared to stabilize in 2009. The leading cause of fatal work-related injuries in Colorado and the United States continues to be transportation incidents, accounting for over 40% of occupational fatalities, on average. In 2010-2011, Hispanic workers had the highest work-related fatality rate. More information is needed to better understand fatality risk factors and occupational health disparities in Colorado.

On average, the Colorado Department of Labor and Employment receives over 28,000 workers' compensation (WC) claims for non-fatal, lost-time work-related injuries or illnesses per year. Over 50% of these claims result in more than 10 days of temporary disability benefits, indicating that a high proportion of WC injury claims are for injuries severe enough to warrant significant time off work, or that employers might be lacking adequate return-to-work policies or procedures. Since 2007, on average, an additional 91,000 "med-only" claims are filed each year.

From 2001-2011, there were an average of 2,500 hospital admissions per year for which WC insurance was the expected payer. In total, these injuries and illnesses resulted in WC claim pay-outs of over $809 million each year in Colorado. From 2001-2011, enforcement activities of the Occupational Safety and Health Administration were only able to reach less than 1% of eligible establishments and approximately 2% of eligible employees in Colorado.

[i] The SOII collects employer-reported data on non-fatal work-related injuries and illnesses. Colorado is one of only eight states that do not participate in the SOII.

Conclusions

The indicator reports provide baseline data on the status of occupational health and safety in Colorado, which is essential to monitor trends over time, make state-to-state or state-to-national comparisons, inform state activities in work-place injury and illness prevention and prioritize occupational health issues that are specific to Colorado. Collecting and analyzing data on workplace injuries and illnesses can guide the development of new and safer technologies, educational activities and policies to make workplaces safer and healthier.

In general, due to the limitations inherent with data sources used, many of these measures are conservative estimates of work-related injury and illness in Colorado and nationally. It is not clear why some injury and illness rates are declining or are lower in Colorado then the rest of the United States. The systems available for estimating the data may systematically bias the results due to, for example, utilization of other payer sources rather than WC (self-pay or patient's private insurance), underreporting of injuries and illnesses in the workplace and gaps in data sources available for surveillance and monitoring.

Numerous opportunities exist for further exploration and analysis to draw conclusions on risk factors and the status of occupational health and safety in Colorado. These opportunities are highlighted in each indicator section under the heading "Recommendations and Next Steps." The collection and reporting of baseline data contained in this report, along with supplemental projects conducted by the CDPHE Occupational Health and Safety Surveillance Program, improve the CDPHE's ability to characterize the risks associated with preventable occupational injuries and illnesses, to plan and implement prevention strategies and to recognize and respond to hazards and health conditions affecting Colorado's workforce. Select, over-arching activities of the Program are to:

- Utilize these and other occupational health and safety data to develop and implement policy and intervention plans to reduce occupational illnesses and injuries in Colorado. This includes exploring the need for occupational health injuries, illnesses and conditions to be added to the reportable conditions in Colorado. This may be especially important for conditions for which no other source of surveillance data exists to adequately describe the burden among workers, such as conditions largely treated on an out-patient basis (e.g., pneumoconiosis/asbestosis, musculoskeletal injuries, work-related asthma and occupational poisonings from pesticides or other substances).

- In partnership with the CDPHE Office of Health Disparities, consider methods and data sources to investigate the demographic and occupational characteristics of vulnerable and hard to reach populations to better identify occupational health disparities and work towards their elimination.

- Continue to explore opportunities to partner with agencies and health clinics that may collect additional work-related injury and illness data useful for surveillance. These partnerships will assist with developing an accurate picture of occupational injuries and illnesses in Colorado to help characterize the problem and guide intervention and prevention measures and include:
  - The Colorado Workers' Compensation Systems and Colorado Hospital Discharge Data (pesticide poisonings, amputations, burns, musculoskeletal disorders),

- Colorado Department of Agriculture (pesticide poisonings),
- Migrant Health Clinics (pesticide poisonings, migrant worker injuries and illnesses, musculoskeletal injuries),
- Occupational health clinics providing medical surveillance and treatment for work-related injury and illness (e.g., Centura, Denver Health's Center for Occupational Safety and Health, HealthOne, Kaiser Permanente, National Jewish Health),
- The Colorado Violent Death Reporting System (fatalities and workplace violence).

- Continue to build public health capacity in occupational health and safety by:
  - Pursuing additional funding sources to support enhanced occupational health and safety surveillance and investigation (e.g., BLS SOII, SENSOR Pesticides, FACE Program),
  - Integrating occupational health and safety data and messaging into existing public health surveillance and outreach programs. This helps to address the intersection (or convergence) of public health and the health concerns of workers.
  - Working with internal and external partners to include occupation and industry coding in available local, state and national datasets. (e.g., Health records, Environmental Public Health Tracking (EPHT), Behavioral Risk Factor Surveillance Survey (BRFSS))[ii],
  - Hosting student interns from the Colorado School of Public Health and the Mountain and Plains Education and Research Center (MAP ERC) to complete enhanced research and analysis projects.

[ii] The Occupational Health and Safety Surveillance Program was successful in a proposal to add two NIOSH-developed industry and occupation questions on the 2012 BRFSS. Data will be available for analysis in 2013.

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- Michele Heinzman, Census of Fatal Occupational Injuries Coordinator

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REFERENCES

The following documents provide overarching guidelines for state-based occupational health and safety surveillance.

1. Council of State and Territorial Epidemiologists. *Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and Their Determinants.* Last Updated May 2011. (http://www.cste.org/dnn/Portals/0/OHIndicatordocument41310.pdf)
2. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. *Guidelines for Minimum and Comprehensive State-Based Public Health Activities in Occupational Safety and Health.* September 2008. DHHS (NIOSH) Publication No. 2008-148 (http://www.cdc.gov/niosh/docs/2008-148/pdfs/2008-148.pdf)
3. Centers for Disease Control and Prevention. *Indicators for Occupational Health Surveillance.* MMWR 2007; 56(RR01):1-7. (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5601a1.htm)

SUMMARY OF ACRONYMS

BLS: Bureau of Labor Statistics
BRFSS: Behavioral Risk Factor Surveillance Survey
CDC: Centers for Disease Control and Prevention
CDPHE: Colorado Department of Public Health and Environment
CFOI: Census of Fatal Occupational Injuries
CHA: Colorado Hospital Association
CPS: Census Population Survey
CSTE: Council of State and Territorial Epidemiologist
DOLE: Department of Labor and Employment
EPHT: Environmental Public Health Tracking
FACE: Fatality Assessment and Control Evaluation
FRI: First Report of Injury
GP: Geographic Profile of Employment and Unemployment
LAU: Local Area Unemployment Statistics
NASI: National Academy of Social Insurance
NIOSH: National Institute of Occupational Safety and Health
OSHA: Occupational Safety and Health Administration
OHI: Occupational Health Indicator
MAP ERC: Mountain and Plains Education and Research Center
RMPDC: Rocky Mountain Poison and Drug Center
SENSOR: Sentinel Event Notification System for Occupational Risk
SOII: Survey of Occupational Injuries and Illnesses
QCEW: Quarterly Census of Employment and Wages
WC: Workers' Compensation