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Proportion of Workers Who Were Work-Injured and Payment by Workers' Compensation Systems — 10 States, 2007

Work-related injuries are a major cause of morbidity in the United States, with approximately 4 million employer-reported nonfatal injuries and illnesses in 2007 (*1*). Currently, few population-based state-level estimates of nonfatal occupational injury rates exist. In the few extant studies, self-reported, nonfatal occupational injury rates exceed estimates based on employer reports or state workers' compensation systems (*2,3*). To estimate the proportion of workers who were work-injured during the preceding 12 months and the proportion of those injured for whom workers' compensation insurance programs paid for medical care, 10 states added a module to their 2007 Behavioral Risk Factor Surveillance System (BRFSS) survey. This report summarizes the results of that survey, which found that the proportion of workers who were work-injured during the preceding 12 months ranged from 4.0 to 6.9 work-injured persons per 100 employed persons (Kentucky and New York, respectively). The proportion of self-reported work-injured persons for whom medical treatment was paid by workers' compensation insurance ranged from 47% in Texas to 77% in Kentucky. This study shows the feasibility of complementing existing occupational injury surveillance through the use of population-based surveys. States that wish to enhance existing occupational injury surveillance should consider similar studies. Additional research is needed to understand the reasons for nonpayment of worker-reported occupational injuries by workers' compensation insurance programs.

BRFSS is a state-based, random digit–dialed, landline telephone survey of the noninstitutionalized U.S. civilian population aged ≥18 years that collects data on health conditions and behaviors. For the 2007 BRFSS, a module developed by the 10 participating states* was administered to determine whether respondents employed for wages during the preceding 12 months had a work-related injury requiring medical care or medical advice and, if so, whether workers' compensation insurance paid for the treatment or advice. For this report, respondents were considered to be employed for wages during the preceding 12 months if they responded affirmatively to questions regarding being currently "employed for wages" or "out of work for less than 1 year." Respondents who were currently "students," "retired," "unable to work," or "homemakers" were screened further regarding any employment during the preceding 12 months with the following question: "During the past 12 months, have you been employed for any period of time, either part-time, full-time, or self-employed?" An affirmative response led to inclusion in subsequent data collection.

Those who acknowledged employment during the preceding 12 months were asked, "During the past 12 months were you injured seriously enough while performing your job that you got medical advice or treatment?" Those who answered affirmatively were asked, "For your most recent work-related injury, who paid for your treatment?" Respondents answering that 1) their treatment had been paid using a state or federal workers' compensation system or military insurance,† or 2) they had initiated a workers' compensation claim were assumed to have had payment within a workers' compensation insurance system. Response and cooperation rates for each state were calculated using Council of American Survey and Research Organizations (CASRO) guidelines.

* California, Connecticut, Kentucky, Massachusetts, Michigan, New Jersey, New York, Oregon, Texas, and Washington

† The military health system provides benefits to active duty personnel, their dependents, military retirees, and others for service-related and non–service-related injuries and illnesses. Inclusion of these injuries as covered under workers' compensation reflects the inability to differentiate the injury circumstances and relationship to military service.

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Response rates ranged from 26.9% (New Jersey) to 60.1% (Kentucky) (median: 39.0%), and cooperation rates ranged from 49.6% (New Jersey) to 77.2% (Kentucky) (median: 64.6%) (*4*).

The proportion of workers who were work-injured during the preceding 12 months was calculated by dividing the total number of employed respondents with a work-related injury during the preceding 12 months by all employed respondents. The proportion of work-injured persons for whom the self-reported work injury was paid for by workers' compensation was determined by dividing those with a self-reported injury paid by workers' compensation by those reporting having been injured during the preceding 12 months. Because self-employed workers usually are not required to have workers' compensation insurance, data collected for self-employed workers were excluded from all analyses. The number of work injuries to the respondents during the preceding 12 months was not included as part of the BRFSS module; therefore, an injury rate could not be calculated.

BRFSS is administered monthly during a calendar year. However, injured persons data were collected for the preceding 12-month period; therefore, work injuries for the population surveyed might have occurred during January 2006–December 2007, but each respondent had, at a maximum, a 12-month exposure period. All data were weighted to population-based estimates according to age-, race-, and sex-specific state population estimates and the respondent's probability of selection.

The proportion of workers who were work-injured during the preceding 12 months ranged from 4.0 (Kentucky) to 6.9 work-injured persons per 100 employed persons (New York) (median: 5.9 work-injured persons per 100 employed persons) (Table). The proportion of self-reported work-injured persons for whom medical treatment was paid by workers' compensation insurance ranged from 47% in Texas to 77% in Kentucky (median: 61%).

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What is already known on this topic?

Few data on state-level, self-reported, nonfatal occupational injuries are available, and studies have shown that rates relying on employer reporting and workers' compensation claims underestimate total injuries.

What is added by this report?

Among 10 states collecting data in the 2007 Behavioral Risk Factor Surveillance System survey, the median proportion of workers who were work-injured during the preceding 12 months was 5.9 per 100 employed persons, and a median of 61% of self-reported work injuries had treatment paid by workers' compensation. Many reasons might explain why medical treatment for a self-reported injury might not result in payment by workers' compensation.

What are the implications for public health practice?

Worker injury surveillance can be complemented through the use of population-based surveys. States that wish to enhance existing occupational injury surveillance should consider similar studies. Additional research is needed to understand the reasons for nonpayment of worker-reported occupational injuries by workers' compensation insurance programs.

TABLE. Estimated incidence of self-reported, work-injured adults* and proportion for whom treatment was paid by workers' compensation, by state — Behavioral Risk Factor Surveillance System, 10 states, 2007

State	No. of respondents	Work-injured rate†		% injured with payment by workers' compensation¶	
		Rate	(95% CI§)	%	(95% CI)
Kentucky	2,552	4.0	(2.8–5.2)	77	(65–89)
Massachusetts	2,310	4.2	(3.1–5.4)	60	(45–75)
New Jersey	1,730	4.3	(3.1–5.5)	64	(51–78)
Connecticut	3,778	4.7	(3.7–5.6)	63	(53–74)
Oregon	2,425	5.9	(4.6–7.2)	62	(50–74)
Texas	4,643	5.9	(4.6–7.5)	47	(35–59)
Washington	7,348	6.0	(5.2–6.7)	61	(55–67)
Michigan	1,482	6.3	(4.8–8.2)	56	(41–69)
California	2,758	6.3	(5.1–7.4)	61	(55–66)
New York	3,173	6.9	(5.6–8.2)	50	(39–60)

* Respondents aged >18 years who were employed for wages at some time during the preceding 12 months and who responded to the work injury question. Work injuries were defined as those receiving medical advice or treatment.
† Data are weighted to be representative of the state population; rate per 100 employed persons.
§ Confidence interval.
¶ Respondents indicated that treatment was paid for by state or federal workers' compensation program, military insurance, or a pending workers' compensation payment decision; percentages are based on weighted data.

Editorial Note

In the United States, the primary surveillance system for state and federal level estimates of occupational injury is the Bureau of Labor Statistics' Survey of Occupational Injury and Illness (BLS SOII), which relies on data collection through employer-based case reporting (*1*). Employer-based reporting underestimates the full burden of occupational injury because of worker underreporting of occupational injuries to their employers or incomplete employer recording of injuries (*2,3*). BRFSS can supplement employer-based occupational injury surveillance systems by providing population-based information on worker injuries. The findings presented in this report are a good example; BRFSS was used to estimate the proportion of occupational injuries for which the costs of medical treatment or advice were paid by workers' compensation programs. An advantage to using BRFSS to supplement occupational injury surveillance is that the injuries captured by BRFSS are broader than the injuries captured by BLS SOII, which generates estimates of occupational injury based only on those cases that are required to be recorded under Occupational Safety and Health Administration (OSHA) recordkeeping rules. OSHA recordkeeping rules do not include all injuries for which a respondent might answer positively to a BRFSS work injury question. For example, injuries OSHA defines as receiving first aid are not required to be recorded on the OSHA log.§ Examples of first aid include drilling a fingernail or toenail to relieve pressure, or cleaning, flushing, or soaking wounds on the skin surface. Further research could help determine the worker, employer, and injury characteristics of worker-reported occupational injuries that were likely recordable under OSHA recordkeeping rules but were not recorded.

In the United States, workers' compensation systems typically are state-regulated social insurance programs designed to extend no-fault liability for workplace injuries, coupled with guaranteed medical benefits and partial wage compensation to workers injured during employment (*5*). In this report, the proportion of respondents with medical treatment paid for by workers' compensation varied greatly among the 10 states, from 47% in Texas to 77% in Kentucky. Several reasons might exist for this large variation. First, the ability to make state-to-state comparisons using workers' compensation data is substantially limited. In nearly all states, workers' compensation insurance is mandatory for most private

§ Available at http://www.osha.gov/recordkeeping/new-osha300form1-1-04.pdf.

and nonfederal public sector employers,¶ with benefits available for most workers employed for wages (*5*). However, highly variable state-specific exclusions for mandatory employer workers' compensation insurance exist for specific occupations (domestic workers or corporate officers), and small employers (typically employers ranging from one to five employees) (*5*). In Texas, employers may choose not to have workers' compensation insurance. In most states, self-employed workers are not required to have workers' compensation insurance and this was the rationale for exclusion of this population from the analysis. Second, although an injured worker might be covered by workers' compensation insurance, the particular injury sustained might not be compensable by the workers' compensation program. For example, injuries resulting from repetitive trauma or from an aggravation of a non–work-related injury or pre-existing injury might not be eligible for compensation in some states. Third, an injured worker with workers' compensation coverage and an eligible injury might not report an injury or seek compensation. Reasons for not reporting an injury to workers' compensation likely include, among others, access to alternative health-care insurance, less severe injuries, longer employment duration, low wages, poor job security, immigrant status, and concerns over employer or coworker retribution for injury reporting (*3*).

Several state-based occupational injury surveillance systems identify hospitalizations as work-related if the payer was workers' compensation insurance (*6*). The substantial portion of occupational injury cases where workers' compensation was not used for payment suggests that this methodology might yield underestimates of occupational injury rates.

The findings in this report are subject to at least three limitations. First, the recall period of 12 months increased the likelihood of reporting inaccuracy, although whether this resulted in underreporting or overreporting is unknown. Second, work-related injury rates vary by occupation and industry and employment by occupation and industry varies by state. However, standardized estimates (which would enhance state-to-state comparisons) could not be developed because respondent industry and occupation data were not collected. Finally, although the BRFSS weighting procedures correct for nonresponse, the low response rates increase the risk for response bias.

Evaluations of CDC's National Institute for Occupational Safety and Health (NIOSH) surveillance programs have recommended expansion of nonfatal occupational injury surveillance to include the use of nonemployer data sources such as BRFSS (*7*). The analysis presented in this report is an example of how BRFSS can be used. NIOSH also is exploring the use of other population-based surveys, such as the National Health Interview Survey and the Current Population Survey, which is the primary source of U.S. labor force data (*8*). In doing so, NIOSH is considering costs, the feasibility of producing reliable national and state estimates, the ability to address illnesses as well as injuries, the collection of industry and occupation data, the ability to address health disparities, and other factors. NIOSH also has initiated new research to examine underreporting of occupational injuries and illnesses, which will help inform surveillance expansion efforts.

¶ Alternative federally administered workers' compensation programs cover federal, railroad, and maritime employees.

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