Journal of Occupational Rehabilitation, Vol. 12, No. 3, September 2002 (© 2002)

Is Disability Underreported Following Work Injury?

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Existing national data may underreport the full burden of occupational injuries and illnesses. This study sought to provide more complete reporting and to assess disability that persisted following return to work. Workers ($n = 205$) *with a musculoskeletal injury resulting in 5 or more days of lost time or restricted duty were recruited from three employers. Data on work status and functional limitations were derived from multiple sources including administrative records, medical records, and patient interviews at baseline and 6 months. Results indicate that many workers reported continuing difficulties functioning at work following return to full duty. Measures of health-related quality of life improved over 6 months, but bodily pain and physical functioning scores remained lower than expected based on national averages. Sixteen percent of workers were reinjured within a year following initial injury. Following return to work, many workers experienced reinjury or reported persistent limitations in function 6 months following injury. Based on study findings the conclusion is drawn that OSHA logs may provide accurate measures of initial episodes of time loss from work but may underrepresent the full magnitude of lost time following work injury.*

KEY WORDS: disability; occupational injuries; musculoskeletal disorders; functional status; return to work.

INTRODUCTION

Work-related musculoskeletal disorders are a major source of morbidity, disability, and expense among working populations. In 1992, an estimated $172 billion was spent on the direct costs (health care costs) and indirect costs (lost earnings, lost home production, and lost fringe benefits) of work-related injuries and illnesses, an amount that equals or exceeds that spent on cancer or heart disease (1). Work-related musculoskeletal disorders affect an estimated 19 million persons per year in the United States, and account for the majority of workers compensation costs (2,3).

The assessment of interventions to improve outcomes and decrease costs of workplace musculoskeletal injuries requires the adequate measurement of outcomes of these injuries.

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1053-0487/02/0900-0139/0

The most commonly used outcome measures assess labor force participation, and include return to work, work status, and time loss. These measures are often used because lost workdays have a direct economic impact on workers and employers, and because these data are easily accessible via administrative records. In the United States, national estimates of number of injuries and the morbidity of these injuries are provided by the Bureau of Labor Statistics, which relies on employer reporting of time loss and work restrictions via the OSHA 200 and 300 logs.

Unfortunately, these work-related measures of outcome often underestimate the full burden of work-related musculoskeletal injuries on work absence and ability to work. Return to work and short-term work status are not adequate measures of workplace injury outcomes for several reasons. A study of 1850 workers in Ontario for 3 years after workplace injury showed that long-term work patterns continued to be affected despite successful return to work after an initial injury (4). The reasons for this are no doubt multifactorial and may be in part due to high rates of reinjury which are seen among workers with work-related injury and which are not captured in return-to-work data. Return-to-work and work status also do not account for residual pain and decreased functional status, which may lead to persistent disability and affect long-term work patterns (5).

Time lost from work, measured over a long follow-up period, can serve as an indicator of long-term work patterns, but measurement of time loss is not entirely straightforward. A study of a 3-year cohort of 850 workers with work-related back injury in California compared measures of time loss using administrative records. Results indicated that there were statistically significant variations among several accepted methods of calculating time loss from these records. It has also been shown that reports of time loss differ in administrative records and self-reported accounts; there may be underreporting of days lost in administrative records because of nonreported or noncompensated periods of injury-related work loss (6).

A complementary approach to outcome measurement involves self-reported measures of general health, pain, and functional status, which capture outcomes missing from administrative measures that quantify only labor force participation. This study was undertaken with two aims: first, to provide more complete reporting of disease outcomes and disability following workplace musculoskeletal injury and second, to provide more complete reporting of disease outcomes and disability following injury. It was hypothesized that administrative data used to estimate the number of days lost and morbidity following injury in the United States (primarily OSHA 200 logs) underreport the duration of work disability compared with other sources, and that persistent injury effects on quality of life measures would persist, even in those who returned to full duties.

METHODS

Subjects

The study population comprised all subjects recruited to an ongoing randomized controlled trial of case management and ergonomic intervention for the prevention of work disability. Workers were recruited from three large employers: a large health care system, airline ground crew, and a university. Study eligibility required subjects to have an accepted workers' compensation claim for an acute or chronic musculoskeletal disorder resulting in 5 or more days of total or partial disability (5 or more workdays of restricted duty or time

loss recorded in medical treatment records). Patients were identified through a computerized patient registration system at occupational health clinics serving the study population. Following identification through the clinic registration system, prospective subjects were contacted by telephone to ensure that they met eligibility criteria concerning time away from usual work.

Nine hundred and thirty-four potentially eligible subjects were identified using the clinic patient registration system. Of these, 233 could not be contacted by telephone, most commonly because they did not return calls to study personnel. Two hundred and twenty-six potentially eligible subjects were contacted by telephone but refused to be interviewed. Of the 477 subjects interviewed, 164 did not meet eligibility criteria. Three hundred and eleven subjects were recruited and received the baseline interview; the present study includes all subjects who had completed both baseline and follow-up interviews by November 26, 2001. There were 253 subjects whose baseline interview had been completed at least 6 months before this date. Of these, 19 were lost to follow-up, two were deceased, five had not yet been interviewed, and 22 had been dropped from the study, because their workers' compensation claim was subsequently denied. Interview data presented here will be restricted to those 205 subjects in whom both baseline and follow-up interviews were completed by the cutoff date. Data is also reported on reinjury rates and comparison of OSHA 200 log data to physician records for these 205 subjects.

The specific musculoskeletal disorders diagnosed at the time of enrollment are shown in Table I. Because some subjects had more than one diagnosis, the number of diagnoses (310) exceeds the number of subjects (205). For purposes of analysis, injuries were divided into three broad regional anatomic areas by the site of primary symptoms, though many subjects had symptoms in more than one anatomic area. Forty-five percent of subjects

Table I. Patient Diagnoses

Patient diagnoses	# of cases
Low back	
Strain/sprain/spasm/pain	90
Radiculopathy/disc	16
Other	1
Lower extremity	
Lower abdominal/inguinal strain	3
Hip	7
Thigh/leg	6
Knee	32
Foot/ankle (contusion/tendinits/strain/sprain)	15
Upper extremity/upper trunk	
Shoulder (contusion/sprain/strain/tendinitis)	34
Arm (contusion/sprain/strain)	7
Elbow (contusion/sprain/strain/epicondylitis)	7
Wrist/hand	
Contusion	6
Sprain/strain/tendinitis	21
Carpal tunnel syndrome	4
"Repetitive trauma"	4
Cervical (contusion/sprain/strain)	25
Thoracic spine/chest (contusion/sprain/strain)	32
Total[a]	310

[a] Multiple injuries could be recorded for each subject.

reported their primary symptoms in the low back, 18% in the lower extremity, and 37% in the upper extremity, thoracic or cervical regions. Eighty-nine percent of the injuries were acute, with the onset of symptoms within 1 week of seeking medical attention. Eleven percent of the injuries were chronic, with the onset of symptoms more than 1 week prior to seeking medical attention.

The average time from initial medical attention to completion of the baseline interview was 8 days. The mean time from injury to follow-up interview was 180 days. Of the 205 subjects, 132 were employed by the health care system, 62 by the airline, and 11 by the university. A wide range of job types and job tenures were represented. The average age of subjects was 42, with a range from 20 to 70. One hundred and thirty-six (66%) of the subjects were female and 69 (34%) were male.

Data Collection

Administrative data were obtained from OSHA 200 logs at the three employers and through a limited review of medical records. To evaluate completeness of reporting of lost and restricted workdays on the OSHA 200 log, OSHA 200 log data on total days lost and restricted from work was compared with data from medical records that showed the date when the treating physician released a patient back to full duty work by removing work restrictions. The OSHA 200 log counts only lost or restricted days of scheduled work, while the measures of lost and restricted workdays derived from medical records utilized calendar days. Weekend days and national holidays were removed from the physician-determined lost or restricted workdays to allow for more direct comparison with OSHA 200 log data.

In addition to these administrative data, all subjects completed a baseline telephone interview that included questions on work and functional status, symptoms and symptom severity, as well as job satisfaction. Six months later subjects completed a follow-up interview that covered similar domains to the baseline interview. The interview was adapted from a validated questionnaire used in the Washington State Managed Care in Workers' Compensation study (7).

In addition to questions from the Washington State study, the questionnaire included standardized scales used for the assessment of functional status and health-related quality of life. These scales included the SF-12 and additional questions to complete three subscales from the full SF-36 (Physical Role Function, Bodily Pain, and Mental Health) (8,9). The SF-36 is a widely used generic health related quality of life measure that measures eight subscales; the SF-12 is a shortened version of this instrument that measures two scales, Physical Health and Mental Health. The SF-12 was used in place of the full SF-36 to reduce the length of the interview; the three additional subscales of the SF-36 were included as it was thought that these measures would be most pertinent to injury-related effects in the subjects.

The SF-36 is relatively insensitive to changes in health-related quality of life in patients with upper extremity disorders. Thus, a short version of the DASH (Disabilities of the Arm, Shoulder, and Hand), an instrument designed to measure functional status of the upper extremity, was included (10). The full 30 question DASH has a high internal consistency and a high level of reliability; the 11 question version used in this study was developed based on the items with the highest item total correlation in each of the domains covered

Table II. Work Status at Baseline and 6-Month Follow-Up

	Work status		
	Off work (%)	Restricted duty (%)	Full duty (%)
Baseline	24	75	1
Follow-up	12	5	83

by the DASH, and has been previously used in studies of occupational musculoskeletal disorders (11).

All statistical testing was performed using the SPSS 10.0 program. Analysis of paired data and unpaired data used standard parametric and nonparametric statistical methods.

RESULTS

Usual Measures of Work Outcomes

As shown in Table II, 1% of subjects were working full duty at the time of the baseline interview. Twenty-four percent of subjects were off work and 75% were working in a restricted duty capacity. At 6 months, 88% of workers had returned to work, with 83% working full duty, and 5% working restricted duty. Seventy-seven percent of subjects reported they were working at the same job as they had been at the time of injury. Fifty-eight percent of the 47 workers who changed jobs reported that they did so at least in part because of their injury.

Time lost from work was measured by the OSHA 200 log and by physician assessment in the medical record. As shown in Table III, the number of days lost and restricted recorded on the OSHA logs from the three companies showed a slight but statistically different decrease in mean lost days compared with those obtained from physicians' determinations recorded in the medical charts (28.0 vs. 29.4 days).

Reinjury

Reinjury was a common cause of further time loss in this group. A reinjury was defined as an OSHA log recorded injury occurring to a different body part than the original injury, or injury to the same body part occurring more than 30 days after return to full duty following the original injury. Choice of the 30-day period, while arbitrary, was intended to distinguish persons who failed initial return-to-work efforts from those who apparently

Table III. Comparison of Time Away From Usual Work Reported by OSHA 200 log and Medical Records

	Total days off and restricted duty days		
	Medical record[a]	Medical record[b]	OSHA 200 log
Initial injury	42.8 (0.000)	29.4 (0.006)	28.0
Reinjury ($n = 32$)	37.7 (0.000)	25.9 (0.024)	18.3

Note. p values for t test (given in parenthesis) in comparison to OSHA 200 log.
[a] Includes weekends and holidays.
[b] Adjusted to exclude weekends and holidays.

returned successfully before requiring medical attention and change in work duties. Inclusion of different body parts was intended to capture reinjuries that may represent similar conditions, but are coded differently. Thirty-two (16%) of 205 subjects had a reinjury recorded on the OSHA 200 log during an average follow-up time of 11.5 months, with a maximum follow-up time of 1 year. Five subjects had multiple reinjuries.

As shown in Table III, underreporting of days lost and restricted by reinjuries was more striking than the underreporting of the primary injury when comparing OSHA log data to physician-determined days. Mean OSHA log recorded days of lost or restricted time was 18.3 days, while the means of adjusted and unadjusted physician-determined days were 25.9 and 37.7 days, respectively. These differences were statistically significant. While 16% of workers had a reinjury recorded on the OSHA log, 30% reported in the 6-month interview that they had additional lost or restricted days related to the injury following their initial return to work. The average duration of this self-reported time loss was 26 days, comparable to the adjusted physician-recorded days.

Measures of Pain and Functional Limitation

Despite high rates of return-to-work, there was still significant disability reported among workers at 6-month follow-up. At the baseline interview, 40% of workers answered yes to the question, "Do you consider yourself physically disabled because of the injury?" Although there was a statistically significant decrease in the number who considered themselves to be disabled by 6-month follow-up, 24% of workers (including 20% of those working at full duty) still considered themselves to be disabled because of their injury. At follow-up, 35% of workers said that their ability to work was worse or much worse than before the injury; 32% of workers reported lower income at 6 months than at the time of the injury.

SF-36 Subscale Scores and SF-12 Summary Scores

Between baseline and 6-month follow-up, there was overall improvement in SF-36 subscale scores as shown in Table IV. Improvement in all categories was statistically significant. The SF-36 subscales are scored from 0 to 100 with higher scores representing less disability. Mean scores (with standard deviation) for the general U.S. population are 84 (±23) for physical functioning, 75 (±24) for bodily pain, and 74 (±18) for mental health (9). As shown in Table IV, scores among the injured worker cohort at 6 months were

Table IV. SF-36 Subscale Scores and SF-12 Summary Scores at Baseline and 6-Month Follow-Up

SF-36 scores	Baseline mean (SD)	Follow-up mean (SD)	*p* value[a]	U.S. population (mean)
SF-36 subscale				
Physical functioning	42 (25)	71 (26)	0.000	84
Bodily pain	30 (17)	55 (26)	0.000	75
Mental health	69 (20)	76 (19)	0.000	74
SF-12 summary scale				
Physical health	30 (7)	42 (11)	0.000	50
Mental health	49 (11)	51 (11)	0.033	50

[a]Comparison of baseline vs. follow-up, significance tested using paired *t* test.

Table V. Mean SF-36 Subscale Scores by Work Status at 6-Month Follow-Up

	Work status			
	Off work M (SD)	Restricted duty M (SD)	Full duty M (SD)	*p* value[a] M (SD)
Physical functioning				
Baseline	38 (25)	44 (23)	42 (25)	0.749
Follow-up	56 (25)	48 (24)	75 (24)	0.000
Mental health				
Baseline	67 (19)	61 (26)	70 (20)	0.361
Follow-up	66 (24)	70 (20)	77 (17)	0.014
Bodily pain				
Baseline	28 (17)	23 (16)	31 (17)	0.232
Follow-up	38 (27)	27 (22)	59 (24)	0.000

[a] Significance tested using analysis of variance (ANOVA).

substantially lower than those reported for the U.S. general population for the physical functioning and bodily pain subscales, but essentially the same for mental health.

SF-12 physical health and mental health summary scores are also shown in Table IV. Both of these scales are transformed using coefficients and a constant derived from the general U.S. population such that the mean of both scales in the general population is 50, with a standard deviation of 10. As with the SF-36 subscale scores, higher scores represent better health. There was statistically significant improvement in the mean scores on the physical health scale and the mental health scale. The follow-up mean for the physical health scale was nearly one standard deviation below the mean for the general U.S. population.

Table V shows the SF-36 subscale scores stratified by work status at follow-up. Those who were back to full duty at 6 months had the greatest improvement in bodily pain and physical functioning scores. These differences were statistically significant across all three groups. Interestingly, workers who were in restricted duty roles at 6 months had lower physical functioning and bodily pain scores than those who were off work, while those who were off work at 6 months had the lowest mental health scores at follow-up. Differences in follow-up scores on all three subscales were statistically significant across the three groups.

SF-36 scores were also stratified by injury type as shown in Table VI. In contrast to comparisons by work status, where baseline scores were similar but diverged at 6 months, comparisons by injury type showed differences at baseline, which converged at 6 months. Of

Table VI. Mean SF-36 Subscale Scores by Injury Site at 6-Month Follow-Up

	Injury site			
	Low back ($n = 91$)	Lower extremity ($n = 37$)	Upper extremity ($n = 76$)	*p* value[a]
Physical functioning				
Baseline	33	28	59	0.000
Follow-up	68	69	76	0.129
Mental health				
Baseline	68	63	73	0.049
Follow-up	74	77	77	0.663
Bodily pain				
Baseline	26	35	33	0.002
Follow-up	53	59	54	0.502

[a] Significance tested using analysis of variance (ANOVA).

Table VII. General Health Status at Baseline and 6-Month Follow-Up

	Health status				
	Excellent (%)	Very good (%)	Good (%)	Fair (%)	Poor (%)
Baseline	20	40	26	11	3
Follow-up	16	28	29	23	4

the three injury types, those with primarily upper extremity injury had the highest baseline and follow-up scores on the physical functioning scale. This is likely due in large part to the questions used to assess physical functioning in the SF-36, which are more sensitive to functional impairment in the back and lower extremities. Those with back injury had the lowest scores on the bodily pain scale at baseline, and had the largest amount of improvement on that scale at 6 months. Differences in baseline scores on all three scales were statistically significant across the three groups. Changes in physical functioning score from baseline to follow-up were also significantly different across all three groups. Baseline and follow-up scores on all three SF-36 subscales tested were lower for those with chronic injuries than for those with acute injuries. Improvements in all subscale scores were similar in both groups.

Answers to individual questions from the SF-36 also indicated persistent decrements in functional status 6 months following injury. At baseline, 97% of subjects reported that they were limited in work or other regular daily activities as a result of physical health. At 6 months, 42% still reported such limitation. Forty percent of subjects at 6 months reportedly accomplished less than they would like to because of physical health and 28% because of emotional problems. Seventeen percent of subjects at 6 months reported that they were unable to do work as carefully as usual as a result of emotional problems, an improvement from 31% seen at baseline, but still a substantial proportion of workers. These differences between baseline and 6-month interview were all statistically significant.

There was improvement over the 6 months in the amount of pain reported by workers and in the degree to which pain interfered with normal work. At baseline 44% of workers reported severe or very severe pain over the last week. No one reported having had no pain over the last week. At 6-month follow-up 16% reported severe or very severe pain, while 13% reported having had no pain over the last month. At baseline, 61% reported that pain interfered with their work quite a bit or extremely; at 6 months 21% of workers still reported that pain interfered with normal work quite a bit or extremely.

Finally, the general health status question of the SF-12 showed a decline in self-perceived health status. As shown in Table VII, 60% of employees reported that their general health status was very good or excellent at the time of the initial injury, while 14% reported general health as fair or poor. Six months following injury, only 44% reported that their general health was very good or excellent, while 27% reported it to be fair or poor. This decline in general health status was statistically significant.

DASH Scores

The eleven-question mini-DASH is scored on a scale from 0 to 100 with a lower score representing less disability. Baseline mean DASH score among the 76 subjects with a primary upper extremity injury was 52, while follow-up mean DASH score among these same subjects was 27 (paired t test, $p < 0.001$).

DISCUSSION

This study provides data on 205 workers with 5 or more days of lost or restricted workdays resulting from a musculoskeletal injury treated under workers' compensation. Workers were interviewed an average of 8 days following their injury and again at approximately 6 months postinjury, and were followed with administrative data for 1 year. Findings revealed that the traditional outcome measures of return to work and time lost from work did not capture important information about the burden of injury that was shown by self-reported measures of disability and functional limitations. Many workers who returned to full duty work reported continuing disability 6 months following the injury. This residual disability is likely to be important due to its effects on quality-of-life and work productivity. Reinjury rate was another important outcome that would be missed by reliance on return to work as the main outcome measure. Together, the current data suggest that a complete picture of disability caused by work injuries can only be provided by the use of multiple measures.

The results demonstrated limitations in the measurement of time loss via OSHA 200 logs, the traditional outcome measure that forms the basis for the most widely used national data on work injuries. OSHA 200 logs underreported time loss from work injuries when compared to data obtained from medical records. However, the magnitude of the difference was small, and the correlation between the physician reports and OSHA log was high, at least for initial work absences. Time loss from subsequent injuries was underreported on the OSHA 200 log to a greater extent than was true in the case of initial injuries. Several reasons may be postulated for such discrepancies. Physicians may be overly cautions when prescribing the duration of work restrictions, and workers may appropriately decide to return to full duty work before being released by the physician. Restrictions prescribed by the physician may not prevent the performance of essential job functions. An alternate explanation is the effect of workers' compensation and regulatory policies on employer reporting behavior. There may often be disincentives to employees and employers for reporting an injury or lost days due to injury (12).

Study findings also demonstrated a substantial rate of reinjury and subsequent time loss among workers who had incurred an episode of disability. Workers reported a higher incidence of reinjury (30% over 6 months) than reported in the OSHA logs (16% over 1 year). This is consistent with the observation of other researchers that musculoskeletal injuries may lead to recurrent disabling symptoms and may necessitate multiple attempts at return to work (4). Estimates of time loss attributable to an injury should focus on total work disability over a longer time period, rather than including only time loss before initial return to work. There is a possible overestimation bias due to inclusion of events affecting other body parts, that may have not been actual reinjuries, but instead independent new events. Other injuries may have been the result of cumulative effects, and thus additional absence spells may reflect reexacerbations that are part of the natural history of the disorder, rather than a reinjury per se.

These findings support other studies suggesting that national estimates of the burden of illness attributed to work injuries may be underestimated, and that the true extent of disability may be greater than currently reported, even when confined to the traditional measure of lost or restricted days from work. In addition, measures of time loss that consider only work days neglect the intervening holidays and weekend, when the pain and functional limitations

from the injuries presumably affect workers' quality of life and social functioning. The changed reporting rules for work injuries in the new OSHA 300 log have eliminated this latter problem. After January 1, 2002, the OSHA 300 log reports the total duration of work disability in calendar days, not just the number of scheduled workdays missed (13).

The importance of considering pain and functional status measures in assessing musculoskeletal disease outcomes is shown by the high prevalence of symptoms and reported disability in the current sample. By traditional measures of work status and return-to-work, most of the subjects here had successful outcomes following treatment for their injuries. However, residual pain and disability cannot be assumed to be absent even with successful outcomes in work-related measures. Despite 83% of the cohort working full duty at 6 month follow-up, there was significant pain and functional limitation reported among these workers, with 24% reporting that they considered themselves to be still disabled by their injuries. Workers who were back at work in restricted duty roles at 6 months had lower physical functioning and bodily pain scores on the SF-36 than those who were off work. Perhaps by their presence at work, they are more keenly aware of how their function is deficient compared to coworkers without injuries. The mean follow-up SF-12 physical functioning score for the entire cohort was nearly one standard deviation below the mean for the average U.S. population. These data support previous studies that have concluded that while work status is related to pain and functional status, it is not a substitute measure (5). As Baldwin *et al.* (4) have shown in their study of 1850 Canadian workers, return to work after injury is a complicated process that involves not only health status, but also labor market conditions and demographic factors such as age, sex, marital status, and education.

The impact of continuing pain and functional limitation on productivity and job performance following return to work is only now being studied and understood. A study of worker's compensation cases in Washington State during 1986 estimated years of productivity lost for various types of injuries (14). This study found examples of injuries that were associated with a significant number of years of productivity lost, despite a small amount of time lost from work. This study supports the idea that the full costs of work injuries are not captured in measures that count only the direct workers' compensation payments for medical care and lost time. In this study, many workers reported decreased productivity and poor job performance 6 months following an injury. Thirty-five percent of workers said that their ability to work was worse or much worse than before their injury, while 30% said their ability to concentrate was less since their injury. Clearly, return to work does not always mean return to work in a fully productive capacity. If productivity losses can be measured or estimated, the true costs of work injuries are likely to be much higher than commonly estimated.

This study had several potential limitations that may restrict the generalizability of the findings. Forty-nine percent of potentially eligible subjects could not be contacted or refused to participate in the initial screening to ascertain eligibility. Of those who did participate, 34% did not meet eligibility criteria, primarily because they had less than 5 days of time loss or restricted duty. Study participants may have differed from those who refused to participate, and from those who had shorter durations of time away from work, and thus may not be fully representative of the entire population of injured workers. Many of the measures relied on self-report of functional status. Participants may have exaggerated the extent of their symptoms due to concerns about ongoing compensation claims, and in fact some subjects refused to participate or withdrew from the study on the advice of their attorneys. However, the majority of workers did not have an active claim at the time of

the follow-up interview, and subjects were informed that their responses were confidential, thus limiting this source of bias. This study presents pooled descriptive data from the first 205 subjects in a larger study. Important differences in disability and impairment may exist within different subgroups of this sample; these were not explored in this study. Future analyses of the full study cohort will evaluate effects of different predictors of impairment and disability including age, gender, job tenure, physical job demands, type and chronicity of injury, job satisfaction, income, and employer. Finally, physician reports of lost time may also be inaccurate, and other sources of information (such as payroll and attendance records) might provide a more accurate measure of actual attendance.

CONCLUSION

Multiple measures of outcomes from multiple data sources should be used when examining outcomes of workplace injuries. In addition to underreporting of actual days of work disability, OSHA 200 logs and workers' compensation records do not assess residual pain and functional limitations that persist following return to work. Methods to estimate productivity losses resulting from residual disability are needed to provide a more accurate picture of the true costs of work injury. The more complete picture of work disability seen in this study and others underscores the importance of prevention of workplace injuries. Work-related injuries are associated with higher costs than previously estimated, both in terms of long-term productivity loss and in terms of loss of quality of life and functional ability. Prolonged disability and high rates of reinjury also suggest the importance of workplace assessment and intervention after injury, as well as the need for continued support after return to work.

ACKNOWLEDGMENTS

This study was supported by a grant from the National Institute of Occupational Safety and Health (R01 #OH03704-03) and by a grant from the Academic Medicine and Managed Care Forum.

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