

# Impact of a Workplace Peer-Focused Substance Abuse Prevention and Early Intervention Program

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**Background:** PeerCare is a workplace peer intervention program that focuses on changing workplace attitudes toward on-the-job substance use and trains workers to recognize, intervene with, and refer coworkers who have a problem.

**Methods:** Monthly injuries at the study company (January 1983 through June 1996) were compared to counts at four other companies in the same industry. Using these panel data, fixed-effects negative binomial regression measured the association of the percentage of the workforce covered by PeerCare with the workplace injury rate.

**Results:** For every 1% increase in the workforce covered with PeerCare, the risk of injury declined by 0.9984 (95% confidence interval, 0.9975–0.9994). These findings suggest that, by June 1996, when 86% of the workforce was covered under PeerCare, the program had reduced injury rates by an average 14% per month.

**Conclusions:** The findings support the implementation of peer intervention programs as a means to reduce workplace injuries.

**Key Words:** Drugs, Alcohol, Occupational Injury, Prevention, Evaluation.

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**D**RUG AND ALCOHOL use is recognized as a serious risk to the health and safety of the user and others. With regard to the workplace, research shows an association of substance use with job performance and, to a lesser extent, with occupational injury (Ames et al., 1997; Blum et al., 1993; Dawson, 1994; Institute of Medicine, 1994; Mangione et al., 1999). Historically, in the transportation industry studied in this article, workplace characteristics and an occupational drinking culture enabled alcohol use. Severe penalties were often counter-productive and induced the concealment of violations. In response, peer intervention programs were introduced. These programs focus on peers (coworkers), training them to recognize and intervene with problem workers and change attitudes toward on-the-job substance use (Bacharach et al., 1996; Bamberger and Sonnenstuhl, 1995; Eichler et al., 1988). In 1987, a major interstate transportation company and some of its unions agreed to adopt a peer intervention program (PeerCare)

that would bypass severe penalties and collaborate with EAP and other treatment services.

PeerCare is a union-management partnership that uses the occupational peer group to achieve a cultural shift from enabling working under the influence of drugs or alcohol to maintaining a substance-free workplace. At the heart of the PeerCare program are volunteer teams of union workers who complete a 1- to 2-day training course to learn how to recognize, intervene with, and refer a coworker who has a drinking or drug problem. More than 6500 union and management employees have received PeerCare training. This study evaluates the impact of PeerCare on occupational injuries.

## METHODS

This retrospective ecologic analysis uses cross-sectional time-series data to examine the association between PeerCare implementation and occupational injury. The dependent variable, number of occupational injuries reported to the Federal government between January 1983 and June 1996, was tabulated monthly for five companies in one transportation industry: the study company and four comparison companies. Injuries are reportable if they result in (1) death or medical treatment and/or (2) restricted or lost workdays.

The study company employs approximately 26,000 people, with 80% unionized. Attempting to control for industry-wide factors and policies that simultaneously affected all cross sections, comparison companies were selected on their similarities to the study company in employee and operations characteristics. Comparison companies all had large (between 20,000 and 30,000 employees), predominantly unionized workforces and served large regions of or all of the United States. The study company and two comparison companies transported passengers in addition to cargo.

Fixed-effects negative binomial regression was used to estimate the association between PeerCare implementation and monthly workplace

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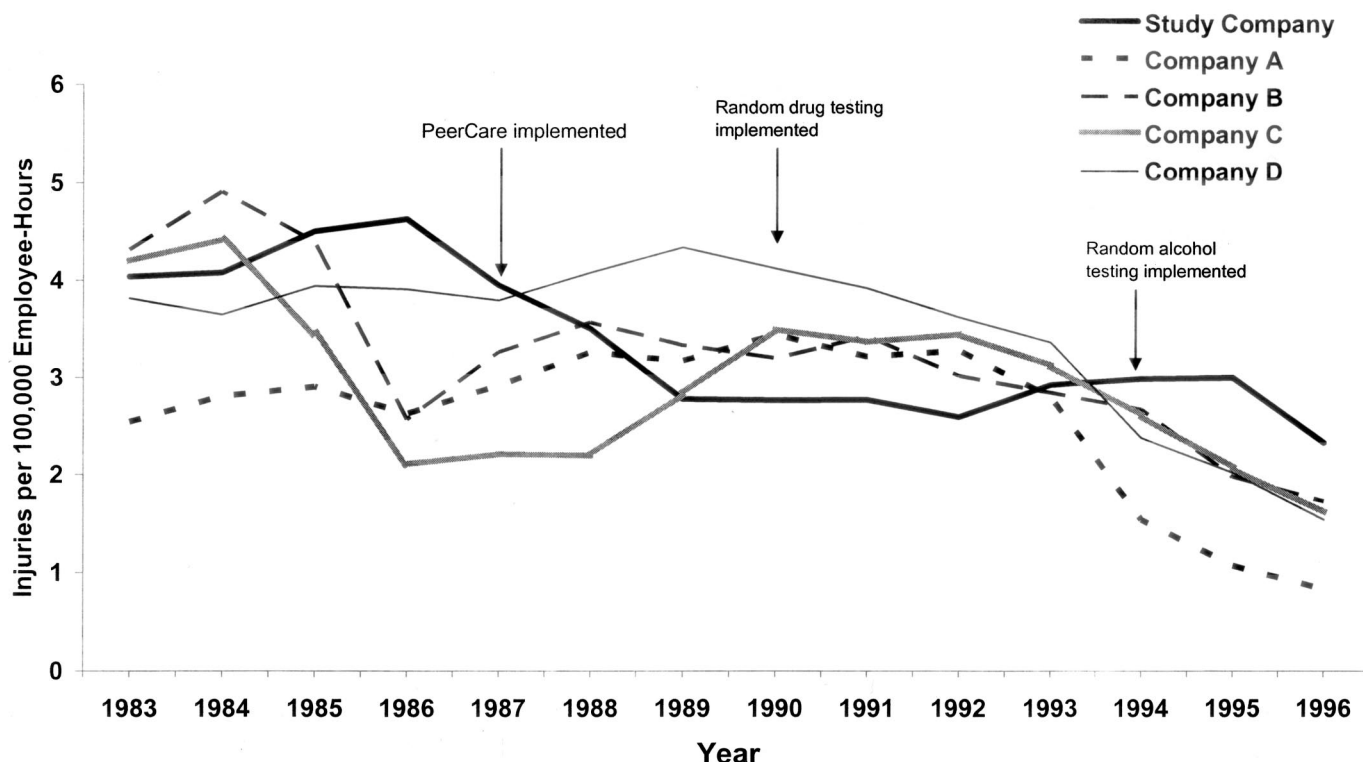


Fig. 1. Occupational injury rate in a transportation industry, study company versus four comparison companies and the remainder of the industry, January 1983 through June 1996.

Table 1. Fixed-Effects Negative Binomial Regression Analysis of the Association Between PeerCare Implementation and Workplace Injury

Independent Variable	Adjusted Relative Rate <sup>a</sup>	95% Confidence Interval
Percentage workforce covered under PeerCare contract (relative risk corresponds to a 1% increase)	0.9984	0.9974–0.9994
Vehicle miles traveled (relative risk corresponds to a 1,000,000-mi increase)	1.01	1.00–1.03
Random drug testing	0.69	0.54–0.87
Random alcohol testing	0.66	0.49–0.89

<sup>a</sup> Adjusting for employee hours in addition to the independent variables listed.

injury counts. The fixed-effects model assumed the existence of factors within a company that have a constant effect on injury rates across months and factors within a month that have a constant effect on injury rates across companies. Dummy variables were included for each month and company.

The independent variable of interest measured PeerCare's phased implementation at the study company. This variable represented the percentage of the workforce covered by PeerCare, based on when each union signed the PeerCare contract. Other independent variables included monthly vehicle miles traveled, monthly passenger miles traveled, and binomial (0 or 1) variables indicating the industry-wide introduction of random drug and alcohol testing, and passenger-transporting companies. The number of employee hours reported to the federal government was included as the exposure measure. The interaction between PeerCare and random drug and alcohol testing programs was tested to examine whether PeerCare's impact was modified by the existence of these programs.

## RESULTS

In February 1987, the first union signed onto the PeerCare contract, covering approximately 12% of employees. Between 1987 and 1990, several large unions joined the program; by the end of 1991, 70% of employees were

covered. From April 1993 through 1996, 86% of employees were covered.

The company's injury rate increased slightly until 1986, then decreased steadily until 1989, and then leveled off (Fig. 1). In the comparison companies, for the most part, a substantial decline in injury rates was observed between 1984 and 1986, followed by an increase between 1986 and the early 1990s. Injury rates declined again in the comparison companies in the early 1990s.

The regression analysis found a significant association between the percentage of employees covered under the PeerCare contract and injury rates (relative risk [RR], 0.9984; 95% confidence interval [CI], 0.9975–0.9994; Table 1). The findings suggest that a 1% increase in the workforce covered resulted in a 0.16% decrease in the monthly injury rate  $[(1 - 0.9984) \times 100\%]$ . Although the decline in risk seem small, the 86% of employees covered by June 1996 corresponds to an average 13.8% decline in monthly injuries  $(86\% \times 0.0016 \text{ per } 1\% = 0.1376)$ . Independent variables indicating monthly passenger miles and passenger-

transporting companies were not significantly associated with occupational injury rates and were dropped from the final model.

The industry-wide implementation of random drug and alcohol testing programs were both associated with a decline in injury risk (RR = 0.69; 95% CI, 0.54–0.87 and RR, 0.66; 95% CI, 0.49–0.89, respectively; Table 1). The cross-sectional time-series design of the analysis already controls for any confounding effect of these programs on the relation between the PeerCare variable and injury rates. Therefore, the random drug and alcohol independent variables had no impact on the PeerCare coefficient.

However, the association of PeerCare with injury rates was modified by whether random testing existed. PeerCare implementation had the greatest association with injury rates (RR, 0.9916; 95% CI, 0.9875–0.9957) before drug testing began in January 1990: Every 1% increase in employees under PeerCare contract resulted in a 0.84% decrease in the monthly injury rate. These findings suggest that, by January 1990, when 34% of employees were under contract, PeerCare was associated with an average 29% decline in monthly injury rates (between 1987 and 1990, injury rates had declined 40% overall). After random drug testing was regulated, the percentage of employees covered by PeerCare was only weakly associated with injury rates (RR, 0.9960; 95% CI, 0.9981–1.0039).

## DISCUSSION

The findings suggest that, by June 1996, when 86% of the workforce was covered under PeerCare, the program had reduced injury rates by an average 14% per month. Stratifying the analysis by pre- and post-random testing reveals that PeerCare implementation had the greatest association with injury rate declines before random drug testing began in January 1990 and was only weakly associated with declines after that time.

PeerCare is thought to decrease workplace injuries through a reduction in workplace impairment. A notable limitation of this study is the lack of an intermediary measure of on-the-job substance use. Consequently, it is not known whether fewer workers actually came to work drunk, drugged, or hung over as a result of the PeerCare program. Therefore, our conclusions are limited to establishing an association between the variable measuring PeerCare implementation and injury rates but not a causal relation between these two variables. However, evidence does exist to support attribution. Company random drug testing data show that positive test results decreased from 2.3% in 1990 to 0.6% in 2000. The positive random alcohol test rate decreased from 0.5% in 1995 to 0.1% in 2000.

It is notable that, after 1989, declines in injury rates at the study company were only weakly associated with the PeerCare program. By the time random drug testing was

introduced, PeerCare was associated with an average 29% decline in monthly injury rates, even though only 34% of employees were under PeerCare contract (Fig. 1). One explanation is that, by that time, PeerCare had adequately addressed the risk attributable to on-the-job intoxication and hangover, and therefore, random testing programs were superfluous. However, with only 34% of employees covered by PeerCare at that time, the attributable risk could not have been fully addressed.

Another possible explanation for the association between PeerCare implementation and injury rates is that unknown factors, not controlled for, explain the changes in injury rates. Omitted variables are always a concern in statistical analyses. We were not able to control for safety programs, if any, implemented in the comparison companies (none were implemented in the PeerCare company during the study period). Other undocumented but conceivably extant factors that could have contributed to the observed injury rate declines include technological and operational advances and changes in awareness of alcohol and drug abuse.

The strength of this analysis is the use of comparable companies in the same industry as comparison groups. Including these groups controlled for general population and industry-wide factors (e.g., decline in drinking in the general population, improved infrastructure, industry-wide safety programs) that might confound the relation between PeerCare implementation and injury rates.

The findings support the implementation of peer-focused substance abuse prevention and early intervention programs as a means to reduce workplace injuries. The evidence also suggests that random drug and alcohol testing may have further reduced this risk of injury.

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