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Effectiveness and benefit-cost of peer-based workplace substance abuse prevention coupled with random testing

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Abstract

Few studies have evaluated the impact of workplace substance abuse prevention programs on occupational injury, despite this being a justification for these programs. This paper estimates the effectiveness and benefit-cost ratio of a peer-based substance abuse prevention program at a U.S. transportation company, implemented in phases from 1988 to 1990. The program focuses on changing workplace attitudes toward on-the-job substance use in addition to training workers to recognize and intervene with coworkers who have a problem. The program was strengthened by federally mandated random drug and alcohol testing (implemented, respectively, in 1990 and 1994). With time-series analysis, we analyzed the association of monthly injury rates and costs with phased program implementation, controlling for industry injury trend. The combination of the peer-based program and testing was associated with an approximate one-third reduction in injury rate, avoiding an estimated $48 million in employer costs in 1999. That year, the peer-based program cost the company $35 and testing cost another $35 per employee. The program avoided an estimated $1850 in employer injury costs per employee in 1999, corresponding to a benefit-cost ratio of 26:1. The findings suggest that peer-based programs buttressed by random testing can be cost-effective in the workplace.

Keywords: Benefit-cost; Substance abuse; Testing; Occupational; Injury

1. Introduction

Substance abuse is recognized as a serious risk to the health and safety of the user and others (National Institute on Alcohol Abuse and Alcoholism NIAAA, 1997). In the workplace, it is associated with absenteeism, sleeping on the job, interpersonal problems, dishonesty, and poor job performance (Mangione et al., 1999; Newcomb, 1988; Normand and Salyards, 1989; Zwerling et al., 1990).

Alcohol and drug use and associated hangovers impair coordination and the ability to perceive and respond to hazards, resulting in injury to the user and other innocent victims (Normand et al., 1994; Moskowitz and Robinson, 1988; Howland et al., 2001; Tornros and Laurell, 1991; Wolkenberg et al., 1975; Yesavage and Leirer, 1986). Studies of self-reported alcohol use find that those reporting heavy drinking had elevated risks for occupational injury (Dawson, 1994; Holcom et al., 1993; Mangione et al., 1999). The few studies that examine the relationship between illicit drug use and occupational injury find that drug users have higher injury rates (Hingson et al., 1985; Bross et al., 1992).

In the 1970s, drinking and taking drugs on the job were accepted parts of worker life in the interstate transportation industry. In 1978, for example, 32% of workers at seven railroads reported being drunk at least once upon reporting to duty or while on duty (Mandello and Seaman, 1979). In the study industry, many workers are largely unsupervised for much of their time on duty, travel over long distances, and have frequent overnight or abnormal shifts. This work pattern elevates their risk of substance abuse. Historically, the industry culture accepted workplace substance abuse as the norm, facilitating access to drugs and alcohol and hiding impaired workers from management, which further encouraged use. Some of the Nation's earliest Employee Assistance Programs (EAPs) were started in the transportation industry to counsel problem employees for their substance abuse and mental health problems (Roman, 1979). Alarm about the consequences of workplace substance use led to federally mandated random drug testing and subsequently alcohol testing, an industry-wide ban on alcohol and

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drug use on duty or coming to duty, and severe penalties for violators.

Traditionally, management used the threat of dismissal to induce problem employees to seek treatment services. These threats and severe penalties were often counter-productive and induced the concealment of violations. In the rail industry, ideas surfaced for creating a private peer-focused program that would build on a bypass of the severe penalties but still collaborate with the EAP and other existing treatment services (Eichler et al., 1988). This idea spread through the transportation industry.

Starting in February 1987, a major interstate transportation company and some of its unions agreed to adopt this substance abuse prevention and early intervention program, creating an ongoing, substantially tailored version we call PeerCare. The company's U.S. operations employ 26,000 people spread across 47 states and the District of Columbia.

PeerCare is a program unique to the study company. A few companies have operated similar programs at times, but they never let their unions control daily operations, which is critical in assuring confidentiality and building employee trust.

PeerCare's mission is to reduce substance abuse in the workplace, in part by changing occupational norms that condone this behavior. This union-management partnership 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. In exchange for employee efforts, management moves from a punitive approach to supportive and restorative aid for substance abusers. The program is designed to educate, intervene, and refer workers to appropriate support services to attain healthier, substance-free lifestyles without employer disciplinary action. It is part of a larger corporate behavioral health care program that includes an inhouse Employee Assistance Program (EAP) started in the 1970s; managed behavioral healthcare coverage; and pre-employment, for-cause, recovering abuser return to duty/periodic, and random drug and alcohol testing. Random testing applies to the 20% of the work force classified as safety-sensitive by the Department of Transportation.

At the heart of the program are teams of union workers who volunteer their time. Team members are diverse in gender, ethnicity, and job title. Almost all complete a 1–2 days training course to learn how to recognize and intervene with a co-worker who has a drinking or drug problem. More than 6500 union and management employees have received PeerCare training. In early 2000, the 152 active teams included 2400 employees.

A trained employee should be able to recognize an impaired employee and persuade him or her to leave the work site. "Mark-off" is the official PeerCare term used when an employee leaves the work site or calls and arranges not to report for work because work performance would be impaired by recent use of drugs or alcohol. When an employee marks off, by union contract, it is an excused absence without pay, and carries no punitive action. The attendance record simply shows that the employee is not scheduled to work. After a mark-off, trained peers intervene when the employee next reports to work. They explore whether the circumstances of the mark-off suggest the need for help. They often push the employee to seek assistance from the EAP or the managed behavioral health care plan. Workers who test positive for the first time are referred to the EAP and are monitored by trained PeerCare volunteers once they return to work.

The program sponsors a wide range of activities. These include awareness and education activities, community service, fundraising, recruitment, and community promotion. Each year a PeerCare conference for unions and management is organized. This is the major educational and social event of the year. The conference brings together members from across the country to share and celebrate the past year's success. This is also a time for reflection and strategic planning.

Management and labor both assert that, in combination with random drug testing, the program and its intensive training caused a lasting change in the workplace culture at the company. Workplace substance abuse became unacceptable among coworkers. This assertion is backed by personal stories of redemption in the annual meeting materials.

Although the research base is small and mixed, in some industries it suggests a link between drug testing programs and workplace injury reduction. Construction companies with drug-testing programs experienced a 51% reduction in incident rates within 2 years of implementation (Gerber and Yacoubian, 2002). Implementation of a drug-screening program at General Motors led to a 50% decline in workplace injuries (MacDonald and Wells, 1994). In a randomized trial, Ozminkowski et al. (2003) found that doubling the random drug testing rate would reduce the odds of incurring any injuries on the job in a large manufacturing company by over half (but with testing already sampling at a high rate and the injury rate low, the magnitude of the impact was small). At the Southern Pacific Railway, in the 5-year period following the implementation of random drug testing, the number of injuries dropped from 2234 to 322 (Taggart, 1989).

This study analyzes PeerCare's impact on injury rates and costs. To measure the return on the company's and workers' investment in the PeerCare program, we present a benefit-cost analysis.

2. Methods

This retrospective ecological analysis evaluated the impact of PeerCare using time-series analysis. We used Poisson and linear regression, respectively, to model the association of PeerCare activity with injury counts and costs. The study combines company data, data from its affiliated PeerCare program, and broader industry-wide data collected by Federal regulators.

2.1. Chronology

Some of the company's unions added PeerCare to their contracts in February 1987. Participating unions began rolling out PeerCare training in March 1988, phasing it in by region. Additional unions added PeerCare to their contracts as the program's popularity with labor became apparent. Concurrently, throughout the industry, Federal regulations imposed random drug testing starting on January 1, 1990. Federally mandated random and for-cause alcohol testing began on August 15, 1994. In mid-1994, PeerCare enhanced its alcohol component in anticipation