Drug Testing and Workplace Accidents

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Over the past twenty years the use of workplace drug tests have become commonplace. Both Hanson¹ and Zwerling² have presented excellent overviews of the history of drug and alcohol testing for industry in this country. At present approximately 35 million drug tests are performed each year at a direct cost exceeding one billion dollars.³ This money is distributed among numerous parties within an enormous drug testing industry, and recipients include laboratories, third party administrators, medical review officers (MROs), substance abuse professionals (SAPs), specimen collectors, and others. Indirect costs of this effort are rarely contemplated and involve decreased productivity as a result of time lost for testing. Tests are typically performed before employment, after accidents, for suspicious behaviors, in a random fashion, or for follow-up of individuals with a history of drug use. It is estimated that companies with drug-testing requirements employ half of the American workforce. The vast majority of employees believe that these tests deter drug use. Most also believe that drug tests reduce accidents and product defects.⁴

There has always been a close relationship between safety concerns and workplace drug screening programs. Over the years several spectacular accidents have been associated with drugs. Proof of drug use was noted, for example, after the 1981 crash of an EA-6B Prowler on the USS Nimitz, the 1987 wreck of a Conrail/Amtrak train in Maryland, and the 1989 environmental disaster resulting from the Exxon Valdez incident. These episodes have highlighted concerns about job performance by impaired workers. Intuitively it would seem that drug use is associated with workplace accidents, and many drug-testing advocates have offered estimates of very high injury and fatality rates among involved employees,⁵ ⁶ ⁷ but most scientific authorities agree that there is little data regarding such a relationship.² ⁸ ⁹ ¹⁰ ¹¹

Few studies have been published about drugs and their association with on-the-job injuries because of several barriers. Accident rates of drug users are rarely compared with matched groups of non-users. Unlike a blood alcohol test, correlations between a positive urine test, a drug's pharmacologic effect, and related levels of impairment are generally unknown. Studies about vehicular accidents note that 40-80% of drivers who have positive drug tests also are intoxicated with alcohol,¹² but many times employees involved in accidents on the job are not tested for alcohol or other legal drug use. In addition, several investigators have noted that drug and alcohol use is significantly lowered among work injury patients compared to non-work related injury victims.¹³ ¹⁴ Reports about drug use and accidents rarely determine causality or include consideration about variables such as time of day, weather conditions, or other circumstances that may be involved.

Personality traits obviously influence behavior. Sensation seeking activities have been associated with a number of risky jobs, sports, sexual activity, drug and alcohol use, reckless driving, and driving under the influence.¹⁵ Drug use may simply be a marker of a risk-taking behavior. One study of post-office workers, for example, noted a significantly increased relative risk of accident and injury among cigarette smokers, when compared to the non-smokers.¹⁶
Published Studies about the Relationship between Accidents and Drug Tests

In Harris County, Texas, Lewis and Cooper reported on 196 fatal work-related injuries occurring between 1984-85. Of this group alcohol was detected in 13.3% of cases examined, and drugs capable of altering physiologic function in 7% of cases examined. Only one individual, however, was noted to have a positive illicit drug test. In 1989 Taggart described a dramatic decline in “personal injuries” associated with fewer positive tests in a railroad industry following the institution of drug and alcohol testing in 1984.

A prospective study of 2,537 new post office workers in Boston was reported in 1990 and revealed that those who tested positive for either cocaine or marijuana had a relative risk of workplace injury of 1.85. Those positive for marijuana had a relative risk for accidents of 1.55, while those positive for cocaine had a relative risk for accidents of 1.59. The post office employee study did not evaluate alcohol use. A later similar study of 5,465 post office job applicants at multiple sites failed to demonstrate a significant association between drug-test results and injury and accident occurrence.

A study of 459 workplace deaths conducted in Alberta, Canada revealed 10 workers who tested positive for cannabis, and 40 who tested positive for alcohol. Fifty tested positive for either prescription or non-prescription drugs. A retrospective review of deaths in New Mexico noted that information about the presence of alcohol or drug use was available in 530 of 613 occupational deaths. The presence of alcohol was detected in 13.6% of deaths, and 6.4% of these were legally intoxicated. Drugs of abuse were present in 4.5% of the deceased, but 1.3% of these were also positive for alcohol. Another Canadian study of 470 occupational fatalities that occurred between 1986 and 1989 in Ontario noted the presence of alcohol in 2% of those tested, and the presence of cannabis in 17% of those tested, but no other drugs of abuse were identified.

Investigators reviewed claims of work-related accidents and injuries from 1984 until 1988 at a company with 48 facilities in Wisconsin. Twelve utilized drug testing and 36 did not. Accident rates were identical, but post-accident testing in 3 facilities was associated with a decrease in claims when compared to the pre-testing period, or with facilities only using pre-employment testing.

In an attempt to analyze the effect of the federal Department of Transportation (DOT) regulations regarding drug testing Swena and Gaines reviewed fatality rate per 100 million vehicle miles and performed regression analysis for the period from 1984 until 1989. They were unable to establish an association between the initiation of drug testing and decreases in fatal truck accidents.

A study focusing on the construction industry used questionnaires from 69 companies who responded of 405 companies (17%) selected. The majority of participants represented larger companies. The workers’ compensation experience rating modification factors (MODs) were noted to be lower in companies utilizing drug tests. Additionally the average injury claim rate declined after institution of drug testing.

Alcohol Use and Workplace Accidents
Trent has reviewed several studies relating alcohol use and occupational injury. He has concluded that the relationship between work-related fatality and alcohol use is small, and that published studies of non-fatal injury and alcohol use suggest only a weak to moderate effect. He concluded that alcohol use poses a much greater risk for non-work-related injury than that for work-injury.

Stallones and Kraus published an excellent review of studies of alcohol-related occupational injuries. They concluded that the extent of the problem remains unknown. They noted reasons for difficulty in the assessment of a relationship, but stated that estimates suggested alcohol was a factor in 3-4% of occupational injuries. Dawson studied the association between the frequency of heavy drinking and occupational injury, and noted an increased risk for light, moderate, or heavy daily drinking.

Lipscomb et al reviewed 3955 deaths that occurred between 1988 and 1994 among construction workers in North Carolina. There were significant differences between work-related and non-work-related fatalities. Fifty-seven (57) percent of the non-work-related victims were impaired by alcohol, compared with 5 percent of the victims with work-related injuries.

Veazie and Smith studied a group of 8569 respondents in the 1989 annual interview of a population (age 24-32) from the National Longitudinal Survey of Youth. They reported that common occupational injuries (excluding sprains and strains) may not be strongly associated with alcohol dependence in this group, and suggested that confounding with other risk factors may explain the association between being a heavy drinker and occupational injuries in this population.

Discussion

Eighteen years after the institution of the drug free workplace there has been an incredible growth in workplace drug testing. In addition there is ample evidence that the great majority of employers and workers support these programs. Unfortunately there remains little scientific evidence of a substantial association between workplace accidents, injury, and drug or alcohol use.

The Substance Abuse and Mental Health Services Administration (SAMHSA) has written a proposal that is predicted to expand the use of workplace drug tests, and this proposal was recently released for public comment. Details of the proposal are available on the SAMHSA website (http://workplace.samhsa.gov/ResourceCenter/DT/FA/GuidelinesDraft4.htm). The new proposal will allow three additional types of drug tests (sweat, oral fluid, and hair). These modalities are expected to cost more than urine drug tests, and will require additional training and experience in new collection procedures. Medical review officers will also require additional training. The American Civil Liberties Union (ACLU) has suggested that it now costs $77,000 to find one drug user in the current federal government drug testing program. Perhaps because of the costs of testing, some reports suggest that employers are beginning to utilize drug tests less often.

Several reports have suggested that injury claims decline after the institution of post-accident testing, and anecdotal information suggests that workers’ compensation insurance companies are
encouraging the use of this practice. In Texas it is common for insurance carriers to deny claims if a post-accident test is positive.

It is critical to remember that the original intent of drug testing was to discourage drug and alcohol use in the workplace. There appears to be little proof that workplace drug tests have reduced drug use in America. Few good studies have been performed regarding drug and alcohol as a cause of a significant portion of workplace accident and injury. At some point employers are likely to question the “return-on-investment” and insist on strategies that minimize interruption of the work schedule while focusing on work groups with greatest risk or likelihood of testing positive. These groups would include those exhibiting suspicious behaviors and those involved in follow-up testing after a history of drug abuse.

Drug or inappropriate alcohol use may simply be a marker of risk-taking behavior. As a rule, men more frequently use drugs than do women. In addition, single people are more likely to use drugs than are married individuals. Some industries have high rates of drug use. According to a report released by the Substance Abuse and Mental Health Services Administration (SAMHSA), for males these occupations included those in the entertainment industries, athletes, those in food services (including bars), and construction workers. Among women the occupations with the highest rates of illicit drug use were in food services, social work, and the legal professions.

The average rates of positive tests in pre-employment and random testing programs seem small enough to justify a decrease in the frequency of pre-employment and random testing for many industries. Ultimately, the use of drug tests should be related to the prevalence of drug use in a specific worksite in order to gain the greatest return on investment.

References:

10 Substance abuse: injuries and accidents.  
http://workplace.samhsa.gov/SubstanceAbuse/SAInjuriesAccidents/InjuriesAccident.htm#Prevent


32 Meisler A. Drug testing’s negative results. Workforce Management: 35-40.  