CURRENT U.S. DRUG TESTING PRACTICES

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ABSTRACT
A safe construction project requires all workers to be alert at all times. Workers must be able to recognize hazards and understand the appropriate measures to be taken to avoid injury. One practice that has been implemented by many U.S. construction firms to ensure all workers are alert is drug testing. In the U.S., the first construction firms to implement drug testing of their employees started the practice in the mid-1980s. Since then, the practice of drug testing has become more sophisticated and more widely adopted in the industry. A research study was conducted to investigate the current drug testing practices as implemented in the U.S. construction industry. The findings revealed that the basic practices of drug testing have remained relatively consistent for the past 15 years. A few modifications to the traditional testing procedures have been implemented by many firms. While urine analysis continues to be the most popular type of drug test, firms are beginning to explore and/or use such other techniques as breathalizer tests, hair analysis, blood tests, and saliva testing to detect drugs, with very few being interested in exploring the viability of sweat tests. When urine analysis is performed, many firms also measure the temperature of the specimen and they will also test the specimen for adulterants to identify potential attempts at cheating on these tests. The study results showed that the drugs most commonly abused by construction workers continue to be marijuana and cocaine, but the extent of this drug use has declined in recent years.

Key words: Drug abuse in construction, Drug testing practices, Types of drug testing, Adulterants

INTRODUCTION

Since the mid 1980s drug testing has been an effective method for decreasing the rate of substance abuse in the workplace. The benefits of creating a drug-free workplace include: better safety performance (such as lower injury rates), fewer absences, decreased rate of workers' compensation claims, increased productivity and increased profitability. On the other hand, drug abuse increases company expenses and creates a risk of increased injuries for all employees. If an employee has the positive test results, the employer either terminates the employment or may request the rehabilitation.

Of all industry sectors, the construction industry has the highest proportion of fatal occupational injuries and one of the highest rates of substance abuse. However, the construction industry has the lowest rate of implementing drug testing.

This study was conducted to investigate the current drug testing practices as implemented in the U.S. construction industry. The objectives of this study were to determine the following:

1. The extent of the implementation of drug testing programs.
2. The drug testing practices implemented: pre-employment, random, post-accident, etc.
3. The testing methods used: urine, hair, saliva, and sweat analysis.
4. The most frequently abused substances.
5. The frequency of "cheating" on drug tests and types of adulterants used.

LITERATURE REVIEW

Approximately 9.0% adults in the U.S. had some type of substance abuse in the past year. A majority of these American adults reported illegal drug use (90%) and heavy drinking (75%) in the past month. Seventy-five percent of the current illegal drug users were employed (SAMSHA 2008).

Construction is one of the industries with the highest rate of substance abuse, even though the rates of the substance abuse have decreased over time (Korman 1996, Pollack et al. 1998, Minchin et al. 2006). In 1988, 20% of construction workers had heavy alcohol use and 23% abused illicit drugs (NIDA 1990). In the period 2002-2004, 13.7% of the construction workers had used drugs in the past month and 15.9% had heavy alcohol use in the past month (Larson et al. 2007). Pollack et al. (1998) investigated the injury rates among construction labourers with substance abuse diagnosis. Findings showed that 5.3% of the workers had a diagnosis of substance abuse. Approximately 84% of these workers were dependant on alcohol while 5.3% had drug dependence. The workers that had substance abuse had a 93% higher risk of serious injury compared to workers without substance abuse diagnosis (Pollack et al. 1998). In 1997, the construction industry ranked the lowest among the industries that conducted drug testing (SAMSHA 1999). However, construction firms that do implement drug testing have lower incident rates (Altayeb 1992).

The most common drug testing practices in the workplace include pre-employment, random and post-accident testing. Pre-employment testing is required for all new hires. A prospective employee will not be considered for a job if the test is positive. Post-accident testing is administered immediately after an accident to determine if drug abuse was an underlying reason for an accident. Random testing is typically administered on a monthly basis with employees that are randomly selected for drug testing (Maloney 1988, Rhodes 1998, Altayeb 1992, Kerns and Stopperan 2000, SAMSHA 2005, Minchin et al. 2006, Hinze 2006, Bush 2008). Approximately 26% of the construction workers stated that their employers conducted pre-employment testing, 27% reported post-accident testing, while 26 % reported random testing (SAMSHA 1999). Ten years later, nearly 35% of the construction workers reported that their employers conducted pre-employment drug testing. Pre-employment testing is more common among the large companies. Over 70% of the employees who worked for the larger companies (more than 500 employees) reported pre-employment drug testing vs. 19 % of the employees who worked for a small company (fewer than 10 employees) (Larson et al. 2007).

The most common methods for drug testing in the workplace include analysis of urine, hair, and saliva (Moeller et al. 2008). The most prevalent method has been lab-based urine analysis (Callaghan and Tydings 1998, Kerns and Stopperan 2000, Reynolds, 2001, Lappe 2002, Moeller et al. 2008). Despite this popularity, urine analysis has the following disadvantages: 1) Its detection window is only 2-3 days so it cannot detect long-term drug use (Kintz 1996, Caplan and Goldberger 2001, Kintz and Samyn 2002, Bush 2008), 2) it is time consuming (Lappe 2002) and expensive (Reynolds 2001), and 3) urine samples can be adulterated (Kintz 1996, Cholakis and Bruce 2007, Reynolds 2001, Caplan and Goldberger 2001).

Hair testing has several advantages when compared to urine analysis. It has longer detection window (Hoffman 1997, Kerns and Stopperan 2000, Caplan and Goldberger 2001, Lappe 2002, Laws 2004, Kintz et al. 2006, Bush 2008) and provides the distinction between chronic and single drug use (Kintz 1996, Kintz and Samyn 2002). Specimen collection is noninvasive, easy to perform, less embarrassing and less susceptible to adulteration (Kintz 1996, Kintz et al. 2006). Hair testing can complement urine testing because of the different detection windows (Kintz 1996, Kintz and Samyn 2002, Kintz et al. 2006, Bush 2008). Since hair testing does not provide information about recent drug use, it should not be used for post-accident testing (Hoffman 1997, Kerns and Stopperan 2000).

Saliva testing has the following advantages when compared to urine analysis. It is more convenient and does not compromise accuracy and reliability. Specimen collection is noninvasive, user-friendly, less embarrassing, and can be performed at anytime and anyplace. Saliva testing is

affordable, and less susceptible to adulteration (Wilson and Kunsman 1997, Kunsman, 2000, Reynolds 2001). The detection window ranges from few minutes to 2-3 days (Caplan and Goldberger 2001, Lappe 2002, Bush 2008), thus saliva testing is an appropriate method for post-accident testing (Reynolds 2001, Cholakis and Bruce 2007, Bush 2008).

Sweat testing is not frequently used in the workplace (Caplan and Goldberger 2001, Laws 2004). Its detection window ranges from days to weeks but it cannot detect the prior exposure. Sweat testing can be a used as complement to urine analysis since it provides a cumulative measure of drug use and (Kintz 1996, Bush 2008). Specimen collection is noninvasive.

Adulterating samples is a common practice to beat drug tests (Moeller et al. 2008, Jaffee 2007). Market offers over 400 products used to adulterate specimens (Bush 2008). These products include: 1) dilution products, cleansing products, adulteration additives and substitute urine products to adulterate urine samples (Jaffee 2007, Cholakis and Bruce 2007, Moeller et al. 2008, Bush 2008, Dasgupta 2008), 2) shampoos and spritzes to adulterate hair specimens, 3) mouthwashes and cleaners to adulterate saliva specimens (Dasgupta 2008, Bush 2008), and 4) whole body cleaners to adulterate blood specimens (Bush 2008). The validity tests on collected specimens must be performed to prevent adulteration of the specimens (Jaffee 2007, Bush 2008).

A company with the employee drug abuse record faces higher insurance premiums (Altayeb 1992, Gillian 2002, Minchin et al. 2006). Implementation of drug testing programs decreases drug abuse in the workplace and as a result decreases claims (Cholakis and Bruce 2007). The lower the rate of accidents (Gillian 2002) and employee absences, the lower workers' compensation insurance premiums (Callaghan and Tydings 1998, Gerber and Yacoubian 2001). For example, a construction company reported having 50% lower insurance premiums after drug testing was implemented (Minchin et al. 2006). Also, in many states insurance companies have to provide workers' compensation insurance premium discounts for companies that implement drug testing (Wilson and Kunsman 1997, Callaghan and Tydings 1998, Gerber and Yacoubian 2001, ENR 2002, Minchin et al. 2006).

RESEARCH METHODOLOGY

A survey questionnaire was used to investigate the current drug testing practices in the U.S. construction industry. The survey was developed in collaboration with several construction contractors and the Construction Industry Institute (CII) Safety Community of Practice. The survey was distributed either by: 1) the email (the companies were contacted by phone, asked to participate in the survey and then emailed the survey) or 2) standard U.S. mail (to the companies listed in the Blue Book of Building Construction).
The survey instrument requested the following information:

- Demographics (annual volume, number of field workers)
- Drug testing practices (pre-employment, random, post-accident)
- Testing methods (hair, saliva, sweat)
- Substances abused
- Workers' compensation
- Use of adulterants
- Consequences of positive tests
- OSHA recordable injury rate (RIR)

Sixty-three responses to the survey were received. The data were analyzed with the Statistical Package for the Social Sciences (SPSS), version 16.

RESULTS

There were 63 responses to the survey. While most of the respondents answered all of the questions, there were exceptions. The results of this study are based on the replies that were provided to the various questions. While a large number of questions were asked, the results being presented pertain to those findings that are of particular interest.

Respondent were asked about the use of various types of drug testing practices. All respondents (100%) reported that they conducted post-accident testing immediately after the accident occurs. About 80% of respondents stated that all of their employees must pass pre-employment testing in order to be hired. Approximately 67% of respondents reported that they conducted random testing (see Figure 1).

There are several different methods of tests that can be administered to detect substance abuse. The most widely used (over 90% of the respondents) test continues to be urine analysis. For alcohol abuse, nearly a fourth of the respondents stated that they employed the saliva test for alcohol. Some respondents indicated that they used either saliva tests to detect the use of illicit drugs or hair analysis, oftentimes in conjunction with urine analysis. Although sweat tests exist for drug use detection, none of the respondents had used the sweat test, primarily because there is a sense that the tests may not be reliable or that they simply do not know enough about these tests to implement their use (see Figure 2).

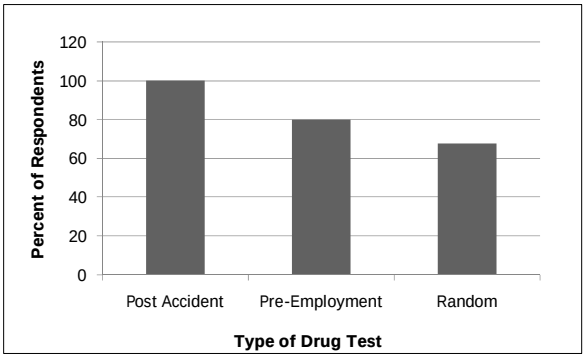

Figure 1. Frequency of Use of Drug Testing

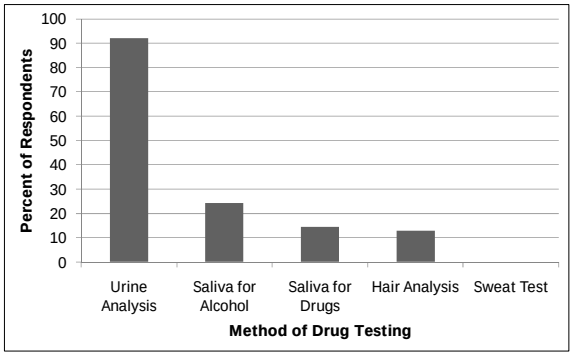

Figure 2. Drug Test for Detection

For the respondents using urine analysis, many respondents stated that they used a “field drug test” that would provide test results within a few minutes. These respondents were asked about the number of panels that were used in the tests. The typical response was that five panels were used, namely to test for marijuana, cocaine, amphetamines, barbiturates and opiates. Other respondents indicated that they used tests that had up to ten panels (see Figure 3). The ten-panel test will test for five additional substances, commonly including some combination of either phencyclidine, methamphetamine, methadone, methaqualone, propoxyphene, benzodiazepines, tricyclic antidepressants, oxycodone, and methylenedioxymethamphetamine (also known as ecstasy). Twelve-panel tests are also available. Regardless of the number of panels, companies have a standard practice of having positive results on “field drug tests” verified by an independent drug testing laboratory.

Respondents were asked which drugs were most commonly detected when identifying the presence of substance abuse. The most common drug that was detected was marijuana, followed by cocaine as a distant second. Only a few indicated that alcohol, amphetamines or barbiturates were most commonly abused. Respondents were also asked about the most common drugs five years ago. The results show that there has been little change in the types of drugs that are abused (see Figure 4).

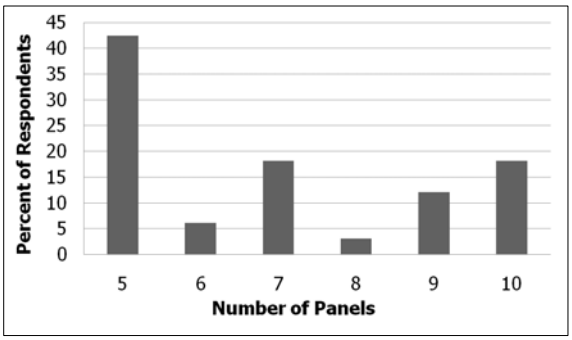

Figure 3. Number of Panels Used for Random Tests

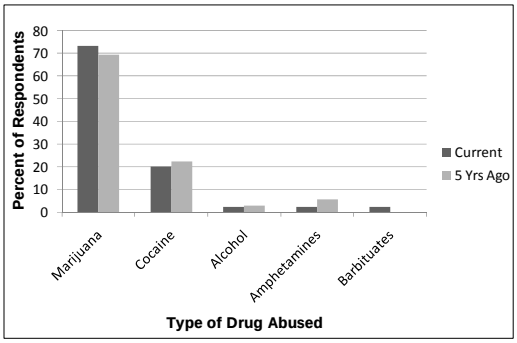

Figure 4. Types of Drugs Commonly Abused

Respondents were asked about the percentage of the tests that were positive, both as a current experience and five years ago. The results show that the percent positive tests on pre-employment and random tests range from zero to more than ten percent. It was noted that the current percent of positive tests tends to be lower than it was five years ago. This is especially true for the pre-employment drug tests. For the pre-employment and random tests, the results show that there are now more tests that show zero positive results and that five years ago there were more tests that showed more than ten percent positive results. In essence, the results indicate that drug use among construction workers has declined (see Figures 5 and 6).

The percent positive test results (those failing the drug test) on post-accident tests follows the general pattern for the pre-employment tests and the random drug tests. That is, approximately a third of the respondents reported observing no positive results on the post-accident drug tests.

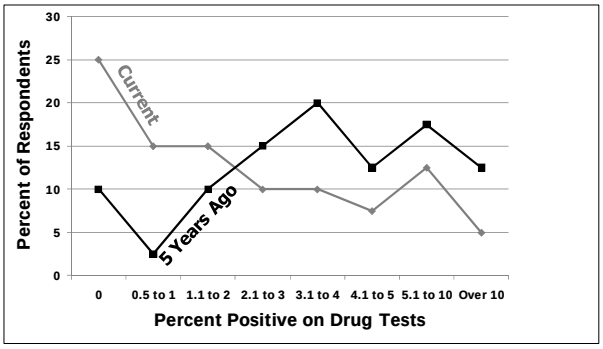

Figure 5. Number of Positive Results on Pre-Employment Drug Tests

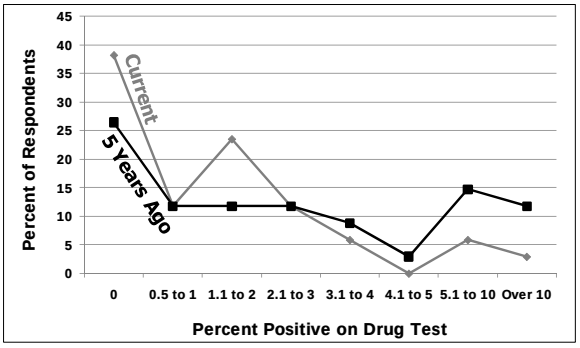

Figure 6. Number of Positive Results on Random Drug Tests

About twelve percent of the respondents reported that over ten percent of the post-accident test results were positive (see Figure 7).

The recordable injury rate of the respondents was obtained in this study. Recordable injuries can be broadly categorized as being those that are sufficiently severe that warrant treatment by a physician. The rate is based on 200,000 hours of worker exposure which is essentially equivalent to 100 workers working full-time for one year. The recordable injury rate (RIR) for the U.S. construction industry is approximately 5.4 injuries per 200,000 hours. For the survey respondents, the average RIR was 1.8, indicating that the sample of respondents had safety performance records that were considerably better than the average. It has been noted in other safety studies that firms that respond to safety surveys tend to be those with better safety records. In addition, it was observed that the respondents consisted of many firms from the industrial construction sector which is noted as having a considerably better safety performance record than the construction industry as a whole. Some analysis was conducted to determine the extent that drug use might be associated with the injury rate. The correlation was found to be statistically significant. The results

show that there is a strong relationship between the RIR and the percent positive drug test results. This would suggest that higher drug use is associated with a higher injury rate (see Figure 8).

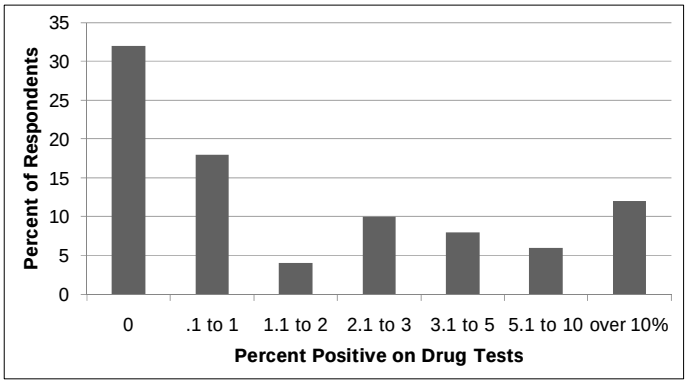

Figure 7. Percent Positive Results on Post-Accident Tests

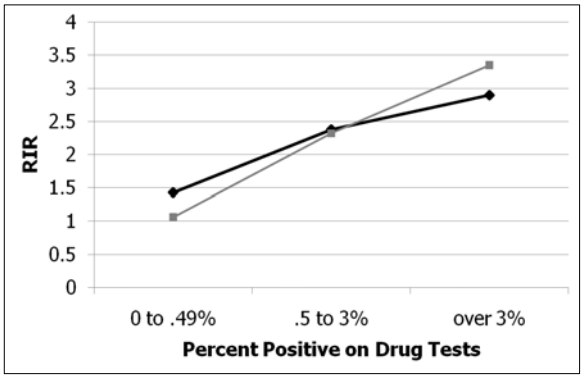

Figure 8. RIR as Influenced by Positive Test Results

The results of a positive drug test invariably result in the termination of employment of the worker who tests positive. The construction firms differ in their posture about subsequent rehiring of these workers. Some companies terminate workers who test positive for drug use and do not offer the possibility for the workers to be rehired, while others will consider rehiring workers if they can successfully pass a drug test after they have been terminated for a specified amount of time, typically 60 days to 3 months. The data were examined to determine if this possibility of being rehired after testing positive for drugs was associated with and differences in the resultant RIR. The results show that the RIR values are considerably higher in those companies that have a more relaxed policy about rehiring workers that have tested positive on drug tests. This was evident for both the random drug tests and the post-accident drug tests (see Figure 9). The differences in the RIR values in the figure are statistically different.

In recent years, there has been an increased awareness of the possibility of cheating on drug tests. In fact, many companies now advertise on the Internet about products that they sell that can effectively mask illicit drug use. Many of these substances can be detected with more sophisticated drug testing procedures. In fact, many laboratories have a standard policy of testing for the presence of adulterants in the specimens they test.

The respondents were asked about the prevalence of cheating on drug tests. To this, 15% of the respondents stated that there was no cheating on drug tests, 54% stated cheating occurred on an occasional basis, and 31% stated that cheating was common. This experience with or the perception of the extent of cheating was examined in terms of the RIR. It was noted that the RIR was particularly elevated in those firms in which cheating on drug tests was assumed to occur as a common frequency (see Figure 10). This correlation between the frequency of suspected cheating on drug tests and the RIR is statistically significant.

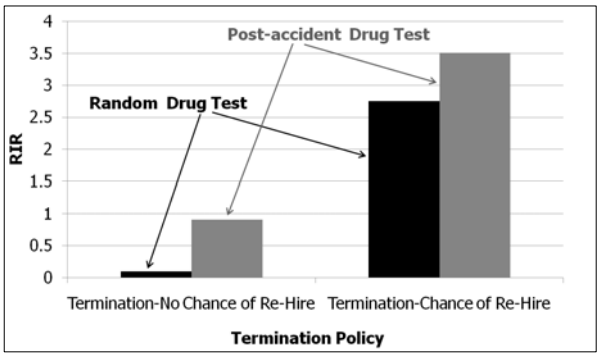

Figure 9. RIR by Consequence for Positive Test Results

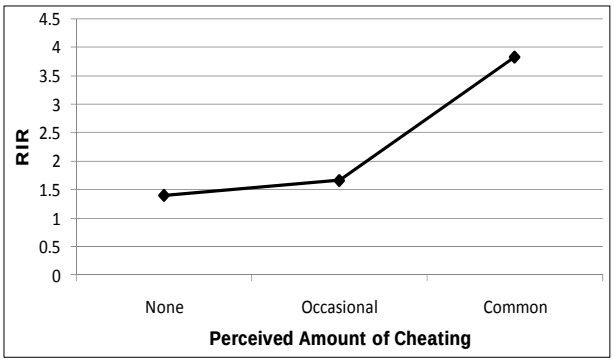

Figure 10. RIR as a Function of the Perceived Amount of Cheating

CONCLUSIONS AND RECOMMENDATIONS

This study shows that substance abuse continues to be a problem in the U.S. construction industry. It seems that the rate of substance abuse has decreased in recent years. The most frequently abused substances are marijuana and cocaine.

Urine analysis continues to be the most prevalent drug test used by the construction firms. Hair testing and saliva tests for alcohol have been used by some firms, however there is a great reluctance to use sweat tests and saliva tests for drug use. Cheating on drug tests seems to be a significant problem. As the amount of cheating increases, the injury rate increases, too.

There is a statistically significant relationship between drug usage and safety performance. The injury rates were higher on the projects where the drug use was higher. The drug use on these projects was detected through random tests or through post-accident drug tests. The percent positives on post-accident drug tests were considerably higher than the percent positives on random tests, showing that more accidents are associated with increased drug use.

Strict drug testing programs have positive effect on safety performance. In addition, severe consequences for positive drug test results appear to favourably influence safety performance. Thus, firms should implement stringent policies to create a strong disincentive for workers to utilize drugs. For example, refusal to rehire workers who have tested positive on drug tests was found to be associated with better safety performances.

Therefore, construction companies are encouraged to implement drug testing. Construction firms are encouraged to consider the use of new testing methods (other than urine analysis), but only after they evaluated the accuracy of the test results. The construction firms should be aware of the potential for the cheating on drug tests and take the necessary actions to decrease the cheating. Cheating on a drug test should be regarded the same as a positive drug test result.

While this study was conducted in the United States, there is a strong possibility that similar results might be found in other countries. Drug use is a serious social issue that has existed for decades but it has not been a general concern among the U.S. employers until the past thirty years. Any society that has a high incidence of drug use will undoubtedly have similar types of associated problems in the workforce, including lower productivity, higher absenteeism, higher turnover, increased illnesses, and higher injury rates. While there were initially concerns in the U.S. about the invasion of personal freedoms whenever drug tests were conducted, those arguments have largely abated with time. If drug use is viewed as an illness, there might be a more positive approach to addressing substance abuse in the workforce. Construction firms should devote time and effort to educating workers about the health impacts and job consequences of substance abuse. Companies should also be proactive in assisting in the rehabilitation of workers who test positive on drug tests.

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