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WORKPLACE DRUG TESTING PROGRAMS: A REVIEW OF RESEARCH AND A SURVEY OF WORKSITES

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Private sector employers are experiencing increased governmental regulation and pressure to utilize drug testing for job applicants and employees at their worksites. Public policy is espousing organizationally sponsored drug testing as beneficial not only to the workplace but to society in general. Little rigorous research has been conducted, however, to support the foundations of this public policy. This paper reviews the extant research on this topic and then presents results of a study conducted at 342 worksites. The data describe various facets of drug testing and related practices and compares them over several organizational characteristics. Implications based on the study's results are presented for those involved with drug testing programs.

Partially in response to evidence of drug use among employed individuals, public policy in the United States has attempted to influence public and private sector employers to test prospective and current employees for evidence of drug use. Research, however, has played a very limited role in developing this public policy or assessing its impact on the private sector. While public policy has been successful in influencing the proliferation of drug testing programs, not much is known about the effects of these programs. This is partially because the research to date is inconclusive. Much of it is not generalizable, having been conducted with inadequate methodologies. Other data are inac-

cessible or kept within the proprietary sector, rather than being available for scientific scrutiny. Further, much of the research that was contracted to justify public policy was not conducted with adequate peer review input at the design and implementation phases. Also, many studies were performed after public policy had already set the direction for public and private sector drug testing programs.

There has been a considerable increase over the past seven years in the number and proportion of employers who voluntarily drug test job applicants and employees. Government regulatory and contracting agencies are placing greater pressure and requirements on employers

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to drug test current employees. These regulations are no longer narrowly directed at particular industries, but now include categories of occupations that cross a diversity of industrial settings (U.S. Department of Transportation, 1992a; U.S. Department of Defense, 1992). Given the development of the drug testing industry, it is unlikely that drug testing will be sharply reduced, no matter what evidence, pro or con, is produced through research. It is important, however, that decision makers have as much information as possible regarding drug testing to the end that extant programs can be changed or improved to better meet organizational and societal goals.

This paper reviews existing research on how workplaces have addressed drug use, including adopting sanctions and disciplinary policies, offering rehabilitation treatment to employees, and testing employees for drug use. This review reflects some of the limitations of the available body of research as a source for informed policy making for public and private sector workplaces. Following this review, some new data are presented from a survey of a diverse group of worksites. These data describe the prevalence of the various types and combinations of drug testing performed (e.g. pre-employment, employee-for-cause, employee random), the percentage of drug tests that are positive, the extent to which employee drug use is considered a problem, the types of sanctions that are applied to employees that use drugs and how they are applied, how these employees are treated in terms of rehabilitative actions such as Employee Assistance Programs (EAPs), and the general attitudes toward drug testing of Personnel/Human Resource managers at these sites. This information is presented for the overall sample and compared across a variety of organizational types and workforce demographics.

I. Literature Review

Harris and Heft (1992) identified three general approaches used by employers to address drug-related problems in the workplace. These included sanctions, such as suspension when substance use is detected, rehabilitative programs such as EAPs, and drug testing programs involving job applicants, current employees, or both.

The range of alternative organizationally imposed sanctions for drug use in the workplace is a particularly under-researched area (Harris & Heft, 1992). In 1986, a study sponsored by the American Management Association (AMA) focused on a sample of 1,090 firms (representing a response rate of only 11%) found that only 8% fired employees for testing positive for drugs. The remainder either suspended the employee or issued official warnings in conjunction with referral to an EAP or other rehabilitation options (Masi, 1987). Additional surveys sponsored by the AMA showed more punitive approaches, finding that, in the companies surveyed which drug test employees, 22% immediately terminated those testing positive for drugs, 21% suspended or put such employees on probation, and 70% referred these employees to treatment or counseling (Greenberg, 1988, 1989 & 1990). Fifty-one percent of this sample of more than 1,000 organizations reported having a formal EAP.

Other studies have investigated the impact of sanctions on other illicit behaviors. For example, it has been found that the severity of the anticipated sanctions is at least as significant a factor in deterrence as the likelihood of being detected (Harris & Heft, 1992). If the severity of formal sanctions is important in reducing employee drug use, firms terminating employees who test positive should have less drug usage than employers using progressive discipline. On the other hand, there may be many other factors, such as

average employee education level, age, and income level that influence the impact of sanctions on drug use. For example, older and better educated employees may be less likely to use illicit drugs regardless of possible organizational penalties. In addition, employees with higher incomes may perceive they have more to lose from a positive drug test. Clearly, more extensive research is needed that compares employee drug use at two types of worksites, those emphasizing punitive responses with those that emphasize rehabilitative approaches, such as counseling and ongoing treatment.

A. Drug Testing and Other Human Resource Programs

The connection of applicant and employee drug testing with rehabilitative services and other personnel/human resource programs is to some extent a study in contradictions. First, alcohol abuse is treated as a problem needing corrective action only in cases where it inhibits role relationships and/or work performance. By sharp contrast, any presence of drugs in an employee's urine is generally considered evidence of a drug problem in need of correction. In addition, applicants testing positive for drugs are generally excluded from the organization, while current employees testing positive are often offered some form of rehabilitative treatment. Clearly, the reaction to drug users by employers is different depending on which side of the employment line a person falls (Roman & Blum, 1992). The difference in treatment of applicants compared to employees may occur because employers have no investment in job applicants, but do have an investment in the firm-specific training and skills of existing employees. This could make the cost/benefit ratio for rehabilitation of employees attractive when evaluated over several years of remaining employment.

One of the most prevalent rehabilitative responses to workplace drug problems is an EAP. While EAPs originally were developed to address employee alcoholism in the workplace, their role has broadened to include not only help for employees with substance abuse problems, but also assistance covering a host of other personal difficulties (Roman & Blum, 1992). EAPs have become much more prevalent throughout the 1970's and 1980's (Harris & Heft, 1992). For example, by 1992, more than half of the worksites with over 250 employees had an EAP. Blum and Roman (1992) estimate that today about 45% of all full-time employees have access to an EAP.

Following the logic that employees represent investments, the prevailing view among managers seems to be that employee drug testing programs should not operate "in a vacuum" (Roman & Blum, 1992). For example, a 1988 AMA survey found that in 60% of the companies surveyed, employee drug testing was part of an integrated system where the employee was eligible to receive help (Greenberg, 1989). Similarly, a survey by The Conference Board (1989) of 680 organizations found that almost half screened applicants for drug use, that 80% of those that drug test had procedures for supervisors to address suspected drug abuse, and that those firms that drug test employees were twice as likely to provide substance abuse education activities as those which did not.

In a separate survey conducted in 1988, Blum (1989) found that 46% of a sample of 125 larger worksites (over 250 employees) drug tested employees or applicants. Over half of these workplaces also had an EAP. The interactions of drug testing with other human resource management functions were illustrated in this study. For example, sites located in small towns tended to test all applicants if other sites in the same labor market also did so. This was an apparent attempt to avoid hiring

those rejected by other firms for testing positive. Workplaces that were facing labor or skill shortages were less likely to reject all applicants who tested positive. Locations that indicated they had problems with absenteeism were more likely to do "for reasonable cause" testing. Firms with concerns about levels of Worker's Compensation claims were also more likely to do for-cause testing but less likely to have an EAP (Blum, 1989).

While many employers are willing to make rehabilitation alternatives available for employees, they are not nearly as willing to consider hiring applicants who test positive for drugs. For example, one study found that almost 90% of managers engaged in recruitment on college campuses indicated they would not hire an applicant who tested positive (Babbush, 1987). Another survey reported 94.3% of those worksites that test applicants refused to hire any applicant that failed a drug test (Murphy & Thornton, 1992). The exclusion of job applicants solely on the basis of drug test results could lead to potential adverse impact since blacks tend to test positive more frequently than whites (Normand & Salyards, 1989; Harris & Heft, 1992; Mensch & Kandel, 1988; Roman & Blum, 1992). The potential for adverse impact exists if the ratio of black selection to white selection based on drug test results is less than 80% (Harris & Heft, 1992). For example, Normand and Salyards (1989) report that black applicants for post office jobs had a positive drug test rate over twice that for white applicants (14% vs. 6.5%). Analyses reported by Harris and Heft (1992) showed that using both the data on which the Zwerling et al. (1990) and Normand, Salyards and Mahoney (1990) studies of post office applicants were based, the ratio of black selection rate to white selection rate based on drug testing results was 89% (both data sets were in very close agreement). While adverse impact for blacks in a legal sense

would not be indicated by this ratio, other worksites may reach the 80% mark, particularly if drug test results are combined with other selection criteria. Further, ethical and societal concerns might transcend the legal definition (Roman & Blum, 1992).

Finally, research investigating the effects of work stress and strain on employee consumption of alcohol and drugs is somewhat mixed. There is however some empirical support for the concept that employees may adapt to stressful work environments by consuming alcohol and/or drugs to cope, possibly in association with other co-workers (Harris & Heft, 1992). While some employers might agree that poor working conditions and badly designed jobs might increase employee alcohol and drug use, the prevailing view seems to be that EAPs and similar rehabilitative strategies are available for any casualties of company work life. There seems to be little employer interest or activity in modification of work context, job design or other human resource components in response to perceived drug and alcohol problems among employees.

B. Trends in Workplace Drug Testing

Estimates of the proportion of work locations that perform some type of drug testing have increased substantially over the past 7 years. For example, a 1986 survey of personnel/human resource managers who were members of the American Society of Personnel Administrators showed that 22% of the respondent companies engaged in some form of drug testing (Gomez-Mejia & Balkin, 1987). This sample represented 190 firms (response rate of 38%) that were large enough to have a professionally managed personnel department. In 1987, a study indicated that about half of the Fortune 1000 companies surveyed conducted drug testing, as compared to 20% of those

with less than \$500 million in annual sales (Masi, 1987). Although these findings were based on a very low survey response rate (11%), the estimate for large companies was supported by a separate 1987 survey by AMA in which 43% of respondent firms with sales of over \$500 million reported testing job applicants (Greenberg, 1988, 1989, 1990). In contrast, only 16% of the firms contacted by AMA that had less than \$50 million in sales performed any drug tests. Another 1987 study based on information from 1,200 employers reported that just under 30% of these firms drug tested job applicants, with an additional 20% indicating they would initiate screening by 1988 (Babbush, 1987).

In 1988, an AMA survey indicated increases in drug testing of both applicants and current employees. Thirty-eight percent of all the organizations in the 1988 sample screened applicants compared to 28% for 1987; 36% tested current employees as opposed to 28% the year before (Greenberg, 1989, 1990). In 1991, Guthrie and Olian (1991) showed that the proportion of a sample of Fortune 1000 firms (response rate of 39%) that did some type of drug testing had increased to 48%. Harris and Heft (1992) recently reported that the proportion of employers performing some type of drug testing is as high as 63%, with 74% of these firms testing employees "for reasonable cause" but only 9% conducting random employee tests.

These estimates, however, are based on surveys dominated by larger companies and with relatively low response rates (less than 50%). The impact of restricting samples to larger organizations is evident in a study by Hayghe (1991) which showed that only 2.6% of the firms with under 50 employees (which constitute over 90% of all employers in the nation) had a drug testing program of some type in 1990. Hayghe also found that only 9% of large (over 250 employees) firms that

reported having drug testing in 1988 had dropped the program by 1990, compared to a 46% rate of program termination among those with fewer than 50 employees. The impact on generalizability of low response rates to surveys is unknown, since there is no information available comparing the companies that do not respond with those that do.

While most manufacturing and utility companies will not hire applicants who test positive, companies in service industries are more likely to continue consideration of such applicants for employment (Murphy & Thornton, 1992). This difference may result from greater safety concerns in the manufacturing and utility locations. Overall, workplace safety is generally the most common reason given for drug testing, reported in one study by over 70% of the respondents who did testing (Masi, 1987). At present, most workplace drug testing is directed at job applicants and employees who show evidence of being under the influence at work. However, the fastest growing practice is random drug testing of current employees.

While pencil and paper and other physiological tests (e.g. hair) can be used, the most widely used drug test by far is urinalysis (Harris & Heft, 1992). Although more expensive than other alternatives, urinalysis is the most accurate type of testing minimizing legal and morale problems for companies (Harris & Heft, 1992). It is also required by the Federal agencies that mandate testing for contractors and regulated industries (U.S. Department of Transportation, 1992b).

The survey data summarized in this section indicates the following:

Drug testing programs are primarily a large company practice, with more than half of the Fortune 1000 companies performing some type of drug test, as compared with less than 5% of small employers. The existing surveys show that 75% to 90% of larger employers that

have testing programs test job applicants (Masi, 1987; Guthrie & Olian, 1991; Murphy & Thornton, 1992). In addition, 65% to 75% of these firms test employees "for reasonable cause" i.e. suspicion of drug use (Masi, 1987; Murphy & Thornton, 1992). The proportion of larger firms that require random drug tests of employees has increased substantially, from only 2% in 1987 to over 30% in a sample contacted in 1991 (Murphy & Thornton, 1992). The organizations in 1991 that tested randomly tended to be military or government organizations, while service sector organizations were least likely to perform random tests on employees (Murphy & Thornton, 1992).

In general, manufacturing companies and utilities are more likely to drug test than firms in banking, finance, or wholesale/retail trade (Babbush, 1987; Murphy & Thornton, 1992). Larger employers in manufacturing industries are perhaps more likely to drug test applicants because they have greater potential safety and liability risks. These firms also often pay higher wages than smaller companies and those in service industries, and therefore probably attract a surplus of job applicants. In this light, drug testing to exclude applicants may help these companies avoid costly accidents and rehabilitation bills, while not limiting their available labor supply. The fate of job applicants who test positive for drug use, however, then becomes society's problem, and little or no research has been conducted on the outcomes of those who are denied employment through use of this practice.

C. Reasons for Workplace Drug Testing

There are numerous rationales that could explain why employers would incur the expense of drug testing. These include a) concern for job safety, b) beliefs that drug use is immoral, c) fear that employee drug use leads to theft,

violence, unpredictable behavior, reduced productivity and/or lower quality of work, d) concern for satisfaction of other employees, and e) belief that drug testing contributes positively to a company's image (Roman & Blum, 1992). While any or all of these may be accurate, the underlying economic arguments for drug testing hinge to a large extent on either a) the idea that drug use is prevalent enough among prospective or current employees to warrant testing, b) the idea that the payoffs to companies associated with drug testing applicants and employees is great enough to justify the additional expense, or c) the idea that drug testing is necessary to meet government requirements or pressures.

1. Prevalence of Drug Use

Estimates of the prevalence of drug use among employees vary depending on the type of drug involved and whether data is based on self-reports or results of drug tests. Drug tests can detect use of cocaine, barbiturates, etc. in the past 3 days, and use of marijuana in the past 30 days. Overall, studies have indicated that the prevalence of drug use by working persons has declined over the past 5 years, and that drug use of all types is about twice as high among unemployed as employed persons (Voss, 1989).

Estimates of drug use among 1736 working adults in the 1987 National Institute of Drug Abuse household survey were 11% for marijuana use in the past month (18% in the past year), and 2% for cocaine use in the past month (6 percent in the past 12 months). Males, younger (18-34 years old) employees, and those employed in the skilled trades had significantly higher rates of self-reported use (Cook, 1989). Similar estimates of use were reported by a 1988 Department of Labor survey of 7500 firms in which respondents reported an overall rate of positives of 8.8% for all current employ-

ees who were tested. About 12% of the applicants tested positive (U.S. Department of Labor, 1989).

However, two years later, Anglin and Westland (1989) found lower rates in a study using drug test data from four California laboratories describing pre-employment drug screens and employee drug tests performed "for reasonable cause." The rate of positives for individuals so tested ranged from 1.5 to 7.5% for marijuana, and were less than 2% for cocaine, opiates and amphetamines. These percentages, which are probably biased upward due to inclusion of "for reasonable cause" tests which tend to have a higher rate of positives, are consistent with Cook's 1987 estimates for cocaine, but significantly lower than the estimates for marijuana. Moore and Swafford (1993) found similar estimates of use in a study of an employee testing program at a large hospital over a one year period in which 2.25% of 3,514 pre-employment screens were positive. In this case, 55% of the positive tests were reversed after review by medical officers (almost all for barbiturates, Valium, Darvon, and related drugs). Allowing for some overlap among employees testing positive for marijuana, cocaine and other drugs, the overall prevalence of drug use among employees appears to be in the range of 5 to 7%. However, the most recent data in these studies is from 1990, when almost all tests of employees were "for reasonable cause."

2. Payoffs from Drug Testing

In general, the studies comparing the employment outcomes for drug users with non-drug users show mixed results. Some studies indicate that drug use may be a poor predictor of employment success or failure. For instance, McDaniel (1988) examined the ability of prior drug use to predict performance related military discharges within 4 years of enlist-

ment. Sixteen percent of the sample of 10,188 applicants for military service in 1983-1984 had been discharged for poor performance in this time frame. Correlations between drug use and unsuitability were found to be low (.08), with those initiating drug use at an earlier age, those arrested for use of drugs, and those with a higher frequency of use (over 50 times) having higher discharge rates than others testing positive. McDaniel concluded that employers can use much better predictors of applicant employment suitability than drug test results. This finding was also supported by Parish (1989) in a study with limited statistical power of 180 applicants who were subsequently hired for hospital jobs. Although the 22 applicants who tested positive had higher turnover rates, more warnings in their files and lower performance evaluations than those testing negative, none of these relationships were statistically significant.

Other studies suggest that drug users are more likely to be injured on the job, to have job related accidents, to be involuntarily terminated for job-related reasons and to have higher rates of absenteeism. For example, Zwerling et al. (1990) studied a sample of 2537 postal employees who had accepted positions with the postal service from September 1986 to January 1989. The new hires had all been screened for drugs during the application process, with 8% testing positive for marijuana and 2.2% for cocaine, other drugs or combinations of drugs. Analysis indicated that those subjects who tested positive for marijuana had increased levels of involuntary turnover (13.6% for those testing positive versus 6.4%). Those testing positive for cocaine and the other drug groups did not have significantly higher rates of turnover, voluntary or otherwise. However, marijuana-positive subjects had more accidents, injuries and disciplinary action than those testing negative. The absenteeism rate was also