

## Defining “Reasonable Suspicion” of Employee Drug Use: The Symptoms of Drug Impairment Checklist

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*The 33-item Symptoms of Drug Impairment (SDI) checklist was developed to operationally define “reasonable suspicion” for employee urinalysis, a commonly used drug testing policy despite the inherent vagueness of circumstances requiring testing. State certified substance abuse counselors (N = 92) rated 168 symptoms of alcohol and other drug impairment on the degree to which each behavior is observed when a person is impaired by a particular substance. Results suggest that many symptoms of drug impairment found in books and pamphlets are not accurate. Means, standard deviations, and skewness coefficients for ratings as well as written comments were used to content validate the SDI checklist, which can be used to clarify drug testing policy, supplement employee training on drug impairment, and document reasonable suspicion for legal purposes.*

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For nearly two decades, preventing alcohol and other drug use among employees has been virtually synonymous with testing procedures. Over 90% of large American companies have implemented some form of testing to prevent employee drug use (DeLancey, 1994), and nearly half of all Americans currently abide by an employment drug testing policy (Substance Abuse and Mental Health Services Administration, 1999). Indeed, a large body of research supports the utility of employment drug testing. Findings show that compared to control groups, alcoholics are three to five times more likely to be absent from work, more than twice as likely to be absent due to workplace injuries, and nearly six times more likely to receive below average job performance ratings (Martin, Kraft, & Roman, 1994). Likewise, illegal drug use is associated with above average rates of absenteeism, involuntary turnover, military attrition, health costs, and negative job behavior (Blank & Fenton, 1989; Blum, 1989; Crouch, Webb, Peterson, Buller, & Rollins, 1989; McDaniel, 1988; Normand, Salyards, & Mahoney, 1990; Sarchione, Cuttler, Muchinsky, & Nelson-Gray, 1998; Stein, Smith, Guy, & Bentler, 1993). These studies affirm employers’ interest in identifying alcohol and other drug users in the workforce.

The process of searching for biochemical remnants of consumed drugs (i.e., metabolites) usually requires a person to produce a urine sample, although there is increasing attention to hair analysis, which provides less embarrassing circumstances for sample collection. However, a recent review from the National Institute on Drug Abuse (Harrison & Hughes, 1997) suggests that hair is easily contaminated by the outside environment, is not a good medium for detecting marijuana use, and provides more sensitive detection in people with darker hair (such as African-Americans). Other less prevalent drug detection systems include breath analysis and blood testing, as well as eye movement observations, and measures of psychomotor control. None of these

alternatives to urinalysis has yet to demonstrate broad applicability across jobs and industries.

In spite of the fact that urinalysis predominates employment drug testing programs, it is utilized at various times in a person's contact with an employer. Throughout the past decade, most employers with a testing policy have used urinalysis to screen applicants, some conduct reasonable suspicion employee testing, and a few conduct random or scheduled employee testing (Murphy & Thornton, 1992; Substance Abuse and Mental Health Services Administration, 1999). Each form of testing is based on a different set of assumptions regarding employees' use of illegal drugs, and each form is likely to differ in terms of perceived fairness and appropriateness (Crant & Bateman, 1989; Murphy, Thornton, Reynolds, 1990).

Applicant testing, for example, assumes that employee drug use can be prevented by hiring only those individuals who are drug free when they apply for an open position. By testing applicants rather than employees, employers risk offending only applicants, who have much less invested in the company than do employees. Indeed, there is evidence that applicant screening for current drug use is an accepted part of the job seeking process (Mastrangelo, 1997; Substance Abuse and Mental Health Services Administration, 1999). Likewise, testing for current use of alcohol and illegal drugs is not considered a medical test for a disability, and so the Equal Employment Opportunity Commission considers "pre job-offer" drug testing to be in compliance with the Americans with Disabilities Act of 1990 (Equal Employment Opportunity Commission, 1995).

In contrast to applicant testing, employee testing monitors illegal drug use throughout an employee's career with the company. Employee testing (scheduled, random, and reasonable suspicion testing) assumes that an employee's illegal drug use could go undetected during the initial hire or that the employee's drug use could begin after he or she is hired. Although these assumptions are most certainly true, an employer faces additional risks when testing people who already work for the company (O'Brien, 1996). Employee drug testing indirectly questions an employee's ability to perform the job by attempting to find remnants of an illegal act that may have occurred off of company time. This very nature of the procedure can affect employees' perceptions of fairness in the workplace (Crant & Bateman, 1989), which can lead to adverse consequences for an employer that involve morale, turnover, union relations, and legal action (Konovsky & Cropanzano, 1991; Mastrangelo & Popovich, 2000). Furthermore, perceptions of fairness are affected by the procedures used to select which employees are tested. Requiring drug testing for only a subset of jobs within a company may produce or magnify feelings of inequity. For example, some employers exempt managerial positions from drug testing, whereas others only require testing within "safety sensitive" positions, which tend to be jobs toward the bottom of the organizational chart.

### **When an Employee Should Be Tested**

Even if an employer tests employees from all jobs within the company, there is still the question of which employees should be tested at a given time. It is this issue that separates scheduled, random, and reasonable suspicion employee testing. Scheduled employee testing takes the simple approach of requiring everyone to produce a urine

sample for drug testing on a regular basis (e.g., during the annual physical examination or before returning to work from an extended leave). Yet the expense of testing everyone on a frequent basis does not necessarily prevent employee drug use. Scheduled employee testing allows motivated employees to carefully plan their illegal drug use so that traces of the drug are gone before the next scheduled testing.

Rather than testing everyone, random testing provides each employee an equal chance of being chosen to produce a urine sample at any given time. In other words, random selection will determine who is tested and when testing will occur (Elkouri & Elkouri, 1993). Unannounced, random testing may provide the best deterrent against employee drug use because no employee knows when he or she can use an illegal drug without being detected. Yet this element of surprise can also cause fear and feelings of mistrust because employees never know when they must prove their own innocence. That a person's urine is required even without suspicion of drug use leads some individuals to feel that their privacy is being violated (O'Brien, 1996; Substance Abuse and Mental Health Services Administration, 1999).

Alternatively, reasonable suspicion employee testing only requires an employee to submit a urine sample when he or she is suspected of having used illegal drugs. This form of employee testing reduces the number of samples that must be tested at one time, offering reduced costs in comparison to scheduled testing. Reasonable suspicion testing also avoids treating every employee as if he or she has committed a crime, producing a more positive attitude toward the employer than does random testing (Murphy *et al.*, 1990). Perhaps these reasons are why reasonable suspicion testing is the most prevalent form of employee drug testing (Osterloh & Becker, 1990; Murphy & Thornton, 1992).

### **Operationally Defining Reasonable Suspicion**

A major disadvantage in using reasonable suspicion testing is the vagueness in defining the circumstances that will lead an employer to test an employee. Arbitrators and judges have ruled that an employer has reasonable suspicion to test an employee when it can be shown that this individual may have used drugs (Elkouri & Elkouri, 1993; O'Brien, 1996). Obviously, this definition creates a great degree of latitude in the judgment of "possible drug use." Legal terminology offers little clarification among the seemingly synonymous labels *reasonable suspicion*, *reasonable cause*, and *probable cause*. Although these terms are often used interchangeably, Black's Law Dictionary (Black, 1991) does distinguish among the three:

*Reasonable suspicion is quantum of knowledge sufficient to induce [an] ordinarily prudent and cautious man under circumstances to believe criminal activity is at hand.*

*Reasonable cause: As basis for arrest without warrant, is such state of facts as would lead [a] man of ordinary care and prudence to believe and conscientiously entertain honest and strong suspicion that [a] person sought to be arrested is guilty of crime.*

*Probable cause: Reasonable cause; having more evidence for than against...An apparent state of facts found to exist upon reasonable inquiry...which would induce a reasonable intelligent and prudent man to believe, in a criminal case, that the accused person has committed the crime charged, or, in a civil case, that a cause of action existed.*

A commonality among all three definitions is that a *reasonable, prudent* person must judge circumstances that suggest, in this matter, that an employee has used illegal drugs. Indeed, an employer needs to have rational grounds for testing rather than capricious, whimsical, or arbitrary reasons (Elkouri & Elkouri, 1993).

Many employers have attempted to make this judgment more objective by operationally defining rational grounds for testing as being present whenever an accident occurs on the job, an employee or customer is injured on the job, or property is damaged. Although so called “post-accident” testing policies have been upheld by arbitration and the Supreme Court (especially for safety sensitive jobs as in *Skinner v. Railway Labor Executives’ Association*, 489 U.S. 602, 1989), both have noted that the mere occurrence of an accident does not constitute rational grounds for testing. The degree to which the employee was at fault, the extent of damages, and other specific circumstances should be considered before an employee who is involved in an accident is required to submit a urine sample for testing (Elkouri & Elkouri, 1993). Employers who require drug testing of all employees involved in all accidents are likely to have difficulty justifying the policy. For example, in the U.S. 2<sup>nd</sup> District Court case *Doyon v. Home Depot U.S.A., Inc.* (850 F. Supp. 125 D. Conn. 1994), the employer did not successfully argue that post-accident drug testing was justified because drug users are more likely to be involved in job accidents than are non drug users. Chief Judge Jose Cabranes ruled that this rationale does not show *individualized* suspicion of drug use, which is necessary under Connecticut State law. Because reasonable suspicion testing is widely defined as requiring evidence of an *individual’s* drug use, the *Doyon* case may impact drug-testing policies outside of Connecticut as well.

Not only is a strict post accident testing policy difficult to defend, it also does little to prevent deaths, bodily harm, or property damage due to employee drug use. Even though results from a urinalysis procedure may contribute to the investigation of an accident, drug testing could help prevent this initial accident if the policy defines reasonable suspicion through observable behaviors (often preceding an accident). The National Institute on Drug Abuse (1991) does consider reasonable suspicion to include observable phenomena (e.g., accounts of actual use, possession, symptoms), abnormal conduct, drug-related investigations (including arrests and convictions), employee drug test tampering, and information from reliable sources. Likewise, arbitrators have historically granted employers substantial leeway to exercise judgment in determining when drug testing is warranted (Elkouri & Elkouri, 1993). Indeed, any one of the factors listed above constitutes reasonable suspicion. Thus, *specific* observations from coworkers, supervisors, or business visitors can serve as the basis for requiring drug testing, which would enhance workplace efficiency and safety.

Not surprisingly, government agencies (e.g., the Department of Transportation, the Nuclear Regulatory Commission) and many private employers are requiring supervisors to undergo training in the recognition of alcohol and other drug impairment. What is surprising, however, is the lack of scholarly research on observable symptoms of impairment. In our attempts to review reputable sources for symptoms of impairment, we found mostly pamphlets and posters that describe the effects of alcohol and other drugs on the human body. In many instances, these symptoms were so vague (e.g., dry skin) that they could not be applied to a workplace setting. In contrast scholarly work on

employee substance abuse has focused on signs of ongoing drug use (e.g., Trice & Roman, 1978), job-related causes of drug use (e.g., Garcia, 1996), or the consequences of drug use (e.g., Normand, Salyards, & Mahoney, 1990), but not symptoms of a specific employee's *current impairment*. Whereas neglected details in work performance, for example, may suggest alcohol or other drug use, they are not specific to substance use and they do not indicate current impairment. We found no study that attempted to validate a list of observable behaviors to this end.

Thus, the goal of the current study was to use experts in the field of alcohol and other drug use to validate the content of a behaviorally based observation checklist. Behavioral observation scales (BOS) historically have been developed to assist supervisors in evaluating subordinates' performance by listing specific behaviors that were previously judged to be critical for job success. Our intention, however, was to list specific behaviors and characteristics that have been judged to be consistent with current impairment from alcohol and other drugs. By having subject matter experts (SMEs) guide the composition of this list, our checklist would demonstrate content validity, which is a primary technique for the scientific development of work-related psychological tests (Society for Industrial and Organizational Psychology, Inc., 1987). As a result the checklist will provide practitioners with a more precise method of (a) documenting reasonable suspicion, (b) defining organizational policies for urinalysis requirements, and (c) training employees to recognize alcohol and other drug impairment.

## **Method**

### **Participants**

During the summer of 1997, approximately 720 surveys and business reply envelopes were mailed to all alcohol and other drug counselors who were certified by the Maryland Addiction Counselor Certification Board. In exchange for their participation, counselors were eligible for a \$25 drawing. Although there are different levels of certification in Maryland, all counselors are required to have at least 240 clock hours of training, 4000 hours of experience with primary alcoholics or drug addicts, 50 hours of clinical supervision per year, and additional practicum experience. Counselors must also pass written and oral tests before being certified. Of the 720 surveys sent, 92 usable surveys were mailed back to the researchers. Although this return rate is low (13%), representing the entire population of certified counselors in Maryland is not necessary; a sample of 92 subject matter experts far exceeds the typical number used for content validation of psychological tests.

### **Procedure**

A cover letter explained the goals of the present study and asked participants to rate how well the list of symptoms indicated impairment from commonly abused drugs. The survey also left room for comments and any additional symptoms that may have been omitted. Participants were reminded that the checklist under development was not for diagnosing substance abuse, but only for indicating current impairment among employees.

Surveys consisted of 168 symptoms for the following drugs: alcohol (22 items), cocaine and crack (35), depressants (4), heroin (17), LSD (11), marijuana (24), PCP (23), stimulants (10), and steroids (22). These symptoms were culled from various pamphlets, posters, and books (Banta & Tennant, 1989; Alcohol, Drug Abuse, and Mental Health Administration, 1990; Dwyer, 1990; The Algra Corporation, 1992; Hope Hotline, 1992). Participants responded using a four-point scale with the following anchors:

- 1) Poor indicator = never observed when a person is impaired by this drug
- 2) Fair indicator = sometimes observed when a person is impaired by this drug
- 3) Good indicator = commonly observed when a person is impaired by this drug
- 4) Excellent indicator = always observed when a person is impaired by this drug.

## Results

Initially, symptoms of impairment were examined by drug type. Table 1 contains descriptive statistics for the top rated symptoms within each drug type. Higher mean ratings denote better indicators of drug impairment. Smaller standard deviations denote more agreement among subject matter experts. Negative skewness denotes a tendency to have more SMEs rating the symptom highly rather than lowly. Examining the pattern of these three statistics within each drug type suggests that our list of symptoms more accurately described impairment for alcohol, cocaine/crack, heroin, and PCP than it described impairment for other drug types. Marijuana, in particular, received relatively lower mean ratings with more normal or positively skewed distributions than other drug types, which may indicate that our list of symptoms did not accurately describe impairment from marijuana.

Indeed, 13 different subject matter experts added that excessive hunger and/or thirst is a symptom of marijuana impairment. Likewise, there were nine who listed the odor of marijuana and seven who listed lack of motivation as signs of impairment by that drug. Other symptoms that were mentioned include sleepiness (for depressants and heroin), runny nose, nausea/intestinal difficulty, scratching (for heroin), and nervous fidgeting/foot tapping (for stimulants).

Because employers do not need to identify which drug is causing impairment in order to establish reasonable suspicion, we also compiled a list of top rated symptoms indicative of impairment across drug types. To compile this list, we excluded items with mean ratings below 2.9, standard deviations greater than one, and positively skewed distributions. (Although these cutoffs are somewhat arbitrary, they provide a list of symptoms rated by over 60% of SMEs as being good or excellent indicators, and they cover a variety of drug types.) We then combined or eliminated redundant symptoms (e.g., small constricted pupils were rated as being indicative of both heroin and depressants in general), clarified ambiguous wording, and added frequent write-in suggestions. Table 2 contains the final version of the Symptoms of Drug Impairment checklist.

**Table 1: Top Rated Indicators of Each Drug Type (Before Editing)**

	<u>M</u>	<u>SD</u>	<u>Skewness</u>
<b>Alcohol</b>			
Has alcohol odor on breath	3.69	.63	-1.88

Is stumbling, staggering	3.38	.75	-.76
Has difficulty balancing	3.33	.72	-.78
Has impaired fine motor skills	3.25	.74	-.61
Uses slurred speech	3.24	.81	-.60
<b>Cocaine and Crack</b>			
Shows dramatic weight loss	3.16	.78	-.57
Is usually broke	3.09	.86	-.72
Is frequently sniffing	3.01	.81	-.53
Is late or absent from work duties	3.00	.77	-.32
Behaves erratically	3.00	.83	-.36
<b>Depressants</b>			
Has slurred speech	3.13	.76	-.21
Acts in an uncoordinated manner	3.05	.82	-.34
Has small, constricted pupils	2.92	1.05	-.53
Looks disoriented, confused	2.92	.82	-.23
<b>Heroin</b>			
Looks sedated, sleepy	3.33	.71	-.78
Has fresh needle marks on body	3.28	.91	-.89
Has scars or tracks over veins in inner arm	3.25	.92	-.98
Has small, constricted pupils	3.20	.92	-.79
Has droopy eyelids	3.11	.80	-.49
<b>LSD</b>			
Has large, dilated pupils	3.12	.99	-.71
Acts unpredictably	3.11	.85	-.59
Acts frightened, panicked	2.89	.81	-.08
Looks dazed	2.83	.91	-.05
Looks anxious	2.70	.86	-.09
<b>Marijuana</b>			
Has red, blood-shot eyes	3.00	.76	-.15
Has poor concentration	2.84	.77	-.03
Has impaired perception of time	2.84	.86	-.32
Has loss of energy	2.70	.83	+0.13
Has impaired perception of distance	2.64	.93	-.00
<b>PCP</b>			
Behaves in an unpredictable manner	3.33	.73	-.79
Seems "spaced-out"	3.32	.68	-.49
Appears disoriented	3.26	.70	-.41
Is unaffected by infliction of physical injuries	3.13	.94	-.80
Seems paranoid	3.04	.79	-.22
<b>Stimulants</b>			
Is overactive	3.22	.76	-.55
Is very talkative	3.21	.73	-.36
Has difficulty focusing	2.91	.86	-.16
Has large dilated pupils	2.80	.90	-.19
Has glossy eyes	2.58	.77	+0.27
<b>Steroids</b>			
Has bulky muscles	3.41	.71	-.80
Recent increase in weight	3.16	.79	-.47
Has extreme mood swings	2.96	.77	-.34
Acts aggressively, violently	2.88	.86	-.06
Shows recent increase in body or facial hair	2.86	.86	-.03

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Note: Responses ranged from one to four with higher ratings indicating better symptoms.

**Table 2: The Symptoms of Drug Impairment Checklist**

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Symptoms	Drug Type
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1. Has alcohol odor on breath	Alcohol
2. Has developed bulky muscles	Steroids
3. Is stumbling, staggering; has difficulty balancing; acts in an uncoordinated manner	Alcohol, Depressants, PCP
4. Behaves in an unpredictable manner; behaves erratically	PCP
5. Looks sedated, sleepy, over relaxed; has droopy eyelids	Depressants, Heroin
6. Uses slurred speech	Alcohol
7. Appears disoriented, confused; seems “spaced out”	PCP
8. Has impaired fine motor skills	Alcohol
9. Has fresh needle marks on body	Heroin
10. Has scars or tracks over veins in inner arm	Heroin
11. Shows dramatic weight loss	Cocaine/Crack
12. Is overactive, overly excitable	Stimulants, Cocaine/Crack
13. Is very talkative	Stimulants
14. Has small, constricted pupils	Heroin
15. Shows recent increase in weight	Steroids
16. Is unaffected by affliction of physical injuries	PCP
17. Is recently always broke, without money	Cocaine/Crack (Any Drug)
18. Has large, dilated pupils *	LSD (Stimulants, Cocaine/Crack)
19. Shows slow, decreased reactions	Heroin, Alcohol
20. Seems paranoid; looks anxious	PCP, Cocaine/Crack
21. Is frequently sniffing	Cocaine/Crack
22. Acts violently, aggressively	PCP, Steroids
23. Is late or absent from work duties	Cocaine/Crack (Any Drug)
24. Has red, blood-shot eyes	Marijuana
25. Has extreme mood swings	Steroids (and others)
26. Has a slow respiration rate	Heroin
27. Has poor concentration, difficulty focusing	Alcohol, Stimulants
28. Has marijuana odor on clothes, hair **	Marijuana
29. Has excessive hunger or thirst **	Marijuana
30. Lacks motivation **	Marijuana
31. Has runny nose **	Heroin
32. Is vomiting; has nausea, intestinal difficulty **	Heroin
33. Is nervous, agitated, fidgety (tapping feet, hands) **	Stimulants

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Note: Items are listed in descending order based on mean ratings, except for write-in suggestions.

\* Statistics indicated a certain degree of inconsistency in rating this item as a symptom of LSD, but the item was included because it received moderately high ratings as a symptom of stimulants and cocaine/crack.

\*\* Item from written suggestions (not on original survey)

Finally, some SMEs also included general symptoms of drug impairment that are common to several drugs, such as mood swings, inappropriate behavior, and frequent lateness/long lunches. They noted that drug users are not only likely to be absent from work, but also that their absenteeism often coincides with Mondays, Fridays, and periods just after payday. An employer may want to note these signs of on-going drug use to provide a context for the specific observations that constitute reasonable suspicion.

## Discussion

The checklist developed in this study provides employers, managers, and trainers with an operational definition for “reasonable suspicion” of employee drug impairment



that was validated by practicing experts in the field of alcohol and drug abuse. Using a content validation approach, we were able to identify and document symptoms that are most indicative of impairment. While one might argue that the present study only proved what we already know about observable symptoms, such criticisms ignore the hazards of *incorrectly* thinking that we already know what to look for (i.e., Type I Error).

For example, printed literature regarding symptoms of drug impairment state that marijuana use causes muscular tremors and excessive sweating, but over 65% of the certified counselors from the present study rated these behaviors as *never* being observed when marijuana is consumed. In fact many items in our survey were rated as being poor indicators of drug impairment, even though all items were found in alcohol and other drug literature. One reason for these inconsistencies could be that pamphlets and posters, which are often distributed for free, are not carefully scrutinized for misleading information. These sources are usually concerned with educating people to recognize *any* potential sign of drug use. By including marginal indicators of impairment, however, one increases the risk of falsely identifying drug impairment. In a workplace setting, this false identification clearly has undesirable consequences (e.g., increased testing costs, reduced morale, and litigation).

Another reason for the inconsistencies between printed sources and SME ratings could be that observations of impairment depend on too many variables to compile a list of symptoms that generalizes to the entire population. A person's reaction to the ingestion of alcohol and other drugs depends on the individual's tolerance for that drug, physiological and psychological state, as well as previous experiences with that drug. Likewise, aspects of the situation (e.g., the purity, amount, and interaction of the drugs consumed) can affect a person's behavior under the influence.

These difficulties in compiling a generalizable list of symptoms were even evident in the present study, as practically all of the items in our survey were rated by some experts to be poor items. Although we did not ask SMEs how many symptoms should be present before requiring employees to submit to urinalysis, we firmly believe that one isolated "symptom" is not necessarily an indication of drug impairment. A number of observed symptoms, especially a pattern that suggests a particular drug type, is far more suggestive of drug impairment. As we previously stated, reasonable suspicion is established legally when a reasonable, prudent person judges circumstances that suggest an employee has used illegal drugs (Elkouri & Elkouri, 1993). Results from the present study help clarify exactly what those circumstances might be.

We recommend that the 33-item Symptoms of Drug Impairment checklist that was developed in this study be the basis for employee training programs, decisions to drug test employees, and defense of those decisions in arbitration and judicature. As a training tool, the checklist provides a standard for observable characteristics, which can be discussed, used to rate videotaped scenarios, and kept as an on-the-job reminder. The checklist should also be included in drug testing policies as a means to clearly define reasonable suspicion. By using the checklist as a common element in training and policy, a supervisor and subordinate have the basis for a shared understanding of what situations can trigger a reasonable suspicion clause in the organization's drug testing policy. As a result, the chances of someone using reasonable suspicion to arbitrarily harass an employee are reduced, which should improve a policy's acceptance. However, if a testing requirement is grieved or appealed, the checklist can also serve as documentation of

reasonable suspicion. For example, if two independent observers check off the same pattern of impairment symptoms, then an employer would have strong evidence that drug testing was prudent. Thus, using the Symptoms of Drug Impairment Checklist helps to eliminate the disadvantages of reasonable suspicion testing by clarifying and standardizing the circumstances requiring urinalysis, which not only makes for good policy, but also saves lives and property.

## References

Alcohol, Drug Abuse, and Mental Health Administration (1990). *Drug abuse curriculum for employee assistance program professionals*. Washington, DC: U.S. Department of Health and Human Services.

Algra Corporation (1992). *Bruce Algra's Health and drug education series* [Brochure]. Bakersfield, CA: Bruce Algra.

Banta, W. F. & Tennant, F. (1989). *Combatting substance abuse in the workplace: Medical facts, legal issues, and practical solutions*. Lexington, MA: D. C. Heath & Company.

Black, H. C. (1991). *Black's Law Dictionary*. St. Paul, MN: West Publishing Co.

Blank, D. L., & Fenton, J. W. (1989). Early employment testing for marijuana: Demographic and employee retention patterns. In Gust, S. W., & Walsh, J. M. (Eds.), *Drugs in the workplace: Research and evaluation data*. (Research Monograph No. 91 pp. 139-151), Rockville, MD: National Institute on Drug Abuse.

Blum, T. C. (1989). The presence and integration of drug abuse intervention in human resource management. In Gust, S. W., & Walsh, J. M. (Eds.), *Drugs in the workplace: Research and evaluation data*. (Research Monograph No. 91 pp. 245-271), Rockville, MD: National Institute on Drug Abuse.

Crant, J. M., & Bateman, T. S. (1989). A model of employee responses to drug-testing programs. *Employee Responsibilities and Rights Journal*, 2, 173-190.

Crouch, D. J., Webb, D. O., Peterson, L. V., Buller, P. F., & Rollins, D. E. (1989). A critical evaluation of the Utah Power and Light company's substance abuse management program: Absenteeism, accidents, and costs. In Gust, S. W., & Walsh, J. M. (Eds.), *Drugs in the Workplace: Research and evaluation data*. (Research Monograph No. 91 pp. 169-195), Rockville, MD: National Institute on Drug Abuse.

DeLancey, M. M. (1994). *Does drug testing work?* (second edition). Washington, DC: The Institute for a Drug-Free Workplace.

Dwyer, J. J. (1990). Drug use: The telltale signs. *Fleet Owner*, 85(4), 90-96.

Elkouri, F. & Elkouri, E. A. (1993). *Resolving drug issues*. Washington, DC: The Bureau of National Affairs, Inc.

Garcia, F. E. (1996). The determinants of substance abuse in the workplace. *The Social Science Journal*, 33, 55-68.

Hope Hotline-Comp Drug, Inc. (1992). *Drugs of abuse: A primer of facts and figures* [Brochure]. Columbus, OH: Author.

Konovsky, M. A., & Cropanzano, R. (1991). Perceived fairness of employee drug testing as a predictor of employee attitudes and job performance. *Journal of Applied Psychology*, 76, 698-707.

Mastrangelo, P. M. (1997). Do college students still prefer companies without employment drug testing? *Journal of Business and Psychology*, *11*, 325-337.

Mastrangelo, P. M. & Popovich, P. M. (2000). Employees' attitudes toward drug testing, perceptions of organizational climate, and withdrawal from the employer. *Journal of Business and Psychology*, *15*(1), 3-18.

McDaniel, M. A. (1988). Does pre-employment drug use predict on-the-job suitability? *Personnel Psychology*, *41*, 717-729.

Murphy, K. R. & Thornton, G. C. (1992). Characteristics of employee drug testing policies. *Journal of Business and Psychology*, *6*, 295-309.

Murphy, K. R., Thornton III, G. C., & Reynolds, D. H. (1990). College student's attitudes toward employee drug testing programs. *Personnel Psychology*, *43*, 615-631.

National Institute on Drug Abuse (1991). *Comprehensive procedures for drug testing in the workplace: A process model of planning, implementation, and action*. Washington, DC: U.S. Department of Health and Human Services.

Normand, J., Salyards, S. D., & Mahoney, J. J. (1990). An evaluation of preemployment drug testing. *Journal of Applied Psychology*, *75*, 629-639.

O'Brien, M. L. (1996). Webster v. Motorola: Employees reclaiming the right to privacy: Random drug testing for safety sensitive employees only. *New England Law Review*, *30*, 547-578.

Osterloh, J. D. & Becker, C. E. (1990). Chemical dependency and drug testing in the workplace. *Journal of Psychoactive Drugs*, *22*, 407-417.

Society for Industrial and Organizational Psychology, Inc. (1987). *Principles for the validation and use of personnel selection procedures*. College Park, MD: Author.

Sarchione, C. D., Cuttler, M. J., Muchinsky, P. M., & Nelson-Gray, R. O. (1998). Prediction of dysfunctional job behaviors among law enforcement officers. *Journal of Applied Psychology*, *83*, 904-912.

Stein, J. A., Smith, G. M., Guy, S. M., & Bentler, P. M. (1993). Consequences of adolescent drug use on young adult job behavior and job satisfaction. *Journal of Applied Psychology*, *78*, 463-474.

Substance Abuse and Mental Health Services Administration (1999). *Worker Drug Use and Workplace Policies and Programs: Results from the 1994 and 1997 National Household Survey on Drug Abuse*. Available <http://www.samhsa.gov/OAS/NHSDA/A-11/TOC.htm> (Accessed January 2001).

Trice, H. M. & Roman, P. M. (1978). *Spirits and demons at work: Alcohol and other drugs on the job* (Second edition). Ithaca, NY: Cornell University.

## **Author Notes**

1. An earlier version of this paper was presented at the Fourteenth Annual Conference of the Society for Industrial and Organizational Psychology, May 1, 1999, Atlanta, GA.
2. To arrange to use the Symptoms of Drug Impairment Checklist in exchange for validation data, please contact the first author at the Division of Applied Psychology and Quantitative Methods, University of Baltimore, 1420 North Charles St., Baltimore, MD, 21201. Telephone (410) 837-5352, email [Pmastrangelo@ubmail.ubalt.edu](mailto:Pmastrangelo@ubmail.ubalt.edu) or browse <http://home.ubalt.edu/Pmastrangelo>