

# DRUG TESTING

A BAD INVESTMENT



**ACLU**

# DRUG TESTING

## A BAD INVESTMENT

---



AMERICAN CIVIL LIBERTIES UNION

125 Broad Street  
New York, NY 10004  
(212) 549-2500

122 Maryland Avenue, N.E.  
Washington, D.C. 20002  
(202) 544-1681

**Nadine Strossen**  
President

**Ira Glasser**  
Executive Director

**Kenneth B. Clark**  
Chair, National Advisory Council

This report has been prepared by the American Civil Liberties Union, a nationwide, nonpartisan organization of 275,000 members dedicated to preserving and defending the principles set forth in the Bill of Rights.

### ***Drug Testing: A Bad Investment***

September 1999

**Lewis L. Maltby**  
Director, ACLU National Task Force on Civil Liberties in the Workplace

The ACLU National Task Force on Civil Liberties in the Workplace was established in 1990. Its mission is to educate the public about the need to better protect employees' rights, and to advocate for improved rights and protections in the workplace.

The ACLU is grateful to **Lynn Zimmer, Ph.D.** for her contribution to the research and writing of this report. Dr. Zimmer is a professor of sociology at Queens College, City University of New York.



---

## P R E F A C E

---

**A**mericans are concerned about drugs, and employers are no exception. They have been told that drug use in the workforce is common – even epidemic – and that workers who use drugs will harm their businesses through increased accidents and absenteeism, or through more subtle, but serious, effects of decreased efficiency and productivity.

*It is certainly true that the abuse of drugs, both licit and illicit, is a problem in America today. Millions of people misuse drugs, including alcohol, with disastrous effects, both for themselves and for those around them, and employers are not immune from this problem. A company of any size is, over time, likely to encounter employees or applicants with drug problems.*

*How to respond to this problem, however, is anything but clear. Most employers are not experts on drug use or abuse. In the absence of personal knowledge, they may turn to others for the information they need to make decisions. But much of the information that has thus far been made available to employers is not helpful. Most of it is fragmented and superficial. Even worse, it is one-sided: almost everyone speaking to employers about what to do about employee drug use comes from the drug testing industry. This does not necessarily make their advice wrong, but it is difficult for an employer to make the best business decision when all the information comes from people with a product to sell.*

*Fortunately, information from unbiased expert sources has recently become available, including research measuring the actual extent of drug abuse in the workplace and the effectiveness of urine testing in identifying problem workers. Most of this research literature has now been reviewed by the National Academy of Sciences, one of the nation's oldest and most respected scientific institutions.*

*In 1991, the Academy formed the Committee on Drug Use in the Workplace – a team of nationally recognized experts under the leadership of Professor Charles O'Brien, Chief of Psychiatry at the Philadelphia Veterans Affairs Medical Center and Director of the University of Pennsylvania Addiction Research Center. The Committee spent three years collecting, studying and synthesizing every significant study on the impact of drug use in the workplace. Their findings, published in book form in 1994 as **Under the Influence? Drugs and the American Workforce**, and new studies completed since the book's publication, raise very substantial questions about the cost-effectiveness of urine testing.*

*The goal of this report is to bring the findings and recommendations of the National Academy of Sciences and other unbiased sources to the attention of the business community, so that managers will have more complete and balanced information with which to make important personnel and other decisions. In addition to this report, a toll-free information line (800-323-8820) has been set up for human resource managers to contact the ACLU's Task Force for further information on drug testing and alternatives.*

**Lewis L. Maltby**

Director, ACLU National Task Force on Civil Liberties in the Workplace  
September 1999

## THE ORIGINS OF DRUG TESTING IN THE WORKPLACE

In 1986, President Ronald Reagan issued an Executive Order requiring federal agencies to institute urine testing programs for the purpose of creating “drug-free federal workplaces.”<sup>1</sup> In the years since, drug testing has spread throughout the public and private sectors. In 1987, when the American Management Association (AMA) began gathering data on corporate drug policies, 21 percent of its members had instituted drug testing programs; 79 percent had not.<sup>2</sup> A decade later, the percentages were reversed. According to the AMA, by January 1996, “the share of major U.S. firms that test for drugs rose to 81 percent... bringing workplace testing to its highest level since the AMA’s initial survey.”<sup>3</sup> Today, tens of millions of American workers are drug tested, either before they are hired or as a condition of continued employment.

Drug testing programs are expensive. In one year, 38 federal government agencies spent \$11.7 million on drug testing.<sup>4</sup> The annual cost of drug testing to the aviation industry is approximately \$14 million.<sup>5</sup> Texas Instruments, one of America’s largest electronics manufacturing companies, reports spending \$1 million to test 10,000 workers – about \$100 per employee.<sup>6</sup> Indirect costs associated with operating and administering drug testing programs add to these figures, as does the cost of having employees absent from their jobs temporarily. Grievances and lawsuits related to the testing program create an additional finan-

cial burden, and if treatment or other rehabilitative services are offered to drug-positive workers, the price tag of a drug testing program increases further.

---

### Surprisingly Few Employers Have Evaluated the Effectiveness of Their Drug Testing Programs

In its 1996 annual survey, the American Management Association (AMA) asked corporations with drug testing programs whether they had “statistical evidence” that drug testing had produced declines in

- absenteeism/illness
- disability claims
- accident rates
- incidents of employee theft
- incidents of employee violence

For none of these questions did the percent answering “yes” exceed single digits. Only 8 percent of companies with drug testing programs had performed any cost-benefit analysis.

SOURCES: AMERICAN MANAGEMENT ASSOCIATION, *DRUG ABUSE: WORKPLACE DRUG TESTING AND DRUG ABUSE POLICIES, 1996 SURVEY*

---

Although some private businesses are required by law to test their employees, most employers adopted drug testing programs after being convinced that the cost of having drug users in the workplace was greater than the cost of a testing program. For years, employers have been warned that drug users in the workplace diminish productivity and profits. They’ve been told that workers who use drugs are less reliable than workers who do not, that drug users are absent more often, have more accidents, file

more workers compensation claims, and consume more than their share of company health care benefits. Employers also have been told that drug testing is a proven, cost-effective solution to all of these problems.

A decade ago, when employers began hearing these claims, there was little scientific evidence they could use to independently evaluate their validity. As a result, employers relied mainly on information provided by drug testing's promoters. These promoters include the sellers of drug testing products and services – a multi-billion-dollar industry whose entrepreneurial interest lies in magnifying the severity of drug-related problems in the workplace and extolling the benefits of drug testing as a solution.<sup>7</sup> Drug testing's promoters also include the federal government which, through the last three administrations, has encouraged employers to join the “war on drugs” by sanctioning recreational drug use among workers – a group of people not easily reached through criminal sanctions.<sup>8</sup> In 1989, the White House's *National Drug Control Strategy* predicted that workplace drug testing would prove to be a powerful tool in the war against casual drug use: “Because anyone using drugs stands a very good chance of being discovered, with disqualification from employment as a possible consequence, many will decide that the price of using drugs is just too high.”<sup>9</sup>

## “JUNK SCIENCE” FUELED THE GROWTH OF DRUG TESTING

**D**rug testing is marketed to employers with the promise that it will improve productivity and profits. In the 1980s, drug testing's promoters claimed that drug users cost businesses \$33 billion each year in lost productivity. In the early 1990s, the estimate was raised to \$60 billion. Today, it is common to hear a lost productivity figure of \$100 billion.

None of these “lost productivity” estimates is based on an analysis of *actual productivity data*. The \$33 billion estimate originally came from a 1984 government-funded report by the Research Triangle Institute (RTI), a North Carolina-based research organization.<sup>10</sup> To arrive at this figure, RTI researchers compared the annual income of households that contained a daily marijuana user to the annual income of households that did not. They found that the former households, added together, earned \$33 billion less than the latter. This \$33 billion “wage differential” then became the \$33 billion in “lost productivity” due to drugs. The figure's subsequent upward adjustments – to \$60 billion and



\$100 billion – were reportedly made “to control for the estimated cost of inflation.”<sup>11</sup>

---

### A Closer Look at RTI’s “Lost Productivity” Study

Using data from the National Household Drug Use Survey, the RTI report compared the income of households where the respondent admitted to having ever used marijuana on a daily basis with the income of households where the respondent claimed to have never used marijuana on a daily basis.

Finding that the former households had, on average, less income than the latter, the difference was multiplied by the estimated number of daily marijuana users in the workforce – yielding a figure of \$33 billion.

Other drug use measures failed to yield useful findings. For example, RTI researchers found no difference in the annual incomes of households with and without *current marijuana users*. Nor did they find any differences in households with and without members who used illicit drugs other than marijuana, in the past or in the present. If researchers had chosen any of these alternative measures, “lost productivity” due to drugs would have been zero.

---

These aggregate lost productivity estimates are often accompanied by a list of statistics purporting to show that drug users make less desirable workers. Typical statements assert that drug users:

- have 2.5 times more absences
- are 3.6 times more likely to be involved in a workplace accident

- are 5 times more likely to file a worker compensation claim
- use 3 times more health care benefits

These statements are often made without citation. When there is a citation, it is usually to the “Firestone Study.” But, as it turns out, *there is no Firestone Study*. In 1972, in a luncheon address to executives of the Firestone Tire and Rubber Company, an unidentified speaker urged adoption of an Employee Assistance Program (EAP) as a humanitarian and cost-effective measure. The speaker claimed that workers with “medical-behavioral problems,” compared to other employees, had 2.5 times more absences, used 3 times more medical benefits, filed 5 times more worker compensation claims, and were 3.6 times more likely to have an accident. No mention was made of how the data had been obtained, how many workers had been examined, or the nature of the workers’ “medical-behavioral problems.” Most of the speech focused specifically on the problem of alcoholism and how EAPs, through early detection and intervention, could reduce the cost of alcohol abuse in the workplace. Illicit drug use by workers was mentioned only as an additional potential problem.

The following year, the Firestone speech was reproduced in an archival collection of essays<sup>12</sup> where, ten years later, it was discovered by Sidney Cohen, editor of the widely read *Drug Abuse and Alcoholism Newsletter*. In August 1983, in the newsletter’s lead article, Cohen reproduced the statistics from the Firestone speech, implying

that they had come from a methodologically sound scientific study. He misrepresented the study's subjects as being *illicit drug users*. And, he suggested the data were “representative of industry in general,” where the high cost of the illicit drug use was “unquestionable.”<sup>13</sup>

---

### The Trail of the “Firestone Study”

1972: In a luncheon speech to executives of the Firestone Tire and Rubber Company, an unidentified speaker reported that workers with “medical-behavioral problems” were costly to employers. The purpose of the speech was to encourage adoption of an Employee Assistance Program (EAP).

1973: The Firestone speech was reproduced in *Grassroots*, a subscription archival service run by students at the University of Wisconsin.

1983: Anecdotal reports contained in the Firestone speech were presented as “research findings” in the *Drug Abuse and Alcoholism Newsletter*. Employees’ “medical-behavioral problems,” which in the speech were unspecified, were attributed in the newsletter to “drugs.”

After 1983: Statistics from the non-existent “Firestone Study” were widely used by drug testing’s promoters as evidence that drug users were absent more often, caused more workplace accidents and, in general, made unreliable workers.

---

From Cohen, statistics from the Firestone speech spread far and wide. After 1983, they appeared in nearly every document produced by drug testing’s supporters.<sup>14</sup> The sellers of drug testing products put

them immediately into service in their advertisements and promotional materials. The Partnership for a Drug Free America featured them in anti-drug ads aimed at the business community. And, within a few years, journalists were reporting them as “fact,” without checking their source or questioning their validity.

In the midst of this maelstrom of misinformation, private-sector employers were asked to decide whether instituting a drug testing program made good business sense. Not surprisingly, many employers decided that it did.

## A LOOK AT THE REAL SCIENCE

Employers can now rely upon more than “junk science.” About a decade ago, researchers began gathering evidence on drug use among workers, its impact on work performance, and whether drug testing had achieved the benefits its promoters promised. Unfortunately, the







available research doesn't answer all of employers' questions. And, as is often true

in the social sciences, the results of some studies are inconsistent with the results of others. Nonetheless, there is now an accumulated body of empirical research that employers can use to rationally assess the costs and benefits of workplace drug testing.

A committee of the **National Academy of Sciences** (NAS) – the country's oldest and most prestigious scientific body – has already compiled and analyzed

much of this research. Its report, *Under the Influence? Drugs and the American Work Force*, published in 1994, addresses each of the claims made by drug testing's promoters.<sup>15</sup> Based on its review of the empirical evidence, this committee of legal, medical, and business experts (see p. 24 for a list of

**and other job performance indicators.**"<sup>16</sup>

The research on which this conclusion was based, plus research published subsequent to the National Academy of Sciences' review, is described in more detail below.

## DRUG USE AND WORKPLACE SAFETY

**T**wo recent studies of post office employees were conducted specifically to determine whether pre-employment drug tests could predict subsequent work behavior, including workers' likelihood of having accidents and injuries.<sup>17</sup> In both studies, researchers found that workers testing positive at the time of hire were no more likely than workers testing negative to become involved in an accident.<sup>18</sup> Only one study, at the Utah Power and Light Company, found a relationship between illicit drug use and accidents. However, it was based on a sample of only twelve drug users, all of whom had been identified through the company's for-cause testing program, and eight of whom had been test-

ed *because* they had been in an accident. Thus, it is not surprising that their accident rate was higher than that of fellow employees. It is worth noting

that of the 213 post office workers given post-accident drug tests, the large majority (96 percent) tested negative. Of the four

**IT IS OFTEN ASSUMED** rather than proven that those who use alcohol and other drugs away from work will also do so on the job or in close enough proximity to affect workplace performance. While performance decrements attributable to alcohol emerge clearly in laboratory studies, decrements attributable to marijuana are harder to find (p. 89 & 149)."

– the national academy of sciences

members) concludes that "**the data... do not provide clear evidence of the deleterious effects of drugs other than alcohol on safety**

percent testing positive, most tested positive for marijuana, and in none of these cases was there evidence that marijuana had caused the accident.<sup>19</sup>

After reviewing these and other studies, the National Academy of Sciences concluded that illicit drugs contribute little to the

overall rate of industrial accidents. This is because most workers who use illicit drugs never use them at work. And, when they use drugs away from the job, they do so in a way that does not affect their work performance. The “residual effects” of occasional off-duty stimulant use, the National Academy of Sciences found, were no more profound than the effects that occur following “sleep deprivation in the absence of drug use.” Marijuana’s residual effects, it said, “appear slight if they exist at all.”<sup>20</sup> Overall, the National Academy of Sciences concluded that the moderate use of illicit drugs by workers during off-duty hours was no more likely than moderate off-duty alcohol use to compromise workplace safety.

Drug use on the job is potentially more damaging, although as the National Academy of Sciences notes, most illegal drugs are considerably less impairing than alcohol. In laboratory studies, moderate doses of cocaine and other stimulants were found to have, if anything, “slight performance-enhancing effects.”<sup>21</sup> Laboratory studies of marijuana are less consistent. In about half, marijuana had no impact on performance; in the other half, marijuana caused impairment,

but only on a limited number of tasks.

Whether or not drug use impacts on workplace performance, drug testing is a poor solution because *drug tests do not*

**WHEN POST-ACCIDENT DRUG SCREENING** reveals that a responsible person tested positive for marijuana, it does not mean that marijuana use played a causal role in the accident (p. 114).”

– the national academy of sciences

*measure impairment.* Rather than looking for drugs, drug tests look for drug metabolites – by-products that are excreted from the body days or even weeks after a drug was ingested. As a result, drug tests mainly identify drug users who may have used a drug on the weekend, as they might use alcohol, and who are not under the influence of a drug while at work or when tested. Moreover, because it takes several hours for drug metabolites to appear in urine, drug tests may *miss* drug users who are under the influence of drugs at the time the test is given. Thus, if drug-related impairment on the job is an employer’s primary concern, drug testing is both an over-inclusive and an under-inclusive strategy.

## USE OF MEDICAL BENEFITS

Only a few studies have compared the use of medical benefits by drug users and non-users. One of the two post office studies found that 64 percent of drug positives were above the median for total number of medical claims made, compared

to 48 percent of drug negatives.<sup>22</sup> Workers testing positive in the Utah Power and Light study, on the other hand, were found to cost the company slightly less in medical claims (\$1,009) than workers in general (\$1,438).<sup>23</sup>

A recent study of a different sort sheds

percent reported use during the previous month. Rates among 26-34 year olds were significantly lower: 15 percent for past-year illicit drug use and 8 percent for past-month use. Among adults over age 35, only 5 percent reported using an illicit

**THE MOST RELIABLE RELATIONSHIP** involves use and absenteeism. However, the evidence does not necessarily show that use causes high absenteeism. It is possible that other variables can account for the relationship (p. 158)."

– the national academy of sciences

additional light on the medical-claim question. Using the patient data-base from Kaiser Permanente, California's largest HMO, researchers compared the medical histories and health care costs of people who used marijuana with people who did not. They found no significant differences, even when they compared a subsample of heavy, frequent marijuana users to non-users.<sup>24</sup>

drug in the previous year and only 3 percent in the previous month. In all age groups, drug use was higher among males than among females, sometimes by as much as 50 percent.

## ABSENTEEISM

**A**ccording to the National Academy of Sciences, absenteeism is the only workplace performance measure on which drug users and non-users consistently differ. However, the validity of these studies is compromised by researchers' failure to control for other individual characteristics that are known to affect absentee rates, particularly *age* and *sex*.

Surveys of adults show that illicit drug use decreases with age. In 1996, 27 percent of 18-25 year olds reported using an illicit drug during the previous year and 16

### Any Illicit Drug Use by Sex and Age, 1996

	Past Year	Past Month
Age 18-25		
total	27%	16%
male	33	20
female	21	11
Age 26-34		
total	15%	8%
male	18	11
female	11	6
Age 35+		
total	5%	3%
male	8	4
female	3	2

SOURCE: NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE: POPULATION ESTIMATES 1996, P.17.

Age and gender differences in drug-use rates wouldn't matter if *absentee rates* were similar for males and females, and similar for all age groups. But they are not. Numerous studies show that young workers are absent

more often than older workers; and, in particular, young workers take more unscheduled and unapproved leaves of absence.<sup>25</sup> Also, among youthful workers with unsatisfactory employment records, males greatly outnumber females. In other words, those workers who are most likely to use drugs (young males) are also more likely to be absent from work, *whether they use drugs or not*. Thus, the statistical difference in absentee rates between drug users and non-users may actually be due to age and sex differences in drug-using and non-using samples rather than to drug use *per se*.

## TURNOVER/TERMINATION

Studies looking for a relationship between drug use and turnover rates suffer from the same problem: a failure to control for the effects of sex and age. Both post office studies found a relationship, but the results were actually contradictory. In one, turnover was higher for cocaine-positives but not marijuana-positives; in the other, marijuana-positives had higher turnover but cocaine-positives did not. In the latter study, the results were also confounded by the fact that African Americans, who were more likely than whites to test positive for marijuana on a pre-employment drug test, were also more likely to be fired, whether they had been drug users or not.

A study of Naval recruits used samples of drug users and non-users that were similar in

**WHEN ASSOCIATIONS BETWEEN ALCOHOL** and other drug use and counter-productive workplace behavior are found, relationships are most often of moderate or low strength, even when they are statistically significant (p. 7)."

– the national academy of sciences

most respects. However, its finding of lower retention rates among sailors testing positive for marijuana at the time of recruitment was biased by the fact that drug-positive recruits were subjected to ongoing random testing that included separation from the Navy as the penalty for testing positive. Drug-negative recruits were not subjected to random testing. Even if they used drugs subsequently, they were less likely to be discovered and less likely to be removed from service.<sup>26</sup>

Probably the best designed study of drug use and turnover rates – despite its small sample size – is a study of hospital workers who were hired regardless of the results of their pre-employment drug test. After one year, workers who tested positive at hiring had slightly higher turnover rates.

However, finding that most drug-positive workers worked as clerks or aides and knowing that turnover rates, in general, were higher among workers in this job category, the researchers conducted a second



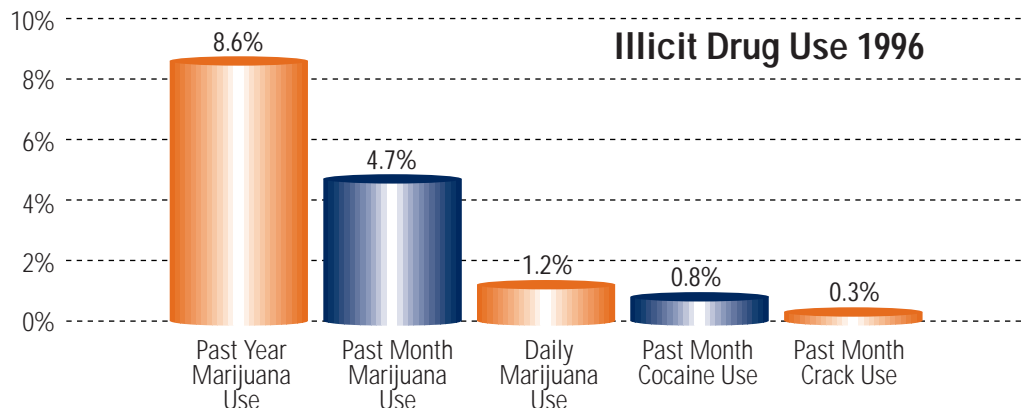
analysis, to compare drug users and non-users within the clerk/aide category. This time, they found a *lower* turnover rate for workers who had tested positive for drugs at hiring. After one year, 11 drug-negative workers had been fired while not a single drug-positive worker had been fired.<sup>27</sup>

### ISN'T IT JUST COMMON SENSE THAT DRUG USERS MAKE POOR WORKERS?

People who are frequent users of hard drugs such as heroin and crack cocaine are unlikely to be productive, reliable workers. Most workers who use illicit drugs, however, are occasional moderate users. Most, in fact, have never used an illicit drug other than marijuana. According to the 1996 *National Household Survey*, about five percent of American adults used marijuana in the previous month; of these, more than half used it on four or fewer occasions and only one percent used marijuana

on a daily or near-daily basis. The use of hard drugs was considerably lower. Less than one percent of adults used cocaine during the previous month and less than three-tenths of one percent reported past-month crack cocaine use. The number of Americans reporting past-month heroin use was so low that researchers could not even estimate national prevalence.

Since most illegal drug users are occasional marijuana users, it makes sense that researchers have failed to find significant differences in the behavior and performance of drug users and non-users in the workplace. There is considerable research showing that occasional marijuana users are similar to non-users on most measures.<sup>28</sup> Studies of college students consistently show no difference between marijuana users and non-users in grade-point averages, career aspirations, or participation in extra-curricular activities. On cognitive tests, marijuana users have scores similar to non-users. In laboratory and field studies, marijuana users are found to work as hard or harder than non-users. Marijuana users, on average, even earn



SOURCE: NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE, MAIN FINDINGS 1996

slightly higher wages than non-users.<sup>29</sup> In short, there is nothing about marijuana users that would lead one to suspect them of being dysfunctional or unproductive workers.

## DRUG TESTING DETECTS SOME (BUT NOT MANY) DRUG ABUSERS

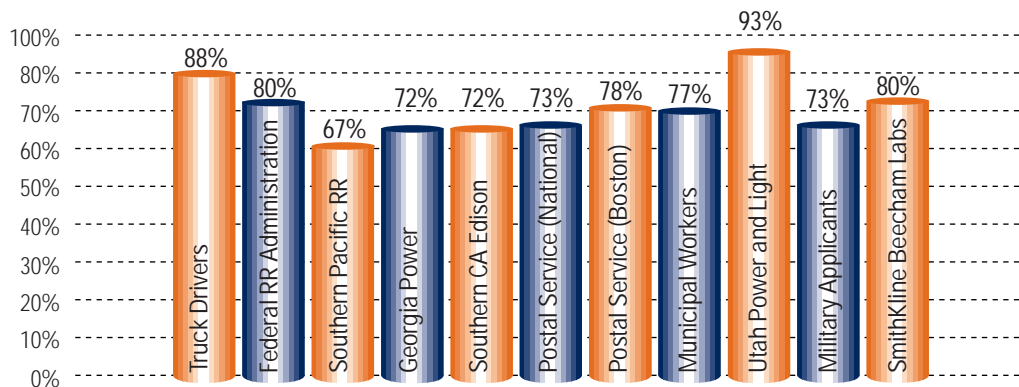
**W**orkplace drug testing programs mainly detect marijuana users. This is true not only because marijuana is the most commonly used illicit drug, but because traces of marijuana persist in people's urine much longer than other drugs. The weekend user of cocaine, for example, is much more likely than the weekend user of marijuana to pass a week-day drug test. Analyses of drug testing programs confirm that the large majority of positive findings have been for marijuana.

Workplace drug testing programs are certain to detect some hard-core drug abusers, but the number is likely to be small

for the simple reason that hard-core drug abuse among workers is relatively rare. In the country as whole, it is estimated that there are between one and two million hard-core drug abusers. If they were distributed throughout the workforce, this averages out to about one drug abuser for every 100 workers. Hard-core drug abusers are *not*, however, distributed throughout the workforce. Overwhelmingly, they are poor, undereducated, and chronically unemployed.<sup>30</sup> In national surveys, less than one percent of American adults report having used heroin, cocaine, or crack in the past month and, for each of these drugs, rates are three to six times higher for unemployed persons than for full-time and part-time workers.<sup>31</sup>

This is not to say there are no hard-core drug abusers among current workers. There are. And drug tests have the potential to detect them. However, detection is not automatic. For one thing, drug tests may not reveal *very recent drug use*. For example, if a worker who does not smoke marijuana regularly decides to smoke marijuana *in the middle of the work day*, a drug test may

**Drug Tests Positive for Marijuana**  
as a proportion of total marijuana and cocaine positives



SOURCES: EAP DIGEST 9,2: 17 (1989); NIDA, DRUGS IN THE WORKPLACE: RESEARCH AND EVALUATION DATA, VOLS. I, II (1989; 1990); JOURNAL OF APPLIED PSYCHOLOGY 75:629-39 (1990); JAMA 264:2639-43 (1990); MORBIDITY AND MORTALITY WEEKLY REPORT 38:580-82 (1989); SMITHKLINE BEECHAM CLINICAL LABORATORIES PRESS RELEASE, OCTOBER 7 (1998).



well come back negative because not enough time has passed for drug metabolites to appear in the urine.

Employee sabotage can also create false-negative results.<sup>32</sup> For an additional fee, testing laboratories screen urine samples for signs of dilution and adulteration – two common ways in which drug users seek to sabotage drug test results. However, the controls are far from perfect. New masking agents are constantly being developed. In addition, workers have been known to substitute a borrowed drug-negative urine sample for their own, something that is extremely difficult to prevent unless workers are directly observed during urination – a policy most employers are reluctant to

impose. As the National Academy of Sciences notes, “There seems to be no limit to the imaginative methods used by some drug users to avoid detection.”<sup>33</sup>

## DRUG TESTING IS NOT COST-EFFECTIVE

For drug testing to be cost-effective, it should demonstrate that it can identify a significant number of drug abusers who, *absent a testing program*, would be identified much later, or not all. But the cost of finding a single drug user (not necessarily an abuser) through workplace drug testing is very substantial. A study of the federal government’s drug testing program, for example, estimated that it cost \$77,000 to find one drug user!<sup>34</sup> In 1990, the federal government spent \$11.7 million to test selected workers in 38 federal agencies. Out of nearly 29,000 tests given, only 153 (.5%) were positive. The cost of finding a single drug user was therefore estimated to be \$77,000.

Probably most of the 153 federal workers identified in this study as drug users (out of 29,000 workers tested) were occasional, moderate users rather than drug abusers. Indeed, more than half tested positive only for marijuana. If one out of ten of the test-positives were a *drug abuser* – a high estimate – then the average cost of finding a drug abuser would be \$770,000. And if half of the detected drug abusers would have been detected anyway, through some other means, the cost of using drug testing to find one otherwise hidden drug abuser would double, to \$1.5 million – just for the cost of the tests alone.



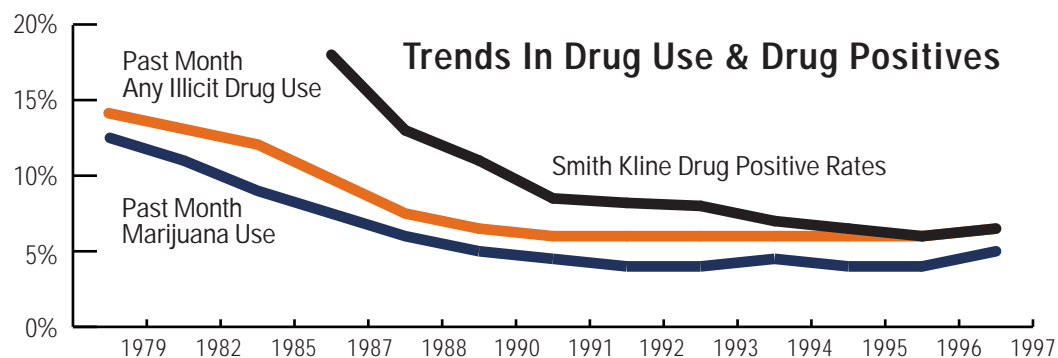
## DOES DRUG TESTING DETER DRUG USE?

During the past decade, the percentage of workers testing positive for drugs has declined steadily. One large drug testing laboratory, for example, reports that positive rates dropped from 18 percent in 1987 to 5 percent in 1997.<sup>35</sup> Lower positive rates do not, however, prove that drug testing is a useful deterrent. During this same period, illicit drug use declined in the population as a whole – continuing a trend that had begun in the early 1980s, *prior to drug testing’s spread into the workplace*. In 1979, 14 percent of American adults reported using an illicit drug in the month prior to the survey. By 1985, just before drug testing was introduced, that figure had already dropped to 11 percent and, by 1996, to 6 percent. The declining percentage of positive tests merely reflects the decrease in overall drug use – a decrease that occurred among both employed and unemployed persons.<sup>36</sup> Since 1992, despite slight increases in rates of illicit drug use, the percentage of

positive drug tests has continued to fall.

Researchers at the American Management Association (AMA) suggest that the decade-long decline in positive drug tests occurred primarily because the pool of tested workers expanded to include more people unlikely to be illicit drug users: “As more employees are tested for reasons other than suspicion of use, the test-positive ratio falls.”<sup>37</sup> In drug testing’s early days, *for-cause* testing predominated. Since *for-cause* testing always produces higher positive rates than random and pre-employment testing, the rise in random and pre-employment testing automatically resulted in a lowering of the overall positive rate. Moreover, while early testing programs existed mainly in industries where high levels of drug use were expected – industries employing large numbers of young male workers – drug testing has since spread throughout the workforce, to industries employing more women and middle-aged workers. This expansion of the testing pool made a decrease in positive tests inevitable.

If drug testing deters drug use at all, it is



SOURCES: NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE, MAIN FINDINGS 1996; PRELIMINARY RESULTS FROM THE 1997 HOUSEHOLD SURVEY ON DRUG ABUSE; SMITH KLINE BEECHAM PRESS RELEASES, OCTOBER 1, 1996; OCTOBER 7, 1998.



likely to be in the pre-employment context. As pre-employment testing has become common, drug users have learned to abstain from drugs during the job application process. There is no reason to believe, however, that the presence of pre-employment testing will have an impact on workers' decisions to use drugs once they are on the job. For-cause testing, which generally occurs *after* workers have been involved in an accident, may be useful for detecting drug users, but since workers do not anticipate being in an accident, for-cause testing programs are unlikely to have a deterrent effect. Random, unannounced drug testing has more potential to affect workers' behavior. However, because most employers administer random tests infrequently, the actual risk of detection may be too low to be much of a deterrent. Frequent random testing, accompanied by harsh sanctions, might increase drug testing's deterrent effect, but the biggest impact would be on casual drug

## DRUG TESTING'S NEGATIVE EFFECTS

**D**rug testing fails to deliver on any of its promises. It is not a very effective deterrent to drug use, and is especially unlikely to deter workers with serious drug problems. Drug testing detects some drug users, but mainly it detects occasional marijuana users, not drug abusers. In fact, since drug use is such a poor predictor of work behavior, drug tests have the potential to screen out as many good workers as bad workers. In other ways as well, drug testing has consequences that may interfere with, rather than promote, organizational goals of productivity and profits.

### Drug Testing Deters Highly Qualified Workers from Applying

Some highly qualified people may choose not to apply to companies with drug testing programs. Surveys show that a majority of Americans approve of drug testing in the workplace, but the minority opposed to drug testing is substantial – in some surveys, as high as 40 percent.<sup>38</sup> This group includes committed drug users who are unwilling to change their behavior. It also includes non-drug users who find drug testing an unjustified intrusion into their private lives. They do not necessarily oppose drug testing under all circumstances and may be

**THE PREVENTIVE EFFECTS** of drug testing have never been adequately demonstrated.... There is as yet no conclusive scientific evidence from properly controlled studies that employment drug testing programs widely discourage drug use or encourage rehabilitation.”

– the national academy of sciences looked for and was unable to find evidence of drug testing's deterrent effect.

users. Workers who use drugs heavily and compulsively, on and off the job, are the most difficult drug users to deter, regardless of the severity or the certainty of sanctions.

willing to accept, for example, for-cause or post-accident testing. However, because of deeply held civil libertarian values, they oppose having their bodies searched for drugs when there is no evidence they have used drugs or are otherwise unfit for duty. In work settings where qualified applicants are abundant, employers might not care if a drug testing program deters some people from applying. When recruiting from a small pool of highly qualified workers, however, employers should be concerned that a drug testing requirement will remove some of the best candidates. According to a report from the R. Brinkley Smithers Institute for Alcohol-Related Workplace Studies and the New York State School of Industrial and Labor Relations at Cornell University, some employers “have dropped pre-employment screening because it unduly hindered their ability to recruit employees with the proper skills.”<sup>39</sup> For any job, the most qualified applicants are, after all, those most likely to have employment opportunities elsewhere.

### Impact on Workplace Morale

Employers need also to consider the impact of drug testing on job satisfaction and morale. Many workers find the urine collection process itself to be degrading and demeaning, particularly when it involves direct observation. People from some cul-

tures more than others, and women more than men, report being embarrassed and offended by having to urinate in the pres-

**IT CANNOT BE OVEREMPHASIZED** that without confirmatory testing and careful medical review, treating the results of urine drug screening as evidence of drug use is unacceptable and scientifically indefensible. Poppy seeds, which are commonly used on bagels and other baked foods, often do contain sufficient amounts of morphine to cause detectable concentrations of morphine... The widely used Vicks inhaler is also sometimes alleged to be the cause of methamphetamine, amphetamine, or both being found in urine (p.192-94).”

– the national academy of sciences

ence of others. Even without direct observation – and, as noted earlier, without direct observation some drug users are certain to sabotage the test and escape detection – the process remains rather unsavory.

---

### A Degrading Experience

“I was led into a very small room with a toilet, sink and desk. I was given a container in which to urinate by the attendant. I waited for her to turn her back before pulling down my pants, but she told me she had to watch everything I did. I pulled down my pants, put the container in place — as she bent down to watch — gave her a sample and even then she did not look away... I am a forty-year-old mother of three, and nothing I have ever done in my life equals or deserves the humiliation, degradation and mortification I felt.”

SOURCE: LETTER FROM FEMALE WORKER TO THE ACLU.

---

An additional privacy concern of workers is the requirement that they report, at the time of urine collection, all recently used over-the-counter and prescription medica-

---

## THE PROBLEM OF “FALSE-POSITIVES”

Rather than searching for drugs, urine tests search for drug metabolites – inactive drug by-products that the body produces as it processes drugs for excretion. Typically, urine samples are first screened by immunoassay, a technology that recognizes drug metabolites based on a “rough outline” of their chemical structure. The benefit of immunoassay screening is that it is quick and fairly inexpensive. The problem is that it may not distinguish between drug metabolites that have closely similar structures. Consumers of over-the-counter decongestants, for example, may have positive tests for amphetamine. Antihistamines can produce false-positives for methadone. Because of this, a positive result on an immunoassay screen does not mean necessarily that a person used an illegal drug. If a drug testing program relies on immunoassay screening alone, it will always identify some people as illegal drug users when they are not.

A second (more costly) test, gas chromatography/mass spectrometry (GC/MS), gives more precise readings. It can distinguish cold remedies from amphetamine and antihistamines from methadone. This second test, however, does not eliminate the possibility of false accusations. Codeine, for example, produces the exact same drug metabolite as heroin. Marinol produces the same drug metabolite as THC, an active ingredient of marijuana. Rather than false-positives, these are “innocent positives.” The drug metabolite being searched for was present, but it appeared in the urine following use of a legal medication.

---

### Every Worker a Scientist?

Some employers, including the New York City Police Department, have issued an order prohibiting workers from consuming any food product or nutritional supplement, or using any cosmetic, that might trip a positive result on a drug test.

A police union official complained, “To expect police officers to read the list of ingredients on a bag of snack food, many of which are named in chemical terms, is to ask the impossible.... We are not scientists or doctors. We are police officers.”

SOURCE: MICHAEL COOPER, “NEW POLICY TAKES ON HEMP OIL,” *NEW YORK TIMES*, 22 JULY 1999, P. B3.

---

---

### Hair Testing Isn't Better... It's Worse

All of the problems with urine testing are present with hair testing as well. Plus, hair testing has additional problems of its own. For one thing, small amounts of drugs can be more easily detected in some types of hair than others. All else being equal, dark-haired people are more likely to test positive than blondes, and African Americans are more likely to test positive than Caucasians. It is still not known whether test results are affected by hair bleaching or the use of various hair products. In addition, there is no way to adequately control for the possibility of external contamination. “Passive exposure” to drugs in the environment, particularly drugs that are smoked, may lead to “innocent positive” results on hair tests.

SOURCES: *FORENSIC DRUG ABUSE ADVISOR* 8, 10 (NOV/DEC 1996); *FORENSIC DRUG ABUSE ADVISOR* 9, 4 (APRIL 1997).

---

There are even some foods and nutritional supplements that produce the same metabolites as illegal drugs. After consuming poppy seeds, for example, people have morphine metabolites in their urine. After consuming hemp oil products, people have THC metabolites in their urine. Neither of these products produces a drug effect, regardless of how much is consumed. But because they contain very low concentrations of the drugs that are present in heroin and marijuana, they can result in a positive drug test.

Through technological advances, drug testers have solved many of the false-positive problems that plagued early programs. But they haven't solved them all, and additional problems will surely emerge as new medications and nutritional supplements are available. Moreover, at every stage of the process, from urine collection to final reporting, the potential for “human error” will always exist. In short, no drug testing program will ever be able to completely avoid making false accusations of drug use.

tions. This requirement exists because the drug metabolites produced by some medications are identical to those produced by illicit drugs; in the event of a positive test, the medication list can protect an employee against the false accusation of being an illicit drug user. While designed to protect workers, this requirement forces them to reveal personal information which many would rather keep private. Indeed, since workers generally don't know which medications could produce a positive finding, they have little choice but to list all of them, including those which are highly personal and potentially embarrassing.

Workers are also concerned that, on the basis of an inaccurate drug test, they will be falsely accused of being a drug user. In drug testing's early days, false-positives were more of a problem than they are today. Improvements in testing technology – the fact that confirmation with a second test is now standard procedure and the institution of strict chain-of-custody policies – have helped reduce the incidence of false-positives. The problem of “human error,” however, has not been eliminated completely.

More importantly, whatever the reality, the fear of false-positives adds to the “termination anxiety” that already pervades the American workplace. On top of this, workers worry that managers will generate false-positive tests to get rid of certain workers – those who complain too much, for example, or who engage in union activities. A related concern is that “favored” employees who use drugs will be protected, perhaps by being warned when a drug test is imminent. Since

drug testing itself is built upon employers' suspicions regarding employees, it should not be surprising that drug testing fuels workers' suspicions regarding their employers.

### Drug Testing Increases the Cost of Drug Treatment

Fifty years ago, employers introduced Employee Assistance Programs (EAPs) into the workplace because they believed that helping workers with their personal problems – particularly their alcohol-related problems – saved the company money in the long run. Typically, EAPs offered rehabilitative interventions to workers who had already exhibited dysfunction or impairment, hoping to prevent their problems from escalating to the point where termination was the only viable option.<sup>40</sup>

Drug testing does not fit well into this model of therapeutic intervention because it fails to distinguish between drug *users* and drug *abusers*. Under most drug testing programs, drug-positive workers, as a condition of continued employment, are required to submit to additional testing and participate in a drug treatment program, often at the employer's expense.<sup>41</sup> Of the AMA-member





firms with drug testing programs, 63 percent refer test-positive workers for counseling and treatment.<sup>42</sup> But as the National Academy of Sciences report points out, “not all individuals testing positive require or are likely to benefit from treatment, counseling, or other administrative actions that might be triggered by a positive drug test.”<sup>43</sup> In other words, valuable “rehabilitative resources” — estimated by one company to be between \$9,000 and \$12,000 per employee<sup>44</sup> — are being used where they are not needed and where they offer no financial benefit.

## NEW STUDY SHOWS LOWER PRODUCTIVITY IN COMPANIES WITH DRUG TESTING

A recent study applied a standard productivity analysis to 63 “high tech” firms in the computer equipment and data processing industry — some having drug testing programs and some not. Overall, the researchers found that drug testing had “*reduced* rather than enhanced productivity.” Firms with pre-employment testing, compared with firms with no drug

testing at all, scored 16 percent lower on productivity measures. For firms with both pre-employment and random testing, productivity was 29 percent lower. The authors suggest that “companies that relate to employees positively with a high degree of trust are able to obtain more effort and loyalty in return. Drug testing, particularly without probable cause, seems to imply a lack of trust, and presumably could backfire if it leads to negative perceptions about the company.”<sup>45</sup> This idea is consistent with what productivity experts have said about what makes for successful companies. In his path-breaking book, *In Search of Excellence*, management guru Tom Peters observed that of the companies he had studied, the best-run: “Treat people as adults. Treat them as partners; treat them with dignity; treat them with respect.... There was hardly a more pervasive theme in the excellent companies than respect for the individual.”<sup>46</sup>

## MOST EMPLOYERS ARE UNDER NO OBLIGATION TO DRUG TEST WORKERS

Under the Omnibus Transportation Employee Testing Act, passed by Congress in 1991, employers are required to test all workers who apply for, or currently hold, “safety sensitive” positions in the transportation industry. There are no other federal laws that require private businesses to have drug testing pro-

grams. The 1988 Drug Free Workplace Act requires companies with federal contracts in excess of \$25,000 to show they have made “appropriate efforts” to maintain a drug-free workplace. The Act does not specifically require drug testing of job applicants or current employees.

Drug testing’s promoters have suggested that employers have a common law “duty” to test; that they risk being held liable for injuries caused by a drug-using worker whom they didn’t try hard enough to detect. This threat appears to be an empty one. To date, no court has held an employer legally liable for *not* having a drug testing program. On the other hand, employers have incurred substantial legal costs *defending* their drug testing programs against workers’ claims of wrongful dismissal.

## THE CHALLENGE TO DRUG TESTING IS GROWING

**A** decade ago, the federal government and the drug testing industry joined together to persuade the business community that drug testing programs would improve workplace safety, productivity and profits. Thousands of companies responded by establishing drug testing programs, but within several years, many of those programs had been discon-

tinued. The U.S. Department of Labor’s Bureau of Labor Statistics (BLS) discovered in a follow-up survey of 145,000 businesses that “overall, about 1 out of 3 establishments that reported having a drug-testing program in 1988 said they did not have one in 1990.” Of large companies, 9% had dropped drug testing; among small companies (less than 50 employees), 46% had dropped drug testing. BLS economist Howard Hayghe attributed this dramatic shift away from private sector drug testing to a confusing legal situation, higher-than-anticipated costs, and the failure of drug testing’s promised benefits to materialize.<sup>47</sup>

Major industry groups have objected to government-mandated drug testing programs as well. In 1991, when the Department of Defense announced that its interpretation of existing federal regulations required random testing of workers in industries with defense contracts, the National Security Industrial Association, the Council of Defense and Space Industry Association, and the Aerospace Industries Association protested on the grounds that the government’s interpretation was “burdensome and

**WIDELY CITED COST ESTIMATES** of the effects of alcohol and other drug use on U.S. productivity are based on questionable assumptions and weak measures. The available research, taken as a whole, should soften the concern about employee drug use found in the popular media. Despite beliefs to the contrary, the preventive effects of drug testing programs have never been adequately demonstrated (p. 7, 160 & 235).”

– the national academy of sciences

inflexible.”<sup>48</sup> That same year, the Association of American Railroads asked the Federal



Railroad Administration to reduce random testing requirements by half – from 50 percent of the workforce to 25 percent – because the test results simply did not justify the program’s considerable cost to the industry. During the first year of testing, the higher volume of drug tests had produced a positive rate of only 1.04 percent.<sup>49</sup>

Still, the drug testing industry continues to use exaggerated claims of drug testing’s effectiveness to pressure the business community to maintain existing drug testing programs and establish new ones. The American Management Association (AMA), on the other hand, urges its members to no longer accept the drug testing industry’s claims “on faith.” “In an era of cost control and cost cutting,” it says, “statistical evidence is vital if [drug testing] programs are to be justified.”<sup>50</sup> The National Academy of Sciences also urges companies to “be cautious in making decisions” since “there are very few empirically based conclusions that may be reached concerning the effectiveness of drug testing programs.”<sup>51</sup>

## THERE ARE ALTERNATIVES

One cost of our collective fixation on urine drug testing is that many employers have not implemented other methods of dealing with serious employee drug abuse. But there are alternatives which are more cost effective, and which do not raise the same privacy or fairness problems.

- Reference checking is a tried-and-true method of screening out job applicants who have drug abuse problems. Although employers may not reveal a former employee’s drug problem, they will usually give an honest appraisal of the person’s job performance. This is especially true if the prospective employer speaks directly with the applicant’s former supervisor, rather than with the personnel department.

- Training supervisors to identify, confront, and refer impaired employees to Employee Assistance Programs (EAPs) or other intervention programs is an effective alternative to drug testing. A 1989 study cited by the National Academy of Sciences found that supervisors and managers were eager to spend time in training sessions learning how best to refer cases to and use the EAP.<sup>52</sup> Several other studies have examined the effectiveness of training supervisors in constructive confrontation techniques based on a deterioration in job performance and have concluded that this strategy leads to increased employee acceptance of treatment and a subsequent improvement in overall job performance.<sup>53</sup>



• Employee Assistance Programs are virtually universal among Fortune 500 companies and exist in approximately 24 percent of the nation's worksites.<sup>54</sup> EAPs vary enormously across the board, but according to the Employee Assistance Professional Association, substance abuse problems should be addressed through programs that, ideally, include: making expert consultations and training available to supervisors; confidential and timely problem assessment services; referrals for diagnosis, treatment and other assistance; and follow-up services.<sup>55</sup> Although the National Academy of Sciences has concluded that "definitive studies of EAP effectiveness have yet to be conducted,"<sup>56</sup> there is growing evidence that good EAP programs produce good outcomes with regard to work performance.<sup>57</sup>

• Impairment testing of workers in safety-sensitive positions is utilized by a small number of employers. These tests measure an employee's vision, reflexes and coordination and compare the results to the employee's baseline to determine whether he or she is capable of performing the job safely. The effectiveness of impairment testing has not been subjected to rigorous research, but anecdotal evidence suggests that it can be useful in spotting problems and allowing supervisors to remove workers from duty if their performance is impaired, whether because of drug use, fatigue or any other problem.<sup>58</sup>

**WE HAVE ALWAYS BELIEVED** drug testing unimpaired workers stands the presumption of innocence on its head, and violates the most fundamental privacy rights. Now we know that sacrificing these rights serves no legitimate business purpose either. Drug testing isn't all it's cracked up to be. "

-ira glasser, executive director, aclu



## ENDNOTES

Members of the National Academy of Science's Committee on Drug Use in the Workplace include: Charles P. O'Brien (Chair), Veterans Affairs Medical Center, Univ. of Penn.; Terry C. Blum, Ivan Allen College of Management, Policy and International Affairs, Georgia Inst. of Technology; Robert M. Bray, Center for Social Research and Policy Analysis, Research Triangle Institute.; James H. Dwyer, Department of Preventive Medicine, Univ. of Southern California School of Medicine; Bryan S. Finkle, Center for Human Toxicology, Univ. of Utah; Marian W. Fischman, Substance Use Research Center, Columbia Univ.; Bradley K. Gogins, School of Social Work, Florida State Univ.; Wayne E.K. Lehman, Inst. of Behavioral Research, Texas Christian Univ.; Richard O. Lempert, School of Law, Univ. of Michigan; Collins E. Lewis, Washington University Medical Center, St. Louis; Jeffrey A. Miron, Department of Economics, Boston Univ.; Kevin R. Murphy, Department of Psychology, Colorado State Univ.; Michael D. Newcomb, School of Education, Univ. of Southern California; Patrick M. O'Malley, Institute for Social Research, Univ. of Michigan; Adrian M. Ostfeld, School of Medicine, Yale Univ.; Andrew M. Weiss, Department of Economics, Boston Univ.; M. Donald Whorton, ENSR Health Services, Alameda, California.

<sup>1</sup> Executive Order 12564, September 1986.

<sup>2</sup> American Management Association, *Drug Abuse: The Workplace Issues* (1987), p. 13.

<sup>3</sup> American Management Association, *Drug Testing and Monitoring Survey* (1998).

<sup>4</sup> "Focus on Federal Drug Testing," *Individual Employment Rights*, BNA (April 9, 1991), p. 4.

<sup>5</sup> Robert L. Wick, "Why Pilot Drug Tests Don't Improve Safety Record," *Flying* (December 1992), pp. 68-71.

<sup>6</sup> Mark A. Rothstein, "Workplace Drug Testing: A Case Study in the Misapplication of Technology," *Harvard Journal of Law & Technology* 5: 65-93 (1991).

<sup>7</sup> Lynn Zimmer and James B. Jacobs, "The Business of Drug Testing: Technological Innovation and Social Control," *Contemporary Drug Problems* 19: 1-26 (1992).

<sup>8</sup> The first federal document to extol the benefits of workplace drug testing came from President Reagan's Commission on Organized Crime, *American's Habit: Drug Abuse, Drug Trafficking and Organized Crime* (1986).

<sup>9</sup> The White House, *National Drug Control Strategy* (1989), p. 57.

<sup>10</sup> Henrik Harwood et al., *Economic Costs to Society of Alcohol and Drug Abuse and Mental Illness: 1980*, Research Triangle Park, NC: Research Triangle Institute (1984).

<sup>11</sup> John P. Morgan, "The 'Scientific' Justification for Urine Drug Testing," *University of Kansas Law Review* 36: 683-97 (1988).

<sup>12</sup> "Firestone Employee Assistance Program," *Grassroots* (May 1973 Supplement).

<sup>13</sup> Sidney Cohen, "Drugs in the Workplace," *Drug Abuse and Alcoholism Newsletter* 12, 6 (August 1983).

<sup>14</sup> For example, Dan Quayle, "American Productivity: The Devastating Effect of Alcoholism and Drug Abuse," *American Psychologist*: 454-58 (April 1983); Robert T. Angarola, "Drug Detection Programs in Industry," *PharmChem Newsletter* 13, 4 (July-August 1984); Mark de Bernardo, Chamber of Commerce, testimony before a Subcommittee of the House Committee on Government Operations, 100<sup>th</sup> Congress, 1<sup>st</sup> Session, 1987: 91; Peter B. Bensinger, "Drugs in the Workplace," *Psychiatric Letter* 4: 39-44 (1986); T.E. Backer, *Strategic Planning for Workplace Drug Abuse Programs*, Rockville, MD:

National Institute on Drug Abuse (1987); *The Drug-Free Workplace Report*, Washington, DC: Institute for a Drug-Free Workplace (1988).

<sup>15</sup> Jacques Normand, *Under the Influence? Drugs and the American Workforce*, Washington, DC: National Academy Press (1994).

<sup>16</sup> Normand et al., 1994 (see note 15 above), p. 107 (emphasis added).

<sup>17</sup> Jacques Normand et al., "An Evaluation of Preemployment Drug Testing," *Journal of Applied Psychology* 75: 926-39 (1990); Craig Zwerling et al., "The Efficacy of Preemployment Drug Screening for Marijuana and Cocaine in Predicting Employment Outcomes," *Journal of the American Medical Association* 264: 2639-43 (1990).

<sup>18</sup> One of these studies (Zwerling et al., 1990, see note 17 above) found that drug users, as group, tended to have accidents *sooner* than non-users, but after one year, the *number* of accidents was the same for drug users and non-users.

<sup>19</sup> Dennis Crouch et al., "A Critical Evaluation of the Utah Power and Light Company's Substance Abuse Management Program: Absenteeism, Accidents and Costs," pp. 169-93 in S. Gust and J. Walsh (eds.), *Drugs in the Workplace: Research and Evaluation Data*, Rockville, MD: National Institute on Drug Abuse (1989).

<sup>20</sup> Normand et al., 1994 (see note 15 above), pp. 114-115.

<sup>21</sup> Normand et al., 1994 (see note 15 above), p. 123.

<sup>22</sup> Salyards, Stephen D., "Cost-Effectiveness of Drug Testing," *PharmChem Newsletter* 21, 1 (Spring 1993).

<sup>23</sup> Crouch et al., 1989 (see note 19 above).

<sup>24</sup> M.R. Polen, "Health Care Use by Frequent Marijuana Smokers Who Do Not Smoke Tobacco," *Western Journal of Medicine* 158: 596-601 (1993).

<sup>25</sup> John Sheridan and Howard Winkler, "An Evaluation of Drug Testing in the Workplace," pp. 195-216 in S. Gust and J. Walsh (eds.), *Drugs in the Workplace: Research and Evaluation Data*, Rockville, MD: National Institute on Drug Abuse (1989); Nigel Nicholson et al., "Absence from Work and Personal Characteristics," *Journal of Applied Psychology* 62: 319-27 (1977); Joseph Meisenheimer, "Employee Absences in 1989: A New Look at Data from the CPS," *Monthly Labor Review* 113: 28-33 (August 1990).

<sup>26</sup> David Blank and John Fenton, "Early Employment Testing for Marijuana: Demographic and Employee Retention Patterns," pp. 139-50 in S. Gust and J. Walsh (eds.), *Drugs in the Workplace: Research and Evaluation Data*, Rockville, MD: National Institute on Drug Abuse (1989).

<sup>27</sup> David Parish, "Relation of the Pre-employment Drug Testing Result to Employment Status," *Journal of General Internal Medicine* 4: 44-47 (1989).

<sup>28</sup> Wayne Hall et al., *The Health and Psychological Consequences of Cannabis Use*, Canberra: Australian Government Publication Service (1994); Lynn Zimmer and John P. Morgan, *Marijuana Myths, Marijuana Facts: A Review of the Scientific Evidence*, New York: The Lindesmith Center (1997); Institute of Medicine, *Marijuana and Medicine: Assessing the Science Base*, Washington, DC: National Academy Press (1999).

<sup>29</sup> D.B. Kandel and M. Davies, "Labor Force Experiences of a National Sample of Young Adult Men," *Youth and Society* 21:411-45 (1990); C.A. Register and D.R. Williams, "Labor Market Effects of Marijuana and Cocaine Use Among Young Men," *Industrial and Labor Relations Review* 45: 435-51 (1992);

R. Kaestner, "The Effect of Drug Use on the Wages of Young Adults," *Journal of Labor Economics* 9: 381-412 (1991).

<sup>30</sup> Eliot Currie, *Reckoning: Drugs, the Cities, and the American Future*, New York: Hill & Wang (1993); Craig Reinerman and Harry G. Levine, *Crack in America: Demon Drugs and Social Justice*, Berkeley: University of California Press (1997).

<sup>31</sup> Department of Health and Human Services, *National Household Survey on Drug Abuse, Main Findings 1996*, Rockville, MD: SAMHSA (1998).

<sup>32</sup> D.F. Crown and J.G. Rosse, "Critical Issues in Drug Testing," pp. 260-74 in J.W. Jones et al. (eds), *Applying Psychology in Business*, Lexington, MA: D.C. Heath and Co. (1991).

<sup>33</sup> Normand et al., 1994 (see note 15 above), p. 195.

<sup>34</sup> "Focus on Federal Drug Testing," 1991 (see note 4 above).

<sup>35</sup> SmithKline Beecham Clinical Laboratories, "Drug Detection in Workplace Continues Downward Trend," Press Release, October 1, 1996; SmithKline Beecham Clinical Laboratories, "Overall Positivity Continues to Decline," Press Release, October 7, 1998.

<sup>36</sup> *National Household Survey on Drug Abuse, Main Findings 1980; National Household Survey on Drug Abuse, Main Findings 1985; National Household Survey on Drug Abuse, Main Findings 1996.*

<sup>37</sup> American Management Association, *1996 AMA Survey, Workplace Drug Testing and Drug Abuse Policies, Summary of Key Findings*, p.3.

<sup>38</sup> A. Hanson, "What Employees Say about Drug Testing," *Personnel* July 1990, pp. 32-36; M.A. Konovsky and R. Cropanzano, "Justice

Considerations in Employee Drug Testing," in R. Cropanazo (ed.), *Justice in the Workplace: Approaching Fairness in Human Resource Management*, Hillsdale, NJ.: Erlbaum (1993); K.R. Murphy et al, "College Students' Attitudes toward Employee Drug Testing Programs," *Personnel Psychology* 43: 615-31 (1990).

<sup>39</sup> Cornell University, "Drug Testing: Cost and Effect," *Cornell/Smithers Report on Workplace Substance Abuse Policy*, 1:1, 4 (1992).

<sup>40</sup> Joseph Califano, *Report on Drug Abuse and Alcoholism*, New York: Warner Books (1982).

<sup>41</sup> James B. Jacobs and Lynn Zimmer, "Drug Treatment and Workplace Drug Testing: Politics, Symbolism and Organizational Dilemmas," *Behavioral Sciences and the Law* 9: 345-60 (1991).

<sup>42</sup> American Management Association, 1996 (see note 37 above), p. 3.

<sup>43</sup> Normand et al., 1994 (see note 15 above) p. 13.

<sup>44</sup> Jane Easter Bahls, "Drugs in the Workplace," *HR Magazine* 43, 2: 80-86 (1998).

<sup>45</sup> Edward Shepard and Thomas Clifton, "Drug Testing: Does It Really Improve Labor Productivity?" *Working USA* (November/December 1998), p. 76.

<sup>46</sup> Tom Peters, *In Search of Excellence*, New York: Warner Books (1982), p. 238.

<sup>47</sup> Howard Hayghe, "Anti-Drug Programs in the Workplace: Are They Here to Stay?" *Monthly Labor Review* (April 1991), p. 29.

<sup>48</sup> "DOD Apparently Abandons Effort to Mandate Random Testing," *National Report on Substance Abuse* 7, 5: 2-3 (1993).

<sup>49</sup> *Cornell/Smithers Report 1992* (see note 39 above), p.2.

<sup>50</sup> American Management Association, 1996, *AMA Survey on Workplace Drug Testing and Drug Abuse Policies – A Research Report*, p.1.

<sup>51</sup> Normand et al., 1994 (see note 15 above), p. 227.

<sup>52</sup> T.C. Blum and P.M. Roman, "Employee Assistance Programs and Human Resource Management," *Research in Personnel and Human Resource Management 7*: 259-312 (1989).

<sup>53</sup> R. Hilker et al., "A Company-Sponsored Alcoholic Rehabilitation Program: Ten-Year Evaluation," *Journal of Occupational Medicine* 14:769-771 (1972); H.M. Trice and J.M. Beyer, "Work-Related Outcomes of the Constructive-Confrontation Strategy in a Job-Based Alcoholism Program," *Journal of Studies on Alcohol* 45: 393-404 (1984).

<sup>54</sup> A. Kiefhaber, *The National Survey of Worksite Health Promotion Activities*, Washington, D.C.: Office of Health Promotion and Disease Prevention, U.S. Department of Health and Human Resources (1985).

<sup>55</sup> Normand et al., 1994 (see note 15 above), p.246.

<sup>56</sup> Normand et al., 1994 (see note 15 above), p.257.

<sup>57</sup> For example, D.C. Smith and J.J. Mahoney, "McDonnell Douglas Corporation Employee Assistance Program Financial Offset Study," 1985-1988. Paper presented at the 18th EAP Annual Conference, Baltimore, Maryland (1989).

<sup>58</sup> William K. Stevens, "Measuring Workplace Impairment," *The New York Times*, March 6, 1990.



Prepared by the Department of Public Education, Loren Siegel, Director; Rozella Floranz Kennedy, Editorial and Marketing Manager; Sara Glover, Graphic Designer.

The text of this publication is accessible via the ACLU's website <<http://www.aclu.org>>  
Copies can also be obtained for \$2.00 each through ACLU Publications at 1-800-775-ACLU or  
P.O. Box 759, Swedesboro NJ 08085.