DRUG TESTING WELFARE RECIPIENTS--FALSE POSITIVES, FALSE NEGATIVES, UNANTICIPATED OPPORTUNITIES

Harold Pollack
Department of Health Management and Policy,
University of Michigan School of Public Health
109 Observatory Drive
Ann Arbor, MI 48109-2029
Telephone: 734-936-1298, Fax: 734-764-4338
E-mail: haroldp@umich.edu

Sheldon Danziger
Henry J. Meyer Collegiate Professor of Social Work and Public Policy,
Director, Center on Poverty Risk and Mental Health
University of Michigan.

Rukmalie Jayakody
Assistant Professor of Human Development and Family Studies,
Research Associate, Population Research Institute
Pennsylvania State University

Kristin Seefeldt
Senior Research Associate, Poverty Research and Training Center
University of Michigan School of Social Work

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Analysts frequently document that many public policies have unintended, presumably negative consequences. Less often noted, but equally important, are the unanticipated opportunities created by policy interventions. If policy makers and policy implementers can take advantage of these opportunities, unintended benefits can accrue. This note examines the unintended consequences and opportunities that can arise from a contentious question of welfare policy--Whether and how to screen public assistance recipients for the abuse of intoxicating substances.

Substance abuse among welfare recipients has attracted public concern.[1-3] Although reported prevalence varies widely, many studies indicate that substance abuse threatens the well-being and social performance of some AFDC/TANF recipients. Substance abuse has been linked with decreased employment, and with increased incidence of child abuse or neglect. Psychiatric disorders, such as major depression, anxiety disorders, and post traumatic stress syndrome have attracted less attention in the welfare policy debate. Yet these disorders are also important threats to economic self-sufficiency and family role functions.[4-13]

Substance abuse and mental health problems among welfare recipients are especially important in the wake of rapid caseload declines following the welfare reform of 1996. Welfare reform increased pressures on recipients to take available jobs and imposed lifetime cumulative limits on the receipt of cash assistance. Despite the substantial caseload drop and the lowest unemployment rates in three decades, many recipients still have not found steady employment.[6] Some analysts have suggested that substance abuse and psychiatric disorders are especially prevalent among those remaining on the TANF rolls, and that such disorders are important employment barriers.

Section 902 of the 1996 welfare reform law explicitly authorizes the use of chemical testing to detect substance use by recipients of cash aid.[14] Some states perform chemical testing under certain circumstances.[15, 16] The idea of drug testing has been hotly debated. However, less noted is the fact that chemical tests alone can not identify many recipients, who do not abuse drugs, but who have mental and behavioral health problems that prevent them from finding and keeping jobs. At the other extreme, chemical testing will identify some casual drug users who do not have clinically significant abuse or dependence, and who have no employment or parenting problems.[17] A high rate of "false positives" may divert scarce investigative and treatment resources from more productive uses.

This note uses two data sources, the 1997-99 Women's Employment Survey (WES) and the 1997 National Household Survey of Drug Abuse (NHSDA), to shed light on the extent to which chemical testing is likely to identify recipients who need treatment services to achieve self-sufficiency. WES is a panel study of single-mother welfare recipients in one urban Michigan county. All respondents were receiving cash aid in February 1997, and were interviewed in Fall 1997, Fall 1998, and Fall 1999. The NHSDA is a nationally-representative cross-section of the adult population.

We use the American Psychiatric Association's DSM-III-R diagnostic screening criteria to examine the prevalence of psychiatric disorders and substance dependence in both data sets. For psychiatric disorders, the NHSDA includes measures of major depression, generalized anxiety disorders, agoraphobia and panic attacks. The NHSDA also includes extensive measures

of use or dependence upon alcohol and illicit drugs. WES data used here include major depression, generalized anxiety disorder and posttraumatic stress disorder.*

Both data sets are described elsewhere in greater detail.[6, 8] These data sets do not include information for the entire range of psychiatric disorders. So our analysis understates the true prevalence of such disorders.

Using both data sets, we examine the prevalence and type of recent self-reported drug use to examine the likely consequences of chemical testing of welfare recipients. The precise group of illicit drug users who will be detected through chemical testing depends upon the specific drug testing technology utilized (e.g., urinalysis, hair assay) and the underlying pattern of substance use. Individuals who have used illicit substances within the past year represent an upper bound estimate of those who might test positive in chemical tests. Respondents' self-reported drug use during the previous 12 months is available for both data sets. NHSDA data also indicate that 60 percent of individuals who report illicit drug use during the previous year also report illicit drug use during the past 30 days. WES data do not include measures for the past 30 days.

Table 1 shows 1997 results. The table indicates the prevalence, within 12 months of the interview, of drug use and dependence, DSM III-R psychiatric disorders and alcohol dependence in both data sets. This table therefore provides insight into the potential effectiveness of chemical testing to detect drug dependence and (as we will see) other psychiatric disorders.

*1999 WES data also include social phobia, a disorder not included in our analysis to provide consistent results across survey waves. Analogous calculations that include social phobia are extremely similar to those reported.

	WES Respondents Receiving Cash Aid, Fall 1997, (N=743)	1997 NHSDA Welfare Recipients (N=548)
(1) True Positive: Drug dependent	3.5 percent	4.4 percent
(2) False Positive: Drug use within past 12 months, but no drug or alcohol dependence, and no psychiatric disorder	9.2	7.3
(3) Accidental Positive: No drug dependence, but drug use within previous 12 months. Has alcohol dependence or psychiatric disorder.	8.3	4.5
(4) False negative: No drug dependence or use within the past 12 months, but does have alcohol dependence or psychiatric disorder	22.9	21.8
(5) True negative: No drug use within the past 12 months or dependence, no alcohol dependence or psychiatric disorder	56.3	62.0
Sensitivity of chemical tests in identifying psychiatric disorders & chemical dependence (accidental positive considered true positive)	34.0	28.9
Sensitivity of chemical tests in identifying psychiatric disorders & chemical dependence (accidental positive considered false negative)	10.1	14.3
Specificity of chemical tests in identifying psychiatric disorders & chemical dependence (accidental positive considered true positive)	86.0	89.5

Table 1: Drug Use, Psychiatric Disorders and Chemical Dependence Within the Previous 12 Months, Single Mothers Receiving Cash Assistance in 1997.

Source: Computations by authors from Fall 1997 Women's Employment Study and 1997 National Household Survey of Drug Abuse.

Consistent with prior research, we find that 21 percent of WES respondents and 16.2 percent of single mother welfare recipients in the NHSDA report some illicit drug use in the 12 months prior to each survey (the sum of rows 1, 2, and 3 in Table 1). Within both Michigan and nationally, marijuana use was far more prevalent among welfare recipients than was the use of cocaine, heroin, hallucinogens, painkillers, or other illicit drugs.[8, 18]

About 4 percent of all respondents (row 1) in each survey satisfy diagnostic screening criteria for illicit drug dependence (i.e. their drug use impairs their functioning in significant ways). Among WES respondents, those who are drug dependent represent only one-sixth of all drug users; we label them in row (1) as "true positives." The ratio of dependence to use is about one-quarter in the NHSDA (i.e., the ratio of row 1 to the sum of rows 1 through 3 = 4.4/16.2).

We label the respondents in row (2) as "false positives" because they are likely to fail some chemical tests. They have used drugs within the past year, but they do not meet diagnostic screening criteria for drug dependence, alcohol dependence or the other psychiatric disorders measured in these surveys.

A significant proportion of recent illicit drug users are in the third group, which we label "accidental positives." They report recent illicit drug use, do *not* meet DSM III-R diagnostic screening criteria for drug dependence, but do meet screening criteria for alcohol dependence or another psychiatric disorder. Because these individuals are not dependent on marijuana, cocaine, or other illegal substances, their mental health problems would be overlooked by any screening and assessment strategy that focuses solely on illicit drugs. However, if those who failed a drug test were subsequently screened for mental health problems and referred for services, what might otherwise have been a policy failure could be turned into a policy success.

Note the large percentage of welfare recipients who meet diagnostic screening criteria for alcohol dependence or a psychiatric disorder—abut 22 percent in each data set. We label them as "false negatives" (Row 4). They do not report illicit drug use, so they are not expected to fail a drug test. Although they need the same screening and referral services for mental health problems as those in row 3, their needs will go undetected under drug-testing.

Because both the WES and the NHSDA rely on self-reports, they may understate the actual prevalence of illicit drug use and dependence. However, the pattern depicted in Table 1 matches observed prevalence in the only state that tested recipients on a broad scale. Beginning October 1, 1999, Michigan implemented mandatory testing in 3 local welfare offices.[19, 20] All new recipients and a random sample of continuing recipients were required to provide urine tests as a condition of eligibility for aid.[21] Testing was halted by a restraining order in November 1999; the state is appealing a September, 2000 injunction against further testing.[21]

Over the short life of this intervention, individuals who tested positive for illicit substances remained eligible for welfare receipt, but were subject to progressive sanctions if they failed to comply with a mandated treatment plan.[21] Michigan tested 258 applicants and continuing recipients and reported that only 21 individuals, 8.1 percent of those sampled, tested positive for illicit drugs. Of these 21 positive results, 18 were for marijuana use only.

Table 1 also allows us to explore the power of chemical illicit drug tests to detect psychiatric disorders and substance dependence. Epidemiologists and clinicians use the terms "sensitivity" and "specificity" to scrutinize screening strategies in matters of public health.

In this context, *sensitivity* refers to the proportion of individuals who are drug-dependent or who satisfy diagnostic screening criteria for DSM-III-R psychiatric disorders who have used illicit substances during the past year. *Specificity* refers to the ability of chemical testing to

indicate the *absence* of disorders among individuals who are actually free of these conditions—that is, the proportion of recipients who are not substance-dependent and do not meet the criteria for psychiatric disorders who have *not* used illicit substances during the past year.

In practical policy terms, the sensitivity of chemical drug testing depends critically upon what happens to "accidental positives" following receipt of a positive test. If a positive test is followed by thorough screening and assessment for a range of personal and mental health problems, social service agencies can identify and treat cases of alcohol dependence and psychiatric disorders that might otherwise have gone undetected. Yet if positive tests are followed only by a simple drug retest with rudimentary follow-up, such problems are likely to remain undetected. Re-testing on its own can, however, help to screen out casual users and to document those with drug problems. A properly-designed retest can therefore screen out the "false positives" (row 2) and target scarce drug treatment and social service resources on the "true positives" (row 1).

To emphasize the most favorable possibilities of chemical testing, we assume that all "accidental positives" (row 3) can be correctly identified as a result of follow-up screening after an individual fails a chemical drug test. Because accidental positives are more prevalent than illicit drug dependence (row 1), chemical tests will be extremely insensitive if they fail to identify co-occurring psychiatric disorders. Chemical testing will always overlook those with psychiatric disorders and alcohol dependence who do not use illicit substances -- almost one-fifth of each sample, "false negatives" (row 4).

With our favorable assumption, chemical tests have an estimated sensitivity of 34 percent in the WES, and 28.9 percent in the NHSDA, in detecting chemical dependence and psychiatric disorders. If no screening for mental health problems is done, however, the "accidental

positives" (row 3) are effectively "false negatives." In this case, the estimated sensitivity is 10 percent and 14 percent in the two data sets.

A similar calculation explores the specificity of chemical tests. As shown in the last row of Table 1, chemical tests are rather specific in both samples. Specificity exceeds 85 percent in both the WES and the NHSDA.

Post-Welfare Reform Population

Welfare caseloads have dramatically declined in parallel with implementation of the 1996 welfare reform. This may have altered the prevalence of substance use, dependence, and psychiatric disorders within the post-welfare-reform caseload. To provide a more current analysis, we performed a similar analysis using the Fall 1999 WES. As shown in Table 2, by Fall 1997, 69 percent of women who had been on welfare in February 1997 had left the roles by Fall 1999 (the sum of columns 2 and 4). Because the transition into paid employment is a critical outcome for policy, we classified the respondents into four mutually-exclusive work/welfare categories at the time of the WES interview. The respondents in column 1, half the sample, were working and not receiving cash welfare in the survey month. Those in columns 2 and 3 were receiving cash assistance; together they represent 31 percent of respondents. About one-fifth of the sample (column 4), were neither working nor receiving welfare in the survey month. A χ^2 test indicates that the prevalence of psychiatric disorders and drug dependence systematically differs across the 4 subgroups ($\chi^2_{12}=38.167$, $p<0.001$) with the greatest variation found in the prevalence of drug dependence (row 1) and in "true negative" (row 5) responses.

The right-most column indicates overall population prevalences among all WES welfare leavers and stayers and is comparable to the 1997 data presented in Table 1.[†] Comparing the two tables, we find that the overall prevalence of substance use, dependence, and DSM-III-R psychiatric disorders was quite similar in the two survey years. In both years, the categories of "false positives," and "accidental positives" each outnumber "true positives."

Table 2 indicates a lower prevalence of substance dependence and psychiatric disorders among WES respondents who worked at least 20 hours per week than among those who were not working this much. The contrast is particularly striking in row 1 – almost none of the working respondents (columns 1 and 2) met the screening criteria for drug dependence compared to 6.4 percent and 8.6 percent of the nonworking respondents (columns 3 and 4). Turning to drug use (the sum of rows 1, 2, and 3), 22.9 percent of non-working TANF recipients reported illicit substance use within the previous year (column 3), compared with 15.1 percent of women who worked at least 20 hours per week and who were no longer receiving TANF (column 1).

Among TANF recipients, differences in recent drug *use* did not vary by employment -- 21.2 percent of those working at least 20 hours per week reported some illicit drug use during the previous 12 months, (column 2), compared with 22.9 percent of those who worked less than this amount, (column 3). This is in contrast to the striking differences between the two groups in reported dependence on illicit substances (0% vs. 6.4%). Respondents who were neither working 20 hours nor receiving TANF displayed the highest prevalence of drug dependence (8.6 percent).

[†] About 84 percent of the respondents from the 1997 survey were interviewed in the 1999 survey. The response rates for the 3 waves were 86 percent, 93 percent and 91 percent.

	Working 20+ hours, No TANF cash receipt (N=316)	Working 20+ hours, did receive TANF cash aid (N=85)	Not working 20+ hours, did receive TANF cash receipt (N=109)	Not working 20+ hours, No TANF cash aid (N=116)	Totals (N=626)
(1) True Positive: Drug dependent	0.9%	0	6.4%	8.6%	3.2%
(2) False Positive: Drug use within past 12 months, but no drug or alcohol dependence, and no psychiatric disorder	9.5%	11.8%	9.2%	7.8%	9.4%
(3) Accidental Positive: No drug dependence, but drug use within previous 12 months. Has alcohol dependence or psychiatric disorder.	4.7%	9.4%	7.3%	4.3%	5.8%
(4) False negative: No drug dependence or recent use, but does have alcohol dependence or psychiatric disorder	19.6%	20.0%	32.1%	24.1%	22.7%
(5) True negative: No recent drug use or dependence, no alcohol dependence or psychiatric disorder	65.2%	58.8%	45.0%	55.2%	58.9%
Sensitivity of chemical tests in identifying psychiatric disorders & chemical dependence (accidental positive considered true positive)	22.2	31.9	29.9	34.9	28.4
Sensitivity of chemical tests in identifying psychiatric disorders & chemical dependence (accidental positive considered false negative)	3.6	0	14.0	23.2	10.1
Specificity of chemical tests in identifying psychiatric disorders & chemical dependence (accidental positive considered true positive)	87.3	83.3	83.0	87.6	86.3

Table 2: Drug Use, Psychiatric Disorders and Chemical Dependence, within Previous 12 Months, Respondents Classified by Work/Welfare States, Fall 1999.

Source: Computation by Authors, Fall 1999 Women's Employment Study

We separately analyzed alcohol dependence using DSM-III-R criteria. Although dependence was rare in every group, we again found striking differences between working and non-working WES respondents -- 0.6 percent of working former recipients satisfied screening criteria for dependence, compared with 4.4 percent of nonworking current TANF recipients and 5.6 percent of women who were neither working nor receiving TANF.

Differences in psychiatric disorders were also marked. The sum of rows 1, 3 and 4 in Table 2 provides our estimate of the percentage of respondents who meet the criteria for at least one disorder – 45.8 percent of non-working TANF recipients, but only 25.2 percent of working former recipients. As we have shown elsewhere, the extent of these problems among current and former welfare recipients is much greater than in the general population of women. [6,8]

Discussion. Decision theory suggests that information only has value when it changes behavior. How does the data presented inform our answers to these questions -- should welfare recipients be drug-tested? If so, when and how? It is impossible to answer without considering how such information might be used to improve well-being and social performance. Our results confirm and update earlier findings that psychiatric disorders are much more prevalent than illicit drug dependence among TANF recipients.[6,8] This suggests that screening welfare applicants and recipients for depression, post-traumatic stress disorder, and other psychiatric disorders would detect many problems likely to hinder the transition from welfare to work. Such policies would address a much larger population of TANF recipients than the important, but small, population of drug-dependent recipients who might be detected through chemical drug tests.

Chemical testing, by itself, is a potentially specific, but insensitive method to identify psychiatric disorders among welfare recipients. If states do chose to implement chemical testing, we suggest that such testing be focused on a subset of recipients who display specific signs and

symptoms associated with substance abuse and dependence. Our results suggest, for example, that rather than testing all recipients, only non-working recipients might be tested. Non-working recipients report similar rates of recent illicit drug use to those reported among working recipients. Yet non-working recipients are much more likely to satisfy screening criteria for dependence on these substances.

When states do choose to employ chemical testing, we also suggest that such tests be used in combination with more detailed social/psychological assessments. In this way, those who fail a drug test, but are not drug dependent, can be identified as having alcohol dependence or psychiatric disorders that might require treatment.

Of course, chemical testing may also have incentive effects for recipients and potential and actual welfare recipients. Widespread testing might deter substance use among some parents who already receive cash assistance. However, testing policies might also deter active substance users from applying for cash aid, an ambiguous outcome from a broader perspective.[22, 23]

Some policy makers argue that early detection of even casual drug use is a desirable outcome because potential employers test job recipients. According to this view, negative drug screens are an important component of "job readiness." When asked in Fall 1999 whether they had to take a drug test for an employer or training program in the prior year, about one-third of respondents reported taking such a test. However, only 5 respondents, about 2.5 percent of those tested and about 1 percent of the total sample reported that they did not pass.

The benefits of drug testing must be weighed against the potential mis-allocation of treatment resources to occasional users. The use of urine test technology (rather than other methods such as hair assay) may compound these problems. Urine tests have a significantly longer detection period for marijuana than they do for alcohol, cocaine, and other illicit

substances.(e.g. [24]) And, as mentioned above, most drug users in the two data sets were marijuana users who did not meet dependence criteria.

A recent Michigan lawsuit (Marchwinski v. Family Independence Agency, No 99cv10393) questions the constitutionality of chemical testing as a requirement of public aid. As welfare policy researchers, we bring no special expertise to the privacy and due-process questions engaged by this debate. We believe, however, that our suggestion that testing be focused only on recipients who experience tangible drug-related economic barriers or threats to family functioning is more likely to pass constitutional muster than is broad caseload screening that detects large numbers of casual drug users with no specific drug-related impairment.

From a more instrumental perspective, we also suggest that chemical testing should be evaluated by its ability to address a current major challenge of welfare reform: How to assist those recipients who remain on the rolls almost 5 years after the 1996 welfare reform. The key to answering this question is to develop effective, predictable, and fair systems that identify, monitor, and help recipients who experience a variety of obstacles to self-sufficiency. For example, welfare agencies in Oregon and Utah assess some or most recipients for drug abuse (primarily through the use of screening instruments), but these assessments also seek to identify alcohol abuse and other mental health problems.[16, 25] Mental and behavioral health professionals are then consulted to develop an appropriate treatment plan.[26] Focused chemical testing strategies may also help evaluate recipients who display specific warning signs in work assignments, training programs, or in family assessments.

In the vocabulary of our paper, chemical testing of all welfare recipients will detect some "true positives," a greater number of "accidental positives" with complex problems, and a larger group of "false positives" who have no apparent psychiatric (including drug-related) disorder.

Chemical testing cannot detect "false negatives," TANF recipients who are alcohol-dependent or experiencing psychiatric disorders, but who do not use illicit drugs. Devising and implementing more discriminating policies to serve a diverse welfare population remains a critical challenge of welfare administration.

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