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Research Report

1998 Annual Report on Marijuana Use Among Arrestees



Arrestee Drug Abuse Monitoring Program

A Program of the National Institute of Justice
Research Report

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Introduction

Levels of marijuana use among persons involved in the criminal justice system are high; often one-third or more of the population has used marijuana within days of an arrest (NIJ, 1998). In 1998 the percentage of adult male respondents testing positive for marijuana use in the Arrestee Drug Abuse Monitoring (ADAM) program ranged from a high of 53.1 percent in Oklahoma City to a low of 24.8 percent in San Jose. For the 32¹ sites that collected data on female arrestees during 1998, the proportion of arrestees testing positive for marijuana ranged from 37.9 percent in Seattle to 13.3 percent in Laredo. Within any given site, men were generally more likely than women to test positive for marijuana in 1998. In addition, younger adults (15-20 and 21-25 years of age), whether male or female, were the most likely to be involved with marijuana.

Currently, 35 urban sites participate in the ADAM program. Twelve of the 35 sites were new to the ADAM system in 1998 and this report represents for many the first look at rates of marijuana use in their arrestee populations. The sites added to ADAM in 1998 are Albuquerque, Anchorage, Des Moines, Laredo, Las Vegas, Minneapolis, Oklahoma City, Sacramento, Salt Lake City, Seattle, Spokane, and Tucson. The lowest marijuana-positive rate for male arrestees in a new site was reported in Las Vegas at 25.8 percent, and the lowest rate for female arrestees in a new site was reported in Laredo, where females tested positive at the rate of 13.3 percent. Oklahoma City reported the highest marijuana-positive rate for male arrestees in a new site (53.1 percent); for females, Seattle reported the highest level (37.9 percent). In addition to Oklahoma City, Minneapolis (45.4 percent) and Sacramento (44.1 percent) reported high male marijuana-positive percentages among new sites. For females, Salt Lake City (29.4 percent) and Sacramento (28.2 percent) followed Seattle in reporting high female marijuana use rates.

A comparison between 1997 and 1998 results in the 23 sites for which trend data are available indicates that marijuana-positive percentages varied across sites. Among all adult male arrestees, the median site rate of marijuana positives changed minimally, from 38.4 percent to 38.7 percent between 1997 and

¹ Atlanta had too few female cases for analysis purposes in 1998.

METHODOLOGY

To gauge drug use trends in urban areas, the National Institute of Justice established the Drug Use Forecasting (DUF) program in 1987. A modified version of DUF, the Arrestee Drug Abuse Monitoring (ADAM) program, was initiated in 1997. To date, 35 jurisdictions participate in ADAM. ADAM involves administration of a survey instrument, which measures historical and current drug use patterns among arrestees, and collection of a urine sample which is tested for 10 drugs. A more detailed overview of data collection methods can be found in the *1998 Annual Report on Drug Use Among Adult and Juvenile Arrestees*.² This box discusses how data collection methods have affected reporting methods and two significant reporting changes that will appear in next year's reports.

The first and most important change relates to sampling. Data collected after the mid-point of 1999 in all sites will be collected under probability sampling

plans. This means that confidence intervals can be attached to estimates derived from ADAM data which in turn means that analysts can assess whether year-to-year changes in drug prevalence rates are significant. For example, this year in New York City, the cocaine prevalence for males fell from 57.6 percent in 1997 to 47.1 percent in 1998. ADAM cannot report that as a statistically significant decline because of limits to the current sampling plans. The 1999 reports will introduce reporting on standard errors and confidence intervals.

The second important change relates to weighting the data. Each case collected represents similar respondents (age, race, and booking charge to name a few characteristics of interest) that were not selected for interview. If a certain category of offender is represented out of proportion to the actual occurrence in the arrest population, weighting can be used to correct the disproportionality. There are numerous factors that introduce disproportion into the data. The

1998. For females, the site median remained essentially the same in 1997 (23.8) and 1998 (23.7). The most notable percentage point decreases for marijuana positives among adult males were in Atlanta (-10.1), Cleveland (-9.4), Chicago (-6.9), and Omaha (-5.6). For females, the greatest percentage point decreases were in Birmingham (-7.8), Detroit (-6.9), and Omaha (-5.1). The largest percentage point increases for males were in Houston (+12.2), San Antonio (+6.8), and New York City (+6.3). For females, the largest percentage point increases in marijuana positives were in New Orleans (+10.5) and Wash-

² National Institute of Justice. (1999). "ADAM: 1998 Annual Report on Drug Use Among Adult and Juvenile Arrestees." Washington, D.C.: National Institute of Justice.

jails included in the program have changed over time, most recently as a result of standardizing site catchment areas at the county level. In addition, the DUF program operated according to a charge priority system that emphasized interviewing and testing felony offenders over misdemeanants. Drug offenders, who are more likely to test positive for drugs than their non-drug-offending counterparts, were limited to 20 percent of the total sample to prevent drug offenders from dominating the data. Traffic offenses (e.g., DUI and DWI) were generally excluded from the sample. These practices were revised in the second quarter of 1998 data collection so that all arrestees, regardless of charge, are eligible for inclusion in the ADAM study.

This year's data, as well as data collected during previous years, could be weighted by local arrest data to adjust for the data collection methods. We chose not to weight the data for two reasons. First, there may be additional changes in the data collection protocol this year

that would change the weighting process, forcing us to revise the entire weighted data series. Second, since confidence intervals and quantification of uncertainty cannot be applied to the data series until next year, it seemed appropriate to do all of the design and reporting changes in one year.

In addition, it is important that the current analysis be read with an understanding that the weighting and sampling issues limit presentation and interpretation. In particular, small changes from year to year in prevalence figures should not be viewed as definitive. It should be stressed that the arrestee population is a difficult one to access, and one not adequately covered in other data collection efforts that, for example, target households, schools, or treatment populations. The data are most informative over multiple years when longer term trends can be discerned.

ington, D.C. (+9.2). It cannot be known whether these differences are significant because the samples are currently not selected using statistical methods that would allow that computation (see "Methodology," page 2).

Trend results may also be affected by a significant change to the ADAM marijuana drug testing protocol. In 1996 improvements in drug testing technology led the U.S. Department of Health and Human Services to lower the detection cutoff rate for marijuana from 100 nanograms (ng) per milliliter (ml) to 50 ng/ml. The impact of this change and additional analyses evaluating the impact

on marijuana trend data are discussed in the 1996 Drug Use Forecasting (DUF) Annual Report (NIJ, 1997). The lower cutoff level is expected to identify greater numbers of occasional or moderate marijuana users. Thus, caution should be used when comparing site results from 1996 forward with those from previous years. Moreover, extra caution should be taken this year with comparisons with previous years because, as part of the ADAM program's move toward probability-based sampling at the county level, in some sites the sample expanded during the data collection year to include cases from additional jail facilities. For example, in New York City the program is now operating in all 5 boroughs; it previously operated only in Manhattan.

Aggregate analysis of data may, in some cases, obscure important developments in isolated or specific populations. Age, gender, and regional analyses of ADAM data indicate that several developments are underway that point to the need to monitor subgroups of marijuana users who could be overlooked within the aggregate trends. These subgroups include younger arrestees, among whom there are signs of increasing marijuana use in some parts of the country; and male arrestees whose marijuana use continues at high rates relative to those of their female peers. A review of marijuana data generated by the DUF/ADAM program since 1990 provides a context within which these subtrends can be seen.

Male Arrestee Marijuana Trends, 1990-98

Between 1990 and 1998, cocaine was generally the drug most likely to be detected among both male and female participants, although there was substantial variation by both site and year. During the same period, marijuana was generally the drug next most likely to be detected. In recent years, marijuana use has grown to the point at which it is now the most prevalent drug used by males in a majority of sites. In 1990 marijuana was the most commonly detected drug in 5 of 22³ sites that collected data on males; in 1995 it was the most common drug detected in males in 6 of 23 sites; and in 1998, it was the most commonly detected drug in 22 of 35 sites among males and in 13 of the 23 vet-

³ Miami did not begin data collection until 1991.

eran male sites. This pattern has not held among female arrestees, however. Among females, marijuana was the most commonly detected drug in only one of 20 sites collecting female data in 1990 and in none of the 32 sites collecting female data in 1998.

Between 1990 and 1998, more than 180,000 adult male arrestees were surveyed and drug tested as part of the ADAM program. For comparison purposes, each ADAM site is assigned to one of five geographic regions: Northwest, West/Southwest, Midwest, South, and Northeast. Marijuana increases vary by region, with the largest increases found in the Midwest, South, and Northeast, and the smallest in the West/Southwest region of the United States. Table 1 presents positive marijuana urinalysis results for adult male arrestees surveyed through the ADAM program from 1990 to 1998 by site.

Over the 9-year period presented, all ADAM sites' marijuana rates for males increased with the exception of Portland, where levels decreased from 42.1 percent in 1990 to 36.9 percent in 1998. Detroit, St. Louis, and Washington, D.C. witnessed the largest percentage point increases of male marijuana-positive rates during the past nine years. For example, in 1990 the male marijuana-positive rate in St. Louis was 16.0 percent. By 1998, however, the male marijuana-positive rate increased to 50.2 percent, an increase of 34.2 percentage points. In Detroit the rate increased from 15.2 percent in 1990 to 46.5 percent in 1998. In Washington, D.C., the rate increased by 30.9 percentage points over the 9-year period. Although it is not possible to know the standard error of these figures, variations of this size suggest substantial changes. Of the 22 veteran sites collecting male data in 1990, San Jose reports the lowest percentage point change (+0.9) between 1990 and 1998, followed by San Diego (+1.5), and Phoenix (+4.7); Portland reported a decrease of 5.2 percentage points, while the remaining 18 sites reported increases of between 7 and 34 percentage points.

In subsequent sections of this report, the data are discussed separately for the years 1990 to 1995; 1995 to 1996; and 1996 to 1998. This is to ensure that percentage point increases that may be due solely to the modification in the drug detection level (from 100 ng/ml to 50 ng/ml in 1996) are clearly illustrated. Of

Table 1. Percentage of Male Arrestees Testing Positive for Marijuana, 1990-98

	1990	1991	1992	1993	1994	1995	1996	1997	1998
	%	%	%	%	%	%	%	%	%
NORTHWEST									
Anchorage*	–	–	–	–	–	–	–	–	33.3
Portland	42.1	32.4	27.8	29.5	26.7	28.7	35.0	38.2	36.9
Seattle*	–	–	–	–	–	–	–	–	35.4
Spokane*	–	–	–	–	–	–	–	–	42.9
WEST/SOUTHWEST									
Albuquerque*	–	–	–	–	–	–	–	–	35.9
Denver	26.9	25.3	33.9	35.6	38.5	32.8	41.7	41.5	41.3
Laredo*	–	–	–	–	–	–	–	–	39.3
Las Vegas*	–	–	–	–	–	–	–	–	25.8
Los Angeles	19.6	18.7	22.9	23.0	19.6	22.8	29.5	26.5	27.3
Phoenix	27.5	22.0	22.1	31.1	28.8	29.2	28.4	30.4	32.2
Sacramento*	–	–	–	–	–	–	–	–	44.1
Salt Lake City*	–	–	–	–	–	–	–	–	36.8
San Antonio	26.1	20.3	28.5	32.0	29.5	33.7	39.1	34.3	41.1
San Diego	34.9	33.2	35.3	39.8	36.2	35.1	40.0	37.8	36.4
San Jose	23.9	25.2	24.5	27.2	29.8	26.8	26.9	28.9	24.8
Tucson*	–	–	–	–	–	–	–	–	39.2
MIDWEST									
Chicago	26.8	23.1	26.2	40.1	38.2	40.6	47.0	48.4	41.5
Cleveland	14.0	11.8	17.2	23.1	27.5	29.3	37.5	46.2	36.8
Des Moines*	–	–	–	–	–	–	–	–	41.8
Detroit	15.2	18.5	26.7	36.7	37.6	41.5	45.5	44.0	46.5
Indianapolis	30.9	22.9	35.1	41.6	39.1	37.9	51.2	43.7	45.1
Minneapolis*	–	–	–	–	–	–	–	–	45.4
Omaha	20.2	25.6	38.2	42.0	44.3	42.0	51.9	49.5	43.9
St. Louis	16.0	16.0	21.2	28.3	36.4	39.4	51.9	48.4	50.2

* New site in 1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
	%	%	%	%	%	%	%	%	%
SOUTH									
Atlanta	3.8	12.3	21.8	26.2	24.7	31.5	37.3	36.1	26.0
Birmingham	13.5	16.2	21.5	27.5	28.1	35.3	45.7	42.6	39.2
Dallas	20.4	19.5	28.0	27.5	32.7	37.0	44.1	43.5	43.1
Ft. Lauderdale	22.4	28.2	31.9	30.0	29.4	32.9	38.0	38.3	43.5
Houston	20.7	17.1	23.1	24.2	22.7	29.0	33.0	23.6	35.8
Miami	–	22.6	30.0	25.9	27.7	29.2	34.2	31.5	29.2
New Orleans	17.7	15.7	19.0	24.9	28.4	32.1	39.9	38.4	38.3
Oklahoma City*	–	–	–	–	–	–	–	–	53.1
NORTHEAST									
New York City	19.2	17.9	22.1	21.3	24.2	28.2	38.4	32.4	38.7
Philadelphia	18.2	18.1	26.3	32.3	32.3	34.2	38.7	41.3	44.9
Washington, D.C.	7.1	11.2	20.0	26.2	30.3	31.6	39.8	39.2	38.0

* New site in 1998

the 22 sites collecting male data from 1990 to 1995, all but Portland witnessed increases ranging from 0.2 to 27.7 percentage points in the marijuana-positive rate. Seventeen sites reported increases greater than 5 percentage points.

Six sites demonstrated increases in adult male marijuana positives of 20 percentage points or more from 1990 to 1995: Atlanta, Birmingham, Detroit, Omaha, St. Louis, and Washington, D.C. In Atlanta the percentage of surveyed male arrestees testing positive for marijuana increased from 3.8 percent in 1990 to 31.5 percent in 1995. In Detroit the percentage of male arrestees testing positive for marijuana increased from 15.2 percent in 1990 to 41.5 percent in 1995. In Washington, D.C., marijuana positives for adult males increased from 7.1 percent in 1990 to 31.6 percent in 1995. St. Louis experienced a 23.4 percent-

age point increase in male arrestees testing positive for marijuana between 1990 and 1995. Between 1990 and 1995, both Birmingham and Omaha reported a 21.8 percentage point increase in male marijuana positives.

The change in the cutoff level from 100 ng/ml to 50 ng/ml in 1996 was expected to cause a 5 to 7 percentage point increase in marijuana detections. Much of this increase is because a 50 ng/ml cutoff detects more occasional and moderate marijuana users. Given this caveat, four sites still experienced increases of 10 percentage points or more in adult male marijuana positives between 1995 and 1996: Birmingham, Indianapolis, New York City, and St. Louis. In Indianapolis the rate for males increased from 37.9 percent to 51.2 percent. The St. Louis male marijuana-positive rate increased from 39.4 percent in 1995 to 51.9 percent in 1996. In Birmingham the rate for males increased from 35.3 percent to 45.7 percent. In 1996 the adult male marijuana-positive rate for New York City was 38.4 percent, a 10.2 percentage point increase from 28.2 percent in 1995.

The percentage of surveyed male arrestees testing positive for marijuana generally stabilized or decreased between 1996 and 1998. Of the 23 veteran sites, 16 had marijuana-positive rates for males in 1998 that were within 5 percentage points of the rates in 1996. Five sites witnessed decreases greater than 5 percentage points in the rate of adult male marijuana positives between 1996 and 1998. In 1996 Miami's marijuana rate was 34.2 percent, compared with 29.2 percent during 1998. Chicago's male marijuana-positive rate dropped from 47.0 percent in 1996 to 41.5 percent in 1998. The Indianapolis male marijuana-positive rate decreased from 51.2 percent in 1996 to 45.1 percent in 1998. In 1996 Birmingham's male marijuana-positive rate was 45.7 percent, compared with 39.2 percent in 1998. In Omaha the marijuana-positive rate for males dropped eight percentage points from 51.9 percent in 1996 to 43.9 percent in 1998. Atlanta experienced the largest decrease (11.3 percentage points), from 37.3 percent in 1996 to 26.0 percent in 1998. Adult male marijuana-positive rates increased in two sites between 1996 and 1998. In Philadelphia the rate increased from 38.7 percent in 1996 to 44.9 percent in 1998. Ft. Lauderdale

experienced a 5.5 percentage point rate increase in adult males testing positive for marijuana, changing from 38.0 percent in 1996 to 43.5 percent in 1998.

Although the marijuana rate in most sites may have stabilized somewhat in the past three years, it nevertheless remains high, particularly among young males. By the end of 1998, three sites for which trend data are available reported marijuana prevalence rates greater than 45 percent among males (Detroit, Indianapolis, and St. Louis). In addition, two new sites (Minneapolis and Oklahoma City) reported more than 45 percent of males testing positive for marijuana in 1998. San Jose reported the lowest marijuana-positive rate among males in 1998 (24.8 percent), followed by Las Vegas at 25.8 percent.

Female Arrestee Marijuana Trends, 1990-98

Between 1990 and 1998, nearly 70,000 adult female arrestees were surveyed and drug tested as part of the DUF/ADAM program. Table 2 presents positive marijuana urinalysis results for adult female arrestees surveyed through the ADAM program from 1990 to 1998 by site.

Although female arrestees tested positive for marijuana less frequently than their male counterparts, marijuana use still increased within the female arrestee population. Over this 9-year period, all ADAM sites' adult female marijuana rates increased with the exception of Portland, where levels decreased from 26.8 percent in 1990 to 23.2 percent in 1998. Of the 21 veteran female collection sites, San Jose reported the lowest percentage point change (+1.1) between 1990 and 1998. The remaining sites reported increases of between 6 and 22 percentage points. St. Louis and Washington, D.C. witnessed the largest increases among females over the past 9 years. For example, the female marijuana-positive rate in St. Louis was 9.7 percent in 1990, but increased 22.2 percentage points to 31.9 in 1998. In Washington, D.C., the 9-year rate increase among female arrestees was 21.6 percentage points.

Table 2. Percentage of Female Arrestees Testing Positive for Marijuana, 1990-98

	1990 %	1991 %	1992 %	1993 %	1994 %	1995 %	1996 %	1997 %	1998 %
NORTHWEST									
Anchorage*	–	–	–	–	–	–	–	–	23.1
Portland	26.8	27.8	16.8	17.2	19.4	16.4	25.9	19.0	23.2
Seattle*	–	–	–	–	–	–	–	–	37.9
Spokane*	–	–	–	–	–	–	–	–	26.8
WEST/SOUTHWEST									
Albuquerque*	–	–	–	–	–	–	–	–	24.0
Denver	15.1	16.5	19.0	24.3	22.1	21.1	26.7	31.5	29.9
Laredo*	–	–	–	–	–	–	–	–	13.3
Las Vegas*	–	–	–	–	–	–	–	–	21.6
Los Angeles	10.1	9.4	12.6	15.1	12.3	13.5	20.4	17.9	21.8
Phoenix	18.4	13.9	14.6	19.7	21.8	19.2	21.8	20.8	24.9
Sacramento*	–	–	–	–	–	–	–	–	28.2
Salt Lake City*	–	–	–	–	–	–	–	–	29.4
San Antonio	8.9	9.0	15.6	16.2	14.8	15.5	18.6	17.3	17.5
San Diego	19.1	20.0	24.7	25.4	19.8	19.6	23.2	23.8	26.7
San Jose	12.5	12.8	18.5	17.0	17.8	12.0	18.5	16.5	13.6
Tucson*	–	–	–	–	–	–	–	–	21.5
MIDWEST									
Chicago	–	–	–	–	–	–	–	–	19.7
Cleveland	8.0	7.1	11.0	13.4	15.7	11.0	22.0	22.1	27.0
Des Moines*	–	–	–	–	–	–	–	–	15.2
Detroit	9.1	3.6	10.6	10.6	16.2	17.6	18.6	28.4	21.5
Indianapolis	20.8	21.8	26.3	25.4	22.2	23.8	31.0	29.9	31.2
Minneapolis*	–	–	–	–	–	–	–	–	22.6
Omaha	–	–	–	22.2	28.3	23.8	32.8	33.3	28.2
St. Louis	9.7	7.8	11.1	14.7	14.7	18.0	28.7	31.4	31.9

* New site in 1998

	1990 %	1991 %	1992 %	1993 %	1994 %	1995 %	1996 %	1997 %	1998 %
SOUTH									
Atlanta	1.2	7.6	12.9	15.5	14.9	13.0	25.9	27.7	–
Birmingham	8.2	9.6	12.6	12.1	16.8	12.0	22.4	25.4	17.6
Dallas	17.8	11.0	23.8	19.2	22.5	21.4	26.8	27.5	24.2
Ft. Lauderdale	16.3	14.2	20.9	19.8	18.4	17.9	23.8	24.0	24.5
Houston	11.0	8.6	11.7	14.9	12.9	17.8	26.2	16.7	20.1
Miami	–	–	–	–	–	–	–	–	–
New Orleans	11.7	7.3	8.6	13.8	7.4	16.2	13.5	11.6	22.1
Oklahoma City*	–	–	–	–	–	–	–	–	–

NORTHEAST

New York City	7.7	11.3	12.5	19.4	15.5	16.4	19.0	24.6	23.4
Philadelphia	11.9	14.4	15.2	19.7	18.3	19.7	21.0	20.9	23.7
Washington, D.C.	6.9	6.4	8.4	9.3	10.6	17.7	22.8	19.3	28.5

* New site in 1998

Similar to the data for males, the results for females are discussed within the context of the marijuana detection cutoff level change. Of the 20 sites that collected female data from 1990 to 1995, 18 reported increases in marijuana-positive rates between 0.5 and 11.8 percentage points. Nine sites experienced increases among female arrestees greater than 5 percentage points from 1990 to 1995. In particular, two sites demonstrated increases in adult female marijuana positives of 10 percentage points or more from 1990 to 1995: Atlanta and Washington, D.C. In Atlanta the percentage of surveyed female arrestees testing positive for marijuana increased from 1.2 percent in 1990 to 13.0 percent in 1995. In Washington, D.C. marijuana positives for females increased from 6.9 percent in 1990 to 17.7 percent in 1995.

Two sites collecting female data witnessed decreases in marijuana-positive rates between 1990 and 1995. Portland experienced a 10.4 percentage point drop between 1990 (26.8 percent) and 1995 (16.4 percent). In San Jose, the female marijuana-positive rate decreased slightly from 12.5 percent in 1990 to 12.0 percent in 1995.

Again, the change in the cutoff level in 1996 is expected to cause a 5 to 7 percentage point increase in marijuana detection. Given this caveat, 4 sites still experienced increases of 10 percentage points or more in adult female marijuana positives between 1995 and 1996: Atlanta, Birmingham, Cleveland, and St. Louis. In Atlanta the rate for females increased from 13.0 percent to 25.9 percent. The Cleveland adult female marijuana-positive rate increased from 11.0 percent in 1995 to 22.0 percent in 1996. In St. Louis the rate increased from 18.0 percent to 28.7 percent between 1995 and 1996. In 1996 the adult female marijuana-positive rate for Birmingham was 22.4 percent, a 10.4 percentage point increase from 12.0 percent in 1995.

The percentage of surveyed female arrestees testing positive for marijuana generally stabilized or increased slightly between 1996 and 1998, with the exception of Houston. Of the veteran sites, 17 had marijuana-positive rates for females in 1998 that were within 5 percentage points of the rates in 1996. Two sites witnessed increases greater than 5 percentage points in the rate of adult female marijuana positives between 1996 and 1998. In 1996 New Orleans's marijuana-positive rate was 13.5 percent compared with 22.1 percent during 1998. In Washington, D.C. the marijuana-positive rate increased from 22.8 percent to 28.5 percent. The exception was Houston in which the female marijuana-positive rate decreased 6.1 percentage points between 1996 and 1998, from 26.2 percent to 20.1 percent.

Female arrestees have generally tested positive for marijuana at lower rates than males. In 1990 marijuana-positive rates were lower for females than for males in

all veteran ADAM sites collecting female data. In 1998, female marijuana rates ranged from 6 to 25 percentage points lower than male positive rates in all veteran sites. Eleven of twelve new sites report male rates that are appreciably higher than female rates.

By the end of 1998, two sites retained marijuana-positive rates greater than 30 percent for females (Indianapolis and St. Louis). In addition, one site in its first year of female arrestee data collection had more than 30 percent of the females testing positive for marijuana in 1998 (Seattle, at 37.9 percent). In 1998 Laredo reported the lowest rate of marijuana positives (13.3 percent) for females, followed by San Jose at 13.6 percent.

Marijuana Results by Age Cohort

The general assessment of marijuana rates presented above shows that marijuana use among adults has stabilized in the last three years in many sites. However, changes in drug use patterns among age groups, or cohorts, can be used to anticipate future changes in overall drug use. Young users are particularly important in this regard because, all other factors held constant, their presence is likely to be felt in the community for longer than that of older drug users. Thus, significant changes in drug use patterns among young adults should be examined closely.

Recent analyses on marijuana use show that results vary by age group. For the purposes of this discussion, age is reported in five categories: 15-20, 21-25, 26-30, 31-35, and 36 and older. Of the 23 ADAM sites for which trend data are available, 21 demonstrate patterns among young adult cohorts (ages 15-20) that suggest marijuana use may be growing. Four factors are used to characterize young adult marijuana use as potentially growing: a comparison of the 9-year (1990-98) trend among young adults; a comparison of the 9-year (1990-98) trend among young adults, adjusted for the detection cutoff level change in 1996; the 1997 to 1998 change among young adults; and the absolute level of marijuana positives among young adults. Respectively, these factors provide

information about long-term trends in the communities, recent changes in communities, how large the initiation or new use cohort in the community is likely to be, and the potential size of the initiation cohort relative to the existing magnitude of the problem.

From 1990 to 1998, marijuana use has changed from a pattern of concentration among older adults to domination of use by arrestees 25 years of age and younger. Table 3 presents the percent of adult male and female arrestees testing positive in the 23⁴ veteran ADAM sites for 1990 and 1998 by age group.

Among adult males, in 12 of 22 sites the reported 1990 marijuana-positive rates for the two youngest cohorts (the 15-20 and 21-25 age groups) are at least five percentage points greater than the rates for the three oldest age cohorts. However, in 1998, in all 22 of the sites for which trend data are available the highest marijuana prevalence rate occurred in those two age groups. Females exhibit a similar trend of increasing prevalence among younger users. In 1990 the results across female age cohorts were mixed. Only 5 of 20 sites in 1990 showed the highest marijuana prevalence rates for females among arrestees under age 25. However, in 1998, 21 of 22 sites report the greatest percentage of marijuana positives in the female cohorts under age 25.

Table 4 shows how extreme the difference in marijuana prevalence rates can be between the younger and older age cohorts. Sites shown in Table 4 have, at minimum, a 24 percentage point difference between the youngest cohort (15-20 years of age) and the sites' overall adult male positive rate for marijuana. The site with the largest difference, Chicago, experienced a 1998 overall adult male positive rate of 41.5 percent. In contrast, Chicago's youngest cohort tested positive at 71.1 percent, a difference of 29.6 percentage points.

⁴ The analysis for Miami is based on an 8-year comparison because the site initiated data collection in 1991.

Table 3. 1990 and 1998 Adult Male and Females Arrestees by Age Cohort Testing Positive for Marijuana

SITE		Adult Males					Overall %
		15-20 %	21-25 %	26-30 %	31-35 %	36+ %	
Atlanta	1990	4.5	7.7	1.3	4.3	2.7	3.8
	1998	63.3	45.5	32.4	18.9	15.3	26.0
Birmingham	1990	15.6	20.6	12.3	13.5	5.1	13.5
	1998	59.8	62.5	41.0	33.3	16.5	39.2
Chicago	1990	28.8	35.2	25.9	16.8	18.9	26.8
	1998	71.1	54.9	37.0	30.9	20.7	41.5
Cleveland	1990	14.0	17.3	16.3	10.3	11.0	14.0
	1998	68.6	58.5	39.8	28.3	14.8	36.8
Dallas	1990	25.5	27.9	19.4	16.8	10.1	20.4
	1998	71.9	53.3	32.6	37.2	20.1	43.1
Denver	1990	27.5	37.0	29.8	22.2	18.9	26.9
	1998	61.0	50.6	41.4	36.4	28.8	41.3
Detroit	1990	26.4	18.7	10.1	11.1	7.4	15.2
	1998	74.8	62.9	39.8	34.5	19.7	46.5
Ft. Lauderdale	1990	30.0	34.3	22.9	18.3	11.0	22.4
	1998	69.9	62.0	48.9	29.9	19.8	43.5
Houston	1990	27.3	25.3	18.6	19.8	11.8	20.7
	1998	52.4	42.4	34.0	26.8	19.2	35.8
Indianapolis	1990	29.7	40.7	37.7	23.3	19.5	30.9
	1998	76.6	60.2	40.5	37.2	32.5	45.1
Los Angeles	1990	24.3	27.4	23.3	15.8	9.8	19.6
	1998	49.5	34.6	26.1	22.8	14.9	27.3
Miami*	1991	39.8	35.1	20.6	15.2	7.9	22.6
	1998	45.2	37.5	36.4	27.6	12.5	29.2
New Orleans	1990	17.7	22.1	28.4	12.3	7.7	17.7
	1998	61.6	45.5	36.9	26.5	23.1	38.3
New York City	1990	30.1	23.3	20.5	13.6	9.4	19.2
	1998	67.9	53.2	38.7	33.2	20.2	38.7
Omaha	1990	20.9	25.6	16.0	19.0	17.0	20.2
	1998	69.5	56.6	45.8	36.0	25.1	43.9
Philadelphia	1990	25.0	25.2	17.7	12.3	6.3	18.2
	1998	70.9	55.1	40.4	23.4	18.3	44.9

*Miami did not begin collecting data until 1991.

Table 3. 1990 and 1998 Adult Male and Females Arrestees by Age Cohort Testing Positive for Marijuana (continued)

SITE		Adult Males					Overall %
		15-20 %	21-25 %	26-30 %	31-35 %	36+ %	
Phoenix	1990	32.8	36.3	27.1	25.3	17.0	27.5
	1998	54.9	44.6	29.8	23.4	23.0	32.2
Portland	1990	52.4	44.1	54.0	41.7	26.3	42.2
	1998	58.8	57.0	40.8	30.3	23.6	36.9
St. Louis	1990	17.2	19.2	17.0	16.5	8.3	16.0
	1998	74.4	56.3	44.8	36.3	23.5	50.2
San Antonio	1990	34.0	33.5	34.7	27.8	10.4	26.1
	1998	58.6	48.3	34.7	33.6	22.1	41.1
San Diego	1990	38.2	42.4	34.3	32.8	23.8	34.9
	1998	61.3	46.3	41.1	29.1	25.1	36.4
San Jose	1990	34.4	32.1	23.2	20.0	11.4	23.9
	1998	36.0	28.8	21.6	19.4	19.7	24.8
Washington, D.C.	1990	8.5	8.2	8.3	7.3	3.9	7.1
	1998	63.4	52.9	36.7	22.4	22.1	38.0

SITE		Adult Females					Overall %
		15-20 %	21-25 %	26-30 %	31-35 %	36+ %	
Atlanta	1990	5.3	2.8	0.0	0.0	0.0	1.2
	1998	–	–	–	–	–	–
Birmingham	1990	10.7	14.3	9.5	4.2	3.4	8.2
	1998	42.9	18.8	33.3	0.0	10.3	17.6
Chicago	1990	–	–	–	–	–	–
	1998	13.3	38.1	27.3	16.7	12.2	19.7
Cleveland	1990	9.5	12.1	5.8	11.1	0.0	8.0
	1998	83.3	45.5	18.2	35.7	4.8	27.0
Dallas	1990	25.5	11.7	19.2	16.4	19.6	17.8
	1998	19.4	37.2	23.4	21.4	19.3	24.2
Denver	1990	11.4	20.2	16.0	11.4	10.7	15.1
	1998	47.6	41.4	24.4	27.5	23.1	29.9

SITE		Adult Females					Overall %
		15-20 %	21-25 %	26-30 %	31-35 %	36+ %	
Detroit	1990	6.1	12.0	5.0	10.1	12.1	9.1
	1998	40.0	38.5	20.0	11.8	15.8	21.5
Ft. Lauderdale	1990	16.7	23.3	23.6	12.4	4.4	16.3
	1998	33.3	30.6	25.9	23.6	19.6	24.5
Houston	1990	13.0	13.9	10.6	9.3	7.2	11.0
	1998	19.6	29.2	21.9	16.4	13.2	20.1
Indianapolis	1990	16.4	18.2	30.5	16.7	18.0	20.8
	1998	48.6	47.8	27.1	25.9	22.3	31.2
Los Angeles	1990	16.4	11.6	10.4	10.6	4.1	10.1
	1998	47.4	26.8	22.9	21.1	14.4	21.8
New Orleans	1990	11.1	15.7	14.4	5.9	9.9	11.7
	1998	35.4	20.0	28.2	17.7	17.1	22.1
New York City	1990	7.7	9.3	12.1	4.2	3.6	7.7
	1998	43.1	45.1	20.7	22.9	14.5	23.4
Omaha	1990	–	–	–	–	–	–
	1998	28.6	38.1	26.9	28.0	22.6	28.2
Philadelphia	1990	4.2	18.5	12.4	11.5	6.6	11.9
	1998	45.0	31.6	21.3	23.9	14.5	23.7
Phoenix	1990	25.0	20.6	20.6	15.4	10.6	18.4
	1998	51.9	34.8	20.0	15.4	17.2	24.9
Portland	1990	20.0	31.0	33.8	26.2	17.2	26.8
	1998	48.5	31.0	15.4	19.6	17.9	23.2
St. Louis	1990	7.7	12.3	10.5	8.7	7.1	9.7
	1998	40.0	54.8	19.4	28.1	20.5	31.9
San Antonio	1990	4.1	7.8	9.0	20.6	2.9	8.9
	1998	16.5	24.1	16.9	21.2	9.6	17.5
San Diego	1990	26.5	19.1	20.5	13.1	20.6	19.1
	1998	25.0	41.3	25.6	21.1	23.6	26.7
San Jose	1990	9.7	14.6	11.3	14.8	10.2	12.5
	1998	14.3	13.3	25.0	12.9	6.8	13.6
Washington, D.C.	1990	3.7	14.1	4.7	4.6	3.2	6.9
	1998	63.0	47.1	15.4	22.2	14.0	28.5

Table 4. Select 1998 Adult Male and Female Arrestees Testing Positive for Marijuana

SITE		Adult Males			Adult Females		
		15-20 %	21-25 %	Overall %	15-20 %	21-25 %	Overall %
Chicago	1998	71.1	54.9	41.5	13.3	38.1	19.7
Dallas	1998	71.9	53.3	43.1	19.4	37.2	24.2
Detroit	1998	74.8	62.9	46.5	40.0	38.5	21.5
Indianapolis	1998	76.6	60.2	45.1	48.6	47.8	31.2
Philadelphia	1998	70.9	55.1	44.9	45.0	31.6	23.7
St. Louis	1998	74.4	56.3	50.2	40.0	54.8	31.9

Sites new to ADAM in 1998 exhibited similar patterns of higher levels of marijuana positives within the youngest age cohort of arrestees. Table 5 presents the percentages of arrestees testing positive for marijuana for select age cohorts at all new sites. Of the 12 new sites, 10 reported levels of use among the 15- to 20-year-old cohort that are at least 20 percentage points above the adult male site average. The most substantial difference is in Las Vegas, with 64.0 percent of the youngest adult male arrestees testing positive for marijuana compared with 25.8 percent of all Las Vegas adult males surveyed. One site varied slightly from this pattern, although use was still concentrated among young users (under 25 years of age). In Anchorage the highest marijuana-positive rate (54.5 percent) was found among 21- to 25-year-olds.

Adult female marijuana users tend to be concentrated in an older age cohort than their male counterparts. Instead of the rate being driven by the 15- to 20-year-old category, the highest marijuana prevalence rates for females fell in the 21-25 year age category for most of the sites. For example, in 1998 19.4 percent of the youngest females in Dallas tested positive, but 37.2 percent of 21- to 25-year-old females tested positive.

Table 5. Percentage of 1998 Male Arrestees Testing Positive for Marijuana by Select Age for New ADAM Sites

SITE	Adult Males		
	15-20 %	21-25 %	Overall %
Albuquerque	56.9	42.2	35.9
Anchorage	40.0	54.5	33.3
Des Moines	68.4	54.8	41.8
Laredo	62.1	47.6	39.3
Las Vegas	64.0	35.4	25.8
Minneapolis	76.5	53.8	45.4
Oklahoma City	87.3	67.6	53.1
Sacramento	69.7	65.1	44.1
Salt Lake City	42.5	35.4	36.8
Seattle	60.4	51.2	35.4
Spokane	71.7	51.8	42.9
Tucson	63.0	51.3	39.2

Marijuana and the Use of Other Drugs

Alcohol is reported as the substance most used in conjunction with marijuana, but there are a number of reports of marijuana combined with powdered cocaine, crack cocaine, methamphetamine, and PCP (ONDCP, 1997; NIDA, 1998). Between 1990 and 1998, among arrestees testing positive for marijuana, 40.0 percent also tested positive for cocaine, 7.2 percent for opiates, 7.0 percent for methamphetamine, and 3.2 percent for PCP. Table 6 displays cocaine-, methamphetamine-, and PCP-positive results by site for those arrestees testing positive for marijuana in 1998.

Given the large percentage of marijuana positive arrestees who also test positive for both marijuana and cocaine (40.0 percent) in all sites, it is not

Table 6. 1998 Marijuana Positive Results by Other Drug Positives

SITE	Cocaine %	Methamphetamine %	PCP %
NORTHEAST			
New York City	40.7	0.0	1.0
Philadelphia	39.2	0.9	16.6
Washington, D.C.	23.6	0.0	4.6
SOUTH			
Atlanta	48.8	0.0	0.0
Birmingham	41.8	0.0	0.0
Dallas	27.4	5.6	6.6
Ft. Lauderdale	49.1	0.0	0.0
Houston	40.9	0.4	13.4
Miami	55.3	0.0	0.0
New Orleans	50.9	0.7	0.0
Oklahoma City	27.5	11.5	5.0
MIDWEST			
Chicago	40.0	0.2	3.9
Cleveland	35.7	0.0	10.8
Des Moines	15.2	20.3	1.3
Detroit	21.8	0.4	0.0
Indianapolis	36.5	0.8	0.8
Minneapolis	29.1	0.6	0.6
Omaha	31.3	15.8	0.6
St. Louis	31.6	0.8	1.4
WEST/SOUTHWEST			
Albuquerque	51.6	4.8	0.0
Denver	42.1	6.9	0.0
Laredo	59.5	0.0	0.0
Las Vegas	17.8	19.6	5.6
Los Angeles	44.6	10.3	3.6
Phoenix	30.9	25.7	3.4
Sacramento	15.9	27.6	0.4
Salt Lake City	22.0	29.0	0.0

SITE	Cocaine %	Methamphetamine %	PCP %
WEST/SOUTHWEST (continued)			
San Antonio	39.6	3.2	0.2
San Diego	20.5	39.9	2.6
San Jose	7.8	31.3	3.1
Tucson	49.2	7.8	0.0
NORTHWEST			
Anchorage	45.7	0.0	0.0
Portland	25.5	26.1	0.6
Seattle	38.8	7.5	1.3
Spokane	19.1	18.5	0.6

surprising that there is little regional variation. Four sites report that more than 50 percent of those testing positive for marijuana also test positive for cocaine (Albuquerque, Laredo, Miami, and New Orleans). San Jose reports the lowest rate of concurrent cocaine and marijuana use (7.8 percent). There are differences in the concurrent use of marijuana and methamphetamine, however, reflecting where amphetamines and methamphetamine are prevalent. In the West/Southwest, San Diego reported the highest methamphetamine-positive rate (39.9 percent) among those arrestees who tested positive for marijuana. In the South, Oklahoma City reported the highest methamphetamine-positive rate (11.5 percent) among marijuana users, and in Portland, 26.1 percent of arrestees tested positive for both marijuana and methamphetamine, the highest rate among the Northwest sites.

Conclusions

Results from ADAM are consistent with drug use trends in other drug surveys in different populations. The National Household Survey on Drug Abuse (NHSDA), Monitoring the Future (MTF), and the Drug Abuse Warning Network (DAWN), along with *Pulse Check* and the Community Epidemiological Work Group (CEWG), have all shown marijuana use slowly increasing or stabilizing. However, the prevalence of marijuana use among arrestees is greater than in other populations. In 29 of the 35 ADAM sites, at least one-third of all adult male arrestees tested positive for marijuana in 1998. In 26 of 32 sites collecting female data, at least one-fifth of females tested positive for marijuana. These aggregate findings, however, tell only a portion of the story.

In many ADAM sites, marijuana use is not only concentrated among those arrestees under 25, but is also growing most rapidly in those age groups. Nine sites report that 70 percent or more of their male arrestees 15-20 years old tested positive for marijuana in 1998. Use levels for females are somewhat lower than for males and the highest prevalence rates are more likely to occur among the 21- to 25-year-old cohort. Nevertheless, the high rates of marijuana use among young adults, particularly males, suggest communities will be confronting marijuana use well into the foreseeable future. To the extent that young adults continue their marijuana use into and beyond their thirties, communities should be prepared to expect large marijuana-using cohorts for many years to come.

The 1998 ADAM results also show that other drugs are routinely used with marijuana. Cocaine and alcohol are the most common drugs used with marijuana, although substantial variations are seen with other drugs by site. For example, in areas such as the Southwest, where methamphetamine is prevalent, concurrent use of marijuana and methamphetamine is also prevalent. In areas where PCP is used, PCP is also found with marijuana.

Combined, marijuana's prevalence and the degree to which it is concentrated among younger cohorts raise a longer term issue to which communities should be sensitive. If substantial portions of marijuana users become regular users of other drugs, the declines in other drug use that have been achieved (see *1998 Annual Report on Cocaine Use Among Arrestees*)⁵ could be reversed. In other words, since many individuals do not report trying drugs other than marijuana until their late teens and early twenties, and since marijuana use is concentrated among young adults, there is some risk that what is now primarily marijuana use among young adults may spread to include other drugs. With such a lagged effect, communities may begin to confront increases in other drug use among arrestees in the coming years. The available information on poly-drug use clearly demonstrates that marijuana users do not confine their drug use to marijuana. Whether use of other drugs with marijuana will become a more prominent pattern in the future is not clear. However, the size of the marijuana-using cohort, in conjunction with its concentration among arrestees whose drug use patterns may not be fully developed, suggests that this potential should be carefully monitored.

⁵ National Institute of Justice. (1999). "1998 Annual Report on Cocaine Use Among Arrestees." Washington, D.C.: National Institute of Justice.

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