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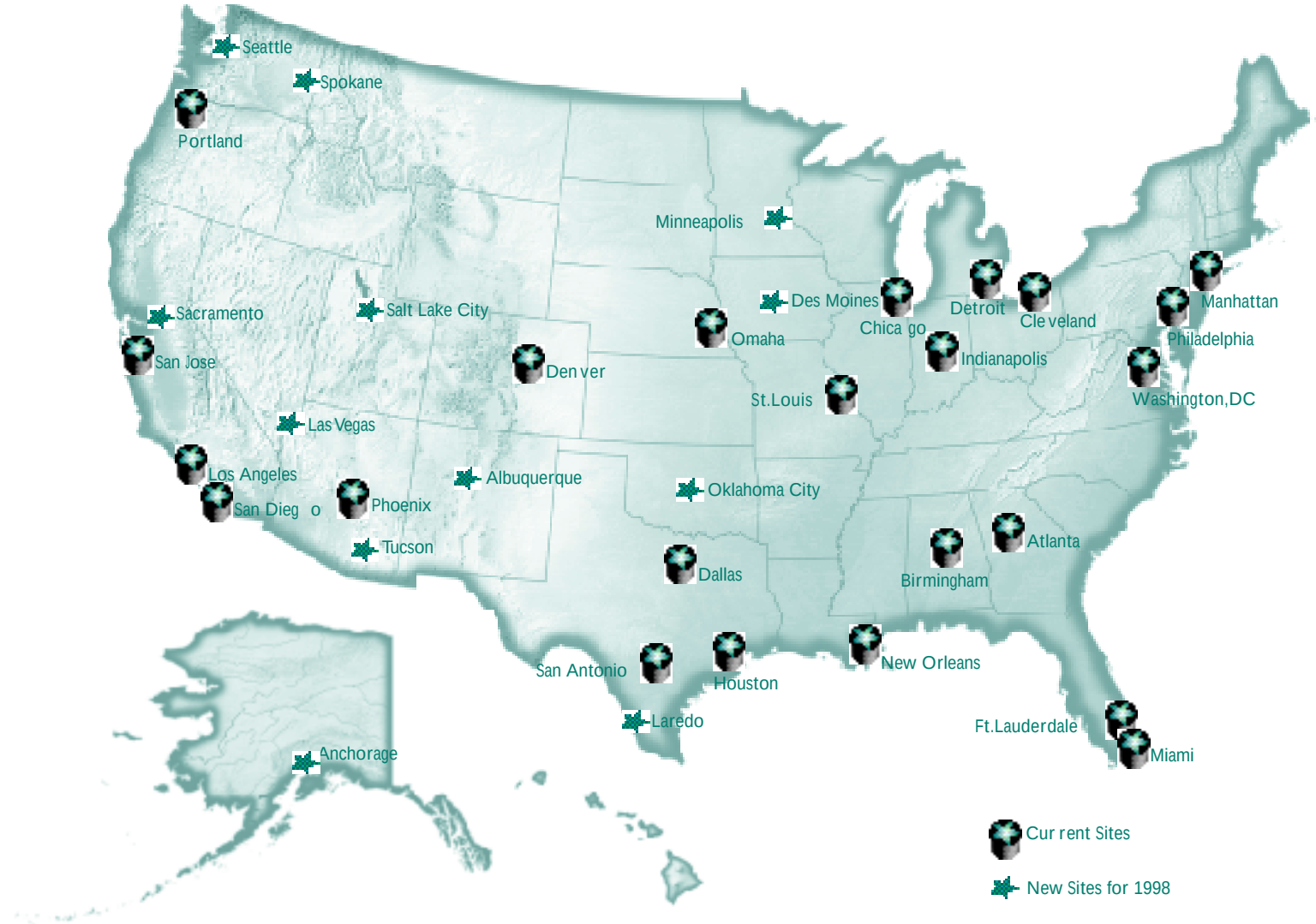
Research Report

1997 Annual Report on Adult and Juvenile Arrestees



Arrestee Drug Abuse Monitoring Program

A Program of the National Institute of Justice

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1997 Drug Use Forecasting

Annual Report on Adult and Juvenile Arrestees

July 1998

Arrestee Drug Abuse Monitoring Program

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U.S. Department of Justice

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The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, Bureau of Justice Statistics, Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.

From the Director of NIJ

It is with great pleasure that I present NIJ's first annual Arrestee Drug Abuse Monitoring (ADAM) report. In 1997, the 10th anniversary of the Drug Use Forecasting (DUF) program, we announced the expansion and re-engineering of DUF into ADAM. The last twelve months have been spent putting into place elements of the new program, including plans to add sites in Albuquerque, Anchorage, Des Moines, Laredo, Las Vegas, Minneapolis, Oklahoma City, Sacramento, Salt Lake City, Seattle, Spokane, and Tucson as the newest members of the ADAM network.

The importance of a local perspective in studying the Nation's drug problem is apparent from a review of 1997 ADAM results. Methamphetamine use continues to be seen primarily among arrestees in Western U.S. cities, with the high rates of previous years holding steady in San Diego, Los Angeles, San Jose, Portland and Phoenix. Use of cocaine, a drug that DUF data revealed to have spread through the arrestee population in epidemics of varying timing and duration, has rebounded for youthful arrestees in several sites where it had previously been subsiding. Meanwhile, opiate use shows signs of growth in a number of communities beyond the traditional strongholds of Manhattan, Chicago and Portland.

NIJ and the Office of National Drug Control Policy (ONDCP) recently released results from a study in six ADAM sites that investigated the importance of local variations in drug patterns. The report, *Crack, Powder Cocaine and Heroin: Drug Purchase and Use Patterns in Six US Cities*, illustrates clearly how drug markets and use patterns for various drugs can differ substantially within a city's borders and how these same market and use patterns for any single drug can vary substantially from city to city. Policymakers and planners have responded with enormous interest to this research and have made it one of the most frequently downloaded documents from NIJ's web site.

Work is currently underway in ADAM to introduce a new sampling strategy that will provide representative samples at the site county level and greater ability to make site to site comparisons. The ADAM interview instrument is being redesigned to focus more specifically on issues of interest to policymakers and practitioners. In 1998 NIJ will have the capacity to test for a broader range of drugs than is currently tested for, thus increasing our ability to detect important local variations in drug trends. In addition, NIJ is developing a partnership with the Centers for Disease Control, National Center for STDs, HIV and Tuberculosis, to test a portion of arrestees for sexually transmitted diseases. These innovations are geared toward increased capability of the program to deliver meaningful information to our national, state and local partners in treatment delivery, law enforcement, social services administration, and policy development.

1997 was an exciting year at NIJ as we made the transition from DUF to ADAM. Thank you for your interest in the ADAM program and please take the opportunity to learn more about the research findings described above and other NIJ publications by contacting NIJ's National Criminal Justice Reference Service at 800-851-3420 or on the Internet at **http://www.ncjrs.org.** The ADAM Internet address is **http://www.AbtADAM.net**.

Jeremy Travis
Director, NIJ

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1997 ADAM Annual Report on Drug Use Among Arrestees

In 1997, the ADAM program collected data in 23 major metropolitan sites from 19,736 adult male booked arrestees. Data were also collected from 7,547 adult female booked arrestees in 21 sites, 3,686 juvenile male detainees in 12 sites and 647 juvenile girl detainees in 8 sites.

This report presents the results of both drug urinalysis and self report information from adult male and female arrestees and juvenile male arrestees / detainees. Data collected from juvenile female detainees are not included in the report because the sample sizes are very small.

This section of the report provides an overview of drug use trends in the 1997 ADAM data. Monitoring the size of the drug-using population in a particular year yields important information about the current structure of a drug problem. Thus, age-specific and gender-specific prevalence for different drugs are considered for 1997. Monitoring changes across years provides another dimension for understanding drug problems, including increased understanding of future courses of drug epidemics. Thus, this section also considers prevalence over time for specific user-cohorts.

Drug Use Among Adult Arrestees

Use of At Least One Drug

At first glance, levels of overall drug use among arrestees reported by ADAM sites appear to have changed little between 1996 and 1997. In 9 of 23 sites, the percentages of both male and female arrestees who tested positive for at least one drug in 1997 remained the same or decreased slightly from rates reported in the prior year. Among them are the largest cities in the ADAM system – Manhattan, Chicago, Los Angeles, Detroit — where overall cocaine rates have been moving downward since the early 1990s, marijuana use is currently leveling off, and methamphetamine is not a major substance of abuse among their arrestees. In other sites — San Jose, Omaha, St. Louis, Denver — relatively unchanging overall rates are due to offsets created by both increasing use of some drugs — the most striking is methamphetamine — and, with important exceptions, the overall decreases in cocaine and marijuana use.

In sites showing sizeable increases or decreases (5-13 percentage points), trends translate as follows:

- The rate of positives for at least one drug *increased* for male arrestees in Phoenix, Portland, and Ft. Lauderdale by 5 to 6 percentage points, and in Portland, New Orleans, Birmingham and San Diego from 5 to 11 percentage points for female arrestees.

- A few sites showed large *decreases* in the rate of positives for at least one drug. Among female arrestees, decreases were reported by Cleveland (13 percentage points), Houston (9 percentage points), Philadelphia (6 percentage points), Dallas (5 percentage points) and Indianapolis (5 percentage points) and among male arrestees decreases were greatest in Miami (5 percentage points), San Antonio (6 percentage points), Atlanta (8 percentage points) and Indianapolis (11 percentage points).

Investigation of specific drugs, age groups, and cohorts yields additional insights.

Cocaine Largely a Problem For Aging Cohort of Users

1997 data indicate that many communities are dealing with stable or slowly changing cocaine problems. Almost without exception, older age cohorts are testing positive for cocaine at 2 to 10 times the rate of the younger cohorts. This suggests, at least with respect to the arrestee population, that cocaine use is increasingly a problem of a group of long term users who developed their habits in the early stages of the epidemic. The contrast between youthful and older arrestees is most extreme in Detroit and Washington DC, where approximately 5% of youthful arrestees (age 15-20) test positive for cocaine, compared to almost 50% of older arrestees (age 36+). Low levels of cocaine positives among the youth cohort, combined with the fact that the cohort's test positive rate is not increasing over time, imply lower cocaine initiation rates and a gradual aging out of the cocaine using cohort in the community.

These findings are consistent with analyses of 1990-1996 data showing that crack / cocaine use is generally decreasing in many cities, although cities have experienced the epidemic in varying intensities, durations and at different points in time in the past decade (Golub and Johnson, 1997[1]). The decline is most pronounced in cities in the Northeast and larger West Coast cities, where rates of positives for cocaine use among male arrestees reached extraordinarily high rates (80% and more) in the late 1980s. Overall prevalence of cocaine use has abated slowly in these sites, but declines have been dramatic among younger arrestees.

However, in some cities data indicate that younger cohorts may be more likely (Houston) or as likely (San Anto-

nio, Phoenix) to test positive for cocaine as the older cohorts. Earlier age-period-cohort analysis (Golub and Johnson, 1997) identified these sites variously as in the decline phase of a crack/cocaine epidemic (Houston), a plateau (Phoenix) or as having never experienced a significant epidemic (San Antonio). In addition, in 3 sites (Houston, Miami and San Antonio) the rate of cocaine positives increased by 10 or more percentage points from 1995 to 1997 among male arrestees aged 15-20 and charged as adults. There was an increase of 3 to 6 percentage points in 5 other sites (Dallas, New Orleans, Omaha, Phoenix, and San Jose). In San Antonio and Phoenix, data from juvenile arrestees/detainees ranging in age from 9-18 years were collected as well. For this group the increase in rate of positives was striking: San Antonio prevalence rates went from 6% to 15%; in Phoenix the increase in prevalence was from 8% to 14% between 1995 and 1997. The combination of youthful cohorts with higher cocaine positive rates than older cohorts and growth in the youthful cohorts' prevalence rates over time suggest that some communities can expect to confront growing cocaine problems in the coming years.

Interpretation of cocaine data from the female arrestees, particularly in the younger categories, should be cautious given the small numbers. The pattern described above for young male arrestees is also seen among females in Atlanta, New Orleans and Portland. In general, cocaine positive rates for the youngest females in ADAM samples are much lower than for males in the same age group, although higher for females in the older age groups relative to age-comparable males.

Opiate Use Seen Primarily Among Oldest Arrestees; Younger Users in Some Sites

Similar to the cocaine data, data on opiate use show that older arrestees are generally more likely than younger arrestees to test positive. In most communities, the oldest cohort of users (36+) is several times as likely as the youngest cohort to test positive for opiates.

There are, however, communities where younger adult arrestees are more likely than older arrestees to test positive for opiates — New Orleans, Philadelphia and St. Louis — a pattern that has held in those areas for a number of years. This suggests that these communities may be building a large opiate using cohort of the magnitude that Chicago, Manhattan and Portland have experienced for many years. The consequences of this new generation of opiate users could be felt for years as the cohort ages and moves through a variety of public health services.

By age group, only opiate rates among 15-20 year old females in Portland and 15-20 year old male arrestees in New Orleans show substantial and sustained increases. In Portland, rates of positives for this youthful group of females increased from 8% to the recent 22% positive rate over 3 years. This brought the overall rate of positives for adult females in Portland up to 27%, by far the highest in 1997 among all sites.

Marijuana Rates Leveling Off Among Young Arrestees

In contrast to cocaine and opiates, marijuana use among arrestees is disproportionately concentrated among youthful arrestees. In most sites youthful arrestees are far more likely than older arrestees to test positive for marijuana. Compared, however, to the sharp increases in positive rates over the past several years, 1997 data show that the recent wide expansion of marijuana use among youthful arrestees is leveling off and in some cities decreasing noticeably.

- For adult males under 21 years old, decreases in marijuana positives were reported in 15 sites, including 6 where the drop was 5 or more percentage points: Houston (6 points), Indianapolis (9 points), Los Angeles (5 points), Omaha (6 points), Phoenix (8 points) and Washington D.C. (6 points).

- Among female arrestees, who similarly tested positive for marijuana at increasingly higher rates in the past two years, 1997 data vary considerably among sites. Expansion of use among females is apparent in a number of sites. The youngest females show the overall highest rates of positives among female arrestees, but this group registered decreases in 10 of the 21 sites where data were collected.

Methamphetamine Use Rebounds Across Sites

Methamphetamine use is evident primarily among arrestees in ADAM cities in the Western and Southwestern states. In contrast, sites outside of this area register rates of positives that are close to zero. There is little evidence that, among ADAM sites, methamphetamine use is spreading to eastern or southern US locations.

Recent changes in the data for historically high methamphetamine prevalence sites suggest that this drug may be

more sensitive to enforcement action than are other drugs tracked by the ADAM system. Between 1994 and 1997 a substantial fluctuation in the rates of positives appeared consistently across these sites as well as across gender divisions and age cohorts of arrestees. This suggests that pressure on the supply rather than demand of the drug accounted for a substantial decrease, followed by a return to previous rates, of positives for methamphetamine in ADAM data.

Between 1991 and 1994, positive rates for methamphetamine among adult arrestees rose steadily in eight sites (San Diego, Phoenix, San Jose, Portland, Los Angeles, Omaha, Dallas and Denver), reaching as high as 44% in San Diego and 25% in Phoenix in 1994. Subsequently, between 1994 and 1996, rates fell consistently across sites: in San Diego, from 44% to 30%, in Phoenix from 25% to 12%, in Portland from 18% to 12%, in San Jose from 20% to 15% and in Los Angeles from 8% to 6%. In other sites where growth had just started to take off (Omaha, Dallas and Denver), the drop began in 1995 but by 1996 rates were half of what they had been the previous year. Between 1995 and 1996, Omaha decreased from 8.1% to 4.3%, Denver decreased from 3.8% to 2.2%, and Dallas decreased from 2.7% to 1.3%.

1997 urinalysis results for methamphetamine indicate that use has returned close to 1994-95 levels in all sites except Los Angeles. In sites with the highest percentages of positives, rates returned to within 4 points of their 1994 levels. San Antonio appears to be a site where rates of methamphetamine use among arrestees are only recently starting to climb, registering 1.9% rate of positives among adults in 1997.

Differences in rates of positives between males and females continues to be considerable, and in almost all sites in 1997 females registered higher levels. Only Denver reported a higher rate of positives among males than females.

Multiple Drug Use

Changes in rates of multiple drug-using between 1996 and 1997 in ADAM data appear to be primarily related to increases in methamphetamine use in a number of sites.

- Substantial increases in rates of methamphetamine positives were reported in some sites, particularly San Diego, San Jose, and Portland. Increases in levels of multiple-drug positives for male arrestees ranged between 11 and 15 percentage points and for female arrestees ranged between 9 and 28 percentage points in those sites.

Drug Use Among Male Juvenile Arrestees/Detainees

1997 data show some significant changes in drug use among juvenile males in the ADAM samples. The rate of increase in marijuana use appears to be slowing down in this population, following two years of sharply rising rates. A trend first noted in 1996, cocaine use appears to be expanding for juvenile males in a number of ADAM cities.

- Marijuana positive rates for juvenile males showed moderate increases (2-8 percentage points) in the majority of sites, and decreased in the rest.

In most sites, percentages of marijuana positives were lower for juvenile males than for adult male arrestees 15-20 years old. For several sites the rates were higher for juvenile males than adult males — for Los Angeles, 9 percentage points; for Phoenix, 13 percentage points; and for San Diego, 5 percentage points higher.

- Several sites in the West and Southwest (Denver, Phoenix, San Antonio, and Portland) reported increasing positives for cocaine, accounting for the overall highest rates (7-15%) reported for juvenile males. In the other sites rates of cocaine positives were relatively unchanged and ranged from 3-12% prevalence.

Although rates of positives for methamphetamine in the Western sites are relatively low for juvenile males overall, it is worth paying attention to levels found for 17-18 year olds in several sites. In Los Angeles, methamphetamine use for this group is 9.2%, well over the 4.9% overall rate reported for adult arrestees. In San Diego, 17-18 year olds show a 26.8% positive rate and in San Jose a 21% rate.

School attendance

Overall, 1997 data show lower rates of drug use among juvenile males arrestees / detainees currently attending school than those who have left school:

- Rates of positives for marijuana use among those who have left school without graduating range from 3 to 30 percentage points higher than rates for those who are still in school. In two sites (Washington D.C. and Los Angeles), rates were higher for juvenile males still in school.

- Juvenile boys who have left school showed higher rates of cocaine use in 9 of 12 sites. In Washington, D.C., Phoenix and Portland rates of cocaine positives were higher for males in school.

Self Report and Description of the Sample

This year's annual report provides an additional full page of information for each site. The back side of each site page presents descriptive information on the arrestees' educational attainment, living arrangements, and sources of income. The back pages also provide self-report information on age of first use, past treatment, injection drug use, past month drug use, perceptions of dependence and past year arrest history.

Generally, more than 60% of the arrestees report having completed high school, with an additional 20% reporting some college education. The vast majority of arrestees report living in a private house or apartment. Most respondents report that work (either full or part time) as the primary source of income. In most sites, females were substantially more likely than males to report public assistance as the primary source of income.

Respondents in all sites report, on average, initiating alcohol use first. Marijuana followed closely in terms of mean age of initiation in most sites. Among those who have sought treatment, larger fractions of arrestees in most sites report having received treatment for alcohol than for other substances. Among those reporting dependence on a substance during the past year, larger fractions in all sites generally reported alcohol or crack than other drugs. Females are generally more likely than males to report dependence, regardless of the substance considered.

Substantial fractions of arrestees report having injected drugs. Heroin is the drug most frequently mentioned, although many also report having injected cocaine and/or methamphetamine. Crack use was, in most sites, two to three times as likely to be reported as powder cocaine use among those reporting any type of cocaine use in the 30 days prior to arrest. While crack and opiate users usually reported using on more days (about 15) than other users in the 30 days prior to arrest, marijuana users reported similar numbers in many sites.

Conclusions

By any measure, the level of recent drug use among 1997 ADAM arrestees is significant. Every site reported that a majority of its male adult arrestees tested positive for at least one drug. The same is true for female adult arrestees in 19 out of 21 sites where data were collected. These consistently high percentages of overall use, however, mask important differences in trends for specific drugs and specific segments of the arrestee population. These differences suggest that appropriate responses to the drug problem vary widely from one community to the next.

Many cities, for example, are seeing an easing of a devastating crack cocaine epidemic — but the beginning of greater challenges to public health care systems in dealing with an aging population of crack users. In some ADAM cities, on the other hand, drug use appears to be only now entering a period of significant expansion. Young female arrestees in New Orleans, Portland, and Atlanta are testing positive for cocaine in greater numbers each year — indicating a need for intervention strategies tailored to less experienced users. The kind of heroin users whose particular needs have driven treatment and maintenance strategies for the last decade may be very different from heroin users confronting Portland, St. Louis and Philadelphia. The difference in levels of methamphetamine positives between the western and the eastern parts of the country serves as the most stark illustration of the need to tailor drug prevention, treatment and enforcement strategies to local environments. These findings also underscore a central element of the ADAM program's mission: the continued need to collect locally-specific drug prevalence data.

—K. Jack Riley and Nora Fitzgerald
Office of Research and Evaluation, NIJ
Washington, DC

NOTES

1. Golub, Andrew Lang and Johnson, Bruce D. Crack's Decline: Some Surprises Across U.S. Cities. *Research in Brief*. NCJ 165707. National Institute of Justice: July 1997.

ADAM Program Development Focus: Sampling Issues

As the ADAM program continues its development, numerous program design changes must be operationalized. Perhaps no issue is more complicated or more important to the program's long term success than probability sampling. This article considers some of sampling issues that ADAM will be addressing.

DUF provided important information about substance abuse and its sequelae in a hard-to-reach population by providing drug tests and interviews with a population of regular drug users. This information is of more than academic interest, because the criminal justice system is well positioned to address problematic use, including such steps as punishing recalcitrant recidivists and supervising and treating those caught in the recurrent addictive behavior.

While DUF has always had enormous potential as a policy tool, fully realizing that potential has been hindered by what has evolved into non-standard data collection procedures across sites. Variation in data collection practices has made it difficult to know exactly what DUF samples represent. The samples have been comprehensive of all bookings in a jurisdiction in some sites, but documentation has been missing that might explain how those who are included in the DUF sample differ from those who are excluded. Sometimes sampling procedures have varied from period to period due to changes at the jail facilities, changes in booking procedures, or expediency. Sample selection procedures have been by convenience or opportunistic rather than systematic, making conversion of sample statistics into population estimates impossible. Such problems have precluded scientifically sound time-series analysis since there was no probability basis for judging the statistical significance of trends in substance use. In addition, there has been inadequate standardization from jurisdiction to jurisdiction, weakening cross-jurisdictional comparisons.

Sampling statistics are conceptually straightforward. Conditional on the coverage, the sampling statistician seeks to learn the probability that every arrestee was included in the statistician's sample. Those sampling probabilities provide the means by which the statistician can use sample data to estimate population characteristics and draw inferences based on time-series and cross-sectional analysis. Lacking good information on what sampling procedures were employed, researchers lack a probability basis for studying substance abuse among arrestees.

A primary objective of the ADAM program is to address these data collection limitations through clearer design and more rigorous implementation. Although it is difficult to implement rigorous scientific standards for collecting and analyzing data in the chaotic research environment in which ADAM sites operate, the limits described above are not inherent to the DUF and ADAM systems. It is the goal of the ADAM program to work in partnership with sites to overcome impediments to achieving rigorous standards when problems are solvable and to effect working compromises when they are insolvable.

Defining the Population

A key to advancing ADAM's scientific rigor is to carefully define the population to which the ADAM analysis applies. Typically this will be everyone who is booked in a targeted county (although sometimes the coverage will be more expansive, and at other times it may be a smaller). At the least, a consistent definition of coverage will allow time-series and cross-sectional analysis. The criterion of sampling everyone who is booked is admirable but, as all sites know well, problematic. Jurisdictions differ in who is booked (as opposed to receiving a field citation) and they differ regarding length of detention for different arrestees (e.g., because of difference in the use of station house release). ADAM staff cannot interview arrestees who never come to the booking facility, and they are unlikely to reach arrestees who are booked and released immediately. The ADAM data will be most valuable if its users understand these coverage issues. Meaningful time-series analysis requires knowing how coverage changes over time, and justifiable cross-sectional analysis requires understanding how coverage differs across two or more sites. ADAM staff will work with site staff to devise a sampling strategy that provides as full coverage of the arrestee population as is possible. Where full coverage is not possible, ADAM staff will work with the sites to ensure that the coverage obtained is carefully documented.

Impact on Site Operations

ADAM seeks to change the non-probability basis of DUF sampling by recording the sampling probability for every arrestee included in the sample. This will require site directors to provide a sampling frame (that is, a roster of arrestees who were eligible to be interviewed by ADAM staff during the data collection period) at the time that they return interview forms for data entry and urine specimens for analysis. Interviewees will be randomly selected from that roster. Selection intervals are also based on the case flow in the site. We will want to conduct interviewing when the greatest volume of arrests occurs. The characteristics (arrest charge, day of week booking occurred, for example) of arrestees that were interviewed will be compared to the characteristics of the arrestees on the roster of eligible arrestees to determine if statistical weights need to be applied. Appropriate use of weights will then mitigate against the risk that changes in sampling procedures will lead to spurious changes in apparent drug use.

Site staff will have additional responsibilities apart from assisting ADAM staff in documenting the sampling frame. Accurate descriptions of the catchment area and the flow of arrestees through the local booking facilities will be required. These descriptions will have to consider the flow by booking facility, season, day of the week, and shift. In addition, site staff will need to carefully document refusals, as individuals that choose not to be interviewed may differ systematically from those that choose to participate. This will impose additional cost on data collection, but this cost will have benefits: use of probability sampling will lead to better estimates of the prevalence of substance abuse among arrestees, and it will lead to estimates that support justifiable inferences of cross-sectional and time-series differences in substance abuse.

Developing Site-Specific Sampling Plans

There exist many ways to implement random sampling, but some ways are more desirable than others. Given a fixed budget, one way of achieving a random sample is likely to provide the best, that is the most accurate, population estimates. Identifying that best way is the business of a sampling statistician. The art and science of developing samples can be highly technical and challenging to those who are not trained in sampling statistics, but some general principals can be considered here.

Some ADAM sites pose, from the perspective of a sampling statistician, a comparatively simple problem. Consider a site with a single booking facility where all ADAM interviews would take place. The statistician would worry that the ADAM sample represented each day of the week and each shift in the day, and the statistician would be concerned with how the sample should be allocated across days/shifts to assure the best estimates for a fixed budget. This problem would also face statisticians in sites with multiple booking facilities. Those other sites pose additional problems, however, so a site with a single booking facility faces the simplest problem.

ADAM sites with multiple booking facilities pose an additional problem. The problem is not greatly complicated when there are two or three booking facilities. The trick here is to select a sample from each of those facilities, and while the statistician would seek to allocate his sample optimally (roughly proportional to the number of bookings at each site), this is not a conceptually difficult problem. Of course, this stratified random sampling may raise logistical problems, which undoubtedly have cost implications. More difficult is sampling in a site that has so many booking facilities that interviewing in each facility is likely to be prohibitively expensive. Here the strategy might be to select the largest booking facilities and then sample the rest. Cluster-based sampling, of which this latter approach provides an illustration, generally provides estimates that are somewhat less precise than the stratified and simple random sampling alternatives. Its advantage is that it is less costly than those alternatives. Overall, precision is a function of both sampling methodology and sample size.

One of ADAM's goals is to provide estimates that are equally precise in each ADAM site. One implication of this goal is that relatively small sites are likely to need fewer cases than larger sites to produce equivalent precision. The reasoning is intuitive. A sample of 200 provides more information about an arrest population of 300 than it does about an arrestee population of 3000. In fact, a sample of 145 provides as much information about an arrestee population of 300 as a sample of 255 provides about an arrestee population of 3000. In addition, sites with complex sampling designs, those with many jails, for instance, are likely to require somewhat larger samples than sites with compar-

atively simple sampling designs. The difference in required sample size depends on several factors, including the differences in rates at which arrestees test positive in the different jails, but almost certainly a larger sample will be required.

Finally, the need to estimate particular subpopulation or "rare event" prevalence with great precision may affect case production for specific sites. For example, places such as New York City have a disproportionately large concentration of heroin users. As a policy objective, it may be desirable to have very precise estimates of heroin use in New York City. This approach implies that New York would require more cases, all other factors equal, to produce the desired precision. Enhancing the samples in the largest jurisdictions has the additional benefit of simultaneously supporting local estimation and enhancing regional and national estimation.

Allocating a sample across jurisdictions is one problem. Allocating a sample within a jurisdiction is a different problem. Deriving an unbiased and efficient estimate means getting an estimate of substance abuse that measures what we want it to measure with as much precision as is possible given limited budgets. The desire to seek unbiased, efficient estimates dictates how samples should be allocated across booking facilities when there is more than one, and also, how samples should be allocated within a booking facility across days and shifts.

Conclusions

NIJ and Abt Associates will help each site establish a data collection plan on a case-by-case basis. The plan will stratify booking facilities where there are only a few facilities, or cluster booking facilities when there are too many to support a stratified sample. Similar assistance will be provided to establish unbiased and efficient procedures for sampling within booking facilities. Recognizing that the science and art of survey sampling is a specialize skill that may not be found at every site, the National Institute of Justice and Abt Associates will work carefully with the sites in formulating these plans.

The National Institute of Justice is placing increased emphasis on collecting the data in a scientific manner. There is a reason for this. ADAM seeks new rigor. Working in partnership, both NIJ and the sites will benefit from a program that provides a picture of the level and trend in substance abuse that is as accurate as it can be given available resources.

—William Rhodes
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Drug Testing and Interviewing Arrestees in England

This article reports the results of an ADAM-like data collection program in England, the first successful adaptation of the ADAM program outside the United States. ADAM staff are currently working with scholars and representatives from additional countries interested in developing ADAM data collection programs.

Until recently, no other country in the world had developed a system of drug testing and interviewing arrestees which was in any way comparable with the ADAM program. Consequently, very little was known about whether the methods used in the ADAM program could be transplanted into other countries (with different legal systems and geographical structures) and whether the results obtained would be broadly similar. Earlier this year, the main findings of a Home Office funded pilot programme conducted in England based on ADAM procedures were published. The following comprises a brief summary of this research and the results obtained.

Methods

The research was conducted in 5 locations in police force areas in different parts of England (Cambridge, London, Manchester, Nottingham, and Sunderland) over an 18 month period, beginning January 1996. The catchment areas were either all or (more typically) part of a whole city. Convenience sampling was used in three sites (Cambridge, London, and Manchester) and probability sampling in two sites (Nottingham and Sunderland). Arrestees were first interviewed using a interview schedule based closely on DUF/ADAM research instruments using, where possible, the same question phrasing. At the end of the interview, arrestees were asked if they would be willing to provide a urine specimen. In total, 839 adult arrestees were interviewed across the five research locations and 622 of these (74%) provided a urine specimen. The specimens were shipped to the main laboratories of the Forensic Science Service (FSS) and were tested using a screening test (KIMS) for 8 drug types:

- cannabinoid metabolite
- opiates
- methadone
- cocaine metabolite
- amphetamines (including MDMA)
- benzodiazepines
- LSD
- alcohol

Results

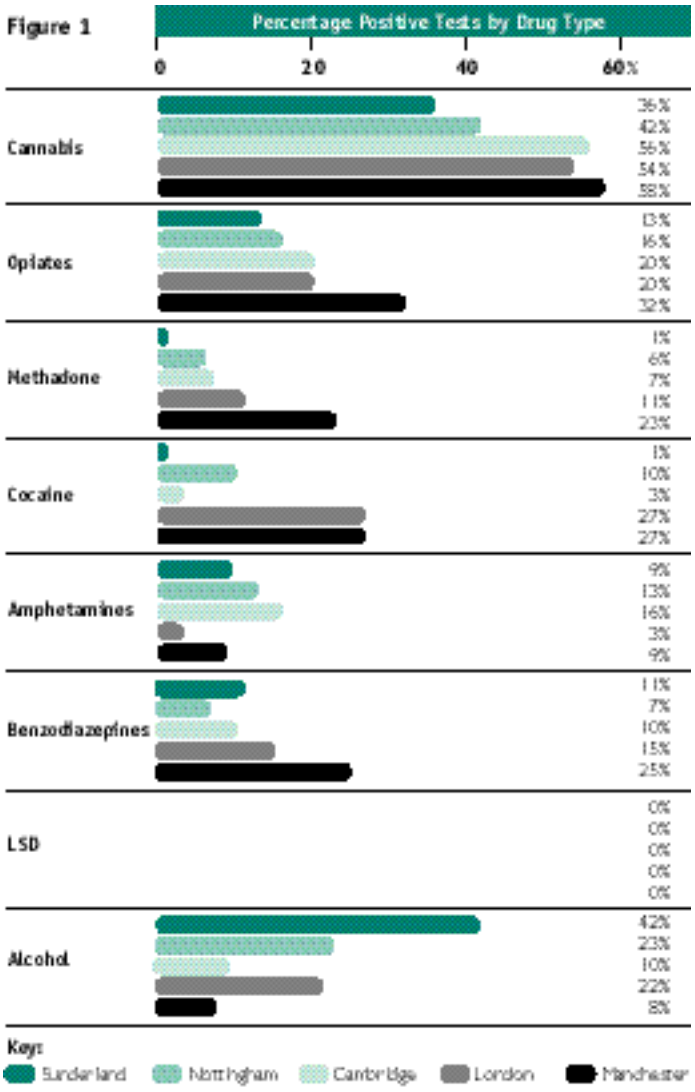
The urinalysis results showed that the average rate of positive tests across all locations, excluding alcohol, was 61 percent (Figure 1). The equivalent rate including alcohol was 75 percent. The average rate for testing positive for multiple drugs (2 or more) was 27 percent, excluding alcohol, and 34 percent, including alcohol. The most common drug identified was cannabis (46% tested positive), followed by alcohol (25%), opiates (18%), benzodiazepines (12%), amphetamines (11%), cocaine (10%), and methadone (8%). No arrestees tested positive for LSD.

A breakdown of the results shows that females were significantly more likely than males to test positive for opiates (28% females compared with 17% males) and higher percentages of females than males tested positive for methadone, cocaine, amphetamines, and benzodiazepines (although these differences did not reach statistical significance). Older arrestees (aged 21 or more) were significantly more likely than younger arrestees (aged 16 to 20) to test positive for opiates (22% older compared with 11% younger), methadone (10% older compared with 2% younger), and cocaine (12% older and 5% younger).

A breakdown of the results by type of offence is shown in Table 1 in relation to property offenders only. Almost half (47%) of all arrestees held for shoplifting tested positive for opiates and almost one-third (30%) tested positive for cocaine. About one-quarter (23%) of arrestees held for theft of a motor vehicle tested positive for opiates. Just over one-quarter (28%) of arrestees held for burglary in a non-dwelling tested positive for opiates, whereas about one-in-ten arrestees (11%) held for burglary in a dwelling tested positive for opiates.

One of the aims of the research was to attempt to estimate the extent to which drug use was associated with criminal involvement. Almost half (46%) of all arrestees who admitted using at least one drug in the last 12 months thought that their drug use and crime were connected. The most frequent reason given was the need for money to buy drugs.

Figure 1



The main measure of criminal involvement used in the research was reported illegal income over the last 12 months. In addition, a self-report measure of 10 property offences was used in the last of the surveys conducted in Sunderland. Arrestees who reported that they believed that their drug use and criminal behaviour were connected tended to report higher levels of illegal income than those who did not (ranging from two to three times the amount across survey sites). Arrestees who tested positive for opiates, methadone, cocaine and multiple drugs also reported higher levels of illegal income.

The link between drug use and criminal involvement was also examined by comparing the illegal income of self-reported heroin and crack users with non users. A multivariate analysis was conducted on the whole sample (n=839) in an attempt to explain illegal income using a small number of demographic and self-reported drug use variables. The results showed that both heroin use and crack use (but no other drug use) explained a significant proportion of the variance in illegal income when other factors were included in the equation. On average, the adjusted mean illegal income in the last 12 months for heroin users, crack users, and non-users was:

- heroin use and crack use £20,300
- heroin use (no crack) £13,500
- crack use (no heroin) £10,700
- neither heroin nor crack use £3,900

A 'what if' analysis was conducted to determine the change in mean annual income of the whole group when the illegal income of the heroin and crack users in the sample was reduced to the level of those using neither heroin nor crack. The results showed a reduction in almost one-third (32%) of the mean total illegal income of the sample as a whole. This finding might be interpreted as an estimate of the maximum percentage reduction in acquisitive property crime which might occur if no arrestees used heroin or crack.

The site surveys also addressed a similar range of issues covered in the ADAM surveys including: injecting drugs, drug dependency, treatment needs, and lifestyle characteristics, including access to guns and homelessness. A summary of some of these findings are shown below:

- 19% admitted injecting at least one illegal drug at some time in their lives,
- 14% reported injecting drugs in the last 12 months,
- 30% said that they were currently dependent upon one or more drugs,
- 22% said that they would like to receive treatment for drug misuse,
- 23% of arrestees in Sunderland said that they had access to a gun,
- 15% of arrestees in Sunderland said that they had recently lived on the streets.

Table 1

Percentage Positive Tests By Selected Property Offenses

	Cannabis	Opiates	Meth-adone	Cocaine	Amphet-amines	Benzo-diazepines	Alcohol	Percent of arrestees with positive test	Total offences (N)
Burglary (Dwelling)	71	11	0	0	14	11	26	80	35
Burglary (Non-dwelling)	52	28	8	4	20	24	16	76	25
Robbery	58	5	0	5	11	11	32	68	19
Theft (Person)	58	25	0	8	0	8	0	58	12
Theft (Dwelling)	100	0	0	0	0	0	0	100	1
Theft (Employee)	0	25	0	0	0	0	25	50	4
Theft (Cycle)	60	0	0	20	0	0	0	60	5
Theft (From Vehicle)	56	11	6	11	0	11	6	78	18
Theft (Of Vehicle)	42	23	12	15	31	12	19	81	26
Theft (TWOC)	73	9	0	9	18	27	36	91	11
Theft (Shops)	43	47	29	30	8	20	12	80	90
Theft (Machine)	67	0	0	0	0	0	0	67	3
Theft (Other)	47	13	7	13	13	13	33	73	15
Handling	0	0	0	0	0	0	0	0	1
Fraud (Deception)	45	5	0	5	18	9	0	45	22
Other offences (N) not included in the table/missing									334
								Total	621

Discussion

The research has demonstrated that it is feasible and useful to apply ADAM procedures in countries outside of the United States. The findings of the research have been met with some interest in England and it is hoped that the pilot programme will be developed further in this country to approach more closely the ADAM model. The benefits of arrestee drug use monitoring extend beyond generating a measure of drug use prevalence among high risk populations. Arrestee monitoring has a number of other potential benefits, including:

- a means of generating local intervention strategies,
- a means of evaluating local intervention strategies,
- a means of anticipating and responding to changes in crime,
- a means of monitoring the health and other problems among a high-risk group,
- a means of generating community-level profiles of drug use and crime.

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