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**Understanding the Drug Use Forecasting (DUF)
Sample of Adult Arrestees**

Jan M. Chaiken and Marcia R. Chaiken
with the assistance of E. Robert Poulin

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Understanding the Drug Use Forecasting (DUF) Sample of Adult Arrestees

Jan M. Chaiken and Marcia R. Chaiken,
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The National Institute of Justice (NIJ) Drug Use Forecasting (DUF) program began in New York City in 1987 in response to criminal justice agency administrators' urgent need to have reliable, current information about the extent of drug use and the types of drugs being used by offenders. Law enforcement agencies, prosecutors, and the courts were under intense public pressure to deal with illicit drug use, widely perceived as a serious problem. But forming and evaluating rational policy required solid information about the nature and extent of the problem.

NIJ's DUF program met the policymakers' needs for valid, local, timely drug use information and focused on a population of great concern -- serious criminal offenders. Mayors and law enforcement officials in other cities pressed NIJ to be included in the DUF program, and it rapidly expanded to its current total of 24 sites. The DUF program entails obtaining self-report data and laboratory urinalysis drug test results four times a year from samples of male booked arrestees and, in some sites, female booked arrestees and juvenile detainees. The data are summarized and published to present a quantitative measure of recent drug use by arrestees in the study sites.¹

After the DUF program had been in place for a few years, policymakers and analysts who used the data began to ask questions about the methodological underpinnings of the statistics that would normally be asked of any ongoing data series: What arrestees are represented in the DUF sample? What are the response rates and biases for DUF interviews and for providing urine specimens for laboratory test? What interpretation can be given to trends in the DUF statistics in a given site over time? To what extent are these trends influenced by changing arrest practices of law enforcement agencies?

But the DUF data collection procedures and analysis methods, although carefully developed and tested before being disseminated to all the sites, had not originally been designed to withstand intense methodological inspection. NIJ's advisory board for the DUF program recommended in 1990 that the time had come to document and, where necessary, revise the DUF procedures. So NIJ sponsored this study to examine the DUF sample of adult arrestees and to suggest any improvements in sampling procedures or sampling frames that might be beneficial to the program.

Our research comprehensively addressed issues about the composition of the DUF sample using a broad range of techniques: We visited three sites and observed the details of their DUF operations. Then, in the same sites, we conducted three-day experiments in which we tracked every arrestee in the city (or county) and ascertained which ones of them arrived at a booking center where DUF interviews were held and which ones became accessible for DUF interviews. We obtained and analyzed data collected by the DUF program for the period 1987-1989, including data about nonrespondents and about interviewees who refused to provide urine specimens (data that had not previously been tapped by independent researchers).

In 1991, we sent a very detailed mailed questionnaire to all DUF site directors and received a 100% response describing their DUF operations in each of the booking centers that they use. We personally met with all DUF site directors (or their representatives at the annual meeting of site directors) and received their written review of all tabulations that described details about their site. We contacted by telephone a criminal justice agency official cognizant about each booking center used by the DUF program in each site and ascertained which law enforcement agencies bring arrestees to that booking center. We obtained and analyzed Uniform Crime Reporting (UCR) arrest data for 1987-89 for these same law enforcement agencies and compared the UCR arrestees with the 1987-1989 DUF sample of arrestees. And we reweighted the

¹For example, DUF: 1991 Drug Use Forecasting Annual Report (1992), Research in Brief, Washington, DC: National Institute of Justice, NCJ 137776.

DUF sample in various ways to see whether changes in sample composition have any substantial influence on the DUF statistics concerning drug use.

Based on our observations and analyses, we developed recommendations for changes that could be made in DUF sampling procedures, data analysis, and even simply in recording sample-related facts, that would clarify the representativeness of the DUF statistics in the future.

In addition to sponsoring this study's research about the nature and composition of the DUF sample, NIJ also sponsored research to answer other questions that have been raised in connection with DUF drug-use statistics:² What lessons or policy conclusions about national patterns of illicit drug use can be drawn from the levels and types of drug use among the booked arrestees who constitute the DUF sample? From differences in drug use levels in the different DUF study sites? By considering drug use among booked arrestees as a leading indicator of later community-wide drug problems?

The study reported here did not address many of these issues. In particular, this report does not consider possible uses of DUF data for forecasting purposes or as a national indicator time series. The intent of the research was to provide findings and recommendations to support methodologically sound local uses of DUF data (specific to the sites where the data are collected), especially the use of DUF statistics as indicators of the extent of drug use among arrestees in those sites and of trends or shifts in arrestees' drug use over time.

Sections 1 - 10 of this report describe the study's methods, findings, and recommendations. Here we give an overview of the major findings. In summary, we found that in each DUF site, the DUF sample of adult arrestees appears to provide valid estimates of confirmed drug-use levels among arrestees who are booked in the particular locations where DUF operates and who meet NIJ's eligibility requirements. However, the eligible booked arrestees are not representative of the totality of arrestees in the city or county³, and the particular offenses that are well represented in each site's DUF sample varies from site to site. Statistical extrapolation of the drug-use levels to the mix of arrestees found in broader arrestee populations (but not the totality of arrestees) in each site's catchment area is informative even though not rigorously justified based on the nature of the sample. The extrapolation gives no indication that the estimated drug-use levels for these broader populations are different from the unadjusted DUF statistics by more than a few percentage points in each site.

The major findings of the research that support this summary statement are listed below and are detailed in sections 1-9 of the report.

- In almost all DUF sites, the project directors together with NIJ staff have worked out excellent cooperative procedures with the local law-enforcement agencies that operate the host booking facilities. As a result, when the DUF program is in operation at a facility, the DUF staff have access to the vast majority of adults who are detained in the units where they are conducting interviews.

The only general exceptions -- persons who are normally restricted from being interviewed in most DUF sites -- are those few inmates who are actively violent and require isolation and restraint for their own safety and the safety of others. Moreover, the only substantial group of arrestees eligible for interview but disproportionately unlikely to be actually interviewed is comprised of those who are booked and released

²For example, Adele Harrell, Keiko Powers, and Yih-Ing Hser, Anticipating Community Drug Problems, The Urban Institute, June 1992; Bruce Johnson and Mokkerom Hossain, Trends in Heroin Use Among Arrestees in the Drug Use Forecasting Program, National Development and Research Institutes, New York, May 1992; Scott Decker, Drug Use Forecasting in St. Louis, University of Missouri-St. Louis, January 1992; Yih-Ing Hser, M. Douglas Anglin, Thomas D. Wickens, Mary-Lynn Brecht, and Jack Homer, Techniques for the Estimation of Illicit Drug-Use Prevalence: An Overview of Relevant Issues, National Institute of Justice (Washington, DC), May 1992, NCJ 133786; William Rhodes, "Synthetic Estimation Applied to the Prevalence of Drug Use," Journal of Drug Issues, vol. 23, pp. 297-321 (1993); Marcia R. Chaiken and Jan M. Chaiken, Methods for expanding appropriate State and local uses of Drug Use Forecasting (DUF) information, report to National Institute of Justice, forthcoming 1993.

³Nor were they intended to be by NIJ.

rapidly -- generally those whose offenses and financial circumstances permit them to "bail out" quickly. (In some sites there are no quick-release arrestees; either the procedures for booking arrestees are fairly lengthy for everyone, or there are no procedures for granting bail release at a booking facility.)

- The overall participation rate of adults detained at DUF locations and selected for DUF interviews has been relatively high (estimated at 92 percent of selected males and females completing their interviews during the 1987-1989 period studied in this research). The ability of DUF staff to maintain this high participation rate under often adverse conditions is testimony to their training and skill, and the cooperation they are receiving from booking center staff.
- A relatively high percentage of DUF interviewees (over 88% in our study period) provide urine specimens which are suitable laboratory drug analysis.

There were few discernible differences between selected arrestees who did and did not participate in interviews and who did and did not provide urine samples in terms of charged offense, sex, and race. Those who were older, had higher education, or had stable employment had very slightly lower levels of cooperation than others.

- Validity of urinalysis results has been enhanced by the DUF staff's strict adherence to nationally uniform procedures designed to exclude selection of persons who have been incarcerated for longer than 48 hours immediately prior to the interview. Some sites set a 24-hour limit, and others are even more restrictive. The time-limit restriction also automatically excludes from interview many types of detained persons who are present in booking facilities but are not new arrestees (e.g., prisoners in transit).
- As the program was designed by NIJ, DUF samples of detained adult males and females are selected using different criteria (and are therefore not comparable in terms of urinalysis results or self-report data -- a distinction that NIJ publications have been careful to preserve by not presenting any combined statistics for males and females together). Selection of females is generally more inclusive in terms of charged offenses. Also, in some sites where males and females are interviewed in different booking facilities, there are substantial differences in the sampling universe (the geographical locations from which the male and female arrestees are drawn, and the types of offenses that lead to arrestees being booked).
- The universes of adult detainees present in the units where the DUF samples are drawn also differ substantially from DUF site to DUF site and range from very inclusive populations (for example, men and women from all locations in a county, sent to a central jail by numerous law-enforcement agencies, arrested for minor violations of city ordinances as well as for serious crimes, and also including various kinds of nonarrestees such as sentenced inmates, prisoners returning to jail from work release, convicts awaiting transit to state prison) to very limited populations (for example, only males recently arrested for felony crimes in an inner city area).
- The types of adult detainees who will be selected for DUF samples differ from site to site primarily because of these variations in the populations present in the facilities from which they are drawn. Secondly they differ because of criteria for choosing the sample which have been adapted to local circumstances. For example, in some sites inmates who are returning to jail after being sentenced do not arrive through the same doorway as new arrestees and have always been excluded from selection; in other sites they are difficult to distinguish from new arrestees and have been included.
- In accordance with NIJ's objectives for the DUF program, the majority of persons who are selected for DUF interviews in each site are arrestees booked for serious non-drug

crimes. But the extent to which the relative mix of offenses in the DUF sample for a site is similar to the mix of offenses in the corresponding UCR data for all arrestees in the same area depends primarily on the types of arrestees in that jurisdiction who are brought to a booking facility where DUF operates. In some sites, the mix of offenses for the DUF sample is quite similar to the mix for all arrestees included in the UCR statistics for the area. In others the UCR arrest statistics include much larger proportions of offenses in lower categories of seriousness (e.g., misdemeanors) than are normally booked.

- Typical published DUF drug-use statistics show the unweighted average percentage of a site's entire sample of adult males (or females) that was confirmed as having used the indicated drug, as shown by the laboratory urinalysis tests. These statistics are difficult to compare from site to site because of the different mixes of booked arrestees, but they do seem to be meaningful for comparison within the same site over time. Except in a few sites (as documented in this report) where the DUF interviewers moved their operations from one facility to another, we did not find any changes in booking or sampling procedures over time that appeared sufficiently important to raise questions about the validity of within-site trends in confirmed drug use shown in the data.

In our research, we statistically weighted each DUF site's sample (after data collection took place) to represent an unchanging mix of adult booked arrestees over time. This weighting permits examining drug use trends as if the relative numbers of sampled adult arrestees by age, sex, race, and category of offense charged at arrest had remained constant over time. (The weighting adjusts statistically for possible changes that may have occurred in the emphasis law enforcement agencies gave to arrests for particular kinds of offenses, or in booking and sampling procedures.) After carrying out this standardized weighting over time, the estimated percentage of each site's sample confirmed as using each of the tested drugs is not substantially different from the unweighted estimates. However, since the changes from year to year are also typically only a few percentage points, the two different estimates in some instances give different impressions of whether the overall trend was up or down or stable in the percent of interviewees confirmed as drug users.

- Although the DUF sample of booked arrestees is not necessarily representative of the total group of arrestees in the site, our analysis suggested that for most sites the unweighted DUF drug-use statistics as published can be considered as reasonable estimates of drug use among all arrestees for serious offenses. We showed this by examining the adult arrestees in each site's DUF sample who were charged with specific serious offenses that we called "core offenses," and weighting them so that their relative numbers by age, sex, race, and category of offense represented the totality of arrestees for the core offenses in the site (as reported to the Uniform Crime Reporting program). The estimated percentage of all these arrestees who would be confirmed as using each drug is not substantially different from the unweighted DUF statistics as published.

This research began in October 1990. Data for discrete calendar years were grouped for analysis, so the research was limited to DUF data collected in the period from 1987 (the first year of the DUF program) to 1989. Twenty-two sites were operating during that time period and are the focus of this research. Additional information, detailed below, was collected about these sites and their DUF operations during the course of this research and is more contemporaneous.

Subsequent to 1989, many improvements were made in DUF data collection and sampling procedures. These enhancements were initiated by NIJ staff, its contractors who manage the data collection activities, the program's research advisory board, and the DUF site directors. This report identifies, to the extent possible, observations from 1987-89 data that may no longer be applicable. In addition, some procedural inadequacies that were found early in this study were reported to NIJ and site directors and have now been

rectified; these are mentioned in Section 10 of this report, "Implications of the Research for Changes in the DUF Program".

1. Overview of DUF procedures

In each participating site, DUF data are collected four times a year in booking centers where arrestees arrive for processing. The DUF program began in 1987 with collection of data for adult male arrestees only. Subsequently, the program expanded to include adult female arrestees, and later to include juvenile male and female detainees⁴. Using prestructured anonymous questionnaires designed by NIJ, locally-trained DUF staff interview arrestees at the booking centers. They conduct interviews during quarterly intervals on specific days and hours established at each site in cooperation with facility administrators.

After completing interviews, DUF staff obtain urine specimens from respondents who agree to provide them. The same sequential DUF identification number is written or pasted on the interview form and applied to the urine specimen bottle. The sampling and interview procedures are specified in NIJ's procedures guide, which in some sites is supplemented with a local procedures guide. After local DUF supervisors code and verify data, the interview forms are sent to a central location for editing and keyentry; urine specimens are sent to a central laboratory where they are analyzed for the presence of 10 drugs.⁵

Statistics on confirmed drug use as revealed by laboratory tests are usually the first results that are made available for each site after each quarterly data collection period. The summary reports from the laboratory show the percent of participating arrestees whose tests confirmed the presence of each of the 10 types of drugs. Urine specimens sent to the laboratory are packaged and numbered so that test results in percentages can be calculated at the laboratory separately for adult males, adult females, juvenile males, and juvenile females. However, no other categorical results are possible using only the information provided to the laboratory.

The laboratory also provides the urinalysis results for each DUF interviewee identification number; these are subsequently linked to interview data for the same individual. The merged interview-urinalysis data permit more extensive analysis. Linked laboratory results and interview data for adult arrestees are later documented and made available as public-use files for further research.

Some persons called for DUF interviews are excluded from public-use files (and from reports based on analysis of these files). They are nonrespondents, arrestees who agree to the DUF interview but refuse to or are unable to provide a urine specimen, and arrestees whose urine specimens, for one reason or another, could not be analyzed or correctly linked to their interview data. (Although the primary sets of data analyzed for this research were the public-use files for adults interviewees who have laboratory test results, supplementary data were also obtained from NIJ's contractor and analyzed; these were data for persons who were selected for interview but were not located or who declined to participate.)

Differences in sampling procedures for male and female arrestees

In each data-collection quarter, the number of adult males targeted for interview in most sites is 225; the number of adult females, 100. Because few females are available for interviews at any one time at most booking centers, DUF procedures permit the local DUF staff to interview any female arrestee, independent of her arrest charge. By contrast, at some sites' booking centers interviewers are occasionally faced with a sufficient number of available male arrestees that they must choose among them.

The guidance provided by NIJ to DUF sites concerning selection of eligible arrestees reads as follows in the Drug Use Forecasting Procedures Manual, dated February 1990:

⁴But the DUF sample of juveniles was not examined in this research. Data for juveniles have not been made available in public-use DUF data files for researchers (Inter-university Consortium for Political and Social Research, Ann Arbor, Michigan, data collection ICPSR 9477).

⁵The ten drugs are cocaine, opiates, marijuana, PCP, methadone, benzodiazepines, methaqualone, propoxyphene, barbiturates, and amphetamines. During the earlier time periods studied here, two sites utilized local laboratories for the urinalyses.

To select arrestees for interviewing, the Project Coordinator must read through the arrest or booking slips. Male arrestees excluded from the study are those arrested for vagrancy, loitering, and traffic violations, e.g., DWI [driving while intoxicated].

*Arrestees should be selected by the type of charge in the following priority order:

- 1) Nondrug felony charges
- 2) Nondrug misdemeanor charges
- 3) Drug felony charges
- 4) Drug misdemeanor charges
- 5) Warrants for any charge.

*Males arrested on a new charge and who also have a warrant are selected based on the priority of the new charge....

Additionally, only 20% of male arrestees charged with drug offenses should be interviewed. To stay within this 20% limit, every fifth interview should involve an arrestee charged with a drug offense.

This NIJ guidance applies only to adult male arrestees (but has not been mandatory, especially during the 1987-89 period covered by the data analyzed in this reported⁶). For female arrestees, neither the exclusion of vagrancy, loitering, and driving offenses, nor the 20% limit on drug offenses is applicable. The NIJ procedures manual continues as follows:

The exceptions to these exclusionary rules are at sites where female arrestees are interviewed. All females regardless of charge may be interviewed.

In one site having a small number of arrestees per week (Omaha), NIJ permitted also male arrestees to be interviewed regardless of charge.

In addition to procedural variations leading to differences in the adult male and female DUF samples, in some sites additional differences are a product of selecting females and males at different booking facilities.

NIJ's publications normally present DUF drug-use statistics separately for males and females, in part because the levels of confirmed drug use often differ in interesting ways, and also because trends in drug-use patterns for females can be masked by the smaller numbers of female arrestees in the sample as compared to males. The differences in the selection procedures for males and females in most sites, and the differences in booking facilities in some sites, represent other good reasons for publishing separate DUF statistics for males and females, since the two samples in principle represent different populations. Finally, since the DUF data collection procedures maintain a fixed relative proportion of males and females in the sample, independent of the actual mix in the study jurisdiction, the information available from the DUF data alone does not permit any meaningful combination of male and female statistics.

2. Analytical focus

The research examined and clarified how the DUF-sampled booked arrestees are related to the full population of persons booked or arrested in the jurisdiction and calculated sampling weights indicating the approximate number of arrestees represented by each DUF-sampled booked arrestee. Since these calculations were carried out retrospectively, the results can never have the same validity as would have been obtained by contemporaneously drawing a probability sample of arrestees to be interviewed from a defined larger population of arrestees (so that each member of the larger population had a known

⁶See sections 4 and 5. Recommendation A-9 in Section 10 suggests abandoning the priority scheme for male arrestees.

probability of being in the DUF sample). However, the analysis was focused less on deriving exact estimates than on illuminating the important factors that influence the selection process and giving some insight into the approximate size of the corrections that would be obtained if a precise probability sample were to be drawn.

We worked with UCR arrest records for all reporting law enforcement agencies in the United States for 1987-1989 and with the DUF public-use research data files for the same time period. We also collected supplementary data to clarify the major influences on the sample as found in the public-use merged data files. Among influences that are not under the control of the DUF staff conducting interviews at booking centers are the following:

- Catchment areas of the booking centers where DUF interviews are conducted. Booking centers generally serve specific law enforcement agencies and/or specific geographically-based units within those agencies. Any person who is arrested by some other law enforcement agency or by law-enforcement officers in a unit outside the geographical boundaries served by the booking center has essentially no chance of being in the DUF sample at that booking center. The geographical catchment areas of the selected booking centers therefore define the outer boundary of the arrestees who could possibly be in the DUF sample. Catchment areas can potentially influence the consistency of DUF drug use statistics over time if agencies change the booking center arrangements; opening or closing booking centers, even centers that are at some distance from the locations where DUF interviewing takes place, can effect the sample.
- Arrestees who are not booked. In many jurisdictions arrestees charged with specified minor offenses are not brought to booking centers but are ordered to appear in court by means of a summons or similar legal document. In some jurisdictions, even arrestees for somewhat more serious offenses are not booked, or are not booked at the facilities used for DUF interviews. Some special police units are equipped with field booking capabilities and do not need to bring their arrestees to the booking centers which serve other arrestees. Any types of arrestees who are not brought to a site's DUF booking centers are in principle not represented in the DUF sample.
- Booked arrestees who are not made available to the DUF interviewers. (These are described in Section 7, below.)

Other influences on the sample composition, which may be influenced to some degree by DUF procedures or the skill of the DUF interviewers, include:

- Booked persons who are considered ineligible for interview.
- Booked persons who remain in the booking center for too short a length of time to be selected and interviewed
- Booked persons who refuse to be interviewed, or who are interviewed but refuse to or are unable to provide a urine specimen.

The information we obtained to permit us to examine the influence of these factors included:

- DUF public-use research data files for adult interviewees in 1987-1989
- Data, recorded by local DUF staff from police records, giving the age, sex, race, and top arrest charge of arrestees who were chosen for DUF interviews, whether or not they completed all the steps necessary to be included in the public-use merged data files. (This information is written on the top portion of the DUF interview form prior to attempting an interview. Uncompleted interview forms are keyentered by NIJ's

contractor in the same way as completed interview forms, but the records are not included in the public-use DUF datasets.)

- Data from the FBI's Uniform Crime Reporting program giving counts of arrests for each reporting law enforcement agency in the U.S. in each month during 1987-1989, broken down by arrest charge category, age, sex, and race.
- Data from a questionnaire survey which we sent to 23 DUF site directors in mid-1991.⁷ All of the DUF site directors responded to the survey and described in considerable detail the booking facilities where they operate and their sampling procedures.⁸ In particular, the questionnaire elicited information about arrestees not brought to the booking center and about booked persons not considered eligible for interviews. Clarification and verification of the information on the completed survey forms was obtained by telephone calls and by site directors' reviewing our summaries of the information for their site.
- Information obtained by telephone interviews with cognizant criminal justice agency personnel who were nominated by the DUF site director as familiar with the operations of the local booking centers where there are adult DUF operations. These contacts in agencies that operate booking centers were able to provide information about catchment areas that is not normally known to DUF site directors or DUF staff, including complete lists of the law enforcement agencies that bring arrestees to each booking facility, the types of arrestees brought and not brought there, and alternative booking facilities that serve the same jurisdiction(s).
- Data we collected by on-site observation of DUF operations in three selected sites (Manhattan, San Diego, and Birmingham). During three-day periods of observing ongoing DUF operations, we obtained data from law enforcement agencies about all adult booked arrestees, whether selected or not for DUF interviews. These three sites were initially chosen to represent different regions of the U.S. and to represent DUF operations that, according to the descriptions available at the time, appeared to be somewhat different from each other. Further, the site directors and key interviewers in these sites were experienced, had continuous knowledge about the DUF operations since their inception in the site, and were familiar with DUF research and in particular the purposes of the present research. Two of the sites had started DUF operations before NIJ had itself established some of the procedures that are now in its uniform written guidelines (Manhattan and San Diego started DUF operations in 1987), while we expected that the third site might be closer to conforming with NIJ's written procedures manual (Birmingham started its DUF operations in the third quarter of 1988).⁹

3. Geographical catchment areas for the DUF adult sample

In order to compare the DUF sample of adult arrestees with the corresponding totality of arrestees corresponding to each site's booking center(s), we needed to know what law enforcement agencies bring arrestees to the booking centers where DUF operations take place. (Data about arrestees in the Uniform Crime Reporting program are organized by reporting law enforcement agency. The DUF data for interviewed arrestees, however, do not include any specific information about the law enforcement agency

⁷Of the 24 currently operating DUF sites, only Atlanta entered the program later than this survey was administered.

⁸The responses of the site directors described both adult and juvenile DUF operations, but only the information about the adult operations has been used in this report.

⁹The three sites we chose are not the only ones that would have met the site selection criteria, but available resources did not permit choosing more than three. Basically, we wanted to find out whether three sites would exhibit important site-specific variations that in our judgment could not be ascertained except by visiting the sites and carrying out focused on-site data collection. This turned out to be the case, which led us to recommend (Section 10, Recommendation A-1) that similar visits be carried out for the remaining sites.

that made the arrest.¹⁰) The DUF site directors provided us with the names of criminal justice agency contacts who were familiar with the booking facilities that house DUF operations in their sites.

The facilities they mentioned are summarized in Table 1. Chicago, Miami, and Omaha each reported interviewing male adult arrestees in a single location and not interviewing adult females. (These and other particulars about each site and each facility are detailed in Section 4.) The remaining sites interview both male and female adult arrestees. Twelve sites conduct both their male and female adult interviews at the same location, one conducts all adult interviews in a single facility but on different floors for males and females, and four conduct adult male arrestee interviews in one facility and adult female interviews in a second facility. Two sites (Birmingham and Los Angeles) have two or more facilities where adult males are interviewed, and three sites (Birmingham, Cleveland, and Los Angeles) have two or more sites where adult females are interviewed.

The DUF site directors and their staff normally have little reason to be aware of agencies and types of arrestees that come to these booking centers, and practically no reason to be familiar with arrestees who come to other alternative booking centers used by the same law enforcement agencies. Information about these matters was obtained from the supervisory personnel they nominated as being knowledgeable about these booking facilities, by means of a telephone survey we conducted in December 1991. Table 2 summarizes the information obtained from these sources about the law enforcement agencies that bring arrestees to each facility.¹¹

The patterns varied widely among sites, and in only six sites does the catchment area correspond exactly to the city that hosts the DUF program. In particular, in Denver, Indianapolis, Kansas City, St. Louis, and Washington, DC, the DUF catchment area is the entire city; this has also been the case in Houston since the start of the DUF program, but a second jail is planned to open in 1993. In five sites, New Orleans, Phoenix, Dallas, Portland, and San Antonio, the DUF catchment area is the entire county or parish in which the DUF interviewing facility is located (plus in San Jose the catchment area for women arrestees is the entire county). In New York, the catchment area is most of the borough of Manhattan, which is a county. Places where DUF catchment areas are parts of a city are San Jose (for males), Chicago, Cleveland, Detroit, and Philadelphia. Birmingham, San Diego, and Fort Lauderdale include a central city plus part of the surrounding county. And the Los Angeles DUF project's catchment area is a part of the county which includes only part of the central city.

¹⁰However, in some sites this may be implicitly known from the nature of the facility where booking takes place (or the facility code on the DUF interview form, if more than one location is used). For example it may be locally understood that only one agency brings arrestees to a particular booking center, or that all the law enforcement agencies at that facility send their UCR data to the FBI through a single reporting agency, but this information is not easily ascertained by users of the DUF data who are not located at that site. In Section 10, we recommend that the DUF program should collect supplementary data that will clarify the relationship between the interviewee and the arresting agency.

¹¹We did not obtain information about the catchment areas in Omaha and Miami due to limitations in the available data about DUF operations in those sites during the period 1987-89.

Table 1
Types of DUF Facilities

<u>DUF Site</u>	<u>Number Facilities</u>	<u>Type(s) Facilities</u>	<u>Supervising Agency</u>
Birmingham	2	City jail booking County jail	City police County sheriff
Chicago	1	Court holding area	County Sheriff
Cleveland	1	Jail Processing Unit	City Police
Dallas	1	Intake/release Center	County Sheriff
Detroit	1	Lockup/Police HQ	City Police
Fort Lauderdale	1	Jail	County Sheriff
Houston	2	Jails/Police building	City Police
Kansas City	1	Detention Center/HQ	City Police
Los Angeles	4	Sheriff's station Jail (for women) Police HQ jail Police station	County Sheriff County Sheriff City Police City Police
Manhattan	2	Police booking(males) Court holding (females)	City police
Miami	1	Pretrial detention	Corrections agency
New Orleans	1	Booking Center/jail	Parish Sheriff
Omaha	1	Police detention	City police
Philadelphia	1	Detention Unit in HQ	City Police
Phoenix	1	Jail	County Sheriff
Portland	1	Jail/booking area	County Sheriff
San Antonio	2 ¹	Magistrate's office Detention Center	City Magistrate County Sheriff
San Diego	2	County jails	County sheriff
St. Louis	1	Station Lockup	City Police
San Jose	2	Booking Centers in Jails	County Department of Corrections

Note: Atlanta and Denver are not included in this table. These sites started collecting DUF data later than 1989, the latest year for which UCR data were compared with DUF data in this research

¹Formerly in detention center; currently in magistrate's office

Table 2
Number of Law Enforcement Agencies Bringing Arrestees to
Facilities with DUF Operations

<u>DUF Site</u>	<u>Number agencies bringing arrestees to DUF facility</u>	<u>Number of agencies bringing all their booked arrestees to DUF facility</u>
Birmingham	21	1
Chicago	1	0
Cleveland	1	0 ^a
Dallas	27	27 ^{a,c}
Detroit	1	0
Fort Lauderdale	23	16 ^{c,f}
Houston	5	4 ^b
Kansas City	1	1 ^a
Los Angeles	96	7 ^{a,c}
Manhattan	5	0
New Orleans	1	1
Philadelphia	1	0
Phoenix	20 ^d	20
Portland	5	5 ^a
San Antonio	19	19
St. Louis	1	1 ^{a,c}
San Diego	19	12
San Jose	19,15 ^h	19,15 ^{a,c,h}

NOTES:

Miami and Omaha are not included in this table. They had insufficient DUF data during 1987-1989 for analysis, and/or information was not available about booking facilities that housed DUF operations during 1987-89.

State and Federal law enforcement agencies are not counted in this table. The table only includes facilities in which there were DUF operations before 1990.

Agencies are counted in the column on the right if nearly all their booked arrestees are brought to a DUF facility.

^aExcept those cited on street and released

^bMetro-police bring only people arrested within the city boundary. Another jail that can be used by these agencies will open in 1992.

^cExcept those who bond out at local station.

^dIncludes one agency now under contract with Sheriff

^eDUF is currently being conducted in other facilities where agency can bring arrestees.

^fA new jail opened in 1988; some agencies formerly bringing arrestees to DUF facility now bring them to the new jail.

^gAll felony arrestees; a subset of misdemeanors

^h19 agencies bring females; 15 agencies bring all males and an additional 4 agencies bring males who are very violent or in need of medical attention.

Based on the information provided, we lined up the UCR data with the catchment areas of the DUF facilities as best we could.¹² In twelve sites, one or more of the agencies that bring arrestees to a DUF booking facility also book some arrestees at other centers where there are no DUF operations. In these instances, we included the arrest reports from the entire law enforcement agency in our comparison UCR data set. (Although this does not yield an exactly correct comparison group for the DUF data, it does permit understanding the extent to which the DUF sample is or is not similar to the larger group of arrestees from that jurisdiction.) In Los Angeles, the complexity and partiality of the relationships between agencies and booking centers prevented us from carrying out analyses that compared UCR data with the DUF sample.

Details of catchment areas from on-site observations

In the three sites where we conducted on-site observations and data collection, the details of catchment areas were found to be much more complex than would seem to be the case from a brief description. This section illustrates some of the observed relationships between booking centers, on the one hand, and catchment areas, on the other. The information was obtained from three-day experiments in each site in which we tracked every arrestee and his or her availability for a DUF interview and from of law enforcement agency staff in booking centers.

Birmingham, Alabama. DUF interviews are conducted at a Birmingham Police Department booking center and at a county jail which is located in the city of Birmingham. The Jefferson County sheriff operates the jail in Birmingham and also another county jail in the city of Bessemer where DUF interviews are not conducted. The part of Jefferson county that is closer to Bessemer than to Birmingham is called the "Bessemer cutoff."

In Birmingham, the DUF catchment area for felony arrests is quite different from the catchment area for misdemeanor arrests.¹³ Further, the catchment area for female felony arrestees differs from the catchment area for male felony arrestees for reasons unrelated to the facilities where DUF interviews are conducted. (Female arrestees cannot be housed in Bessemer.)

It is not unusual for a law enforcement agency's booking procedures to differ between felony and misdemeanor arrestees, and this was observed also in San Diego. Generally felonies are offenses for which a penalty of a year or more in state prison can be imposed, while misdemeanors and lesser offenses may entail penalties of fines or sentences to less than a year in a county jail. Furthermore, felony arrestees may require different, or more formal, court processing than misdemeanor arrestees before they can achieve pretrial release. However, the particular offenses that are felonies or misdemeanors have not been standardized across states in the United States, and the Uniform Crime Reporting program specifically ignores this distinction in its definitions of offense categories to be used by law enforcement agencies when they report monthly counts of persons arrested. Thus, while felony arrestees may be processed differently from misdemeanor arrestees, readily available data about arrestees do not make the same separation.¹⁴

¹²We provided a complete list of the ORIs (agency identification numbers) included in the UCR data for each DUF site to NIJ as an appendix to this report. In some cases the match between agencies and booking facilities was only partial; see Recommendation A-7 in Section 10.

¹³The Birmingham DUF staff preferred to limit themselves to a sample of felony arrestees, for whom the catchment area and selection rules can be clearly defined. But a limitation to felony arrestees did not match NIJ's guidelines, and at the time of our observations the DUF staff in Birmingham was interviewing both felony arrestees and misdemeanor arrestees.

¹⁴Certain offenses are, of course, entirely or almost exclusively felonies (e.g., murder or robbery), while others are normally misdemeanors (e.g., possessing stolen property). But many large categories of offenses may include both misdemeanors and felonies (e.g., assault or drug possession).

The Birmingham DUF sample catchment area for adult female felony arrestees is all of Jefferson county. For adult male felony arrestees it is all of the county outside the Bessemer cutoff. For misdemeanor arrestees it is primarily, but not exclusively, the city of Birmingham; in addition, misdemeanants arrested by the Jefferson county sheriff department anywhere in the county outside the Bessemer cutoff can potentially be included in the DUF sample. A male or female arrested anywhere in the county for a misdemeanor by any police agency other than the Birmingham police or the Jefferson county sheriff is not eligible for a DUF interview, since they are not processed through any of the selected booking locations.

Adults arrested for a felony in the central city (Birmingham) are booked first in the city facility and then in the county facility; the DUF interviewers therefore have a second opportunity to interview them if they remain in the city booking facility for too short a time to permit an interview.¹⁵ Adults who are booked by the Birmingham police for a misdemeanor are processed only in the city facility and are eligible for DUF interviews.

Since the DUF data-collection form includes information about whether the person interviewed was arrested for a felony, a misdemeanor, or a citation, it would appear that, for purposes of analysis, this information could be used to match up the sampled arrestees with the larger populations of arrestees that they represent. However, we have indications that the DUF data item which distinguishes felony/misdemeanor/citation status is not sufficiently reliable for this purpose. Of 48 Birmingham city felony arrests tracked during our on-site data collection, 17 were recorded as misdemeanors in DUF data; of 12 misdemeanors tracked, 2 were recorded as felonies. Reasons for such misclassifications do not appear necessarily specific to Birmingham. They include:

- The official arrest record information made available to DUF staff may not show whether the arrest is for a misdemeanor or a felony.
- To make a correct classification, one might need to have detailed knowledge about the charged offense (e.g., the dollar value of property allegedly stolen) which might not be available to the DUF interviewing staff.
- Some arrests are not officially determined to be felonies or misdemeanors until a later time when a formal decision is made by a prosecutor or court.¹⁶

In short, although the procedures in Birmingham selected a well-defined felony sample that we found accurately represents felony arrestees in most of Jefferson county, the data as recorded in the DUF data files do not permit accurate separation of the felony arrestees from the misdemeanor arrestees, who have a different catchment area.

San Diego, California. At the San Diego site we observed the processing of adult male arrestees. Here the booking center where DUF interviews take place receives primarily felony arrestees. As was the case in Birmingham, the county jail in the central city (San Diego) serves only part of the county of San Diego.

The DUF staff decided to interview only the felony arrestees, and they developed detailed procedures, based on the nature and flow of official paperwork, for identifying

¹⁵This procedure was very valuable for maximizing the coverage of felony arrestees from the city of Birmingham. However, wherever multiple opportunities for interviewing exist, additional data collection safeguards are needed to assure that an arrestee does not appear twice or more in the DUF data for a single arrest incident; see Recommendation A-8 in Section 10.

¹⁶The interview instrument allows for recording that the felony/misdemeanor/citation status is not available, but even choosing this code may entail making a subtle legal interpretation, and frequent use of the code meaning "data not available" would not enhance the eventual usefulness of the DUF data.

which arrestees are felony arrestees. From our on-site tracking of over 200 arrests, we concluded that the system developed in San Diego worked exceptionally well in focusing the sample on their intended subgroup of male felony arrestees. Without the DUF staff taking any special precautions, the selection system automatically excluded the following types of persons who we observed enter the detention facility:

- Misdemeanor arrestees who are immediately released
- Misdemeanor arrestees who are booked, held, and released
- Persons convicted of misdemeanors or felonies who arrive at the detention facility to begin serving a sentence.

We did observe in San Diego a few examples of misclassification, but these had a very minor impact on the overall adult male DUF sample, which is well representative of adult males arrested for felonies by the agencies that bring their felony arrestees to the jail in the city of San Diego. Examples of misclassification included: a misdemeanor arrestee thought to be a felony arrestee due to errors made by the Pretrial Services Agency in processing his paperwork; two arrestees who were originally misdemeanants at the time they could have been considered for a DUF interview but were later charged with a felony; and two felony arrestees whose official paperwork was processed differently because they were not eligible for pretrial release (they had violated their conditions of probation).

New York. In the third DUF site where we conducted on-site observations, adult male arrestees are interviewed at the central booking facility for Manhattan. (During the period 1987-89 covered by our data analysis, both male and female arrestees were interviewed there.) Although the catchment area for this facility can be described simply (all adult males arrested in Manhattan by any law enforcement agency), there are exceptions to the general rule which we quantified from our three-day tracking of arrestees.¹⁷ The data collected in Manhattan showed that most misdemeanant arrestees are not booked anywhere, and relatively small percentages of felony arrestees are booked at other locations.

To be specific, the Manhattan male arrestees who are not booked at the facility where there are DUF interviews include the following:

- Arrestees given Desk Appearance Tickets (DATs). These are nearly all of the persons arrested in Manhattan for a misdemeanor or violation.¹⁸
- Persons arrested by the Port Authority Police at its Manhattan bus terminal
- Persons arrested in three Manhattan precincts (25, 28, and 32), which are served by a satellite booking center.
- Some persons arrested by Tactical Narcotics Teams or by Operation Pressure Point units. These units may go into the field with booking clerks and Criminal Justice Agency (CJA) staff who can interview arrestees to determine their eligibility for pretrial release.

During three days of data collection in July 1991, we tracked records for all 742 adult male arrestees in Manhattan. Of these, only 6 (under 1%) were handled by the Port Authority police, and only 15 (2%) were separately booked by the special narcotics

¹⁷The types of exceptions were known to the DUF staff, but not the relative numbers of exceptions.

¹⁸A misdemeanor arrestee in New York may be booked anyway in the following circumstances: arrested on a warrant, warrant outstanding, ID cannot be verified, address cannot be verified, or arrestee is intoxicated.

units. However, 65 (9%) of adult arrestees were booked at the satellite booking facility, and 239 (32%) of adult male arrestees were given Desk Appearance Tickets.

The details of DUF operations at the three sites studied by on-site observation illustrate that the types of arrestees who are chosen for DUF interviews depend partly on sample selection procedures adopted by the DUF staff and partly on the types of arrestees who arrive at the facilities where the interviews take place. In San Diego, the relatively small numbers of misdemeanor arrestees who arrive at the booking facility are screened out by the local DUF procedures although they could qualify for DUF interviews under NIJ guidelines; further, no limit is imposed on the number of drug offenders in San Diego. These deviations from the national guidelines appear praiseworthy because they result in a sample that represents what it purports to represent.

In Manhattan there are no specific local or national rules that screen out misdemeanor arrestees from DUF interviews, but police booking practices assure that the vast majority of arrestees who are candidates for interviews are in fact felony arrestees. Similar practices presumably apply in other DUF sites where we did not specifically collect this kind of data, since arrests for specified minor offenses in many jurisdictions are handled by citations, "recognizance bonds," or similar procedures which allow arrestees to pay fines or show up in court without being processed through a booking center.

In Birmingham, the DUF selection rules appear to allow misdemeanants to be chosen from anywhere in the Jefferson county (and in fact a few of them are), but the booking practices at the facilities chosen for DUF interviews force the misdemeanor sample to represent primarily the city of Birmingham arrestees. Alternatively, NIJ could attempt to define a subsample that represents felony and misdemeanors arrestees from the city of Birmingham only, but no DUF data item has been collected that permits identifying which arrestees are from Birmingham.¹⁹

The section that follows outlines characteristics of all the DUF sites' interviewing facilities and procedures that are relevant to describing the DUF sample.

4. DUF Interviewing facilities and the people detained there

Extensive information about the booking facilities where DUF interviewing takes place was provided by the DUF site directors in their responses to our mailed questionnaire and is summarized in Table 3. The table lists the DUF sites in the order they joined the DUF program and shows the facilities in each site that were known to the current site directors who responded to the questionnaire.²⁰

The booking facilities where DUF operations are conducted differ considerably in their basic nature. Some have no capability to house arrestees longer than a brief period for completing necessary paperwork and/or court processing; others are similarly temporary booking centers but differ by being located in a jail or court building that also houses longer-term inmates elsewhere in the complex; other facilities are jail intake centers where both new arrestees and sentenced prisoners arrive.

Table 4 shows the types of persons who normally arrive at each of the facilities where DUF interviews take place²¹. (Later some of these arrestees are screened out, according to NIJ's standard procedures or locally adopted screening rules.) The facilities differ most in regard to whether they handle persons who are being booked for the first time or who are being detained after having been booked elsewhere. They

¹⁹See Recommendation B-4 in Section 10.

²⁰The recipient of the survey questionnaire in Miami was not familiar with past operations there and did not have current working knowledge of DUF data collection, so only limited descriptive information from Miami is included in this report.

²¹In addition to persons shown in the table as normally arriving at the facility, infrequently other categories may arrive. For example, even where Table 2 shows no juveniles arriving at a facility, occasionally juveniles may be brought there. Similarly a few females may be brought to male facilities, previously-booked persons to facilities that normally handle only persons not yet booked, etc.

Note that the survey question concerning "violations" refers to municipal offenses lower than misdemeanors, although this terminology may not be applicable in some jurisdictions.

Table 3
DUF Facilities for Interviewing Adult Arrestees

Site	Sex	Facility Code* Name	Period of Operation Year/Qtr	Gaps in operations	Respondent's comments	Any change in operations mentioned?
Manhattan	M	NYm Manhattan Central Booking	87Q1-	88Q3	Budget not approved by NIJ PD stopped booking females at Manh Central Booking 90Q3	No
	F	NY1f [same]	87Q4-90Q1	88Q3		Stopped at this location
	F	NY2f Criminal Court Building	91Q1-			No
Washington DC	M	DCm DC Superior Court Cell block	87Q3-	1988	No DUF contract	No
	F	DCf [same]				No
Portland Oregon	M	PTm Multnomah County Detention	87Q2-	87Q3-Q4		No
	F	Ptf [same]	88Q1-			No
San Diego	M	SDm San Diego (county) central jail	87Q2-	87Q4	Dates of data collectn not yet divided into "quarters"	Yes. Changed hours of operation; smoke-free environment (7/89-)
	F	Sdf Las Colinas	87Q4-	88Q1,89Q3		No reserve deputies avail.	No
Indianapolis	M	INm Marion County lockup	87Q2-	87Q3-88Q1 88Q3-Q4 89Q2	DUF contract revisions Change in personnel New NIJ arrangements	Yes Change in location of intvws within facility
	F	INf [same]	88Q2-	88Q3-Q4 89Q2	[same]	[same]
Houston	M	H01m City of Houston jail	87Q3-	88Q3-89Q1	Construction in jail	Yes. Introduced intview of earlier arrivals Change loc. in facility
	F	H01f [same] H02m Westside command station	89Q2- 88Q1-?	none	Too few arrestees here	No Stopped
Fort Lauderdale	M	FLm Broward county main jail	87Q3-	87Q4,88Q2 88Q4-89Q2	DoC administration change Staffing shortage for assigning to DUF	Yes. Improvements intro- duced after technical assistance 89Q3
	F	FLf [same]	89Q3-			No
Detroit	M	DTm Detroit PD, 9th floor	87Q3-	87Q4,88Q3	DUF contract revisions	Yes. Stopped having DUF program described by uniformed officers
	F	DTf Detroit PD, 8th floor	87Q3-88Q2	87Q4	Too few arrestees Facil. operatn problems	No

*Facility abbreviation for cross-reference to other tables in this report.

Table 3 (continued, 2)

Site	Sex	Facility Code* Name	Period of Operation	Gaps in operations	Respondent's comments	Any change in operations mentioned?
New Orleans	M	N0m Orleans Parish Criminal Sheriff central lockup	87Q3-	None		No
	F	N0f [same]	87Q4-	None		No
Phoenix	M	PXm Maricopa County, Madison Street jail	87Q3-	None		Yes. Diff. room for interviews. Smoke-free environment introduced.
	F	PXf [same]	87Q4-	None		
Chicago	M	CHm Cook County jail receiving bridge	87Q4-	89Q1,Q3	Public defender challenged data confidentiality	Convinced Pub. defender of confidentiality
	F	Cook County jail [Discontinued. Operational details not included in this report.]	88Q1-88Q3		Sample size too small to meet NIJ standards	Stopped.
Los Angeles	M	LA1m Lakewood sheriff's department station (LA sheriff)	87Q4-	88Q4-89Q2	No DUF contract from NIJ	Yes. Cigarette policy (smoke-free environment)
	F	LA1f [same]	[same]	[same]		Yes. (ditto)
	M	LA2m Parker Center (LAPD Hq)	[same]	[same]		No
	F	LA2f Sibyl Brand Inst. for Women (LA county facility)	[same]	[same]		Yes. (ditto)
	M	LA3m Van Nuys police station (LAPD)	[same]	[same]		No
	F	LA3f [same]	[same]	[same]		No
Dallas	M	DL1m Lew Sterrett justice center (county)	88Q2-	None		Yes. Reduced number of interviewers & increased hours/day.
	F	DL2f [same]	[same]	None		

*Facility abbreviation for cross-reference to other tables in this report.

Table 3 (continued, 3)

Site	Sex	Facility Code* Name	Period of Operation	Gaps in operations	Respondent's Comments	Any change in operations mentioned?
Birmingham	M	BI1m Jefferson County jail	88Q3-	89Q1	Local politics	No
	F	BI1f [same]	[same]	[same]		No
	M F	BI2 Birmingham city jail	[same]	[same]		Yes. Introduced male misdemeanant interviews. (Prev. felons only)
Omaha	M	OM Omaha police div'n detention	88Q3-	88Q4-90Q1	Expense, local politics	Yes. Prev. interviewed felons only
	F	[Discontinued. No operational details in this report]	88Q3		Sample too small to meet NIJ standards	Stopped
Philadelphia	M	PHm Detention unit, police admin building	88Q3-	None		Yes. Nonsmoking environment. Priority rules.
	F	PHf [same]	[same]	None		
Miami (not current info)	M	MI Pretrial detention center	88Q3- [Earlier operations not familiar to respondent. No information in this report.]	88Q4-89Q1, 89Q3-91Q1		Yes. Interviews by jail staff terminated by NIJ
Cleveland	M	CLm Central processing unit CPD city jail	88Q4-	None		Yes. Changed hours of interviewing
	F	CLf [same]	90Q1-	None		Yes. [same change]
	F	CL6+ 1st, 2nd, 3rd, 4th, 5th, and 6th district jails	90Q1-	None		Yes. [same change]
San Antonio	M	SA1m Bexar county jail city magistrate's office	88Q3-89Q4	88Q4	City magistrate's office moved to detox center	UCLA team ran pilot study. City staff since 89Q1
	F	SA1f [same]	[same]	[same]		
	M	SA2m City magistrate's office at the detox center ⁺	90Q1-	None		No
	F	SA2f [same]	[same]	None		No

⁺This is just the name of the building

*Facility abbreviation for cross-reference to other tables in this report.

Table 3 (continued, 4)

Site	Sex	Facility Code* Name	Period of Operation	Gaps in operations	Respondent's comments	Any change in operations mentioned?
St. Louis	M	SLm St. Louis PD men's holdover	8804-	None		No
	F	SLf SLPD women's holdover	[same]			
Kansas City	M	KCm Kansas City jail detn facil.	8804-	None		No
	F	KCf [same]	[same]			
San Jose	M	SJm Dept. of Correction main jail	8903-	None		Yes. Different rooms for intvw. Starting 91Q3 also interview in observation unit.
	F	SJf Elmwood jail, women's detn dif	8903-			
Denver	M	DEm Denver prearrestment detentn facility (county=city)	9001-	None		No
	F	DEf [same]				

*Facility abbreviation for cross-reference to other tables in this report.

Table 4 (continued)

Site	Facility Code Name	Sex		Age		Arrestees			At arrival:		Already convicted & sentenced
		M	F	Adult	Juv	Felon	Misd	Viol	not booked	already booked	
Omaha	OM Omaha police div'n detention	Y	Y	Y	Some	Y	Y	Y	.	Y	.
Philadelphia	PH Police detention unit	Y	Y	Y	.	Y	Y	Y	Y	Y	.
Miami (not current info)	MI Pretrial detention center	Y	.	Y	.	Y	.	.	....missing data....		
Cleveland	CL City jail	Y	.	Y	.	Y	Y	Y	Y	Y	.
	CL6+ Six district jails	.	Y	Y	.	Y	Y	Y	Y	Y	.
San Antonio	SA1 Bexar county jail	Y	Y	Y	.	Y	Y	Y	Y	Y	Y
	SA2 City magistrate detox center	Y	Y	Y	.	Y	Y	Y	Y	Y	Y
St. Louis	SLm St. Louis PD men's holdover	Y	.	Y	Y*	Y	Y	Y	.	Y	.
	SLf SLPD women's holdover	.	Y	Y	.	Y	Y	Y	.	Y	.
Kansas City	KC Kansas City jail detn facil.	Y	Y	Y	Y	Y	Y	Y	Y	Y	.
San Jose	SJm Dept. of Correction main jail	Y	.	Y	.	Y	Y	Y	Y	Y	Y
	SJf Elmwood jail, women's detn div	.	Y	Y	.	Y	Y	Y	Y	Y	Y
Denver	DE Denver prearraignment detentn	Y	Y	Y	.	Y	Y	Y	.	Y	Y

Legend:

y = This type of person arrives at the facility. DUF selection rules may exclude some of them from interviews.

. = This type of person does not arrive at the facility

n = There is no legal category of offense lower than misdemeanor in this jurisdiction

* Juveniles go to St. Louis Juvenile Detention Center

Table 4
Types of arrestees who arrive at each DUF interviewing facility

Site	Facility		Sex		Age		Arrestees			At arrival:		Already convicted & sentenced
	Code	Name	M	F	Adult	Juv	Felon	Misd	Viol	not booked	already booked	
Manhattan	NY1	Manhattan Central Booking	y	.	y	.	y	y	few	y	.	.
	NY2f	Criminal Court	.	y	y	.	y	y	few	y	y	y
Washington DC	DC	DC Superior Court Cell block	y	y	y	y	y	y	n	.	y	y
Portland Oregon	PT	Multnomah County Detention	y	y	y	.	y	y	y	.	y	y
San Diego	SDm	San Diego central jail	y	.	y	.	y	y	y	y	y	y
	SDf	Las Colinas	.	y	y	.	y	y	y	y	y	y
Indianapolis	IN	Marion County lockup	y	y	y	y	y	y	y	y	.	.
Houston	HO1	City of Houston jail	y	y	y	.	y	y	y	y	.	.
	HO2m	Westside command station	y	y	y	.	y	y	y	y	.	.
Fort Lauderdale	FL	Broward county main jail	y	y	y	y	y	y	y	y	y	y
Detroit	DTm	Detroit PD, 9th floor	y	y	y	Some	y	y	y	y	y	n
	DTf	Detroit PD, 8th floor	.	y	y	.	y	y	y	y	y	n
New Orleans	NO	Orleans Parish Criminal Sheriff central lockup	y	y	y	.	y	y	y	y	.	y
Phoenix	PX	Maricopa County jail	y	y	y	.	y	y	y	y	y	y
Chicago	CH	Cook County jail	y	.	y	.	y	y	y	.	y	.
Los Angeles	LA1	Lakewood sheriff's station	y	y	y	y	y	y	y	y	y	.
	LA2m	Parker Center	y	.	y	.	y	y	y	y	y	.
	LA2f	Sibyl Brand Inst. for Women	.	y	y	.	y	y	y	y	y	y
	LA3	Van Nuys police station	y	y	y	y	y	y	y	y	y	.
Dallas	DL1	Lew Sterrett justice center	y	y	y	.	y	y	y	y	y	y
Birmingham	B11	Jefferson County jail	y	y	y	.	y	y	y	y	y	y
	B12	Birmingham city jail	y	y	y	*	y	y	y	y	.	y

also differ in regard to whether or not they receive sentenced inmates. Few of the DUF adult facilities also receive juveniles.

Twelve sites conduct DUF interviews in facilities where sentenced prisoners arrive to begin serving their sentences. For the most part these sites accept newly sentenced prisoners for interviews the same as other arrestees (and subject to the eligibility requirement specified by NIJ that they must not have been "off the street" for more than 48 hours)²², but three sites exclude sentenced inmates from DUF interviews.²³ In San Diego, for example, newly sentenced inmates arrive but are excluded by the local procedures that only select persons eligible for pretrial release. In Manhattan, no newly sentenced inmates arrive at the DUF booking facility.

5. Selection of interviewees according to their detention status

Although NIJ's guidance for selecting DUF interviewees refers to "arrestees," no specific written guidance has been given concerning the types of detained persons who are to be considered arrestees. If one wishes to compare the DUF interviewees with "arrestees" as reported to the Uniform Crime Reporting program (as we did in our study), then it is natural to accept the definition of an arrestee as someone who will be included in a law enforcement agency's arrest reports. However, this has never been a goal of the DUF program, and it is not actually necessary for the DUF site staff to focus on the kind of person who will be counted in UCR data.

Booking centers and jails commonly also admit people, such as the following, who are not arrestees or who are ambiguously arrestees, and for whom it may be interesting to know their drug-use patterns:

- Arrestees being held or temporarily housed for another agency or jurisdiction, such as an out-of-state police department, the military, or the Immigration and Naturalization Service
- Arrestees charged with Federal offenses
- Previously sentenced inmates who are in transit between prison and court (or between county jail and court)
- Previously incarcerated inmates returning from work release or entering the facility to continue serving weekend sentence
- Persons in protective custody
- Persons who are interrogated but then released and not arrested
- Parole violators being held for transport to state prison
- Cases of mistaken identity and other voided arrests.²⁴

These examples were mentioned by at least some DUF site staff as being types of persons who are excluded from DUF interviews. Some DUF sites have developed specific methods for excluding such persons from DUF interviews. In other sites, it is unnecessary to pay attention to eligibility of certain types of arrestees because they don't come to the facility where DUF interviewing takes place. The NIJ guidance

²²The number of sentenced inmates who are included in the DUF sample cannot be determined by processing data from the current DUF interview form. See Recommendation A-6 in Section 10.

²³All sites may consider persons arrested for violation of probation or parole eligible for interview; these arrestees are not considered "newly sentenced" for purposes of this report.

²⁴Recommendation A-6, at the end of this report, suggests providing codes on the interview instrument for describing nonarrestee interviewees in these categories (and perhaps other similar categories that may occur).

does not specifically list categories of persons such as these and indicate which are to be excluded.²⁵ In the sites where we conducted observations, practically no persons of these types were accepted for DUF interviews; the only exceptions were arrestees who were parole violators and persons whose arrest was voided after the DUF interview was completed.

Some persons are also arrested for offenses committed while they were in custody or at a secure facility, such as in court, at an "honor farm" or camp, or in jail. Six sites indicated that they would accept some or all such arrestees for interviews²⁶ (Denver, Detroit, Fort Lauderdale, Houston, Indianapolis, and Kansas City), while the other sites responded that they would exclude such arrestees from DUF interviews.²⁷

6. Selection of interviewees according to offense charged

As a consequence of NIJ's recommended DUF procedures, booking practices in the DUF sites, and locally adopted DUF sample selection rules, arrestees for certain types of arrest charges are much less likely than others to be included in the DUF sample. This is especially true for male arrestees. In order to analyze the relationships between arrest charges and the DUF sample, we defined groupings of offenses, as recorded on the DUF interview forms, that reflect these practical or intentional differences in sample selection (Table 5).²⁸ The categories were also defined in such a way that offense codes used by law enforcement agencies when reporting arrests to the FBI under the Uniform Crime Reporting program could also be combined into the same groups.²⁹

²⁵The general NIJ rule requiring arrest within the last 48 hours operates to exclude many of these persons. Our view (Section 10) is that NIJ should not attempt to specify which of these kinds of detainees should be excluded; instead, data should be collected by the DUF interviewers that will allow analysts to exclude unwanted groups of interviewees after the fact.

²⁶Such arrestees are likely to be excluded by the limitation on the time since last "on the street." However, those who might have been on the street and therefore eligible include escapees and inmates who are serving weekend sentences or work-release sentences.

²⁷In some sites, persons arrested while under conditions of confinement are excluded under the assumption that none of them could have been on the streets during the last 48 hours. In other sites, e.g., Chicago, the DUF interviewers exclude these arrestees because they normally have no access to them. However, many sites' DUF interviewers have access to such arrestees but take specific precautions to exclude them. The Washington DC respondent stated: "We do not interview 'jail cases.' These are defendants being brought from jail to face another charge or procedural matter while still under sentence."

²⁸The offenses are coded at each site using its own local definitions. The data we collected in on-site observations in Birmingham and Manhattan indicated that most offenses, such as robbery, are clearly indicated in arrest records and are correctly coded by DUF interviewers. Other offense categories are not used consistently by different interviewers, or during different data-collection periods, or across sites. The groupings defined here are also intended to resolve the observed ambiguities (i.e., the different coding possibilities for a single offense type have been combined into the same offense group). In some DUF sites, the interviewers refer to a locally-prepared list of the legal names of offenses or their penal codes; this produces more accurate and consistent coding of DUF offenses. Also, if additional details of the offense are recorded elsewhere on the interview form, NIJ's contractor's editors may revise the locally recorded offense to maintain inter-site consistency. See Recommendations C-1, C-2, C-3, and C-4 in Section 10 and the discussion there.

²⁹The UCR offense categories are also shown in Table 5. The existing DUF offense codes cannot be lined up, item by item, with UCR offense codes. Therefore, some kind of categories such as the ones shown in the table are needed in order to compare DUF data with UCR data in regard to charged offenses. See Recommendation C-1 in Section 10.

Table 5
Categories of Offense Charges

<u>Offense category</u>	<u>Offenses as coded in data-files included in the category</u>
Core offenses	
Robbery	DUF data : Robbery UCR data : Robbery
Violent offenses	DUF: Assault, homicide, sexual assault (rape) UCR: Aggravated assault, other assaults, murder and nonnegligent manslaughter, forcible rape
Part I property offenses	DUF: Burglary, larceny/theft, stolen vehicle UCR: Burglary, larceny/theft, motor vehicle theft
drug offenses	DUF: Drug possession, drug sale UCR: Drug offenses (combines: sale/manufacturing/possession of: opium or cocaine and derivatives, marijuana, synthetic narcotics, other dangerous narcotic drugs)
other serious crimes against person/property	DUF: Arson, damage or destroy property extortion/threat, weapons, family offense, kidnapping, manslaughter obstructing police/resist arrest, public peace/disturbance/mischief/trespass/reckless endangerment, sex offenses UCR: Arson, disorderly conduct, offenses against family and children, negligent manslaughter, sex offenses (other than forcible rape and prostitution), vandalism, weapons
income generating	DUF: Burglary tools, embezzlement, forgery, fraud, gambling, pickpocketing/jostling, stolen property UCR: Stolen property: buying, receiving, possessing; embezzlement, forgery and counterfeiting, fraud, gambling (includes: bookmaking, numbers and lottery, other gambling)

Table 5 (continued)
 Categories of Offense Charges

<u>Offense category</u>	<u>Offenses as coded in data-files included in the category</u>
Non core offenses	
offenses not usually included in DUF for males	DUF: Influence of control substance, D.W.I., driving other than D.W.I., vagrancy, other UCR: Driving under the influence, drunkenness, vagrancy
commercial sex	DUF: Prostitution/commercial sex UCR: Prostitution and commercialized vice
other offenses	DUF: Bribery, fare beating, flight/escape/bench warrant, liquor, obscenity (indecent exposure) UCR: Liquor laws, "all other offenses"*
DUF category excluded in UCR	DUF: Probation/parole/ROR violation
UCR category not included in analysis	UCR: Suspicion

*Examples of arrest charges that are supposed to be included in the UCR category "other" but are not specifically identified in the UCR data: bomb threat, extortion, manufacture of obscene material, bigamy, intimidating a witness, escape, bench warrant, bail jumping, perjury, riot, refusal to yield party line, abuse of corpse, and criminal possession of a noxious substance.

The aggregate category called core offenses is comprised of a broad group of relatively serious offenses and excludes offenses listed at the bottom of Table 5 which -- according to the DUF site directors' intentions and descriptions -- appeared would be poorly represented among adult male arrestees in a number of sites. (Also excluded from the core offenses is commercial sex, which is applicable only to very small numbers of male DUF interviewees.) Since the DUF sample is intentionally not representative of the entirety of UCR arrests, comparisons of representativeness within the category of core offenses are more pertinent and interesting.³⁰

Table 6 lists the DUF sites in order of their degree of concentration on core offenses in their DUF sample during the period 1987-89.³¹ The comparison Uniform Crime Reporting arrest data were combined for only those calendar quarters from 1987 to 1989 during which DUF data were collected at the site.³² All tabulations of UCR data for a site in this report are based on the sum of arrests for all reporting law enforcement agencies in the site's catchment area (determined as described above, in Section 3), not just for the police department of the central city where the booking center is located. Further, UCR arrest data for all of a law enforcement agency's arrests are used in these comparisons, even for sites where we know the catchment area is only part of a city.

The table shows that eleven of the listed DUF sites concentrated 89% or more of their male DUF interviewees in the core offenses during the 1987-89 period. With three exceptions, the UCR data for these eleven sites show less than half of all reported arrests were for core offenses. Therefore, especially for the sites at the top of the table, the totality of DUF interviewees is obviously a poor representation of the totality of UCR arrestees, since the minor offenses comprise a substantial portion of UCR arrests but a small portion of the DUF arrests.³³ The eight sites shown as having under 88% of their DUF interviewees arrested for core offenses have DUF interviewee samples that are on the whole somewhat more representative (in regard to offense groupings) of the totality of UCR arrests in their catchment area, but even so it is clear that the DUF program's goal of focusing on arrestees for serious offenses had a definite impact on the composition of the sample.

³⁰Even so, the descriptions in Section 3 of arrestees booked in three sites illustrate that arrestees for selected core offenses may not be booked or may be otherwise underrepresented as compared to the totality of UCR arrestees.

³¹Only the DUF sites whose data were compared with UCR data in this study are shown in Table 6.

³²To the extent possible, the summary of UCR data corresponds to the same time periods as the summary of DUF data. In a few sites, the reporting law enforcement agencies did not provide arrest data to the FBI in every month, or the FBI did not include some months' data in their arrest dataset.

³³The UCR data themselves should not be thought of as a necessarily "correct" description of the arrestee population but are merely a relevant comparison. The national UCR program is a voluntary reporting activity (although in some states it is mandatory), so some law enforcement agencies may not report certain kinds of arrests, or not report arrests during certain months, or not code the offense charges carefully. (This can result in offenses being classified as "other" in the UCR data, which would then be included as "non core offenses" in our tabulations, a possibly misleading comparison if the source agency's offense coding was incomplete.)

Table 6
 Male DUF Interviewees and UCR Arrestees Charged with Core Offenses
 (as a percentage of all male DUF interviewees or all male UCR arrestees)

Site	Percent Core Offenses	
	DUF	UCR
Cleveland	96.7 %	45.5 %
San Diego	96.3	46.8
Dallas	95.7	45.4
St. Louis	94.7	82.9
Philadelphia	94.7	76.8
Miami	94.1	---
Chicago	93.9	83.0
New Orleans	92.2	44.1
Jefferson County/Birmingham	92.0	39.7
Manhattan	91.4	42.8
Los Angeles	90.5	---
Houston	89.8	39.1
Indianapolis	89.5	28.2
Maricopa (Phoenix)	86.2	55.9
Kansas City	84.9	37.6
Multnomah (Portland)	84.1	69.5
Ft. Lauderdale	83.3	51.3
Washington DC	82.6	72.6
San Antonio	78.5	51.5
San Jose	77.4	43.9
Detroit	70.8	61.1
Omaha	57.0	---

--- Not calculated. See note to Table 2.

Note: See Table 5 for a list of the core offenses.

Even within the category of core offenses, the mix of offenses in the DUF sample would be expected to differ from the mix in the UCR data because of NIJ's priority rules, especially the limitation on arrestees for drug offenses in the adult male DUF sample. Table 7 shows, for each DUF site, the average percentage of drug offenses in the total male DUF sample and in the DUF sample of arrestees for core offenses only. NIJ's current procedures specify limiting drug arrestees to 20% of the total adult male sample, but some sites do not subscribe to the limitation (or at least they didn't subscribe to the limitation during the 1987-89 period summarized here).

Specifically, in four sites (Chicago, Detroit, Houston, and San Diego) the arrestees for drug offenses comprised more than one-quarter of the DUF sample, on average over this period, demonstrating that a 20% limit was not in effect there, or at least not for the entire period 1987-89. Conversely, seven other sites (Birmingham, Dallas, Indianapolis, Kansas City, Maricopa County [Phoenix], Multnomah [Portland], and St. Louis), possibly did not face an arrestee population that required placing a limitation on the percentage of drug arrestees; in these sites even among the core offenses under 21% of arrestees were charged with drug offenses. In the remaining sites shown in the table (Cleveland, Fort Lauderdale, Manhattan, New Orleans, Philadelphia, San Antonio, San Jose, and Washington), the data suggest that the number of drug arrestees in the adult male DUF sample was controlled.

In the DUF sample of adult female arrestees, where no limitation has been placed on the percentage of drug offenders, such a limitation would for the most part not have had any effect anyway (the exceptions are four sites -- see lower panel of Table 7), because the female sample also contains substantial numbers of arrestees for lesser offenses, especially prostitution. In Table 7 the female arrestees for core offenses can be considered as somewhat similar in composition to the male arrestee sample in the same site. The table shows that in 10 of the 18 sites listed (55% of sites), the female arrestees for drug offenses comprised more than 20% of the DUF-sampled arrestees for core offenses. This observation suggests that without imposing limitations on the male sample, it too would have had more than 20% drug arrestees in the same sites. However, it should be noted that the period studied here (1987-89) experienced historic high numbers of drug arrests. The reductions in drug arrests in recent years may have made 20% limitation irrelevant in additional sites.³⁴

Ignoring now the drug arrests, Table 8 shows the relative mix of the remaining core offenses in the DUF sample as compared with UCR arrestees. In some sites (e.g., Multnomah [Portland], Indianapolis, Detroit, New Orleans, and San Antonio) the mix of offenses among the DUF arrestees is very similar to the mix among all arrestees for core offenses. In other sites (Manhattan, San Diego, Houston, Maricopa [Phoenix], Dallas, Birmingham, Cleveland, Kansas City, and San Jose), the violent offenses are underrepresented among the DUF arrestees, probably because in our analysis this category of UCR arrests includes numerous minor assaults. Minor assaults may be misdemeanors which are not booked in these sites. The Philadelphia sample underrepresents the category "other crimes against persons and property," and the mix of offenses in the Chicago sample differs substantially from the mix in the UCR data because the Chicago DUF sample is drawn from a catchment area which is not the entire city, while the Chicago UCR data cover the whole city.

To give an example of the interpretation of Table 8, consider the offense distributions shown for Fort Lauderdale. Examining Fort Lauderdale's male arrestees, 38.6 percent of the totality of UCR arrestees were charged with offenses in the category "other," while only 1.8 percent of the total group of DUF arrestees had arrest charges in the category "other." Considering that during each data-collection quarter only about 200-225 male arrestees are interviewed, 1.8 percent of interviewees is a very small sample size. The category of offenses labelled "usually not selected by DUF for male arrestees" constitute a small percentage of the arrestees in Fort Lauderdale, both in the UCR data and the DUF data. However, in other sites where these offenses comprise a substantial portion of UCR arrestees (for example, Cleveland), it can be seen that this category of offenses is also underrepresented in the DUF data for male arrestees. Based on both the DUF selection procedures and the figures shown in Table 8, the DUF sample cannot be considered as even approximately representative of the totality of UCR arrestees.

³⁴See Recommendation A-9.

Table 7
Average Percent of Drug Offenses Among DUF Interviewees and UCR Arrestees
For Entire DUF Data Period (Up to Three Years)

DUF Site	Total Sample		Core Offenses	
	DUF	UCR	DUF	UCR
<u>Males</u>				
Birmingham	17.9	8.1	19.5	20.4
Chicago	27.0	13.9	28.8	16.8
Cleveland	18.9	16.1	19.6	35.5
Dallas	5.0	8.0	5.2	17.7
Detroit	28.3	11.2	39.9	18.3
Fort Lauderdale	14.2	15.3	17.0	29.7
Houston	25.3	10.7	28.2	27.4
Indianapolis	15.9	3.9	17.8	13.7
Kansas City	2.5	3.7	2.9	9.9
Manhattan (New York)	13.3	13.5	14.6	31.6
Maricopa (Phoenix)	9.6	7.1	11.1	12.6
Multnomah (Portland)	16.0	14.3	19.0	20.6
New Orleans	8.1	11.9	8.8	27.1
Philadelphia	20.2	17.9	21.3	23.4
San Antonio	17.8	12.4	22.7	24.1
St. Louis	14.3	12.7	15.1	15.3
San Diego	29.9	18.2	31.1	38.9
San Jose	16.1	17.9	20.7	40.7
Washington DC	22.1	26.5	26.7	36.4
<u>Females</u>				
Birmingham	20.1	5.8	22.6	8.6
Chicago	31.1	11.0	49.2	16.0
Cleveland	--	--	--	--
Dallas	7.7	8.5	10.9	17.6
Detroit	6.7	8.5	11.5	12.6
Fort Lauderdale	19.8	12.4	34.8	22.4
Houston	17.8	11.8	27.5	25.8
Indianapolis	12.6	3.7	18.8	10.2
Kansas City	6.9	3.6	12.2	11.3
Manhattan (New York)	25.8	13.5	33.8	28.4
Maricopa (Phoenix)	10.0	6.0	14.0	9.8
Multnomah (Portland)	16.9	12.2	26.0	18.4
New Orleans	14.5	9.9	17.3	18.9
Philadelphia	21.1	10.8	24.1	13.2
San Antonio	5.7	11.8	11.3	18.1
St. Louis	7.2	8.9	10.8	10.7
San Diego	34.5	22.5	44.8	40.2
San Jose	18.0	22.5	33.3	36.5
Washington DC	34.1	16.8	55.5	25.8

Table 8
Percent of Adult Arrestees in Five Offense Categories
(Core Offenses other than Drug Offenses)

Site		Males					Females				
		Robbery	Violent	Other Part 1 Property	Person/ Propty	Income Generating	Robbery	Violent	Other Part 1 Property	Person/ Propty	Income Generating
Manhattan (NY)	DUF	16.3	15.3	37.6	14.5	16.3	7.8	16.3	50.5	13.3	12.3
	UCR	11.0	22.0	27.4	29.0	10.6	5.5	17.7	29.6	39.1	8.1
Washington, DC	DUF	9.7	23.3	45.9	16.5	4.6	.8	24.8	48.1	8.5	17.8
	UCR	4.8	17.4	30.1	42.6	5.1	1.7	11.2	23.2	59.7	4.3
Multnomah (Portland)	DUF	6.0	27.7	40.9	20.7	4.6	3.6	13.0	50.5	16.9	15.9
	UCR	4.0	31.5	41.1	19.0	4.4	2.2	18.4	61.1	10.6	7.7
San Diego	DUF	4.9	10.6	58.3	14.7	11.5	1.7	4.6	58.6	17.3	17.7
	UCR	3.6	27.8	42.7	15.9	10.0	1.6	17.8	59.6	11.0	9.9
Indianapolis	DUF	2.8	18.3	42.7	30.9	5.4	1.5	9.8	50.0	28.9	9.8
	UCR	2.3	20.4	34.0	38.6	4.7	.8	7.5	51.5	30.8	9.5
Houston	DUF	7.1	13.2	46.9	23.6	9.1	2.0	14.9	52.7	18.9	11.5
	UCR	3.5	30.9	39.2	21.4	5.1	1.1	16.3	60.7	14.1	7.8
Ft. Lauderdale	DUF	8.5	17.8	40.7	23.1	10.0	.0	5.5	53.4	26.0	15.1
	UCR	3.1	12.6	41.0	37.5	5.8	.8	7.9	50.8	34.9	5.5
Detroit	DUF	10.8	27.0	17.1	34.1	11.0	.0	8.7	15.2	65.2	10.9
	UCR	6.5	23.0	24.1	28.1	18.4	2.3	10.3	16.8	46.1	24.5
New Orleans	DUF	7.8	21.9	37.0	22.0	11.2	1.4	18.9	43.7	23.7	12.3
	UCR	5.6	25.9	30.9	23.9	13.8	1.2	18.7	36.8	23.0	20.3
Maricopa (Phoenix)	DUF	2.5	16.4	36.9	34.5	9.7	.5	11.2	45.1	25.0	18.2
	UCR	1.5	29.9	38.8	25.6	4.1	.5	16.6	57.4	19.5	6.0
Chicago	DUF	10.5	18.9	50.7	16.3	3.6	6.1	27.3	30.3	30.3	6.1
	UCR	2.1	28.8	26.3	40.4	2.4	.9	25.6	39.2	31.3	3.0

Table 8 (Continued)
 Percent of Adult Arrestees in Five Offense Categories
 (Core Offenses other than Drug Offenses)

Site		Males					Females				
		Robbery	Violent	Other Part 1 Property	Person/ Propty	Income Generating	Robbery	Violent	Other Part 1 Property	Person/ Propty	Income Generating
Dallas	DUF	5.4	22.3	48.0	20.3	4.1	2.0	19.4	53.4	15.5	9.8
	UCR	3.1	39.0	38.9	15.8	3.2	1.7	25.1	54.2	11.5	7.5
Birmingham	DUF	9.5	9.3	55.9	5.7	19.6	4.2	5.1	44.9	17.6	28.2
	UCR	2.5	18.0	26.0	30.5	23.0	.5	5.4	22.4	12.9	58.9
Philadelphia	DUF	16.6	21.2	51.7	7.4	3.1	10.2	20.8	52.9	8.7	7.4
	UCR	11.2	20.3	44.3	20.5	3.7	4.1	12.3	37.0	42.2	4.4
Cleveland	DUF	10.6	18.2	41.0	22.7	7.5					
	UCR	6.0	37.7	23.7	23.9	8.8					
San Antonio	DUF	1.2	12.4	46.1	36.4	4.0	1.8	5.9	65.0	12.7	14.5
	UCR	3.3	16.9	45.7	26.3	7.9	1.2	5.3	60.0	11.3	22.2
St. Louis	DUF	6.2	29.3	32.6	27.3	4.7	3.7	21.9	30.2	34.9	9.3
	UCR	3.8	35.7	24.0	31.3	5.2	2.1	35.7	25.2	30.8	6.3
Kansas City	DUF	6.1	18.0	29.1	40.6	6.2	3.5	17.4	37.8	29.6	11.7
	UCR	2.0	42.9	24.3	28.3	2.4	1.3	31.3	39.7	22.2	5.5
San Jose	DUF	2.8	26.1	29.0	28.6	13.4	1.4	12.2	54.1	14.9	17.6
	UCR	2.4	37.7	35.3	15.1	9.4	.5	18.2	60.9	5.3	15.1

Note: See Table 5 for a list of the offenses in each category.

Considering that the male sample is approximately 1000 arrestees per year in each site, it can be seen that with few exceptions each category of arrest charges within the core offense group includes a reasonable sample size of at least 20 to 50 male arrestees per year for further analysis. The same is true of female arrestees in categories other than robbery arrestees. Thus, based on both the DUF selection procedures and these figures, the DUF sample for core offenses was found to be adequate for carrying out additional analyses that statistically extrapolated drug-test results for the DUF sample to the larger group of UCR arrestees.³⁵

7. DUF-interviewed arrestees as compared with eligible arrestees

The major influences on the composition of the DUF sample have already been described: (a) what kinds of arrestees are actually booked and come to one of the booking centers where the DUF program operates, (b) NIJ's selection or priority rules based on charged offense, and (c) local selection rules based on charged offense, sentence status, etc. We also examined, in our site observations and by analysis of the 1987-1989 DUF data, the extent to which arrestees eligible for interview are not available to the DUF interviewers and the extent of noncooperative arrestees. This section shows that both of these factors appear to have a small influence on the DUF sample, partly because the numbers of excluded arrestees are small but primarily because we did not observe any significant sample attrition biases by age, race, or other pertinent factors.

During our site observations that took place during DUF operations in three sites, we recorded every arrestee who arrived at an entrance to the booking center, whether or not the arrestee or his or her paperwork came to the attention of the DUF interviewers. This permitted us to classify and count the types of arrestees who do not become available for interview. For the remaining sites, we obtained information from site directors, in their responses to our mailed questionnaire, about the types of arrestees they are not permitted to interview. Based on this information, we concluded that if a site's interviewers endeavor to complete the top portion of a DUF interview form for every eligible booked arrestee, they will miss only a very small number of arrestees who are diverted or segregated in ways that prevent their paperwork from coming to the attention of the DUF interviewer. (During the 1987-89 period, some DUF sites provided data only for arrestees actually contacted by a DUF interviewer.)³⁶ The arrestees whose paperwork does not come to the attention of DUF interviewers are those with medical problems who are diverted to a hospital and persons whose arrest status is uncertain when they arrive at the booking facility (e.g. adults claiming to be juveniles, or arrestees claiming they are cases of mistaken identity).

Relying, then, on data from sites that completed the top portion of DUF questionnaire forms for noninterviewed arrestees during the 1987-89 period, we estimate that under 4 percent of booked arrestees were unavailable to the DUF interviewers.³⁷ (The average for all sites with relevant data in 1987-98 was 3.9 percent of male booked arrestees and 4.1 percent of female booked arrestees unavailable for interview.) Based on our own observations and the site directors' responses to our questions, the primary categories of arrestees making up this 4 percent are:

³⁵These are described in Sections 8 and 9.

³⁶These sites' data were not included in our analysis of participation rates. Also excluded were sites where local procedures allowed for an arrestee who was not available at one interviewing session to be located and interviewed at a later session or in a different booking facility. These interviewed arrestees would appear to be nonrespondents in the data because the DUF data do not contain any identifiers that would permit linking together an interview form for a "currently unavailable" arrestee with a later completed interview form for the same arrestee. See Recommendation D-2 in Section 10.

³⁷We attempted to define the "unavailable" category in such a way that DUF records for arrestees who were never actually sought for interviews were excluded (not counted as either available or unavailable). However, the current codes allowed on the DUF interview instrument for recording unavailability are not adequate for clearly distinguishing between arrestees who were never actually sought for an interview and arrestees who were sought but were not available. See Recommendation D-2 in Section 10.

Medical problems -- sent to hospital, nurse, or medical floor
"Mental" cases
Suicidal, or claimed suicidal
Too drunk/drugged to book or interview
Too violent to book, or to move to interview area
Arrested while serving a sentence (e.g., parole violation)
Held in protective custody or for another authority
Arrested under warrant, especially bench warrant
Homosexual, transvestite
Speaks a language other than English or Spanish

Not all booked arrestees in these categories are unavailable for DUF interviews; some are brought for interviews anyway, and others are made available for interview at a later time.

The overall participation rate in DUF interviews has been very high, estimated at 92.2 percent (the same for males and females). The excluded 7.8 percent include the unavailable arrestees already mentioned and also arrestees who were contacted but declined to participate in the DUF interview (on average, 3.9 percent). These participation rates are detailed by site in Table 9.

Table 9 also shows that a high percentage of interviewed arrestees provide urine specimens for analysis of the drug content. Overall, 88.7 percent of interviewed arrestees during 1987-89 provided urine specimens.³⁸ Thus, overall, an estimated 81.8 percent of arrestees selected as candidates for DUF interviews during 1987-89 ultimately provided urine specimens.

Table 10 shows that there were no significant patterns of differences in response rates according to charged offense, sex, age, race, education level, or employment at time of arrest.

³⁸This figure includes arrestees who provided urine specimens but whose data were not included in the public-use datasets for this time period. (Either the laboratory was unable to complete the urinalysis, or the results could not be linked to their interview form, or small samples of data collected in start-up sites were not included in the public-use data.)

Table 9
Site Specific DUF Response Rates, Average for 1987-1989

Site	Percent Participating in Interview*			Percent of Interviewed Who Provided Urine Sample		
	Males	Females	Total	Males	Females	Total
Indianapolis	79.9	78.8	79.6	85.3	85.7	85.4
San Jose	85.7	87.3	86.2	85.6	93.6	87.9
San Diego	87.5	87.4	87.4	85.4	83.1	84.9
Washington DC	85.2	88.2	85.9	82.1	82.8	82.3
excluding 1989 Q1	89.6	89.9	89.4	80.7	81.7	81.0
Chicago	90.0	83.3	89.9	80.2	96.1	81.1
Kansas City	89.4	92.1	90.2	84.8	90.7	86.6
New York	94.1	90.3	93.1	94.2	91.2	93.5
Ft. Lauderdale	93.8	91.4	93.3	85.7	84.5	85.5
Philadelphia	92.7	96.9	93.7	84.9	84.7	84.8
Dallas	95.8	93.1	95.0	81.3	82.3	81.6
Detroit	95.8	...	95.8	94.6	90.3	94.2
Los Angeles	96.4	94.2	95.6	93.1	92.8	93.0
Cleveland	96.3	...	96.3	87.8	...	87.8
Portland	95.9	97.9	96.5	90.6	92.0	91.0
San Antonio	96.5	98.8	97.2	88.0	92.7	89.5
St. Louis	97.2	97.2	97.2	88.3	88.4	88.3
Birmingham	...	...	...	90.0	89.8	89.9
Omaha	...	...	...	78.0	68.8	76.9
Phoenix	...	...	...	91.6	91.8	91.6
Houston	...	...	...	91.8	93.9	92.1
New Orleans	...	...	...	96.9	93.2	95.8
Miami	...	...	...	97.8	...	97.8
All sites 1987-1989	92.2	92.3	92.2	88.5	89.2	88.7
N	32234	10032	42266	35002	11263	46265

*Of all booked persons sought for interview, the percent that completed an interview. Counted as "not participating" are arrestees who were not found, arrestees who were sought but were not made available, and arrestees who spoke to an interviewer but declined to participate.

... indicates sites without female arrestees or where data were provided to NIJ only for arrestees who were available and spoke to a DUF interviewer.

Table 10
Drug Use Forecasting Program Response Rates By Category, 1987-1989

	Percent Participating in Interview			Percent of Interviewed Who Provided Urine Sample		
	Males	Females	Total	Males	Females	Total
Total 1987-1989	92.2	92.3	92.2	88.5	89.2	88.7
Offense						
Robbery	93.8	93.4	93.8	91.2	88.2	90.9
Other Part I violent	93.0	95.1	93.3	87.6	87.5	87.6
Part I property	93.1	94.9	93.5	89.1	90.3	89.3
Drug offenses	92.1	92.1	92.1	86.4	88.8	87.0
Other person/property	91.9	90.6	91.7	88.2	89.8	88.5
Income generating	91.7	93.1	92.1	91.0	90.8	90.9
Commercial sex	93.9	92.8	92.9	92.0	89.8	90.1
Other	89.3	91.1	89.8	88.9	88.3	88.8
Usually not DUF	90.6	92.0	91.3	89.3	87.0	88.2
Age						
17-19	94.2	95.0	94.3	89.8	89.7	89.8
20-24	93.4	94.1	93.6	88.5	89.8	88.8
25-29	92.6	93.1	92.7	87.9	89.4	88.3
30-34	91.3	92.3	91.5	87.7	88.8	88.0
35 or over	91.4	91.9	91.5	89.1	88.4	88.9
Race						
Black	92.0	92.7	92.2	88.6	89.1	88.7
Spanish speaking	93.3	95.7	93.7	90.7	92.5	91.1
Other white	93.0	92.5	92.8	86.8	88.5	87.3
Education level						
0-9				90.9	91.1	90.9
10				89.8	90.5	89.9
11				88.7	90.2	89.0
12 or hsgrad				87.6	89.1	87.9
> hsgrad				87.7	87.2	87.6
Employment						
Welfare, SSI				88.9	91.3	90.1
Employed full time				87.5	87.8	87.6
Employed part time				88.1	88.4	88.1
Only odd jobs				88.5	86.7	88.3
Unemployed				89.4	89.1	89.3
Mainly in school				92.1	87.2	91.0
In jail-prison				90.5	90.7	90.5
Housewife				91.3	89.2	89.3
Other				87.7	92.0	90.4
Dealing-drugs				93.1	99.0	94.4
Other-illegal				94.1	93.3	94.0
Other-legal				88.1	90.7	88.9
Data not obtained				89.0	93.9	90.1

8. Post-stratification to weight the DUF sample data

Stratified sampling is a standard survey research technique in which the population from which a sample is to be drawn is divided into two or more subgroups or strata. All population units in the same stratum share one or more characteristics, and the sample is drawn randomly from each stratum, typically by choosing either a total number of population units to be drawn or by choosing a probability of selection that applies to members of each stratum. After the sample had been drawn, the selection probabilities -- known in advance from the stratified design -- are used to estimate characteristics of the total population from the sample. Reasons for stratifying a sample may be to assure that specific subpopulations of interest have adequate sample size or to improve the accuracy of the resulting estimates for a fixed total cost or total number of persons sampled.

Sometimes it is not possible to construct strata before sampling although sampled individuals can be assigned to strata and strata weights can be ascertained after the sample has been completed. For example, if a survey is to be conducted of employees in a company which is partially unionized and where union membership rolls are confidential, it is not possible to stratify employees by union membership in advance. But the researcher could determine whether an employee is or is not a union member after the employee is sampled and interviewed, and then make use of the resulting stratification weights.³⁹ In this case the process of weighting the sample is called post-stratification.

For the DUF sample, we wanted to estimate the percent of a larger population that would have been confirmed to have specific drugs in their urine if they had been tested. We knew, from the DUF sampling procedures, that the probability of selection for interview differed according to the arrestee's sex and charge at arrest, so these are natural variables for defining strata. Based on the observation that in the DUF data drug use levels also differ according to the arrestee's age and race/ethnicity, we defined strata that divided the arrestees into groups according to site, age, sex, race/ethnicity, arrest charge, and the time-period of the data collection.⁴⁰ In the case of the DUF sample, it is not, strictly speaking, true that it was impossible to have originally drawn arrestees randomly according to a stratified design with these strata (since the relevant facts for assigning arrestees to strata are known in advance in most sites).⁴¹ However, as a practical matter a probability sample with a stratified design had not been followed.

We applied the statistical formulas that are appropriate for post-stratification so as to take into account the fact that the relative numbers of DUF arrestees in strata do not correspond to the overall relative numbers of arrestees in strata. Suppose element p has been chosen from a population using a probability sample and we know that element p should be weighted W_p . (If the sample is a simple random sample then $W_p = 1$.) If p belongs to stratum h , stratum h has size N_h , and n_h elements have been selected from stratum h then the weight for p after post-stratification will be $W_h W_p$ where $W_h = N_h/n_h$.

As an example, suppose that in a particular site the DUF interviewers collected data from 18 white males aged 20-24 who had been arrested for drug charges. Suppose further that 720 white males aged 20-24 were arrested for drug charges in the site's catchment area during the corresponding data-collection quarter. Then according to this post-stratification weighting scheme, each DUF arrestee would be weighted by 720/18. If 7 of the sampled arrestees were confirmed by urinalysis to have used opiates (39%), the weighting would result in an estimate that $720 * 7/18$, or 280, of all the arrestees used opiates. The weighted percent is unchanged at 39%, since all the arrestees in this stratum have the same weight. It is only when these drug arrestees are combined with arrestees from other strata that have different weights, that the overall weighted average could be different from the unweighted average percent of arrestees estimated as using opiates.

The categories we used to define the strata were as follows:

³⁹Example is from Kish, Leslie, 1965, Survey Sampling, John Wiley & Sons, Inc., New York, page 91.

⁴⁰This definition was complicated by the fact that the race/ethnicity codes in the DUF data are not the same as in UCR data. See Recommendation A-5 in Section 10.

⁴¹See Recommendation A-3 in Section 10.

Sex
Male
Female

Race/ethnicity
White
Black
Hispanic

Age
18-19
20-24
25-29
30-34
35 and older

Arrest charge (as defined in Table 5)

robbery
violent offenses
property offenses
drug offenses
other serious crimes against person/property
income generating
offenses not usually included in DUF for males
commercial sex
other offenses

and, for some stratifications:

DUF offense excluded in UCR arrest data

As described in Section 6 above, these categories were defined so as to be compatible with both DUF data and UCR data. However, the UCR data do not actually provide a three-way breakdown by age, sex, race within offense charge; they only give a breakdown by age and sex, and a breakdown by race and sex. As an approximation we assumed that the age-sex distribution is similar among racial/ethnic groups and divided the UCR data accordingly.⁴²

For a given site and data collection quarter, the number of booked arrestees in the DUF sample for a specified combination of age, sex, race, and arrest charge could be very small or even zero (no DUF interviewees in a particular stratification cell). We took two precautions to avoid this difficulty. First, we carried out the stratification analysis using combined annual data for each site (as well as using quarterly data for each site). Second, we established post-stratification weights based on aggregates of strata when the number of DUF arrestees in a stratum cell was too small.

⁴²We checked this assumption using the DUF data and found that on the whole the age distribution of DUF-sampled arrestees does not differ strongly among races. However, there were some notable exceptions, such as that young whites are disproportionately uncommon among male arrestees for violent crimes and drug offenses, and young blacks are disproportionately common among female arrestees for Part I violent offenses. Even where there are differences, the overall estimates of the age-sex-race distribution was satisfactory using the assumption of independence between age-sex and race.

For example, suppose the number of white, male DUF arrestees for violent offenses in a particular site and quarter was as follows:

age 18-19	4
age 20-24	6
age 25-29	5
age 30-34	0
age 35+	2
Total	17

Obviously, in this example, the DUF data for the group aged 30-34 cannot be used to estimate drug use among arrestees aged 30-34, since there aren't any DUF data for this stratum. Our calculations of the weights would then, in this instance, have combined all 17 of these DUF arrestees as representing white, male UCR arrestees for violent offenses (i.e., aggregated across age).

We also used several different sequences of aggregation in our analysis, reflecting the fact that the percent of arrestees using certain drugs appeared not to vary much by age, whereas the patterns for other drugs did seem to vary by age. When the post-stratification calculations were applied to annual data rather than quarterly data, there was less necessity for aggregating to higher levels because the sample sizes were larger in the stratification cells.

9. Weighted estimates of drug-use levels

The DUF statistics for percent of adult arrestees with confirmed drug use that are normally published are unweighted averages of either the male sample or the female sample in a site, for either a single quarterly data collection period or for an annual period. Our "base case" unweighted statistics are essentially identical to NIJ's published statistics.⁴³

In our analysis, we calculated many different versions of estimates for the percent of arrestees in each site in each year 1987, 1988, and 1989 who were confirmed users of:

- any of the drugs tested
- any drug other than marijuana
- marijuana
- cocaine
- opiates
- amphetamines
- PCP
- multiple drugs (two or more drugs other than marijuana)

However, the relationship between the "base case" unweighted results and the weighted estimates were qualitatively similar for many different ways of performing the estimates, so here we present only illustrative examples.

⁴³Our DUF analysis files for 1987-89 contained 39208 cases across all the sites. Some cases included in NIJ's publications were excluded in our analysis files as follows: 214 records for adult female arrestees in NIJ's data files that are not in the public-use data files that we used (excluded by NIJ because the total sample size for adult females from the site was under 50 for that quarter); 3 records whose linkage from interview data to urinalysis results may have been erroneous; 396 records that had missing values for one or more of our stratification variables; and 414 records for arrestees aged under 18. The arrestees under age 18 were excluded for purposes of comparison with UCR data, which counts arrestees under age 18 as juveniles even though the age of majority is lower than 18 in some jurisdictions.

Table 11 presents three different versions of the percentage of male arrestees in each site whose laboratory tests confirmed the presence of any of the tested drugs in 1989.⁴⁴ The first column in Table 11 shows the unweighted (base case) percentage, and the second column shows the unweighted percentage for those interviewees who were arrested for a core offense⁴⁵. The sites are ordered according to the concentration of the sample in the category of core offenses (as shown in Table 6)⁴⁶, so it is natural to expect that the sites near the top of the list do not show any noticeable difference between the percentage for the total male sample and the sample of core-offense arrestees, which is the case. Even toward the bottom of the list the differences in estimated percentage of confirmed drug uses become no larger than 4 percentage points.

The third column in Table 11 shows the estimate for core-offense arrestees after weighting to reflect the relative mix of UCR core-offense arrestees by age, race/ethnicity, and arrest charge (in the stratification categories listed above in Section 8.)⁴⁷ Thirteen of these comparisons are within 3 percentage points of the base case estimate, and the largest disparity is 6 percentage points (but it is only 3 percentage points different from the unweighted estimate for core offenses in that site).

Although in some sites there are substantial differences in the percent of confirmed drug users at different ages, or among arrestees of different races or ethnicities, or among arrestees charged with different offenses, and although there are differences along these dimensions between the DUF sample and the UCR arrestee sample, nonetheless the difference in the mix of arrestees (which determined our weights) is not enough to influence the overall estimate by more than a few percentage points.

Table 12 compares the rank ordering of sites according to the percent of male arrestees in confirmed as drug users. The first column gives the rank ordering according to the base case unweighted estimate for the entire sample, and the second column gives the rank ordering for core-offense arrestees as weighted to match the mix of UCR core-offense arrestees. Although there are some shifts in the sequence of sites, they are on the whole not very dramatic. In sum, then, the rank order of sites based on the unweighted base case statistics could not be considered as misleading, compared to a ranking based on an estimate that is in principle more comparable across sites.

⁴⁴Due to incompleteness in the 1989 UCR data for Washington, D.C., and Fort Lauderdale, the comparison is shown for 1987 for these two sites.

⁴⁵As defined in Table 5.

⁴⁶The table includes only those sites for which we were able to ascertain also the UCR arrest statistics for their catchment area.

⁴⁷These estimates could not be calculated in some sites and/or some time periods where the UCR data were incomplete or missing for major law enforcement agencies, or where the relationship between the DUF sample and its catchment area did not permit clearly identifying the reporting law enforcement agencies whose data should be used in the weighting.

Table 11
Three Estimates of the Percent of Adult Male Arrestees
Confirmed as Using Any One or More of the Tested Drugs

	DUF data unweighted "base case"	DUF data unweighted: core offenses only	Weighted by UCR arrestees for core offenses	Difference (Column 3 minus Column 1)
Cleveland	66	67	69	+3
San Diego	82	82	85	+3
Dallas	65	66	64	-1
Philadelphia	81	82	81	0
St. Louis	65	65	64	-1
Chicago	76	76	75	-1
New Orleans	70	71	74	+3
Birmingham	64	64	59	-5
Manhattan (New York)	81	82	82	+1
Houston	66	66	64	-2
Indianapolis	57	59	55	-2
Maricopa (Phoenix)	58	59	58	0
Kansas City	61	60	62	+1
Multnomah (Portland)	64	64	65	+1
Ft. Lauderdale	65	66	68	+3
Washington DC	72	75	78	+6
San Antonio	53	57	57	+4
San Jose	62	59	65	+3
Detroit	64	68	61	-3

Note: Sites are listed in order of the percentage of their adult male DUF sample that are core offenses (see Table 6).

Table 12
 Rank Order of DUF Sites Based on Two Estimates:
 Percent of Adult Male Arrestees
 Confirmed in 1989 as Using Any One or More of the Tested Drugs

<u>Estimate based on</u> <u>unweighted DUF data ("base case")</u>			<u>Estimate for core offenses</u> <u>weighted by UCR arrestees in strata</u>		
<u>Rank</u>	<u>Site</u>	<u>Percent</u> <u>Confirmed Use</u>	<u>Rank</u>	<u>Site</u>	<u>Percent</u> <u>Confirmed Use</u>
1	San Diego	82	1	San Diego	85
2	Manhattan (New York)	81	2	Manhattan (New York)	82
2	Philadelphia	81	3	Philadelphia	81
4	Chicago	76	4	Chicago	75
5	New Orleans	70	5	New Orleans	74
6	Houston	66	6	Cleveland	69
6	Cleveland	66	7	San Jose	65
8	Dallas	65	8	Multnomah (Portland)	65
8	St. Louis	65	9	Houston	64
10	Multnomah (Portland)	64	9	St. Louis	64
10	Detroit	64	9	Dallas	64
10	Birmingham/Jefferson Co.	64	12	Kansas City	67
13	San Jose	62	13	Detroit	61
14	Kansas City	61	14	Birmingham/Jefferson Co.	59
15	Maricopa (Phoenix)	58	15	Maricopa (Phoenix)	58
16	Indianapolis	57	16	San Antonio	57
17	San Antonio	53	17	Indianapolis	53

Table 13 shows a different estimate, but again for male arrestees confirmed as using any one or more of the tested drugs. The estimate in Table 13 standardizes for possible changes in law enforcement practices leading to arrests in a site, or in practices that determine which arrestees are booked and become available for DUF interviews. The weights for this estimate are not derived from UCR arrest data (which itself can shift over time in response to changing law enforcement arrest practices). Instead, the weights for the estimate in Table 13 were developed using only DUF data and show what would have happened if the mix of interviewees within strata (as defined above in Section 8) had not changed over three years. In other words, the mix of DUF interviewees by age, race/ethnicity, and arrest charge was weighted to be the same as the mix in the total group of male arrestees in that site over the three-year period.

For the most part, these estimates also differ from the unweighted base case DUF statistics by only a few percentage points. However, since the changes from year to year are also only a few percentage points, the two different estimates in some instances give different impressions of whether the overall trend was up or down or stable in the percent of interviewees confirmed as drug users.⁴⁸

Based on our earlier observation that the totality of male DUF arrestees are a poor representation of the totality of UCR arrestees, we anticipated that the estimates based on weighting the totality of DUF arrestees would be unstable or widely divergent from the other estimates. The results confirmed that this happened in some sites, primarily because data from a small number of DUF interviewees (say, under 20) are statistically weighted to represent a large number of UCR arrestees (e.g., thousands). We do not present here a complete tabulation, since our conclusion is that it is inappropriate to attempt to make extrapolations to the totality of arrestees. However, some examples of shifts in the estimated percent of males confirmed as using one or more of the tested drug are as follows: Indianapolis in 1989, 57% unweighted, 49% when weighted for all adult male UCR arrestees; Kansas City in 1988, 56% unweighted, 37% when weighted by all adult male UCR arrestees.⁴⁹

Our final table illustrates another use of the technique of weighting the DUF sample by the number of UCR arrestees in strata: it provides a meaningful way of combining the estimates for males and females so as to obtain an overall estimate for arrestees. The combination is made according to the relative numbers of males and females arrestees in each stratum. The results for one specific laboratory drug test (for opiates) is shown in Table 14, rather than the confirmed use of any drug, which appeared in previous tables. The statistics shown are the estimated levels of confirmed use of opiates for UCR core-offense arrestees: males, females, and total. The table illustrates also the previously observed similarity of the estimates for core offenses before and after weighting, as well showing how the estimates for males and females are combined.

In sum, then, our observation from the tables shown here and from similar tables that we examined for other drug tests was this: all versions of estimates for core offenses fell predominantly within a very narrow range of a few percentage points in each site in each year. The estimated level of drug use in each site is about the same, no matter which estimate is used, and the relative order of sites (from highest to lowest drug use for the particular drug) is also about the same no matter which estimate is used for sequencing the sites.

Even though the confirmed drug-use levels of arrestees are correlated with their characteristics that define the strata used in this study (age, race/ethnicity, and arrest charge), within the core offenses the relative mix of DUF arrestees among strata is not sufficiently different from the mix of UCR arrestees for these correlations to affect the overall estimates.

⁴⁸Weighted estimates such as these, which standardize the mix of arrestees within the DUF data for a site, are not difficult to calculate, in contrast with the complexity of weighting by UCR data, which entails specifying the appropriate catchment area for a site in terms of UCR reporting agencies and then obtaining and processing UCR data. Standardized estimates that use only DUF data could be calculated whenever questions arise as to whether DUF statistics are changing over time due primarily to a change in the mix of arrestees in the sample.

⁴⁹A small sample size for Kansas City in 1988 may explain this shift; DUF operations started there at the end of 1988.

Table 13
 Comparison of Trends Using Two Different Estimates
 of Percent of Adult Males Confirmed as Using One or More of Tested Drugs

	Unweighted DUF data "base case"			Core offenses only weighted for constant mix over three years		
	1987	1988	1989	1987	1988	1989
Manhattan (New York)	83	85	81	83	85	82
Washington DC	72		67	76		65
Multnomah Co. (Portland)	70	74	64	75	75	63
San Diego	70	82	82	71	82	83
Indianapolis	60	54	57	61	65	58
Houston	65	66	66	69	64	66
Ft. Lauderdale	65	62	66	69	63	69
Detroit	66	69	64	68	73	67
New Orleans	71	70	70	72	71	71
Maricopa Co. (Phoenix)	55	63	58	56	63	58
Chicago	74	80	76	76	80	78
Los Angeles	69	75	70	74	75	72
Dallas		66	65		68	65
Birmingham/Jefferson Co.		72	64		71	64
Philadelphia		81	81		81	81
Miami		75	71		74	74
Cleveland		68	66		67	67
San Antonio		63	53		63	57
St. Louis		58	63		59	65
Kansas City		56	61		59	60

Note: In the constant mix estimate, the percentage of arrestees in each category of offense, age, and race/ethnicity is the same for all years included in the table (equal to the average for the three-year period).

Table 14
Two Estimates of Percent of Adult Arrestees
Confirmed as Using Opiates

	Year	Unweighted DUF data		Weighted to match mix of core offenses for UCR arrestees		
		Males	Females	Males	Females	Total
Manhattan (New York)	87	25	36	25	41	28
	88	26	26	23	25	23
	89	19	19	20	19	20
Washington DC	87	8	26	9	34	13
Maricopa Co. (Portland)	88	13	25	14	27	16
	89	14	26	15	25	17
San Diego	87	20	39	18	37	22
	88	21	21	19	20	19
	89	22	19	18	18	18
Indianapolis	88	4	7	3	13	4
	89	3	5	3	7	4
Houston	89	4	8	5	8	5
New Orleans	87	5	5	5	5	5
	88	6	7	8	7	8
	89	6	6	10	5	9
Maricopa Co. (Phoenix)	87	6	14	6	13	8
	88	7	12	8	9	8
	89	8	15	9	15	10
Dallas	88	6	10	5	10	6
	89	8	7	7	5	7
Birmingham/ Jefferson Co.	88	6	14	7	8	7
	89	5	5	6	4	5
Philadelphia	88	11	18	12	17	12
	89	10	15	10	14	11
San Antonio	88	19	20	18	20	18
	89	16	21	16	23	17
St. Louis	88	6	7	7	5	7
	89	7	7	7	6	7
Kansas City	88	2	6	4	10	5
	89	3	5	3	6	3

Despite our observations about the small effects of weighting the drug-use statistics during the 1987-89 time period studied, this in no way is presumptive evidence that the same situation applies to more recent DUF data, or will apply to future data or to other sites. Since weighting the DUF data by a constant mix according to arrest charge group is not difficult to accomplish, we would recommend that when substantial changes are observed from quarter to quarter, or from year to year, in unweighted drug-use percentages in a site, it would be prudent to calculate also the estimates weighted for a fixed mix of arrestees. This calculation will help verify that the observed change is not due to changing police practices, or -- should it turn out that the trends in the weighted numbers are not the same as in the unweighted statistics -- will help lead to cautious interpretations of the observed trends.

10. Implications of the Research for Changes in the DUF Program

Our research shows that the DUF program and its data files have achieved many of NIJ's original goals. However, from the start of this project NIJ and its DUF advisors recognized that the sample and its methodological underpinnings should be strengthened so that it could support a much wider variety of uses than originally envisioned. Our conclusions and recommendations about the DUF adult sample in this section are based on our on-site observations at three DUF sites, our experiences in acquiring and analyzing DUF data, and the findings of our analysis. Some of the recommendations, as noted, have already been adopted by NIJ during the course of our research -- either in response to our early findings and suggestions or simply because the changes coincided with preexisting NIJ plans for improvements.

Initial versions of our recommendations were presented at meetings of the DUF site directors and NIJ's advisory board for the DUF program, from whom we received very helpful feedback. We also discussed the recommendations with NIJ's DUF staff and received comments from independent reviewers of our research and draft reports. Since this research project did not examine the DUF sample of juveniles or the possibility of designing a nationally representative sample of arrestees, our recommendations focus specifically on the quality, representativeness, and understandability of the adult arrestee sample at each DUF site.

The conclusions and recommendations are discussed and then listed in detail in the following groupings:

- A. Procedures related to selecting the people who are to be candidates for DUF interviews.
- B. Procedures for documenting or clarifying the sampling universe and the persons selected for interviews, including the persons eligible and not eligible for selection, the specific characteristics of selected persons that made them eligible, and the actual participation status of each person who was originally selected.
- C. Enhancements to the clarity and validity of data items collected about interviewed arrestees.
- D. The nature of DUF data provided to DUF sites and to other researchers.
- E. Presentation of DUF findings in NIJ publications.

A. Arrestees selected as candidates for DUF interviews

Conclusion 1: The current DUF procedures appear to select a sample of interviewees that is highly representative of arrestees who are detained in the particular booking centers where the DUF program operates. The samples and data collected seem to be well suited for determining drug-use patterns among subsets of serious offenders in specific locales. However, making broader interpretations with respect to drug use in hard-to-reach deviant populations requires either a thorough understanding of the details and limitations of the DUF sample or some modifications to the sample.

As intended by NIJ, the DUF sample in most sites provides a good reflection of the population of serious arrestees being booked in particular facilities; in many sites, the sample of adult females also represents arrestees booked for prostitution. Average confirmed levels of drug use for this sample have immediate relevance for some local users of the statistics, for example law enforcement officials who operate the booking centers in the site.⁵⁰

However, because no other national data collection routinely collects information about confirmed drug use in hard-to-reach populations, many suggestions have been raised for extending the interpretations of DUF data. In accordance with NIJ's objectives, the sample clearly is not representative of the universe of all UCR arrestees in the surrounding cities or county, especially arrestees for minor offenses that are normally not booked or are excluded in the DUF selection process. Too, the mix of offenders in DUF samples reflects law enforcement practices of the agencies bringing arrestees to the booking centers, and these practices vary substantially from city to city, from county to county, and over time.

While each site's DUF sample could potentially be modified to be more representative of the total arrestee population in a specified catchment area, it is not clear to us what purpose would be served by such a revised sample, especially considering that the tradeoff is possible disruption of important valid uses of DUF data now being made by local analysts. The recommendations provided in this section were formulated with the objectives that current warranted uses of DUF data could be strengthened and maintained, while additional or extended uses could be made more feasible without great effort (or possibly in some instances with a reduction in effort). We also assumed that the basic structure of operating the DUF program in booking facilities will be maintained.

Conclusion 2: Local law-enforcement practices and real constraints of the DUF interviewing context need to be taken into account in any plan for changing sample selection procedures.

Our research documented instances of lack of uniformity across DUF sites in the types of arrestees and other persons who are received at booking facilities where DUF interviews take place. The rules for selecting adult interviewees are also not precisely the same at all sites. However, we do not feel that promulgating additional nationally standard DUF selection rules would be a workable response to this observation.

While there would be many advantages to having a DUF sample which is defined according to standard rules across all DUF sites, it is important to recognize the real constraints on implementing precise sample selection techniques in busy booking and jail facilities. DUF projects typically take place in overcrowded, understaffed areas, where there is a flow of constantly complaining and sporadically violent arrestees. The paperwork consulted by the DUF staff in the process of selecting DUF interviewees is usually prepared by arresting officers or facility staff for their own departmental use -- not for research purposes. If booking officers need the paperwork or space being used by a DUF staff member or if a large number of arrestees are being moved or fed or locked down, the DUF staff may need to drop what they are doing.

Many details of sites' current selection processes are well adapted to the realities of inmate flow there, or at least were well adapted at the time that DUF sampling was first established at the sites. Furthermore, the ease or difficulty of identifying people who might in the future be planned for exclusion from the sample also differs from site to site. In our recommendations below, therefore, we have avoided suggesting changes that would require DUF interviewers to make on-the-spot sampling judgments, since they work in often chaotic environments and cannot be expected to have the requisite statistical skills. Further, our recommendations are intended to be compatible with continuity in existing site-specific practices, at least in the short term. We envision that any changes in selection procedures could be made cautiously and with due attention to site-specific circumstances.

Conclusion 3: Practical guidelines can be formulated at each DUF site that will move the DUF sample closer to a probability sample.

⁵⁰Marcia R. Chaiken and Jan M. Chaiken, Methods for expanding appropriate State and local uses of Drug Use Forecasting (DUF) information, report to the National Institute of Justice, forthcoming 1993.

The DUF program has always emphasized that it does not have a random sample of arrestees, that it is a convenience sample. Our research confirms that this is true in two ways: (1) in some sites, the booking facilities that house DUF operations were chosen at least partially for practical reasons from among all the facilities that process arrestees from the same law enforcement agencies, and (2) choices of interviewees from among all the inmates who pass through those facilities may also be partially shaped by physical arrangements or other logistical considerations. Although we have concluded that the DUF sample in a site may be highly representative of the arrestees who come to the selected booking center(s) and are intended to be chosen, our experience was that our project had to collect and analyze extensive amounts of additional local information in order to describe how each site's DUF sample is related to the broader world of arrestees.

This aspect of the DUF convenience sample, that the universe represented by each site's sample is not concisely defined for analytical purposes, is one source of criticism of the program. The closer the DUF program can get to having a probability sample (at least for a specified subset of its interviewees), the better, in our view. The discussion that follows explains how the universe for the DUF sample could be defined with more clarity in each site and how the selection of arrestees from that universe could come closer to being a probability sample.

One way to have a probability sample is to assure that -- to the greatest extent possible -- each arrestee's probability of selection for a DUF interview is known from facts that can be ascertained externally (outside of the DUF interview data) for all arrestees. Taking this as a goal, simple guidelines for selection can be developed that would entail DUF staff using only readily available information about arrestees and some prepared lists that are based on random numbers. For example, a guideline could be formulated making an arrestee's probability of selection for a DUF interview dependent only on the arresting agency (or jurisdiction of the arrest), the arrest charge, the date of arrest, and the arrestee's sex -- information almost always logged in arrest reports and often available in booking facility paperwork.

Conclusion 4: Guidelines for selecting each DUF site's sample can concentrate on types of analytically interesting offenses that are routinely booked in the facility and at the same time eliminate categories that are practically not feasible to include.

In pursuit of a probability sample, it may be preferable to have categories of arrest charges with zero probability of inclusion in the sample (because this is a clearly defined probability) than to have some unquantifiable small probability. For example, if arrestees for simple assault (as distinct from aggravated assault) are rarely booked at the DUF facility, we recommend assigning a probability of zero rather than selecting a small number of simple assault cases that happen to appear in the DUF facility. Such cases that do appear are by definition atypical and cannot be viewed as representative of other arrestees charged with the same offense.

We therefore suggest that NIJ should define a primary sample at each site; this would specify the types of arrestees (by charged offense) who are intended to be well represented and for which procedures approaching those of probability sampling are desired. It would be based on a national list of offenses desired to be included in the DUF program, together with a companion list of site-specific exceptions. The national list could be as broad as the "core offenses" identified earlier in this report⁵¹, with the companion⁵ list identifying for each site the specific core offenses whose arrestees are not booked or cannot be interviewed. Or, the national list could be much narrower, such as drug offenses plus the FBI's index or Part I offenses⁵²; in this case the exception list for sites would be more limited but would still specify, for example, that murder is excluded in one or more named sites (where arrested murderers cannot be interviewed).

⁵¹The core offenses are robbery, assault, murder, manslaughter, burglary, larceny, theft, theft of motor vehicle, drug offenses, arson, disorderly conduct, forcible rape, other sex offenses, family offenses, vandalism, weapons offenses, buying/selling/receiving stolen property, embezzlement, forgery and counterfeiting, fraud, and gambling. See Table 5.

⁵²The index offenses are murder, nonnegligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny/theft, and motor vehicle theft. Arson is a Part I offense.

The primary sample should only include newly booked arrestees who meet the requirement in regard to charged offense. Arrestees charged with offenses not on the standard list, and other persons who may arrive at booking centers but who are not arrestees, could be interviewed or not, but would be excluded from the DUF primary sample. (Possible reasons for including them might be for continuity of the DUF data series or because they represent populations whose drug-use patterns are of local interest.) If they are interviewed anyway, their data would simply have to be distinguished in DUF datasets so they can be excluded by analysts who prefer to work with the primary sample.

The current NIJ rule to exclude traffic offenses from the entire DUF sample makes sense because the Uniform Crime Reporting program has not collected data on arrests for traffic offenses. This is an example of a rule that can be applied uniformly by removing traffic offenders from the DUF primary sample if they happen to be interviewed. Arrestees for public intoxication are also good candidates for exclusion from the DUF primary sample, especially since, currently, intoxicated arrestees are administratively difficult to interview. The category of vagrants/loiterers should also continue to be considered ineligible.

Conclusion 5: The definition of a precisely defined DUF primary sample does not have to be entirely accomplished at the time of interviewing.

We suggest an approach that will allow the DUF staff to interview somewhat more persons than will actually be included in the primary sample. To permit after-the-fact identification of the primary sample, the DUF interview forms (or the DUF computer-assisted interview screens) would have to contain the relevant information needed for data editors or analysts to ascertain the interviewee's classification and probability of selection or reason for exclusion.

In some sites, it is impractical to ascertain in advance whether a candidate for interview is in an excluded category, but the answers to a few simple screening questions may unambiguously show that a person is ineligible. In this case, the DUF procedures could, if desired, allow for terminating the interviews. Alternatively, the procedures could provide for the interviews to be continued in the interest of continuity of the DUF time series or of learning more about patterns of drug use in the site. In either event, the answers to the screening questions, as recorded in the data, will provide the necessary information for excluding these interviewees from the DUF primary analysis sample.

Conclusion 6: In some sites where important categories of offenders are not being included in the DUF sample, a possible solution is changing or rotating the specific facilities or areas in facilities where DUF operates.

NIJ's standard list of desired arrestees is likely to include types of persons who for practical reasons have not been included in past DUF samples at one or more sites. If such arrestees are not usually available for interviews at the DUF facility or any other booking location in the site, it is preferable to continue to exclude them from the site's sample. No good purpose is served by expanding the stated selection criteria at a site if in practice the added interviewees will not be representative of the intended group.

If previously excluded but interesting types of arrestees are available elsewhere in the same facility or at other facilities in the same city, DUF site directors should be encouraged to review their agreements or understandings with host agencies with a view toward improving the representativeness of their sample. Many of the agreements between DUF site directors and host agencies were established at the beginning of the DUF project in the site and have not been reviewed subsequently. Changes may have occurred in the meantime in the flow of arrestees through the booking facility.

Also, especially in sites where DUF interviewing was initiated many years ago and the arrangements have not been subsequently reviewed, the limitations imposed on DUF interviews may have arisen from criminal justice agencies' concerns about urine testing itself or about researchers' presence in the facility. By now, booking facility staff and others in the agency may well agree that urine testing of inmates is not controversial and that the presence of DUF interviewers within the booking facility does not pose any substantial problems. In some sites, expansion of DUF interviews to other facilities may be eased if it happens that the same people who serve as DUF interviewers are already interviewing arrestees there for other purposes such as unrelated research projects.

Another reason for raising the possibility of conducting interviews at additional booking facilities is to provide better coverage of arrestees in a given catchment area. Especially in sites where the DUF interviewers currently collect data from only one of several booking locations used by a major law enforcement agency, the DUF interviews should be expanded to additional booking facilities. This expansion need not be implemented permanently for every data collection quarter; instead, DUF interviews could be conducted at different facilities on a rotating basis, so that the sample is representative of the entire catchment area over a period longer than one quarter, say a year.

For example, in New York City DUF interviews are currently conducted in Manhattan in every data collection quarter. An alternative worth considering is to collect DUF data in Manhattan during one quarter, in Brooklyn the next quarter, in the Bronx the next quarter, and so on until cycling back to Manhattan. The data from the various boroughs could then be assembled together with appropriate weighting, and would be representative of New York City's arrestees. Such an expansion need not be any more complex or costly than the current procedures and would coincidentally add much greater interest to the DUF data.⁵³ Expansion of the number of potential interviewing locations will also insulate the DUF sample from being influenced by (possibly temporary) changes in operation at one booking center which do not reflect any broader (e.g., citywide or countywide) changes in law enforcement policy or practice.

Based on these conclusions, we developed the following recommendations concerning the DUF sample selection procedures. These recommendations are designed to respect the conditions under which the DUF program currently operates, allow for continuity in the local DUF data series, and enhance the capability of the data to support analysis for broader national policy purposes.

Recommendation A-1. Changes to the DUF selection process should not be made piecemeal but should be coordinated across all sites by a team that visits the sites. At least one person in the site visit team should be experienced in sample design or sampling statistics. The team should develop a written plan for all sites' selection procedures which should be reviewed and approved before implementation of any changes that will modify present procedures substantially. The team's work should be guided by the DUF methodology advisory group and should include specifying details of procedures that will accomplish the recommendations that follow.

Recommendation A-2. A standard list of DUF offenses should be defined, including at least the UCR index offenses. The DUF primary sample should consist of newly arrested persons charged with these offenses, with known exceptions of specific offenses in sites where arrestees for those offenses are normally not available for interview.

Recommendation A-3. To the extent possible, the primary sample should be obtained by random choice of arrestees who have specific characteristics that in principle can be ascertained externally (i.e., without conducting an interview or knowing specifically the circumstances at the booking center) for all arrestees. The sample design team should specify the characteristics of candidate arrestees to be recorded by the DUF staff and the procedures the DUF staff should use for making random selections. Selection should not be made from a pool of arrestees unknown to the DUF staff and known only to others, such as criminal justice agency personnel.

Recommendation A-4. The site-specific categories of arrestees to be excluded from the DUF primary sample should be identified by an evaluation of the types of arrestees who are unlikely to be booked, or to be held in the booking facility long enough to be interviewed. Candidates determined to be suitable for exclusion from the DUF primary sample may nonetheless be interviewed and then marked for exclusion in the DUF primary sample data files, if this is convenient, cost-effective, or serves other purposes of the DUF program. They should also be excluded from the primary sample if they happen to be interviewed by mistake.

⁵³ However, if Manhattan data are to be continued in every quarter so as to maintain continuity of the DUF series, then the New York sample size would have to be increased, with concomitant cost increases.

Recommendation A-5. Before excluding any group of arrestees in a site, consideration should be given to whether changes in arrangements or access agreements with the host criminal justice agency could result in including them.

Recommendation A-6. Booked persons who are not newly arrested for a crime should not be included in the DUF primary sample. The interview form (or computer-assisted interview screen) should provide room for describing categories of nonarrestees, in case they are interviewed anyway. Examples of persons to be excluded are convicted offenders arriving at the booking facility to begin serving a sentence, inmates arriving at the facility after work release or to serve a weekend sentence, probationers, parolees, and defendants on pretrial release who have violated technical conditions of their release, etc.⁵⁴

Recommendation A-7. Where the current geographic catchment areas of DUF booking facilities cannot be matched to jurisdictions of law enforcement agencies that report arrests under the UCR system, the situation should be repaired where feasible. For example, the DUF sample could be expanded by initiating DUF interviews at additional booking facilities.

Recommendation A-8. Multiple interviewing opportunities should be avoided for arrestees who arrive at multiple facilities or at single facilities multiple times in connection with a single arrest incident. The sample design team should assist sites in developing procedures to be used for excluding multiple interviewing opportunities. We have ascertained that it is not a reliable method to inquire of the interviewee whether he or she has previously been interviewed.

Pursuing our recommendation A-3, above, will require changing the current DUF priority scheme for adult male arrestees. Under this scheme the probability of selection for a particular arrestee depends on operational factors such as how busy the booking center is.⁵⁵ Such selection rules should be avoided because then the relative selection probabilities depend upon factors that cannot be known externally.

Recommendation A-9. The current DUF priority scheme for adult male arrestees, which includes a 20% limit on arrestees charged with drug offenses, should be abandoned. The first priority should be to interview all (or a fixed percentage of) newly arrested persons who are charged with offenses that are included in the site's primary sample (with the percentage applied randomly to each arrestee). Then other arrestees, or booked persons who are not arrestees, can be interviewed if desired and convenient (accepting the fact that arrestees for these other charges will not comprise a probability sample).

If the overall fraction of arrestees for drug offenses in a site is much higher than 20 percent, NIJ may still wish to lower the probability of selection for drug offenders as compared to the probability for other offenses. There are many ways to do this while avoiding influence of operational factors in the booking center. For example, the fixed percentage for randomly selecting drug offenders could be lower than for other offenders, or drug offenders could be interviewed only for the first seven days of data collection (or some other appropriate number of days as defined by the sample design team based on the site's past total percentage of drug arrestees), following the same procedures as apply to other arrestees in the primary sample. It would also be possible to interview drug offenders until the desired total number is obtained (currently 45 drug arrestees in a data collection period), and then stop. Whatever method is chosen, a record should be kept of the total number of drug arrestees who would have been selected for interview had no cutoff been applied.

These methods for reducing the relative proportion of drug offenders are suggested not only because they are less dependent on operational factors but also because they are administratively simpler than the

⁵⁴ See the complete list in section 5.

⁵⁵ For example, when there are enough nondrug arrestees to keep the interviewers busy, no drug arrestees are to be chosen. The probability of selection may also depend on what offenses have been charged against other arrestees even when the booking center is quiet. If the 20% limit on adult male drug offenders has been reached, a male drug offender will not be selected until four arrestees on other charges have been found and interviewed.

present "constant 20% percent limit," which sounds simple but is actually difficult to implement, especially if males and females are being selected from a single list, but an attempt is made to select males -- only males -- according to some ongoing percentage calculation which is related to the other males already interviewed.

If choices must be made for sequencing the interviews of arrestees who have been selected for the primary sample, priority should be given to types of arrestees that may leave the facility rapidly.

B. Documenting the Selection Process

Conclusion 7: Appropriate use of DUF data requires clarification of the population from which the DUF sample is selected at each DUF site.

In order for analysts to properly understand and interpret the DUF data, particularly any changes over time in the estimated drug use levels of the sampled arrestees, they need more precise and current information about the sample than has been available to them in the past. Whether they are analysts at NIJ or at the DUF sites, or are researchers performing secondary data analysis, they should be able to know what Uniform Crime Reporting arrest data correspond to the geographical catchment area for each DUF site and what offenses were sampled with what relative probabilities. Since UCR data are organized according to the reporting law enforcement agencies, it is important to know for each DUF interviewee which agency made the arrest.

Although our project documented the sampling procedures and the catchment areas in terms of UCR reporting agencies at one point in time in 1991, this information is inadequate for ongoing research purposes. NIJ should undertake to update and record important sample descriptor information for each site and each data collection quarter. In our experience, the DUF site staff may or may not have information about these matters. For example, if a sheriff's department closed a booking facility that was never used for DUF interviews, and instead sent those arrestees to a booking facility that is used for DUF interviews, there might be no way for the DUF staff to be aware of this or to notice that arrestees from additional locations were now being included in their sample.

Recommendation B-1. NIJ or its contractor should develop a reporting form for describing geographic catchment at each DUF booking center and the types of arrestees who are booked there. This form should be filled out by a cognizant staff member of the host justice agency that operates the booking facility where DUF interviewing takes place. The form should, at a minimum, show the agency identifier (ORI) for every law enforcement agency that brings arrestees to the booking center, and an indication of whether the agency also brings some arrestees to another booking center.

The first time this form is used it could be accompanied by information collected by our project, and provided to NIJ, which would assist respondents in knowing the nature of the information desired and the applicable answers for 1991. Subsequent quarters' reporting forms could simply provide for the respondent to mark changes or check a box indicating "no change since last quarter."

Recommendation B-2. NIJ should commission the crime analysis units or information services units of major sheriffs departments or police departments whose arrestees go to DUF booking facilities to provide tabulations of total arrestees and booked arrestees (for the same time period, e.g. a calendar year), subdivided by sex and arrest charge.⁵⁶

The purpose of these tabulations will be to validate the information provided on the reporting form (Recommendation B-1) and to determine the extent to which arrestees charged with various offenses are actually booked. In jurisdictions where the tabulated data reveal it is easy to characterize the relationship (e.g., "all arrestees are booked except for the following offenses..."), the recommended tabulation need be prepared only once. In more complex circumstances, the tabulation may need to be prepared regularly in order to characterize the universe of booked arrestees represented by the DUF sample.

Recommendation B-3. NIJ should develop a reporting form, to be filled out by all DUF site directors each quarter, indicating whether they know of any changes since the previous quarter in geographic catchment, booking practices, or selection procedures at the booking facilities where DUF interviews take place.

Although the knowledge of the site directors may not be authoritative or complete, they sometimes have pertinent information that is not currently recorded anywhere in a systematic fashion. The reporting form should be designed so as to encourage the DUF site directors to consult with high-level agency staff and become familiar with relevant changes in procedures.

Recommendation B-4. The DUF interview form (or dataset produced by computer-assisted interviewing) should be modified to show the arresting agency for each interviewee.

We have tested the feasibility of obtaining this information by asking one DUF site director to have the interviewers write the name of the arresting agency on the DUF interview form for one quarter. In this site, there was no difficulty in obtaining this information for any of the interviewees. However, interpreting the information required additional analysis since police officers used a variety of different abbreviations for the same agency. Normally arrestees who arrive at a booking center are accompanied by an arrest report that shows the name of the arresting agency; however, DUF interviewers do not necessarily examine that particular report and may have to make new arrangements in order to do so.

The interview forms should be tailored for each site to provide check boxes for the most common agencies that arrive at the booking center. This would be particularly easy to accomplish if NIJ adopts computer-assisted interviewing.

Recommendation B-5. Change the DUF interview forms (or computer-assisted interviewing program) to achieve compatibility with UCR race/ethnicity codes. There should be one code for white, black, or other races, and a second code for Hispanic or nonHispanic.

Recommendation B-6. The information to be obtained by NIJ about DUF catchment areas, offenses included and excluded from the primary sample at each site, and sampling probabilities for each offense at each site should be summarized quarter-by-quarter and included in the documentation of DUF datasets. The source reporting forms (Recommendations B-1 and B-3) should also be available to researchers who request them.

All of the activities described in the above recommendations should be coordinated and monitored by NIJ's central contractor. Some changes in allowed categories of DUF contractors' expenditures may be required to accomplish this.

⁵⁶The tabulation could be for a convenient month, quarter, or year when DUF interviewing took place. The arrest charge should be coded in standard categories, such as NCIC offense codes, or the Uniform Crime Reporting codes used by law enforcement agencies when reporting to the FBI their counts of "arrests by age, sex, and race."

C. Enhancing the clarity and validity of data items

Conclusion 8: To avoid misinterpretation, DUF data require more precise specification of codes, and

Conclusion 9: DUF data can be more amenable to rigorous analysis if DUF offense codes are congruent with local penal codes and/or UCR offense codes.

We learned through our research that interpretations of certain data items and codes on the DUF interview forms were not being made consistently across sites or even among DUF interviewers at the same site. We are not recommending that every defect of this type needs to be repaired but only those that are important for interpreting the DUF data or understanding the relationship between DUF data and other sources of information about arrestees.

For example, we found early in our research that the codes used in the data for identifying the DUF site and interviewed arrestee were not always adequate to make an unambiguous link between interview data and the urinalysis results for the same arrestee. (ID numbers or interview forms were occasionally being reused, especially if the first interviewee with the ID declined to participate or refused to provide urine.) Since this link is very important for interpreting the DUF data, and the NIJ DUF staff had already experienced problems with these data items, NIJ undertook to change the labels that are placed on interview forms and urine sample containers. The current peel-off labels appear to avoid the earlier ambiguities.

By contrast, although we found potential problems with the accuracy of the item on the DUF interview form designed to distinguish between misdemeanors and felonies (at least in the one site where we studied it), enhancing its validity may be difficult and not worth the effort. This variable is not needed for analyses such as comparing DUF arrestees with Uniform Crime Reporting data.⁵⁷ Furthermore, in some sites the misdemeanor/felony status of certain arrests is not settled at the time the DUF interview takes place; it is determined later by a prosecutor or court. For these reasons, greater accuracy in the misdemeanor/felony variable may not be warranted unless it were to be used for data-selection or analysis purposes.

Inaccuracies or ambiguities that we found in recording of offense categories in DUF data did present obstacles to our research, so we are recommending changes here related to coding of arrest charges. These changes, if adopted, will enhance the generalizability of future DUF data, allow for clear identification of the arrestees who are to comprise each site's primary DUF sample, and allow for analyzing the drug use patterns of comparable groups of arrestees at different sites. The use of standardized offense codes is also likely to enhance the credibility and usefulness of DUF datasets among law enforcement agency analysts.

The DUF interview form includes a list of offense categories, one of which is to be chosen to characterize the highest arrest charge, and the form also includes a text field where the interviewer is to write a description of the arrest charge and another field for writing the local penal code for the highest arrest charge. We found that the offense categories allowed on the DUF interview form are not entirely consistent with UCR coding and that arrest charges are not coded into DUF offense categories consistently within or across sites. Further, the information recorded by interviewers in the text descriptor field is not necessarily adequate for NIJ's contractors to correct or edit the data that shows the DUF offense category.

In some sites the DUF interviewers are not provided with any prescribed way of converting official penal law codes or offense names into DUF offense categories, and even if a site has prepared a notebook or wall chart for this purpose it may not be convenient or possible for interviewers to consult it during interviewing. We are therefore recommending procedures that would allow enhancing the validity and usefulness of the DUF offense codes at several different stages of data preparation.

⁵⁷ Since the felony/misdemeanor distinction is defined by State or local legislation, it has not played a role in the FBI's "uniform" national data. A possible use of the felony/misdemeanor variable would be to compare drug use statistics from a DUF site where only felons are interviewed with the corresponding statistics for the felony-arrestee subset in other sites. Strictly speaking, however, such a comparison would only be valid for DUF sites within the same state.

Recommendation C-1. The DUF offense categories should be brought into line with standard UCR categories. To accomplish this, either the DUF program should adopt the same offense categories and definitions as are used by law enforcement agencies when they report to the FBI's National Incident Based Reporting System (NIBRS), or NIJ should revise the DUF offense categories to be compatible with NIBRS categories. Since the NIBRS program allows coding multiple arrest charges for a single arrest, the DUF data collection process should also allow for coding at least a secondary arrest charge.

If the DUF program adopts the NIBRS offense categories, NIJ may in addition wish to define some subdivisions to maintain consistency with prior (i.e., existing) DUF data.

If the DUF program maintains the basic structure of its existing DUF offense categories, the following ones need to be revised, modified, or clarified by NIJ:

Negligent manslaughter should be distinguished from nonnegligent manslaughter (which the FBI includes in the murder category).

Aggravated assault should be distinguished from simple assault. (Although the felony/misdemeanor distinction, already recorded in the data, may be a good guide for this, in general felony assault is not synonymous with aggravated assault in all jurisdictions).

Stolen vehicle should not include "possession of stolen vehicle" -- which is not part of the UCR auto theft category.

Stolen aircraft, boats, etc. should be included as stolen vehicle.

"Stolen property" should be clearly distinguished from "larceny/theft" and "stolen vehicle." (Perhaps "possession of stolen property.")

The distinctions among sex assault, sex offenses, and commercial sex should be clarified.

The category "family offenses" should be subdivided. In addition to the general category, separate codes should be provided for at least spousal assault (which is included with assault in UCR data), child abuse, and sexual abuse within the family, all of which NIJ currently intends should be included under "family offenses." (In the FBI's UCR definitions, family offenses are child abandonment, nonsupport, and the like.)

Allow for recording the type of offense when a person is arrested for a probation, parole, or ROR violation that involves commission of a crime (e.g., assault). If the DUF interview form allows for coding two arrest charges, it would be possible to record both "probation violation" and "assault." Such an arrest would be recorded as an assault in UCR data.

Clarify the desired coding of drug manufacture, distribution, or smuggling.

Drug offenses should be coded in a way that permits identifying the kind of drug(s) involved (also using codes compatible with the NIBRS codes).

Recommendation C-2. NIJ should have each site prepare a complete list of the appropriate DUF offense codes to be used for each of their jurisdiction's offenses.

At least one DUF site has already prepared such a list. The list could be used by local coding editors who check the filled-out interviews, or by NIJ's contractor's editors. Or, the contractor could prepare site-specific computer programs for converting the penal law code into a DUF offense category during computer-assisted interviewing or after hard-copy interview data have been keyentered.

If NIJ adopts the UCR offense codes, then the DUF staff would not have to prepare this list but instead could obtain a copy of the local coding rules from their law enforcement agency's crime reporting staff.

If certain offenses are definitely felonies or definitely misdemeanors, this information should also be shown on the local list of offenses. In this way, if NIJ chooses to improve the validity of the felony/misdemeanor entries on the interview forms, relevant site-specific information will be available.

Recommendation C-3. NIJ should instruct DUF interviewers to record the exact penal code or exact official wording of the arrest offense for the item labeled "most serious charge" on the DUF interview form. Interviewers should not use this space to enter a restatement in words of the DUF offense code or of the interviewee's self-reported offense.

Recommendation C-4. Allow more space to record the Penal Law Code and provide instructions that explain what is to be written here, using various terminology that applies in different jurisdictions.

The current DUF procedure guide just states that the penal law code for the most serious offense is supposed to be written here, which is not helpful if there is no such thing as a "penal law" in the jurisdiction (i.e., if it has some other name, such as "criminal code"). In some sites, interviewers simply repeat the DUF offense code here (for example, if the offense is auto theft (30), then the penal code is recorded as 00030), which is not helpful for checking the validity of the DUF offense code.

Recommendation C-5. Allow for two different location codes to be recorded: (1) location of the arrest, and (2) location of arrestee's residence. In addition, the geographic codes used in the various sites should be assembled and included in the DUF dataset documentation.

Some sites' DUF interviewers have access to information about the arrestee's residence address but not information about the location of the arrest; some have information about both. Currently each site's staff decide what they want to write in the space on the interview form labelled "precinct/location of arrest," but their decisions are not codified for analysis. Different purposes are served by the two types of location information -- data about residence location helps to clarify drug problems in communities, while data about arrest location helps to relate DUF-sampled arrestees to the universe of arrestees and to drug crackdowns by law enforcement agencies.

Recommendation C-6. Change or give clearer instructions for the question which now reads "Was the person charged with a warrant only?"

The purpose and context of this item need to be clarified. If it serves only to highlight the low priority intended to be given to certain types of arrests, NIJ might want to drop the question in accordance with Recommendation A-9, above. On the other hand if it is intended to exclude arrestees who have already been booked for the same arrest incident and are now being re-booked for failure to appear for a court proceeding related to the incident, then it should be clarified as a screening question in connection with Recommendation A-8 above.

This question needs clarification because the word "warrant" does not have a uniform meaning from place to place, and even if NIJ attempts to define it, interviewers will still be influenced by local legal definitions of the term. In some jurisdictions, arrest warrants are normally sought prior to or soon after making an arrest, and law enforcement officers may not hold a felony arrestee for more than a few hours without obtaining a warrant. In these jurisdictions the good current felony arrests are those with warrants, and the modifier "only" on the interview form is not adequate to clarify what types of arrests are intended.

Recommendation C-7. Discourage the practice of using inmates who speak foreign languages as interpreters between DUF interviewers and arrestee interviewees.

D. DUF data provided to sites and researchers

Conclusion 10: The DUF program is virtually the only federal agency project collecting drug use information that provides relatively recent data files to interested independent researchers. However, there remain bureaucratic and technical barriers to obtaining and analyzing DUF data for research purposes.

DUF site directors have access to their own site's DUF data for each data-collection period by downloading SPSS/PC data files from an electronic bulletin board. Following each data-collection period, NIJ's contractor prepares a sequence of DUF files. First each site's interview data are keyentered and prepared as an SPSS/PC data file. The contractor receives paper listings of the quarter's urinalysis results, indexed by interviewee ID, and they merge these urinalysis data with the previously-prepared interview data file (also sending copies of each site's paper listings to the site director).

The merged data file for each site includes only the interviewees whose urine was tested and contains the urinalysis results and additional variables computed from the source data. The site files are made available to site directors for downloading from an electronic bulletin board, and the files for all sites together are made available to NIJ's analysts. After a considerable delay, NIJ's contractor completes editing, cleaning, and documenting the data and makes the data available in annual files for public use by researchers. For example, the final public use version of the 1989 DUF data file which we needed for the current research was made available to us in early 1992.

The nature, content, and timeliness of the DUF data files can be improved for both management and research purposes. The interview files which contain records for nonrespondents as well as respondents who provided urine specimens could potentially be used by site directors to examine their patterns of nonresponse and to undertake remedial training or other action as required. However, these files are not merged with urinalysis data, so it is not possible to know from them whether an interviewee did or did not provide a urine specimen which is included in the final DUF data. (The file shows only whether the interviewer recorded that a urine specimen had been provided.)

For nonrespondents, the codes in the data files showing reasons for nonresponse are inadequate for clear analysis of response patterns and response rates. For example, the codes do not permit determining whether the person was never actually chosen to be called for an interview, or even was not chosen at the current time but then became a respondent at a later time when called.

The files that site directors may obtain in preliminary form are not systematically replaced or updated as errors are identified and corrected, so that even years later the site's analysts may be working with files that do not correspond with their site's data in the national DUF public use data.

Recommendation D-1. NIJ should prepare DUF data files that are suitable for analysis of sample attrition by site directors and others. These files should include interview data for nonrespondents and interviewees who did not provide urine specimens. They should also show whether or not each person's urinalysis results were obtained.

Recommendation D-2. To facilitate analysis of sample attrition, codes should be added to the DUF interview instrument (or computer-assisted interview protocol) to clarify the circumstances of nonrespondents' unavailability. A code should be provided to show that the person was not (at this time) even called for an interview. (For example, the interviewers may have filled out the top of the interview form but not had time to initiate this interview.) Another code should indicate "released or moved from this floor or facility (e.g., court or ROR)". The category "ill, asleep" should be expanded and clarified to refer to persons who are located in the facility or floor where they would ordinarily be accessible for interview but an interview was not permitted. Additional codes for unavailabilities should be developed by NIJ's contractor's examining the text information that interviewers wrote to describe "other unavailability" in past DUF data.

Elsewhere, interview forms should allow a space to indicate the circumstance that a respondent also has a previous DUF interview form showing him or her as a nonrespondent, and to enter the ID number that identifies the previous noninterview form, if known.

Recommendation D-3. After a site's data files have been edited and cleaned by NIJ's contractor, the current versions of the files should be provided to the site director.

Recommendation D-4. NIJ should seek ways of expediting the availability of public use DUF data files.

E. Presentation of results in DUF publications

Conclusion 11: In previous years, incomplete descriptions of the DUF sample in NIJ publications unnecessarily discouraged some researchers, especially those who are skilled in sample design, from using the DUF findings or exploiting DUF data in their analyses.

While many readers of NIJ's periodic DUF publications are more interested in the findings than in methodological details, use of precise terminology and inclusion of details in footnotes can greatly enhance the respectability of the publications and the DUF data series among readers, especially researchers, who do care about methodology. Early in the work of this research project we noted that the term "arrestees" as used in DUF publications was unnecessarily vague, and we suggested that the term "booked arrestees" should be substituted. Even though our study shows that not all booked arrestees are necessarily eligible for selection, and some persons who are not arrestees are included in the sample, the term "booked arrestees" does give a more accurate impression of the reality of the sample than does the unmodified term "arrestees." NIJ adopted this suggestion in its DUF publications.

Similarly, we recommended that geographical descriptors in DUF publications that are simply the name of the city where the DUF booking center is located should be replaced by names more descriptive of the actual catchment area, such as "Manhattan" instead of "New York" and "Multnomah County" instead of "Portland" (at least in a footnote). Further, the catchment areas should be described in detail in occasional publications in this series. This suggestion has also been adopted by NIJ.

Recommendation E-1. NIJ's DUF publications should use terminology and footnotes that accurately describe the catchment area and sample composition at each site, highlighting any pertinent changes since previous publications.

Conclusion 12: Although DUF publications appropriately caution readers against making comparisons of drug-use levels and patterns across sites or otherwise drawing inappropriate conclusions from the tabulations as presented, future changes in the sample design and in the data analysis underlying NIJ's publications could permit meeting readers' expectations for more rich and interesting findings about drug use patterns and differences around the country.

In another forthcoming research study⁵⁸, we find that administrators in State and local agencies are applying DUF findings to many different appropriate purposes, including setting treatment priorities, allocating law-enforcement resources, and training staff who deal with drug-involved offenders on a day-to-day basis. The research has also discovered that, in spite of the cautions provided by NIJ, administrators and policymakers are also comparing findings in one city or county with findings from other areas and drawing possibly unsupported conclusions.

⁵⁸Marcia R. Chaiken and Jan M. Chaiken, Methods for expanding appropriate State and local uses of Drug Use Forecasting (DUF) information, report to National Institute of Justice, forthcoming 1993.

Implementation of several of the recommendations discussed above will result in defined DUF subsamples that can be better compared across sites. NIJ publication of these comparisons will support more appropriate uses of DUF data among criminal justice professionals and administrators in other public and private organizations.

Future Implications of These Findings

The DUF program is the only federally-sponsored data collection activity that systematically obtains laboratory-verified drug use information about individual residents. It is also the only national data collection effort that methodically collects information about drug use from populations that are underrepresented in student and household surveys. By defining a primary DUF sample and assuring that the universe and sampling probabilities for that sample are well understood, NIJ's analysts will be able to weight the sample data and generalize the results to broader populations. The relatively minor changes in documentation, data collection procedures, and analytical practice suggested in this report can be first steps toward increasing the usefulness of DUF findings as an important basis for national policy, and, at the same time, support State and local needs for valid information about patterns of drug use specific to their area.

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