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Research Report

Crack, Powder Cocaine, and Heroin: Drug Purchase and Use Patterns in Six U.S. Cities

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A report on research conducted under the joint auspices of the
National Institute of Justice and the Office of National Drug Control Policy

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Executive Summary

This document presents information collected from 2,056 recently arrested powder cocaine, crack cocaine, and heroin users from Chicago; Manhattan; Portland, Oregon; San Antonio; San Diego; and Washington, D.C. It highlights information concerning where and how arrestees obtained and used drugs. Researchers used a survey with approximately 100 questions to gather information on the proximity of drug purchases to the buyer's home and neighborhood; the buyer's relationship to the seller; the elapsed time, duration, and frequency of purchases; the size and price of drug transactions; how income is generated for drug purchases; the presence of firearms during drug transactions; quantities of drugs typically used; the form of drug and mode of administration; frequency of drug use and cessation; reasons for cessation; and polydrug use patterns.

The analysis revealed significant differences within and across drug types. Furthermore, within a given drug type (such as crack) significant differences existed across cities, across racial, ethnic, or age groups, or across other such definable subgroups. Across drug types, there were nearly always differences, no matter what demographic or summary measure was considered. Unless otherwise specified, the results include adult males and females but exclude juveniles.

Summary of User Findings

- Crack users reported living in shelters or on the streets more frequently than did other drug users in most sites. About 11.5 percent of crack users in Washington, D.C., and 8.5 percent in Manhattan reported living in a shelter prior to arrest; 16 percent of crack users in San Diego, 13 percent in Manhattan, and 12 percent in San Antonio reported being on the streets prior to arrest.
- Substantial fractions of respondents across all drug types reported that public assistance was their primary source of income prior to arrest. In some cities, certain drug users (such as Manhattan crack users) were more likely to report public assistance as their main form of income than full- and part-time work combined.
- White and Hispanic participants spread their drug use relatively evenly across the powder, crack, heroin, and combination heroin markets. Black participants primarily used crack.

Summary of Purchase Patterns

- Heroin and powder cocaine users were more likely to report using a main source (a single individual) than crack users.
- For most drugs in most sites, white drug users were more likely than black drug users to report using a main source.
- Respondents were most likely to report using a main source who was of their own racial or ethnic background, regardless of the drug considered.
- On average, crack users reported knowing more dealers from whom they could make purchases than did powder and heroin users.

- A large majority of crack and heroin users reported that they typically made purchases outdoors. Smaller (though still large) fractions of powder purchasers reported that they usually bought drugs outdoors.
- Similarly, crack and heroin users were more likely than powder users to report that they usually made their purchases in their own neighborhoods.
- Users reported that substantial majorities of indoor purchases were made in residences. Powder users reported that they typically made indoor purchases in places of business more frequently than did other users.
- Large fractions of respondents (although not a majority in most cities or for most drugs) reported being unable to complete a drug purchase at least once in the year prior to arrest. The inability to locate a dealer and the dealer's lack of supply were frequently offered as explanations for failed purchase attempts. In addition, large fractions of Manhattan respondents reported police activity as the reason for their failed transactions.
- Substantial majorities of respondents from all drug use categories and all sites reported making at least one purchase in the week before arrest. Among these, powder users recorded the lowest mean number of purchases (ranging from 3 to 9); heroin and crack users reported much higher mean numbers of purchases in the week prior to arrest (ranging from 6 to 15 for heroin and 6 to 14 for crack).

Summary of Use Patterns

- Study participants were very likely to test positive for drugs, indicating that they had used narcotics in the 72 hours before arrest. In all sites, 90 percent or more of the crack respondents tested positive for cocaine, and more than 75 percent of the heroin respondents tested positive for opiates. In five out of six sites, more than 70 percent of the powder respondents tested positive for cocaine.
- In most sites, substantial majorities of heroin users described themselves as daily users. In contrast, approximately 40 to 50 percent of crack users and 10 to 40 percent of powder users described themselves as daily users.
- Among those describing themselves as daily users, powder and crack users generally reported consuming their drug more times per day than did heroin users.
- Larger proportions of heroin users than of powder or crack users reported daily or near-daily use in the 90 days prior to arrest.
- A majority of powder users in Manhattan claimed that periods of nonuse or abstinence in the 90 days prior to arrest formed part of their regular use patterns, and similar trends were found in other sites. A plurality of crack and heroin users also reported that their regular patterns included periods of nonuse. Substantial fractions of Manhattan crack users reported cost ("could not afford") and being "tired of [the drug] life" as an explanation for periods of nonuse. Among heroin users in Manhattan, more than one-third attributed a recent period of abstinence to either being in treatment programs (nearly 24 percent) or being incarcerated (nearly 12 percent).

In summary, these findings suggest that the powder, crack, and heroin markets differ substantially from one another in a variety of ways, including how users buy and consume the drugs. Detailed information about drug habits and patterns would be a valuable tool for local law enforcement officials, service providers, and policymakers.

In terms of specific drugs and markets, crack stands out for its significant exposure to law enforcement intervention. Crack transactions are more frequent than powder or heroin transactions (in aggregate), and crack transactions are more

likely to take place under conditions that expose users to risk of arrest (for example, outdoors, where they are visible to law enforcement). In addition, crack users also have more extensive networks of dealers; these wider networks introduce additional risks, including the opportunity for compromise by law enforcement.

When reviewing the results of this study, it is important to remember that two design factors prevent the patterns and characteristics exhibited by study participants from being representative of drug users in any other locations. First, these six cities are distinguished by their high rates of heroin use. Second, the population interviewed as part of this project consisted entirely of individuals who were arrested; it is likely that drug users who have not been arrested engage in different drug use and procurement patterns.

Even so, the results suggest that the arrestee population is appropriate for exploring motivations for drug use and the impact of policy interventions. With appropriate questions, arrestee interviews could explore such critical factors as deterrence, substitution of one drug for another, and the interaction between policing operations and the need for treatment services.

Study Methodology

In 1993 and 1994, the Office of National Drug Control Policy (ONDCP) demonstrated that heroin users could be interviewed to describe various aspects of drug market activity, including the length of time it takes heroin users to locate and purchase the drug.[1] Improving the understanding of search costs more accurately portrayed the full costs users pay for drugs and helped policymakers identify factors that affect the availability of drugs. In 1995 ONDCP, in collaboration with the National Institute of Justice (NIJ), extended this analysis to include two additional drugs—powder cocaine and crack cocaine. This new study, called the procurement study, was executed as an addendum to NIJ's Drug Use Forecasting (DUF) program[2] and sought to explore additional features of drug market participation and use, both within and across drug types and cities. While earlier market studies involved developing separate data collection samples, the procurement study was fielded as a supplement to the ongoing interviews of arrestees as part of the DUF program. The study was exploratory and was intended to address the practical and policy implications of different drug market participation patterns. Although this study cannot identify what policies work best in a given drug market, it does provide important insights on how drug markets differ and how drug users and drug markets are affected by different circumstances.

The procurement study, which added 100 questions to the DUF interview, was implemented quarterly for 1 year in six DUF sites (Chicago; Manhattan; Portland, Oregon; San Antonio; San Diego; and Washington, D.C.). These sites were selected because they had consistently shown the highest rates of heroin use among the DUF sites, and they had substantial levels of cocaine use. It was important to select cities with a high heroin prevalence in order to ensure that the study included an adequate number of heroin users.[3]

The DUF interview consists of fewer than 30 questions and is currently implemented in 23 sites nationwide. The questions generate major demographic and descriptive data, including age, gender, race or ethnicity, education, living arrangements, sources and amounts of income, marital status, drug treatment history, self-assessment of need for treatment, emergency room history, and recent criminal behavior. At the end of the interview, respondents—all of whom are recent arrestees—are asked to provide a urine specimen that is tested for 10 drugs, in order to validate their self-reported drug use.[4] Since the drug-screening assay cannot reliably detect most drugs beyond 72 hours after use, arrestees who have been incarcerated for more than 48 hours do not qualify for the DUF interview. During the procurement study period (third quarter of 1995 through second quarter of 1996), more than 11,000 arrestees in the

Table 1. Attrition of Participants in Main DUF

	Approached	Interviewed	Provided Specimen	Completed[a] (%)
Chicago	906	870	832	91.8
Manhattan	1,499	1,470	1,436	95.8
Portland	2,591	2,105	1,902	73.4
San Antonio	1,861	1,740	1,679	90.2
San Diego	1,986	1,801	1,593	80.2
Washington, D.C.	2,711	1,901	1,539	56.8
Total	**11,554**	**9,887**	**8,981**	**77.7**

[a] This column reflects the percentage of those who were approached who consented both to being interviewed and to providing a urine specimen.

six procurement study sites were asked to participate in the DUF interview. Of these, 8,981 agreed to participate in the main DUF interview and to provide a urine specimen. Table 1 provides a summary of participation in the DUF by study city.

Eligibility for the procurement study was defined as having completed the main DUF questionnaire and having reported powder, crack, or heroin use in the 30 days prior to arrest.[5] Arrestees who reported having used more than one type of drug during the 30 days preceding arrest were eligible for more than one interview.[6] More than 2,900 individuals were eligible to participate in the procurement study, potentially representing 3,603 completed interviews (see table 2).

A total of 2,056 drug users were interviewed for the procurement study. Study interviews were conducted with about 42 percent of the eligible powder users, 70 percent of the eligible crack users, and 52 percent of the eligible heroin users, although there was substantial variation by site and gender (see table 3). In addition, two separate interviews were completed with about 63 percent of the eligible heroin-and-powder users and 57 percent of the eligible heroin-and-crack users. Table 3 summarizes eligible arrestees' participation in the study. These differential rates are at least partially explained by the fact that interviewers were instructed to attempt to interview crack users first, followed by heroin users and powder

Table 2. Eligibility for Participation in Procurement Study, by Drug, Gender, and Age Group

	Powder			Crack			Heroin			Heroin and Powder			Heroin and Crack			Total
	M	F	J	M	F	J	M	F	J	M	F	J	M	F	J	
Chicago	106	—	—	130	—	—	152	—	—	37	—	—	40	—	—	465
Manhattan	182	95	—	265	201	—	191	109	—	81	46	—	65	60	—	1,295
Portland	105	79	3	95	89	1	100	85	4	57	51	0	26	32	1	728
San Antonio	52	24	10	22	8	10	43	19	4	18	11	2	3	2	2	230
San Diego	89	23	9	123	35	10	73	27	8	33	16	0	25	6	1	478
Washington, D.C.	37	16	0	120	62	1	58	41	1	21	11	0	24	14	1	407
Total	**571**	**237**	**22**	**755**	**395**	**22**	**617**	**281**	**17**	**247**	**135**	**2**	**183**	**114**	**5**	**3,603**

Note: A dash indicates data were not collected from that gender or age group at a given site.
Key: F = adult female, J = juvenile, M = adult male

Table 3. Percentage of Eligible Arrestees Participating in Procurement Study, by Gender and Age Group

	Powder			Crack			Heroin			Heroin and Powder			Heroin and Crack			Total
	M	F	J	M	F	J	M	F	J	M	F	J	M	F	J	
Chicago	34	—	—	68	—	—	80	—	—	14	—	—	55	—	—	59
Manhattan	43	28	—	67	69	—	37	33	—	78	67	—	65	78	—	55
Portland	40	33	67	69	58	0	49	42	50	77	59	100	35	41	0	52
San Antonio	29	50	100	64	38	20	63	53	0	78	72	100	67	50	50	63
San Diego	53	26	100	77	91	40	55	41	63	52	63	100	68	67	100	63
Washington, D.C.	30	25	*	77	90	0	55	76	0	33	36	100	38	29	0	62
Total	**45**	**32**	**73**	**71**	**71**	**27**	**55**	**44**	**41**	**61**	**61**	**100**	**55**	**61**	**40**	**57**

Note: A dash indicates data were not collected from that gender or age group at a given site. An asterisk indicates that there were no eligible (i.e., reporting past 30-day drug use) arrestees at the site.
Key: F = adult female, J = juvenile, M = adult male

users. Because previous studies provided an overview of heroin markets, this research emphasized interviewing crack users.[7]

The procurement interview consisted of approximately 100 questions and collected data on both drug purchase patterns and drug use patterns. The purchase pattern questions addressed such issues as the proximity of purchases to the buyer's home and neighborhood; the relationship between buyer and seller; frequency of purchases; source of income for drug purchases; and the presence of firearms during drug transactions. Use pattern questions focused on the amount of narcotics typically used; frequency of use and cessation; and polydrug use patterns.

Two-thirds (1,620) of the interviews were conducted with adult males; 785, with adult females. Among juvenile participants, 49 were boys and 16 were girls.[8] Of all these individuals, 350 completed an interview only for powder, 821 only for crack, and 471 only for heroin; 242 completed separate instruments for both powder and heroin, and 172 completed separate instruments for both crack and heroin. (These latter two groups are often referred to as combination heroin users in the text.) Because some respondents completed more than one form, there were actually 2,470 completed interview forms—993 for crack, 592 for powder, and 885 for heroin. Table 4 summarizes participation in the study by site. Table 5 breaks this information

Table 4. Number of Individuals Participating in Procurement Study, by Interview Type

	Powder	Crack	Heroin	Heroin and Powder	Heroin and Crack	Total Individuals Interviewed
Chicago	36	89	122	5	22	274
Manhattan	105	316	106	94	89	710
Portland	70	118	87	78	22	375
San Antonio	61	19	37	25	4	146
San Diego	63	131	56	28	22	300
Washington, D.C.	15	148	63	12	13	251
Total	**350**	**821**	**471**	**242**	**172**	**2,056**

Table 5. Participants in Procurement Study, by Gender and Age Group

	Powder			Crack			Heroin			Heroin and Powder			Heroin and Crack			Total
	M	F	J	M	F	J	M	F	J	M	F	J	M	F	J	
Chicago	36	—	—	89	—	—	122	—	—	5	—	—	22	—	—	274
Manhattan	78	27	—	177	139	—	70	36	—	63	31	—	42	47	—	710
Portland	42	26	2	66	52	0	49	36	2	44	30	4	9	13	0	375
San Antonio	31	12	18	14	3	2	27	10	0	14	8	3	2	1	1	146
San Diego	47	6	10	95	32	4	40	11	5	17	10	1	17	4	1	300
Washington, D.C.	11	4	0	92	56	0	32	31	0	7	4	1	9	4	0	251
Total	**245**	**75**	**30**	**533**	**282**	**6**	**340**	**124**	**7**	**150**	**83**	**9**	**101**	**69**	**2**	**2,056**

Note: A dash indicates data were not collected from that gender or age group at a given site.
Key: F = adult female, J = juvenile, M = adult male

down by gender and adult/juvenile status, while table 6 contains data on racial categories.

Profile of Users

Age

Table 7 summarizes information regarding the age of individuals participating in the study (excluding juveniles). In general, powder users were the youngest group (although not in all sites). Also, combination heroin users were generally the oldest. Some of the differences in average age were statistically significant at the site level. Age differences can have practical significance, in that they may signal different initiation rates. For example, recent initiation into crack use has been relatively low in a number of DUF sites, resulting in an aging of the crack-using cohort in those cities.[9]

Living Arrangements

Primary living arrangements of the respondents varied by site. A majority or strong plurality of Chicago and Manhattan residents, regardless of their drug use category, reported living in an apartment in the 30 days prior to arrest. Overall, more than 40 percent of the users of each drug reported living in an apartment, although this distribution is affected by the concentration of apartment dwellers in Chicago and Manhattan. In contrast, a majority or strong plurality of respondents in Portland, San Antonio, San Diego, and Washington, D.C., reported living in a house. At

Table 6. Participants in Procurement Study, by Race

	Powder				Crack				Heroin				Heroin and Powder				Heroin and Crack				Total
	B	W	H	O	B	W	H	O	B	W	H	O	B	W	H	O	B	W	H	O	
Chicago	16	9	11	0	72	4	13	0	100	10	8	4	2	1	1	1	21	1	0	0	274
Manhattan	62	22	19	2	228	28	55	5	39	28	38	1	31	32	29	2	44	18	23	4	710
Portland	8	48	13	1	65	45	3	5	10	69	7	1	5	46	16	11	8	13	0	1	375
San Antonio	5	16	40	0	12	3	4	0	3	9	24	1	1	4	20	0	1	1	2	0	146
San Diego	5	19	37	2	92	21	17	1	4	26	25	1	4	14	9	1	6	10	6	0	300
Washington, D.C.	15	0	0	0	137	8	1	2	55	8	0	0	10	2	0	0	11	1	1	0	251
Total	**111**	**114**	**120**	**5**	**606**	**109**	**93**	**13**	**211**	**150**	**102**	**8**	**53**	**99**	**75**	**15**	**91**	**44**	**32**	**5**	**2,056**

Key: B = black, H = Hispanic, O = other, W = white

Table 7. Mean Age of Participants in Procurement Study, by Drug

	Powder (1)	Crack (2)	Heroin (3)	Heroin and Powder (4)	Heroin and Crack (5)
Chicago	30.0	34.0	32.1	34.0	34.4
Manhattan	34.3	34.9	33.9	34.8	36.5
Portland	31.4[5]	33.0	34.2	32.3	37.8[1]
San Antonio	27.3	33.2	32.3	32.7	29.5
San Diego	29.0[2,3,4]	34.6[1]	34.9[1]	37.4[1]	33.6
Washington, D.C.	35.3	34.0	37.3	38.0	36.8

Notes: One-way analysis of variance, Bonferroni pairwise significance test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number.

the city level, heroin users were the most likely to report living in public housing, although the specific type of heroin use (heroin only, heroin and powder, or heroin and crack) that was prevalent among residents of public housing varied from city to city.

Crack users typically reported living in shelters more frequently than other drug users at the city level. Overall, 7 percent of crack users lived in a shelter for most of the 30 days prior to arrest, including 11.5 percent in Washington and 8.5 percent in Manhattan. In Chicago and Portland, combination heroin users reported living in shelters more frequently than crack users. Typically, however, such situations involved relatively small numbers of respondents. In the nonqualifying DUF population (that is, those who did not report using these drugs in the 30 days prior to arrest), less than 2 percent reported living in shelters immediately before arrest.

Similar findings were evident with respect to those respondents living on the streets. That is, crack users typically reported being on the streets more frequently than other drug users, although the rates for combination heroin users were generally comparable. Overall, San Diego reported the highest street-living rate (16.5 percent across drugs), a finding that may be largely attributable to the area's benevolent climate. The rate of street living for procurement study participants was substantially higher than the rate for the general DUF population. Between 3 and 4 percent of the nonqualifying DUF respondents reported living on the streets prior to their arrest, compared to rates that were three and four times higher in this study population. Table 8 summarizes issues related to living arrangements.

Sources of Income

A sizeable fraction of the respondents reported that their main source of income was either full-time or part-time work. San Antonio reported the highest rate of employment (either part-time or full-time) across drug use categories, 65 percent. Manhattan reported the lowest rate of combined full- and part-time work, less than 28 percent. Generally, at the site level, powder users were most likely to report work as the primary source of their income (the specific percentages varied by city). Table 9 presents information relating to income sources by site and drug used.

Combined across drug categories, more Manhattan participants reported public assistance as their largest single source of income (more than 32 percent) than all forms of work combined (less than 28 percent). In contrast, about 11 percent of the San Antonio respondents reported public assistance as their primary source of income. Across cities, powder users generally reported public assistance as their primary income source

much less frequently than other drug users. Crack, heroin, and combination heroin users reported public assistance as their primary income source with greater frequency than powder users.

A much larger fraction of women (31 percent) mentioned public assistance as a main source of income than of men (14 percent). In no city did males report public assistance as a main source of

Table 8. Living Arrangements Prior to Arrest, as Percentage of Total Participants, by Site and Drug

	Drug Used	Living Arrangements (%)				
		Public Housing	Private Apartment	House	Shelter	Street
Chicago	Powder	8.3	63.9	27.8	0.0	0.0
	Crack	2.2	51.7	29.2	5.6	6.7
	Heroin	4.9	57.4	32.0	0.8	3.3
	Heroin and Powder	20.0	40.0	40.0	0.0	0.0
	Heroin and Crack	9.1	13.6	13.6	9.1	0.0
Manhattan	Powder	17.1	60.0	12.4	1.9	6.7
	Crack	22.5	43.7	10.1	8.5	13.0
	Heroin	24.5	50.9	11.3	5.7	3.8
	Heroin and Powder	9.6	58.5	13.8	4.3	13.0
	Heroin and Crack	20.2	52.8	10.1	7.9	7.9
Portland	Powder	2.9	39.7	29.4	4.4	15.0
	Crack	3.4	35.6	40.7	3.4	8.5
	Heroin	2.4	38.8	44.7	1.2	9.4
	Heroin and Powder	4.1	39.2	24.3	6.8	18.0
	Heroin and Crack	4.5	31.8	54.5	4.5	0.0
San Antonio	Powder	14.0	32.6	44.2	2.3	4.7
	Crack	5.9	23.5	47.1	5.9	12.0
	Heroin	16.7	19.4	47.2	0.0	14.0
	Heroin and Powder	9.1	18.2	59.1	0.0	14.0
	Heroin and Crack	0.0	33.3	33.3	0.0	33.0
San Diego	Powder	0.0	34.0	50.9	0.0	11.0
	Crack	0.0	49.6	23.6	2.4	16.0
	Heroin	0.0	50.0	36.0	0.0	12.0
	Heroin and Powder	0.0	37.0	44.4	0.0	19.0
	Heroin and Crack	0.0	23.8	33.3	0.0	43.0
Washington, D.C.	Powder	6.7	26.7	53.3	13.3	0.0
	Crack	7.4	38.5	35.8	11.5	3.4
	Heroin	9.5	41.3	41.3	6.3	1.6
	Heroin and Powder	18.2	18.2	54.5	9.1	0.0
	Heroin and Crack	7.7	38.5	38.5	7.7	7.7

Note: Not all responses fell into one of the five types of living arrangements shown here; therefore, percentages may not total 100.

income more frequently than females. Manhattan had the highest percentage of both males (19 percent) and females (37 percent) reporting public assistance as their primary source of income, while San Antonio had the lowest rate for males (4 percent) and Portland for females (19 percent).

Table 9. Main Sources of Income Prior to Arrest, by Site and Drug

		Main Source of Income (%)					
		Public Assistance	Work (Full- and Part-Time)	Family	Drug Dealing	Other Illegal Activities	Other
Chicago	Powder	5.6	61.1	5.6	13.9	0.0	13.9
	Crack	17.1	57.3	7.3	9.8	0.0	8.5
	Heroin	17.4	52.2	5.2	18.3	0.0	7.0
	Heroin and Powder	0.0	50.0	25.0	25.0	0.0	0.0
	Heroin and Crack	26.3	36.8	0.0	31.6	0.0	5.3
Manhattan	Powder	25.0	39.1	4.3	19.6	2.2	9.8
	Crack	35.5	26.7	10.8	13.9	6.0	7.2
	Heroin	32.9	32.9	5.3	15.8	6.6	6.6
	Heroin and Powder	34.6	24.7	3.7	18.5	8.6	9.9
	Heroin and Crack	31.3	10.4	6.0	31.3	11.9	9.0
Portland	Powder	13.1	39.3	6.6	11.5	9.8	19.7
	Crack	20.4	43.7	8.7	7.8	9.7	9.7
	Heroin	21.6	41.9	1.4	10.8	4.1	20.3
	Heroin and Powder	11.7	31.7	3.3	33.3	6.7	13.3
	Heroin and Crack	26.7	20.0	6.7	33.3	0.0	13.3
San Antonio	Powder	12.2	78.0	2.4	0.0	2.4	4.9
	Crack	18.8	56.3	0.0	0.0	6.3	18.8
	Heroin	7.4	66.7	0.0	3.7	3.7	18.5
	Heroin and Powder	26.7	33.3	13.3	0.0	20.0	6.7
	Heroin and Crack	0.0	100.0	0.0	0.0	0.0	0.0
San Diego	Powder	5.9	62.7	2.0	13.7	2.0	13.7
	Crack	24.8	35.9	9.4	10.3	3.4	16.2
	Heroin	20.4	46.9	8.2	8.2	0.0	16.3
	Heroin and Powder	23.8	19.0	4.8	23.8	14.3	14.3
	Heroin and Crack	20.0	33.3	0.0	26.7	0.0	20.0
Washington, D.C.	Powder	21.4	57.1	0.0	14.3	0.0	7.1
	Crack	18.0	51.1	7.9	2.9	2.9	17.3
	Heroin	25.0	35.7	16.1	3.6	5.4	14.3
	Heroin and Powder	16.7	33.3	16.7	16.7	0.0	16.7
	Heroin and Crack	15.4	23.1	15.4	0.0	7.7	38.5

Note: Percentages may not total 100 due to rounding.

A large fraction of the respondents generated their main income from illegal activities. The highest rate of participation in illegal activities to provide primary income was found in Manhattan and Chicago (24 percent across drug categories) and the lowest in Washington, D.C. (less than 8 percent). Prostitution was not counted in the "other illegal" category, but was counted in "other." Among females, about 20 percent of combination heroin-and-powder users and 10 percent of all other drug users reported deriving the largest share of their income from prostitution.

Table 10 shows average monthly incomes by primary source category. That is, it shows the average total income for the 30 days preceding arrest, with the respondents grouped according to the primary reported income source. These data are limited to Manhattan because it is difficult to reliably combine data across sites. Even though Manhattan is not necessarily representative of the other sites, it offers the advantage of having more data than any other study location. The results should not be generalized to other sites.

Approximately 20 percent of the respondents reported no legal income; 55 percent reported no illegal income; and the balance reported a combination of legal and illegal income. In Manhattan, those who reported welfare and Supplemental Security Income (SSI) as their major financial resource had an average monthly income of $514 prior to arrest, ranging from $607 for heroin-and-powder users to $395 for powder users. Not all of that money came from welfare and other public sources; rather, that was the average total income for people who reported public assistance as their *primary* source of income. If median, rather than average, incomes were used, the amounts would drop, but the relative ranks would remain the same.

Arrest Charges

Participants in the procurement study were more likely than nonparticipating DUF respondents to have been arrested on drug charges (see table 11). For many nondrug offenses, the percentages were approximately equal in the two groups. However, both violent and weapons offenders were represented less frequently in the procurement study than in the DUF study. The higher rate at which drug offenders were represented in the procurement study suggests that recent drug use is concentrated among drug offenders. An examination of recent DUF statistics confirms that drug offenders (and those arrested on prostitution charges) are more likely than most other arrestees to test positive for cocaine and other drugs.[10] A likely expla-

Table 10. Average Monthly Income in Manhattan, by Reported Primary Source of Income

Source of Income	Procurement Study Participants					DUF Participants
	Powder	Crack	Heroin	Heroin and Powder	Heroin and Crack	
Welfare/SSI	395	452	536	607	583	462
Working Full Time	1,357	1,710	1,619	2,186	1,831	1,675
Working Part Time	736	883	2,000	3,437	900	1,006
Family	1,110	399	913	467	740	361
Other Legal Activities	6,087	917	1,667	1,507	n/a	1,767
Prostitution	1,500	2,093	3,360	1,871	2,500	3,112
Dealing Drugs	5,342	2,361	1,538	2,328	2,135	2,779
Other Illegal Activities	886	1,769	2,176	2,238	1,354	1,754

Key: n/a = data not available, SSI = Supplemental Security Income

Table 11. Arrest Charges of Study Participants

Arrest Charge	Addendum Participants (%)	DUF Participants (%)
Drug Possession	23.8	14.6
Larceny	17.8	15.3
Violent Offense	11.8	18.0
Drug Sale	9.9	7.1
Burglary	6.2	5.6
Vehicle Theft	3.0	3.7
Weapons Offense	2.0	4.1
Prostitution	1.5	1.1
Sex or Domestic Violence	1.2	0.6
Resisting Arrest	1.0	1.7
Other	21.9	28.2

Note: Percentages may not total 100 due to rounding.

nation for the overrepresentation of drug offenders in the procurement study may be that recent use is found disproportionately among drug offenders and the study screened for recent use. Since drug offenders participated in the procurement study with disproportionate frequency, it is important to examine whether such users have market participation characteristics that distinguish them from other users. Thus, data for drug offenders and nondrug offenders are reported separately in some analyses.

Race and Drug Use

Tables 12 and 13 illustrate the intersection of race and drugs in different ways. Table 12 shows percentages by race within drug use categories. Table 13 shows percentages by drug use category within race. Both tables are divided into drug offender and nondrug offender categories. This division demonstrates the relative stability of drug use across offense patterns and partially adjusts for drug arrest practices that may disproportionately affect certain groups in the cities.

Table 12 reveals that blacks generally constitute a majority or plurality of users within all drug categories. For example, approximately 73 percent of crack-using drug offenders and 72 percent of crack-using nondrug offenders in Manhattan were black. Table 12 also reveals that whites' largest share of a drug category's population was generally among heroin users (however, in Portland, whites were disproportionately represented among powder cocaine users as well). Excluding Chicago (because of the small number of whites interviewed), whites constituted anywhere from more than 75 percent of the heroin population (Portland) to 16 percent (Washington, D.C.).

Table 13 reveals that drug use is relatively evenly spread across powder, crack, and heroin among both whites and Hispanics. That is, approximately equal proportions of whites can be found among crack, powder, heroin, and combination users; a similar pattern holds for Hispanics. Many deviations from this general pattern are shown in table 13, but these are usually accompanied by a small number of observations.

In contrast, table 13 reveals that drug use among blacks is highly concentrated in crack. In every city but Chicago, more than 50 percent of the blacks interviewed reported that they used crack. Generally, heroin was the drug next most frequently reported by blacks. The concentration of black drug use in crack appears regardless of whether the individual was arrested on a drug offense or a nondrug offense. Thus, even if arrest practices for crack unduly result in excess arrests of blacks on crack charges, the high rate of crack use among black nondrug offenders indicates that something other than drug arrest practices must be invoked to explain drug use patterns among black arrestees.

Table 12. Drug Use by Race of Arrestees

Drug Offenders Only

N / Row %	Powder				Crack				Heroin				Heroin and Powder				Heroin and Crack			
	B	W	H	O	B	W	H	O	B	W	H	O	B	W	H	O	B	W	H	O
Chicago	1	3	2	0	14	2	6	0	29	1	4	1	0	0	0	0	8	1	0	0
	16.7	50.0	33.3	0	63.6	9.1	27.3	0	82.9	2.9	11.4	2.9	0	0	0	0	88.9	11.1	0	0
Manhattan	9	7	7	0	74	12	15	0	9	8	12	1	8	12	8	0	14	8	9	1
	39.1	30.4	30.4	0	73.3	11.9	14.9	0	30.0	26.7	40.0	3.3	28.6	42.9	28.6	0	43.8	25.0	28.1	3.1
Portland	7	14	6	0	23	15	1	1	3	24	5	0	1	15	10	5	3	3	0	1
	25.9	51.9	22.2	0	57.5	37.5	2.5	2.5	9.4	75.0	15.6	0	3.2	48.4	32.3	16.1	42.9	42.9	0	14.3
San Antonio	0	1	10	0	5	1	0	0	1	1	4	0	1	0	3	0	0	0	0	0
	0	9.1	90.0	0	83.3	16.7	0	0	16.7	16.7	66.7	0	25.0	0	75.0	0	0	0	0	0
San Diego	3	8	19	1	42	9	8	1	0	9	12	0	3	3	3	0	1	5	4	0
	9.7	25.8	61.3	3.2	70.0	15.0	13.3	1.7	0	42.9	57.1	0	33.3	33.3	33.3	0	10.0	50.0	40.0	0
Washington, D.C.	1	0	0	0	28	6	0	0	21	4	0	0	3	0	0	0	2	0	1	0
	100.0	0	0	0	82.4	17.6	0	0	84.0	16.0	0	0	100.0	0	0	0	66.7	0	33.3	0

Nondrug Offenders Only

Chicago	15	6	9	0	58	2	7	0	71	9	4	2	2	1	1	1	13	0	0	0
	50.0	20.0	30.0	0	86.6	3.0	10.4	0	82.6	10.5	4.7	2.3	40.0	20.0	20.0	20.0	100.0	0	0	0
Manhattan	53	15	12	2	154	16	40	3	30	20	26	0	23	20	21	2	29	10	14	2
	64.6	18.3	14.6	2.4	72.3	7.5	18.8	1.4	39.5	26.3	34.2	0	34.8	30.3	31.8	3.0	53.6	18.2	25.5	3.6
Portland	1	33	6	1	42	30	2	4	7	43	2	1	4	29	5	4	5	10	0	0
	2.4	80.5	14.6	2.4	53.8	38.5	2.6	5.1	13.2	81.1	3.8	1.9	9.5	69.0	11.9	9.5	33.3	66.7	0	0
San Antonio	3	13	16	0	7	2	2	0	2	8	20	0	0	3	15	0	1	1	1	0
	9.4	40.6	50.0	0	63.6	18.2	18.2	0	6.7	26.7	66.7	0	0	16.7	83.3	0	33.3	33.3	33.3	0
San Diego	2	9	11	0	49	11	7	0	4	15	10	1	1	11	5	1	5	5	1	0
	9.1	40.9	50.0	0	73.1	16.4	10.4	0	13.3	50.0	33.3	3.3	5.6	61.1	27.8	5.6	45.5	45.5	9.1	0
Washington, D.C.	14	0	0	0	109	2	1	2	34	4	0	0	6	2	0	0	10	1	0	0
	100.0	0	0	0	95.6	1.8	0.9	1.8	89.5	10.5	0	0	75.0	25.0	0	0	90.9	9.1	0	0

Key: B = black, W = white, H = Hispanic, O = other

Table 13. Race of Arrestees by Category of Drug Use

Drug Offenders Only

	Black					White					Hispanic					Other				
N Row %	Powder	Crack	Heroin and Powder	Heroin and Crack	Heroin	Powder	Crack	Heroin and Powder	Heroin and Crack	Heroin	Powder	Crack	Heroin and Powder	Heroin and Crack	Heroin	Powder	Crack	Heroin and Powder	Heroin and Crack	Heroin
Chicago	1 1.9	14 26.9	29 55.8	0 0	8 15.4	3 42.9	2 28.6	1 14.3	0 0	1 14.3	2 16.7	6 50.0	4 33.3	0 0	0 0	0 0	0 0	1 100.0	0 0	0 0
Manhattan	9 7.9	74 64.9	9 7.9	8 7.0	14 12.3	7 14.9	12 25.5	8 17.0	12 25.5	8 17.0	7 13.7	15 29.4	12 23.5	8 15.7	9 17.6	0 0	0 0	1 50.0	0 0	1 50.0
Portland	7 18.9	23 62.2	3 8.1	1 2.7	3 8.1	14 19.7	15 21.1	24 33.8	15 21.1	3 4.2	6 27.3	1 4.5	5 22.7	10 45.5	0 0	0 0	1 14.3	0 0	5 71.4	1 14.3
San Antonio	0 0	5 71.4	1 14.3	1 14.3	0 0	1 33.3	1 33.3	1 33.3	0 0	0 0	10 58.8	0 0	4 23.5	3 17.6	0 0	0 0	0 0	0 0	0 0	0 0
San Diego	3 6.1	42 85.7	0 0	3 6.1	1 2.0	8 23.5	9 26.5	9 26.5	3 8.8	5 14.7	19 41.3	8 17.4	12 26.1	3 6.5	4 8.7	1 50.0	1 50.0	0 0	0 0	0 0
Washington, D.C.	1 1.8	28 50.9	21 38.2	3 5.5	2 3.6	0 0	6 60.0	4 40.0	0 0	0 0	0 0	0 0	0 0	0 0	1 100.0	0 0	0 0	0 0	0 0	0 0
Nondrug Offenders Only																				
Chicago	15 9.4	58 36.5	71 44.7	2 1.3	13 8.2	6 33.3	2 11.1	9 50.0	1 5.6	0 0	9 42.9	7 33.3	4 19.0	1 4.8	0 0	0 0	0 0	2 66.7	1 33.3	0 0
Manhattan	53 18.3	154 53.3	30 10.4	23 8.0	29 10.0	15 18.5	16 19.8	20 24.7	20 24.7	10 12.3	12 10.6	40 35.4	26 23.0	21 18.6	14 12.4	2 22.2	3 33.3	0 0	2 22.2	2 22.2
Portland	1 1.7	42 71.2	7 11.9	4 6.8	5 8.5	33 22.8	30 20.7	43 29.7	29 20.0	10 6.9	6 40.0	2 13.3	2 13.3	5 33.3	0 0	1 10.0	4 40.0	1 10.0	4 40.0	0 0
San Antonio	3 23.1	7 53.8	2 15.4	0 0	1 7.7	13 48.1	2 7.4	8 29.6	3 11.1	1 3.7	16 29.7	2 3.7	20 37.0	15 27.8	1 1.9	0 0	0 0	0 0	0 0	0 0
San Diego	2 3.3	49 80.3	4 6.6	1 1.6	5 8.2	9 17.6	11 21.6	15 29.4	11 21.6	5 9.8	11 32.4	7 20.6	10 29.4	5 14.7	1 2.9	0 0	0 0	1 50.0	1 50.0	0 0
Washington, D.C.	14 8.1	109 63.0	34 19.7	6 3.5	10 5.8	0 0	2 22.2	4 44.4	2 22.2	1 11.1	0 0	1 100.0	0 0	0 0	0 0	0 0	2 100.0	0 0	0 0	0 0

Purchase Patterns

Buyer-Seller Relations

Heroin users and powder cocaine users were more likely to report using a main source—one seller from whom the buyer regularly or usually purchases drugs—than were crack users. More than 47 percent of powder users and nearly 46 percent of heroin users reported having a main source, compared to less than 36 percent of crack users. Site variations on use of a main source were evident. Ignoring combination users, crack users were the least likely to rely on a main source in three of the six sites. In general, respondents in Chicago, Manhattan, and Washington, D.C., were the least likely to use a main source, regardless of the drug they used. In Portland, powder cocaine purchases were slightly less likely to involve a main source than were crack cocaine purchases. The frequency with which combination drug users used main sources varied with the specific drug. For example, heroin-and-crack users in Manhattan had main sources for heroin in nearly 54 percent of the cases, but for crack in less than 43 percent of the cases. Table 14 presents findings about the use of a main source at the site level.

Black drug users participating in this study were generally least likely to use a main source for obtaining their drugs (see table 15). Exceptions

Table 14. Percentage of Respondents Using a Main Source, by Drug

variable = cmnsrce	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chicago	27.8	23.6	23.0	60.0	40.0	27.3	27.3
Manhattan	46.7[4]	33.2[6,7]	40.0	35.1[1]	29.8[6]	53.9[2,5]	42.7[2]
Portland	45.6[3]	50.0	62.4[1]	54.1	43.2	59.1	36.4
San Antonio	58.1	58.8	67.6	59.1	68.2	33.3	33.3
San Diego	49.0[4]	44.1[3,4,5]	72.5[2]	85.2[1,2]	77.8[2]	66.7	57.1
Washington, D.C.	46.7	34.7	39.7	54.5	54.5	23.1	23.1

Notes: Pairwise chi-squared test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number.

Table 15. Percentage of Respondents Using a Main Source, by Race and Drug

variable = cmnsrce	Powder			Crack			Heroin		
	B	W	H	B	W	H	B	W	H
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Chicago	43.8	33.3	n/a	19.4[6]	25.0	46.2[4]	23.0	20.0	37.5
Manhattan	43.5	63.6	42.1	32.5	39.3	34.5	30.8	50.0	40.5
Portland	37.5	48.9	41.7	44.6[6]	57.8[6]	100.0[4,5]	30.0[8]	70.1[7,9]	28.6[8]
San Antonio	66.7	50.0	61.5	66.7	33.3	50.0	33.3[8]	100.0[7,9]	62.5[8]
San Diego	50.0	58.8	41.4	46.2	45.0	26.7	100.0[8,9]	70.8[7]	68.2[7]
Washington, D.C.	46.7	n/a	n/a	33.8	50.0	n/a	36.4	62.5	n/a

Notes: Pairwise chi-squared test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number.
Key: B= black, H = Hispanic, n/a = not available, W = white

were found, but these were typically in situations with a limited number of observations. (After stratification by city, use of main source, drug, and race, the cell sizes were often too small for significance testing.) In most cases, the rate of Hispanics who relied on main sources fell between the rates of blacks and whites; however, the individual site samples included a relatively small number of Hispanic participants. Table 15 does not report on combination heroin users, because of limited data in these categories.

Respondents who reported having a main source were asked to identify the ethnicity of their main source. Table 16, which is a contingency table,[11] illustrates the interdependence of buyers' and main sources' ethnicity for crack. (Because of the complexity of the table and the relatively small number of observations for drugs other than crack, only crack sources are presented in table 16.) The top line in every cell reports the observed number of main sources by ethnicity; the middle row reports the expected number of main sources by ethnicity (calculated from the row and column percentages multiplied by the cell population); and the last row reports the difference between the observed and expected, adjusted by the variation in the data. Negative values for adjusted residuals indicate that there were fewer observations in the cell than if the row and column variables were independent. If the cumulative deviations of expected values from observed values are large, then the hypothesis that the race of the buyer and the race of the main source are independent of each other can be rejected. In the case of crack, the hypothesis of independence can be rejected for each site. In other words, it is likely that there is an interaction between the race of the buyer and the race of the main source, and that the differences between observed and expected values are not due to chance.

To take some examples from table 16, the intersection of black main source with black buyer in Manhattan shows that 42 black crack users reported a black main source, whereas 39.1 would

Table 16. Contingency Table of Use of Main Source Among Crack Users, by Race

variable = cmnsreth Observed Expected Adjusted Residuals	Ethnicity of Respondent (Buyer)	Reported Ethnicity of Respondent's Main Source		
		Black	White	Hispanic
Chicago*	Black	13.0 10.7 2.5	n/a	1.0 3.3 -2.5
	White	0.0 0.8 -1.8	n/a	1.0 0.2 1.8
	Hispanic	3.0 4.6 -1.8	n/a	3.0 1.4 1.8
Manhattan*	Black	42.0 39.1 1.2	0.0 2.1 -2.8	32.0 32.7 -0.3
	White	5.0 5.8 -0.5	3.0 0.3 5.1	3.0 4.9 1.1
	Hispanic	0.0 0.5 -1.1	0.0 0.0 -0.2	10.0 8.0 1.1
Portland*	Black	22.0 21.5 0.3	2.0 3.5 -1.2	3.0 2.5 0.5
	White	18.0 19.2 -0.8	5.0 3.1 1.5	2.0 2.2 -0.2
	Hispanic	2.0 1.5 0.8	0.0 0.3 -0.5	0.0 0.2 -0.5
San Diego*	Black	19.0 18.1 0.6	2.0 1.5 0.8	19.0 20.4 -0.9
	White	4.0 4.1 -0.1	0.0 0.3 -0.7	5.0 4.6 0.3
	Hispanic	1.0 1.4 -0.4	0.0 0.1 -0.4	2.0 1.5 0.6
Washington, D.C.*	Black	40.0 39.6 0.6	3.0 2.7 0.6	2.0 2.7 -1.4
	White	4.0 3.5 0.8	0.0 0.2 -0.5	0.0 0.2 -0.5
	Hispanic	n/a	n/a	n/a

Key:* = Chi-squared test of independence, significant at $p = .05$. San Antonio data are not reported because of insufficient observations.
n/a = insufficient observations to analyze cell

have been expected if no interaction had existed and independence had prevailed. Thus, there was a slightly disproportionate tendency for blacks to buy crack from a black main source in Manhattan. Reading down the diagonal for each site, it is evident that a tendency to buy disproportionately from a person of the same race existed in most sites for most racial groups (these are shaded in black in table 16). That is, the adjusted residuals down the same race diagonal are usually positive. Some racial or ethnic groups in some cities disproportionately reported main sources of a different ethnicity, although this occurred only in cases with small numbers of observations. Manhattan's powder cocaine markets and Chicago's heroin markets also showed that buyers were disproportionately likely to report using a main source of their own ethnicity. All other markets had insufficient observations to model the relationship.

Dealer Networks

Crack users reported having more extensive dealer networks than powder users or heroin users.[12] The reported dealer structure for crack held up across all sites; that is, in no site did the average number of powder or heroin dealers exceed the average number of crack dealers. Note, however, that the differences in means did not test significantly across any pairwise combinations in any of the sites. This is primarily because the data on dealers known are not normally distributed; rather, they are skewed with a long righthand tail. When the dealer data are log transformed, the distribution is approximately normal and many pairwise differences are significant. Table 17 reflects log-transformed data. San Antonio and Manhattan respondents generally reported smaller dealer networks than the other cities; Chicago and San Diego respondents, medium-sized networks; and Portland and Washington, D.C., respondents had larger networks.

Location of Purchases

Most crack and heroin purchases were reportedly made outdoors. For both drugs, a majority of respondents in all sites (except the Portland crack and San Diego heroin markets), reported making their purchases outdoors. In contrast, powder cocaine users typically reported making purchases outdoors with less frequency than crack and heroin users. Weather did not appear to be a significant factor in determining the market's predominant structure. Cities with a warmer climate, such as San Diego and San Antonio, exhibited trends that were similar to the overall trend—even in these two cities, crack purchases tended to be made outdoors and powder purchases indoors. Only in Portland did a majority of crack users (52.5 percent) report typically making crack purchases indoors. Two cities—Chicago and Washington, D.C.—can be characterized as having primarily outdoor drug markets. In those cities, more than 70 percent of all transactions for most drugs were reported as

Table 17. Number of Dealers Known, by Drug Used

variable = log(cnumppl)	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chicago	9.3[2,7]	18.7[1]	11.8	11.8	15.0	16.6[7]	27.1[1,6]
Manhattan	12.2[2,7]	14.8[1,6]	10.5	11.7	10.7	8.9[2,7]	14.2[1,6]
Portland	20.0	25.6[3]	18.0[2,5]	28.8	30.3[3]	16.6	27.4
San Antonio	10.8	21.2	11.6	11.4	9.7	1.7	10.3
San Diego	9.2[2]	25.5[1]	9.6	12.0	11.4	18.0	23.4
Washington, D.C.	7.7	23.3	19.3	18.4	19.4	12.9	27.1

Notes: One-way analysis of variance, Bonferroni pairwise significance test. Superscripts indicate that the value differs significantly ($p = .05$) from the value in the numbered column corresponding to the superscript number.

Table 18. Percentage of Respondents Typically Making Purchases Outdoors

variable = cbuynout	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chicago	75.0	86.5[4]	91.8[4]	60.0[2,3,6,7]	40.0	95.5[4]	95.5[4]
Manhattan	43.3[2,3,5,7]	73.2[1]	72.4[1]	74.5	59.6[1]	66.3	61.4[1]
Portland	60.3	47.5[3,5]	68.2[2]	79.5	68.9[2]	50.0	50.0
San Antonio	38.1	58.8	70.3	45.5	45.5	33.3	100.0
San Diego	46.0	65.9	45.1	59.3	63.0	50.0	61.9
Washington, D.C.	57.1	81.6	88.9	90.9	90.9	92.3	84.6

Notes: Pairwise chi-squared test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number.

typically occurring outdoors. Table 18 provides a summary of outdoor purchases, by drug type and site.

As shown in table 19, crack users were generally likely to report making their purchases in their own neighborhoods. (Respondents used their own definitions of "neighborhood" when answering the question.) In five of the six sites, a majority of crack users reported usually making purchases in their neighborhood, compared to a majority of heroin users in four of the six sites and a majority of powder users in two of the sites. The frequency of crack purchases near the home ranged from 73.4 percent in Manhattan to 47.5 percent in Portland.

Of purchases that took place indoors, the overwhelming majority occurred in a residence. More than 85 percent of crack respondents and 88 percent of heroin respondents usually made indoor purchases in residences. For crack, residence-based purchases ranged from 100 percent in San Antonio to 78 percent in Manhattan. For heroin, residence-based purchases ranged from 100 percent in San Antonio and Washington, D.C., to 71 percent in Manhattan. In contrast, powder cocaine transactions, while still predominantly occurring in residences, were more likely than heroin or crack transactions to occur in businesses. Overall, about 22 percent of powder respondents reported usually buying at a place of business, ranging from a low of 12 percent in San Diego to a high of 38 percent in Chicago. Manhattan, Chicago, and Washington reported the highest rates of making purchases in abandoned buildings, at least for heroin-only and

Table 19. Percentage of Respondents Typically Making Purchases in Their Own Neighborhoods

variable = cbuyhood	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chicago	38.9[2,6]	68.5[1]	65.6	60.0	100.0	77.3[1]	81.8
Manhattan	60.6	73.4	74.0	67.7	72.3	77.5	78.4
Portland	54.4	47.5	40.0[6]	51.4	51.4	72.7[3]	86.4
San Antonio	44.2	64.7	62.2	63.6	68.2	0.0	0.0
San Diego	42.3	62.2	58.8	74.1	66.7	55.0	66.7
Washington, D.C.	40.0	64.9[3]	39.7[2]	54.5	54.7	30.8	69.2

Notes: Pairwise chi-squared test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number.

crack-only purchases. About 10 percent of Manhattan respondents reported regularly buying crack and heroin in abandoned buildings, as did 9 percent of Chicago respondents and 7 percent of Washington respondents.

By race and ethnic group, Hispanics and blacks were more likely than whites to report that they usually made their purchases outdoors. This result usually held across drug type and across sites, except in situations where there were a small number of observations. Hispanics and blacks were also more likely than whites to report making the majority of their purchases in their own neighborhoods (again, across drug types and sites).

Failed Transactions

Respondents were asked to recall if they had unsuccessfully attempted to purchase drugs in the past year. The fraction of arrestees who had at least one failed transaction varied substantially by drug and by city. Overall, crack users (excluding combination users) were typically the most likely to have reported a failed transaction at the site level (see table 20). Generally, large fractions of users in Manhattan failed to complete purchases, although other sites had higher percentages for individual markets. More than 40 percent of crack users in Manhattan and San Diego and more than 55 percent in San Antonio, for example, reported being unable to buy crack at least once during the last year, despite having the willingness and the money to do so.

Those who reported a failed transaction were asked to recall why they were unable to complete the transaction. The question was designed to get them to recall a situation when external circumstances (other than their own lack of resources) limited their ability to purchase drugs. Interviewers did not offer answers to the participants, but rather coded responses into the best-fitting category. Respondents frequently ascribed their failure to complete a transaction to their inability to locate a dealer or to the dealer's lack of supply (see table 21, which excludes combination users). In Manhattan, however, where police were aggressively enforcing quality-of-life statutes against panhandling, drug dealing, fare beating, and other crimes, 64 percent of crack users, 55 percent of heroin users, and 38 percent of powder users reported police activity as a factor in their failure to obtain drugs. In contrast, the city with next highest mention of police activity was Chicago, where 18 percent of heroin users and 17 percent of crack users cited such activity as a factor. Respondents in Washington, D.C., mentioned police activity even less often: no respondents in the powder market, only one (2.9 percent) in the crack market, and three (16.7 percent) in the heroin market. It should be noted, however, that the overall percentage reporting failed transactions was generally no higher in Manhattan than in the other study sites. Thus, while police in Manhattan were disproportionately named as a factor among the subset of failed transactions, it cannot be concluded that police activity caused the subset to be any larger in Manhattan than in other study sites.

Table 20. Percentage of Respondents with Failed Purchase Transactions in the Past Year

variable = m12cocby	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
Chicago	50.0	33.7	28.8	40.0	20.0	31.6	21.1
Manhattan	39.0	42.4	35.8	38.3	34.4	39.3	46.1
Portland	29.4	33.0	38.8	28.8	24.3	27.3	40.9
San Antonio	31.7	56.3	42.9	20.0	45.5	50.0	66.7
San Diego	25.0	41.6	25.5	29.6	46.2	47.6	47.6
Washington, D.C.	26.7	31.9	31.1	45.5	36.4	23.1	53.8

Table 21. Reasons Cited for Failed Transactions

		Percentage of Respondents Citing Reason for Failed Transaction						
		No Reason	Dealer Not Available	Police Activity	Dealer Out of Supply	Holiday or Sunday	Too Expensive	Other
Chicago	Powder	70.6	17.6	0.0	11.8	0.0	0.0	0.0
	Crack	30.0	16.7	16.7	36.7	0.0	0.0	0.0
	Heroin	34.4	25.0	18.8	6.3	6.3	3.1	6.3
Manhattan	Powder	7.5	42.5	37.5	7.5	0.0	0.0	5.0
	Crack	3.8	20.5	63.6	5.3	0.8	0.0	6.1
	Heroin	5.3	26.3	55.3	5.3	0.0	0.0	7.9
Portland	Powder	0.0	57.9	0.0	31.6	0.0	10.5	0.0
	Crack	2.7	51.4	2.7	37.8	0.0	0.0	5.4
	Heroin	6.1	45.5	9.1	33.3	3.0	0.0	3.0
San Antonio	Powder	0.0	60.0	0.0	30.0	0.0	10.0	0.0
	Crack	12.5	50.0	0.0	25.0	0.0	0.0	12.5
	Heroin	0.0	36.4	0.0	63.6	0.0	0.0	0.0
San Diego	Powder	0.0	69.2	0.0	23.1	0.0	7.7	0.0
	Crack	6.4	29.8	8.5	46.8	2.1	2.1	4.3
	Heroin	7.7	38.5	7.7	38.5	0.0	0.0	7.7
Washington, D.C.	Powder	0.0	66.7	0.0	0.0	0.0	33.3	0.0
	Crack	20.6	35.3	2.9	26.5	0.0	5.9	8.8
	Heroin	5.6	55.6	16.7	22.2	0.0	0.0	0.0

Note: Percentages may not total 100 due to rounding.

Another factor to note in table 21 is that a small fraction of crack and heroin users reported high prices as the reason for their failed transactions. However, fairly large fractions of powder users offered price as a motivation for failed transactions. Data on prices and purity indicated that while a majority of crack users thought prices were stable, a sizable minority perceived prices to be increasing. Thus, even though some respondents thought crack prices were increasing, the increases were not cited as a barrier to purchasing the drug. This information suggests that powder users may be more sensitive to price changes than either heroin users or crack users.

Purchase Frequency

Respondents were asked if they had purchased drugs in the week prior to their arrest and interview. A large majority of respondents in each site indicated that they had purchased drugs in the previous week (see table 22). The low was in San Diego, where 63 percent of the participants reported buying drugs, and the high was in Manhattan where nearly 91 percent reported making a purchase in the 7 days before arrest. Overall, Manhattan generally had the highest percentage of arrestees reporting recent purchases (across drugs); San Diego and Portland had the lowest. By drug category at the site level, powder users were usually less likely than others to report having made a recent purchase.

Table 22. Percentage Reporting a Drug Purchase in the Week Prior to Arrest							
variable =c7cocbuy	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
Chicago	75.0	89.9	91.8	80.0	100.0	86.4	100.0
Manhattan	89.5	88.3	93.4	92.6	90.4	92.1	93.3
Portland	64.7	64.4	74.1	75.7	70.3	59.1	59.1
San Antonio	58.1	76.5	89.2	86.4	77.3	66.7	100.0
San Diego	30.2	68.5	60.8	88.9	70.4	61.9	76.2
Washington, D.C.	73.3	80.4	74.6	81.8	63.6	61.5	69.2

Among those reporting having purchased drugs in the 7 days prior to arrest, heroin users appeared to have made the greatest number of purchases (see table 23). In most sites, heroin users (or combination heroin users) had the highest number of mean weekly purchases. In San Diego, however, while combination heroin users reported the highest number of mean weekly purchases, heroin-only users reported the second lowest number. In Manhattan and San Diego, crack users averaged more purchases than heroin users in the week preceding their arrest. Crack users typically reported more weekly purchases than did powder users at the site level, but the data were not statistically significant. Only in Portland did powder users report more weekly purchases than crack users.

Guns and Drug Purchases

Respondents were asked if they carried a firearm while purchasing drugs during the month preceding arrest. In four of the six sites, crack users were the least likely to report carrying a weapon while obtaining drugs. In these sites (Chicago, Manhattan, San Diego, and Washington, D.C.) between 3 and 6 percent of crack users reported carrying a gun in the 30 days prior to arrest. In San Antonio and Portland, heroin users were less likely than crack users to report carrying a gun.

Overall, San Antonio arrestees reported the highest rate of carrying guns (12.4 percent). More than 8 percent of the respondents from each type of drug market in San Antonio reported carrying firearms. In contrast, Washington had the lowest overall rate, with only 4.1 percent of arrestees in that city reporting that they had carried a gun during drug purchases in the 30 days before arrest.

In general, larger fractions of powder users reported carrying firearms than users of other drugs, particularly when excluding combination users. In

Table 23. Mean Number of Purchases Made in the Week Prior to Arrest							
variable = c7buytme	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
	(1)	(2)	(3)	Heroin (4)	Powder (5)	Heroin (6)	Crack (7)
Chicago	6.6[3,6]	6.9	10.2[1]	7.8	5.0	12.0[1]	9.2
Manhattan	4.2*	9.2[1]	7.6[1]	8.8[1]	7.5[1]	8.9[1]	9.4[1]
Portland	9.2	6.9[4,5]	9.4	11.5[2]	12.8[2]	10.6	13.5
San Antonio	5.7[3,4]	13.9	15.2[1]	21.2[1]	11.0	4.0	21.7
San Diego	4.1[4]	12.3[4]	6.4[4]	19.8[1,2,3]	15.6	7.5	12.0
Washington, D.C.	2.7	6.1[3]	7.4[2]	10.2	6.3	4.9	4.4

Notes: One-way analysis of variance, Bonferroni pairwise significance test. Superscripts indicate that the value differs significantly ($p = .05$) from the value in the numbered column corresponding to the superscript number. An asterisk indicates significant difference from all other values in the row.

three sites (Chicago, San Antonio, and San Diego), combination users were more likely to report carrying a gun than powder users, but these findings were based on fewer than 20 observations for the combination use categories. Several factors may plausibly explain the differences in gun possession across drug markets. First, powder cocaine users are more likely to make their purchases indoors (table 18) and more likely to travel (table 19); both activities may increase the perceived need to carry a firearm. Second, powder users may have greater cause to protect themselves if they more frequently buy larger quantities and carry more cash. On the other hand, powder users are also more likely to have a main source from whom they regularly purchase drugs; such a relationship would probably reduce their inclination to carry a weapon. In contrast, crack users may be more reluctant to admit carrying a firearm than other drug users because of the severe penalties associated with possession of small amounts of crack and the fear that a gun charge could lead to even worse legal consequences.

Use Patterns

Three-Day Use

Participants in the procurement study were very likely to test positive for drugs. Respondents to the crack addendum were more likely to test positive for cocaine than respondents to the heroin or powder cocaine addenda were to test positive for those drugs. The DUF interview is accompanied by a drug test that is capable of detecting recent drug use (within approximately 3 days). Overall, more than 90 percent of those completing a crack interview tested positive for cocaine, and more than 80 percent of those completing a heroin interview tested positive for opiates. Generally, combination heroin-and-crack users were more likely to test positive for cocaine than for opiates, while combination heroin-and-powder users were about equally likely to test positive for opiates and for cocaine. These findings are detailed in table 24.

For comparison purposes, table 25 shows the percentage of positive drug tests for the corresponding general DUF populations in the study sites. In general, while relatively large fractions of the general arrestee population tested positive for drugs, the procurement study population was substantially more likely to have consumed drugs recently. Note that table 25 classifies DUF respondents only by drug test results, not by completed interview instruments; thus, this table has no category for crack.

Table 24. Drug Test Results by Completed Addendum Interview

	Percentage of Addendum Respondents Testing Positive for Corresponding Drug						
	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
Chicago	80.0	89.5	91.2	80.0	60.0	52.4	81.0
Manhattan	94.2	96.8	87.4	75.5	91.5	64.0	93.0
Portland	72.6	92.0	81.1	70.8	77.8	71.4	85.7
San Antonio	79.5	93.8	77.8	90.9	90.9	33.3	100.0
San Diego	53.3	90.0	78.7	88.0	84.0	42.1	84.2
Washington, D.C.	83.3	94.3	86.4	90.0	90.0	63.6	90.9

Note: Drug tests cannot distinguish between powder cocaine and crack cocaine. Percentages in those columns represent those individuals testing positive for cocaine.

Table 25. Drug Test Results for General DUF Population			
	Percentage Testing Positive		
	Cocaine	Heroin	Cocaine and Heroin
Chicago	48.9	22.2	15.5
Manhattan	63.3	20.9	16.4
Portland	25.5	12.6	8.1
San Antonio	21.7	9.1	5.7
San Diego	21.3	6.9	3.9
Washington, D.C.	26.8	7.4	5.8

Daily Use

In each site, heroin users were more likely than powder or crack users to describe themselves as daily users. In addition, combination heroin users (heroin with either crack or powder) reported being daily users of both drugs with greater frequency than powder-only and crack-only users. In contrast, powder users were less likely than any other respondents to consider themselves daily users. These findings are detailed in table 26.

Those who identified themselves as daily users were asked to report the number of times they used the drug in an average day. Generally, cocaine users—both powder and crack—reported a larger number of daily uses than heroin users (see table 27).

Among those who did not define themselves as daily users, a different pattern emerged. These individuals reported less use per *week* (on average) than daily users reported per *day* (see table 28). Remember, however, that those who considered themselves daily users (including large fractions of crack, heroin, and combination users) are not included in table 28.

Duration of Use

Information on the duration of drug use provides valuable insights into drug problems. Changes in the frequency of use, for example, may indicate intensification of an epidemic, concentration of use, or diffusion of use into a different pool of users. Similarly, differences in use patterns across drugs may point to the severity of a drug's addiction profile. The procurement interview asked arrestees about a variety of different aspects of drug use in an effort to discern some of these distinctions.

Perhaps not surprisingly, heroin users reported the longest periods of sustained use (see table 29). In the 90 days preceding arrest, larger fractions of heroin users than of powder or crack users reported daily or near-daily use. In addition, large fractions of combination heroin users reported daily or near-daily use for *both* heroin *and* cocaine. These findings suggest that few of the heroin

Table 26. Percentage Describing Themselves as Daily Users, by Drug Used							
variable = cocdaily	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
	(1)	(2)	(3)	Heroin (4)	Powder (5)	Heroin (6)	Crack (7)
Chicago	16.7[2, 3]	32.2[1]	69.7[1]	40.0	40.0	54.5	45.5
Manhattan	31.4*	52.5[1,3,4,5,7]	70.8[1,2]	81.9[1,2]	71.3[1,2]	71.9[1]	62.9[1,2]
Portland	32.8[5]	41.9[5]	48.2	68.9	50.0[1,2]	54.5	57.1
San Antonio	19.0[3,5]	50.0	75.7[1]	81.8	50.0[1]	33.3	66.7
San Diego	9.6*	43.7[1,5]	49.0[1,5]	88.9[1,5]	44.4[1,2,3,4,6]	57.1[1,5]	47.6[1]
Washington, D.C.	40.0	43.5[3]	67.7[2,6]	81.8	36.4[6]	46.2[3,5]	16.7

Notes: Pairwise chi-squared test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number. An asterisk indicates that the value differs significantly from all other values in the row.

Table 27. Mean Number of Daily Uses Among Those Describing Themselves as Daily Users

variable = c7daily	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chicago	10.5[2,3,6,7]	3.8[1]	3.4[1]	4.0	6.5	3.3[1]	4.6[1]
Manhattan	5.4	7.2[3,4,5,6]	3.1[2,7]	3.9[2]	3.9[2]	3.9[2]	6.4[3]
Portland	9.9[2,3,6,7]	5.3[1]	4.0[1,5]	4.8	7.9[3]	2.8[1]	5.3[1]
San Antonio	7.0	4.2	6.2	6.1	6.8	1.0	4.0
San Diego	6.8	7.7	2.8	4.2	6.2	2.5	6.7
Washington, D.C.	3.5[7]	4.4[7]	2.8[7]	2.9[7]	2.8[7]	2.7[7]	13.5*

Notes: One-way analysis of variance. Bonferroni pairwise significance test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number. An asterisk indicates that the value differs significantly from all other values in the row.

Table 28. Mean Number of Past Week Uses Among Those Describing Themselves as Not Daily Users

variable = c7numtme	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chicago	2.6	3.3	3.4	4.3	4.7	2.3	5.1
Manhattan	2.0[7]	3.7	2.1	3.4	2.2	2.2	5.2[1]
Portland	2.5	2.7	2.3	4.0	4.7	0.8	3.4
San Antonio	7.0	2.0	5.4	0.8	2.3	0.5	3.0
San Diego	8.6	2.3	1.8	0.0	4.8	1.0	3.2
Washington, D.C.	1.3	1.8	2.0	3.0	2.0	1.3	2.9

Notes: One-way analysis of variance, Bonferroni pairwise significance test. Superscripts indicate that the value differs significantly (p = .05) from the value in the numbered column corresponding to the superscript number.

Table 29. Percentage of Respondents Reporting 30 or More Consecutive Days of Use In the 90 Days Prior to Arrest

variable = m3cocuse	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
Chicago	2.8	13.5	42.2	60.0	60.0	36.3	18.2
Manhattan	24.8	36.6	66.6	78.5	64.6	59.7	51.2
Portland	14.7	19.1	42.8	61.1	36.7	54.6	38.0
San Antonio	7.0	0.0	40.5	61.9	23.8	0.0	33.3
San Diego	5.7	14.4	33.4	74.1	39.7	28.6	14.3
Washington, D.C.	13.4	8.9	49.2	54.6	36.4	30.8	30.8

respondents in the sample, relative to powder-only and crack-only users, have a casual habit and that polydrug users may have complicated drug use patterns.

Cessation of Use

Drug cessation periods can also be informative, as they may indicate what disrupts drug use patterns. Powder users appear to be the most likely to have

Table 30. Percentage of Respondents Reporting 30 or More Consecutive Days of Abstinence In the 90 Days Prior to Arrest

variable = m3coctm2	Powder	Crack	Heroin	Heroin and Powder		Heroin and Crack	
				Heroin	Powder	Heroin	Crack
Chicago	36.1	27.4	9.3	20.0	0.0	31.8	13.6
Manhattan	28.3	31.4	13.3	9.9	15.6	20.5	17.5
Portland	43.3	35.3	25.3	13.9	31.4	31.8	19.0
San Antonio	58.5	31.3	6.3	5.0	31.6	100.0	33.3
San Diego	66.7	36.4	40.0	7.7	38.5	28.6	47.6
Washington, D.C.	57.1	31.4	18.3	0.0	18.2	54.5	23.1

use patterns that include extended periods of nonuse. From one-quarter to two-thirds of the powder users reported a monthlong period of nonuse in the 90 days prior to arrest, compared to one-quarter to one-third of crack users and less than one-quarter of heroin users. From table 30, it is clear that only a relatively small fraction of heroin users have use patterns that include extended (1 month or longer) periods of nonuse.

Users were asked to explain why they went as long as they did without using drugs. Among powder, crack, and heroin users in Manhattan, 57 percent of powder users reported that they were not daily users and that their regular consumption pattern included periods of nonuse. (See table 31. Findings in other sites were generally comparable but are not presented.) The next most common motivation among powder users in Manhattan was "could not afford" (9.5 percent), followed by "wanted to change" (8 percent). Similar patterns were found among crack users and heroin users; 27 percent of the former and 31 percent of the latter reported that their regular patterns included periods of nonuse. The next most common responses among crack users for periods of nonuse were "could not afford" (20 percent) and "tired of [the drug] life" (19 percent). Among heroin users, the most frequent explanations after regular use pattern were "in treatment" (24 percent) and "jailed/incarcerated" (12 percent).

Among the data that stand out in table 31 is that no arrestees cited lack of drug availability as a factor in determining their use patterns, and only one crack arrestee reported drug testing as a factor influencing periods of nonuse. Six percent of crack users and 12 percent of heroin users cited jail and incarceration as affecting their use patterns.

Conclusions and Implications

Drug User Profile

Evidence from the drug procurement study indicates that respondents face multiple risks in their lives. They reported relatively high rates of living on the streets and in shelters, even in comparison

Table 31. Motivations for Periods of Abstinence Among Manhattan Arrestees, by Drug

variable =m3cocwhy	Percentage Citing Reason		
	Powder	Crack	Heroin
Tired of [the Drug] Life	7.1	18.8	7.1
Wanted to Change	8.3	8.7	9.5
Could Not Afford	9.5	19.7	4.8
In Treatment	7.1	6.9	23.8
Because of Family	0.0	2.8	7.1
Switched to Other Drug	0.0	1.4	0.0
Jailed/Incarcerated	1.2	5.5	11.9
Drug Testing	0.0	0.5	0.0
Hard to Find	0.0	0.0	0.0
Health Reasons	6.0	6.0	2.4
Stigma	1.2	0.9	0.0
Not a Daily or Dependent User	57.1	27.1	31.0
Other	2.4	0.9	2.4

to the general arrestee population in their communities. In addition, substantial fractions of respondents reported that public assistance or drug dealing and other illegal activities were their primary form of income. The findings also suggested that while study participants were likely to report frequent drug use and very likely to test positive for drug use, they were also in contact with institutions that provide other services, such as temporary shelter, permanent housing, and financial assistance. Drug-using arrestees' contact with such institutions should be studied carefully from the perspective of how these institutions might appropriately and effectively use their resources to address the problems of substance abuse.

Drug Purchase Patterns

Crack was more likely to be purchased under circumstances that exposed the buyers (and sellers) to law enforcement risks. A typical crack user in the procurement study made numerous purchases in a week, although not as many as a typical heroin user. Crack and heroin purchases were both very likely to take place outdoors, where they were more visible (table 18). In addition, crack buyers were less likely to buy from a main source than were other drug users (table 14) and more likely to have a large circle of dealers from whom to buy. These large networks could introduce additional exposure risks. There may also be an interaction effect; that is, the combination of buying outdoors from a stranger relatively close to one's residence (crack markets) poses different hazards than buying outdoors from a stranger or main source in a location farther from one's residence (heroin markets). These elements, in isolation or combination, may expose individuals participating in crack transactions to greater risk than individuals participating in transactions for other drugs. A cumulative effect also results in elevated risk of arrest for crack users: The relative size of the heroin and crack markets means that there are more crack transactions than heroin transactions to observe. Cumulatively, then, these characteristics may expose crack users to greater visibility and greater risk.

The issue of risks and exposure has particular relevance for the black arrestee population. Black respondents were more likely than whites and Hispanics to participate in crack markets in ways that apparently increased risks. For example, if law enforcement officials focus their efforts against outdoor crack markets that are concentrated in certain neighborhoods—a reasonable policing strategy—this approach may disproportionately affect blacks. The disproportionate impact will arise because blacks are more likely than whites and Hispanics to make their purchases outdoors and are more likely to make them in their own neighborhoods. Whites and Hispanics, on the other hand, are more likely to travel away from their neighborhoods to make their purchases and are more likely to make them indoors. As a result, drug transactions conducted by blacks may be more visible to law enforcement, thus subjecting blacks to greater risk for drug-related arrests.

Drug Use Patterns

Participants in the procurement study were very likely to test positive for drugs. In addition, substantial fractions of heroin and crack users were likely to describe themselves as daily or dependent users. Among those describing themselves as daily users, most respondents reported consuming drugs more than once daily. Respondents also reported a variety of motivations for periods of nonuse. Powder cocaine users were most likely to report that their regular use pattern included periods of nonuse, but heroin and crack users also reported such patterns of intentional nonuse. In addition, substantial fractions cited other reasons for nonuse, including the cost of drugs, being tired of the consequences of drug use, and being in treatment programs or in jail.

These findings may be encouraging, because they indicate that service providers may have a window of opportunity for intervention; they also identify

influences over drug use patterns that policymakers may be able to manipulate or supplement. These findings suggest that a more careful and detailed examination of the factors influencing arrestees' drug use patterns would be beneficial.

Policy Implications

Analysis of the findings reveals that the powder, crack, and heroin markets differ substantially from one another in a variety of ways, including purchase and use practices. To the extent that drug-using arrestees are a particular problem in many communities, the findings also suggest that detailed information about local drug habits and patterns would be a valuable tool for law enforcement authorities, service providers, and policymakers. Further refinements of the interview instrument, for example, could provide information that would be useful for local policy evaluations, impact analyses, and prevalence monitoring.

The data also suggest that it is possible to tap into the DUF pool to explore motivations for drug use and policy interventions that interrupt drug markets. A more specific set of questions could explore such critical factors as deterrence, substitution of one drug for another, and the interaction between policing operations and perceived need for treatment services. Of particular interest would be whether there are differences in deterrence and cessation motivations across drug markets. For example, the findings presented here suggest that powder users, when they temporarily stop using cocaine, are motivated by factors over which they generally have more control, including the perceived need to improve their circumstances. Crack and heroin users, in contrast, are more likely to be motivated to stop drug use by factors associated with the consequences of consumption. Given these apparent differences in motivations, it should be possible to design questions to explore what set of deterrents would work against what types of users.

NOTES

1. Mark A.R. Kleiman and Ann Marie Rocheleau, 1993, "Measuring Heroin Availability: A Demonstration Program," report prepared for the Office of National Drug Control Policy by BOTEC Analysis Corporation, September; David A. Boyum and Ann Marie Rocheleau, 1994a, "Heroin Users in Three Cities," report prepared for the Office of National Drug Control Policy by BOTEC Analysis Corporation, August; David A. Boyum and Ann Marie Rocheleau, 1994b, "Heroin Availability in New York, San Diego, and Chicago," report prepared for the Office of National Drug Control Policy by BOTEC Analysis Corporation, August.

2. The DUF program is now known as the Arrestee Drug Abuse Monitoring (ADAM) program. It is being expanded to 75 cities nationwide.

3. As a followup to the crack, powder cocaine, and heroin addendum, NIJ awarded a DUF Challenge Grant to the San Diego Association of Governments (SANDAG) to conduct similar research into methamphetamine markets. Using a similar interview instrument, SANDAG began collecting data in five sites (Los Angeles; Phoenix; Portland, Oregon; San Diego; and San Jose) in October 1996. Findings from the methamphetamine study will be available in 1998.

4. The 10 drugs are cocaine, opiates, marijuana, PCP, methadone, benzodiazepines, methaqualone, propoxyphene, barbiturates, and amphetamines. Powder cocaine cannot be distinguished from crack cocaine in the test. Samples that test positive for amphetamines are subjected to gas chromatography analysis to eliminate false positives caused by use of over-the-counter medications.

5. Note that these figures understate the number of individuals eligible and overstate the completion rate. Respondents screened into the procurement study by self-reporting drug use in the 30 days prior to arrest; however, self-reported data on drug use consistently understate actual use.

6. The reporting convention for the tables in this document parallels the number of forms that the individual completed. For example, individuals completing only a powder cocaine interview are reported under "powder" in the tables, while those completing both heroin and powder cocaine interviews (or heroin and crack interviews) are reported under "heroin and powder" (or "heroin and crack"). Where drug-specific, rather than individual-specific, factors are of interest, the data from the "heroin and powder" and "heroin and crack" categories are reported separately. Many of the tables have a variable name printed in the upper left corner. The interview question corresponding to the variable can be found in the appendix. Tables without a variable name in the upper left corner are either summary tables or are derived from the main DUF instrument.

7. Kleiman and Rocheleau 1993; Boyum and Rocheleau 1994a; Boyum and Rocheleau 1994b.

8. Given the small number of juveniles participating in the study, they are dropped from all analyses and only included in the summary participation tables in this section (tables 1–6).

9. Andrew Lang Golub and Bruce Johnson, 1997, *Crack's Decline: Some Surprises Across the United States.* Washington, D.C.: U.S. Department of Justice, National Institute of Justice.

10. National Institute of Justice, 1997, *1996 Drug Use Forecasting Annual Report on Adult and Juvenile Arrestees*. Washington, D.C.: U.S. Department of Justice, National Institute of Justice.

11. Contingency means dependence, so a contingency table reflects how one characteristic (arrayed in a row) affects another characteristic (arrayed in a column). If the characteristics are independent of each other, then the percentage found in any given cell should be approximately equal to the product of the corresponding row and column percentages. If one characteristic depends, to some extent or another, on the other characteristic then the cell percentage will differ from the row-column product.

12. A cluster of 101 individuals reported knowing exactly 100 dealers. In addition, 33 respondents reported knowing more than 100 dealers from whom they could buy. Omitting values greater than 100, one-third of which were greater than 500, reduces the variable means but does not change the relative rankings.

Appendix: Addendum Interview Instrument

The following interview instrument was used for both powder cocaine and crack cocaine respondents. Powder and crack respondents were distinguished by question 1.B, the *COC_CRK* variable. A similar instrument, differing only in certain screening questions and response categories, was used with heroin respondents. Data were segregated into three separate files (crack, powder cocaine, and heroin) and merged with the corresponding main DUF data. The segregated data files were then merged into a master data file that contained a data record for each completed interview.

The complete addendum coding catalog, along with separate and merged data files, will be archived at the Inter-University Consortium for Political and Social Research at the University of Michigan. Interested analysts can also find complete 1995 and 1996 Drug Use Forecasting (DUF) files there. DUF files may be useful for conducting additional analyses on differences between addendum and nonaddendum respondents.

DUF COCAINE/CRACK AND HEROIN ADDENDUM

INTMO ***INTDAY*** ***INTYR*** ***ID***

DATE: ____ /____ /____ I.D. # ____ ____ ____ ____

SITE: 1–NEW YORK 2–WASHINGTON 3–PORTLAND 4–SAN DIEGO 11–CHICAGO 19–SAN ANTONIO

I. COCAINE/CRACK SECTION

INTERVIEWERS: REFER BACK TO THE QUESTION ON THE DRUG GRID THAT STATES, "How many days did you use (NAME DRUG) in the past 30 days?" THIS QUESTION IS CURRENTLY NUMBER 15 IN THE ADULT, AND 14 IN THE JUVENILE, DUF QUESTIONNAIRES. IF ARRESTEE SAID HE/SHE USED COCAINE/CRACK IN THE PAST 30 DAYS, ASK THE FOLLOWING QUESTIONS. IF ARRESTEE HAS NOT USED COCAINE/CRACK IN THE PAST 30 DAYS, GO TO THE HEROIN QUESTIONS (IF APPLICABLE), BEGINNING WITH QUESTION 1.

READ: Now I want to ask you some more detailed questions about how you buy and use cocaine/crack. Remember, everything you tell me is still confidential. It is important for this study that we get accurate and honest information. If there is a question you do not want to answer, please let me know.

1. How do you use cocaine/crack?	(READ ALL CHOICES, CIRCLE ALL THAT APPLY) 1. Snort powder ***CUSESNRT*** 2. Inject cocaine powder alone ***CUSEINJ*** 3. Inject cocaine powder in combination with:_____ ***CUSECMBH (in combination with heroin)*** ***CUSECMBO (in combination with other drugs)*** 4. Freebase powder ***CUSEFBAS*** 5. Smoke crack ***CUSESMOK*** 6. Smoke crack laced with:_____ ***CUSESMKM (marijuana)*** ***CUSESMKC (crack)*** ***CUSESMKO (other)*** 7. Other (SPECIFY):_____ ***CUEOTHR***
	(IF MORE THAN ONE METHOD IS GIVEN, ASK A)
A. Which method do you most often use? ***CUSEOFTN***	(WRITE IN CODE NUMBER FROM ABOVE) METHOD_____
B. BASED UPON THE ANSWER IN A (AND IF NECESSARY #15 ON THE DRUG GRID) WE WILL BE ASKING THE REST OF THE QUESTIONS IN THIS SECTION ABOUT: ***COC_CRK***	(CIRCLE ONE) 1. Cocaine Powder (GO TO QUESTION 2) 2. Crack (ASK C)
(IF B IS CRACK, ASK C)	

C. What term do you use to refer to the crack that you smoke?	(CIRCLE ALL THAT APPLY) 1. Crack ***CTRMCRCK*** 2. Rock ***CTRMROCK*** 3. Readyrock ***CTRMRRCK*** 4. Freebase ***CTRMFBAS*** 5. Base ***CTRMBASE*** 6. Other (SPECIFY):_____ ***CTRMOTHER***

DEPENDING ON THE TYPE THEY SAY THEY USE MOST OFTEN IN QUESTION 1, PLEASE USE EITHER THE WORD "COCAINE" OR SUBSTITUTE THE TERM THEY USE TO REFER TO "CRACK" THROUGHOUT THE REST OF THE INTERVIEW WHERE YOU SEE "COCAINE/CRACK." YOU CAN ALSO SUBSTITUTE LOCAL JARGON FOR THE WORDS "BUY" OR "OBTAIN" DRUGS.

2. Do you usually buy/obtain cocaine/crack in the neighborhood where you live? ***CBUYHOOD***	(CIRCLE ONE) 1. No 2. Yes
3. Do you usually buy/obtain cocaine/crack indoors or outdoors? ***CBUYNOUT***	(CIRCLE ONE) 1. Indoors (ASK A) 2. Outdoors (GO TO QUESTION 4)
A. Do you usually buy/obtain at a: ***CBUYAT***	(READ ALL, CIRCLE ONE) 1. Residence? 2. Business? 3. Abandoned building? 4. Other? (SPECIFY):_____
4. How many people do you know that you could buy/obtain cocaine/crack from today if you had the money or means and they had the cocaine/crack? ***CNUMPPL***	_____ # OF PEOPLE (NO RANGES)
5. How many different cocaine/crack dealers have you bought/obtained cocaine/crack from in the past seven days? ***CNUMBDLRS***	_____ # of DEALERS (NO RANGES)
6. What type of connections do you use?	(READ ALL CHOICES AND CIRCLE ALL THAT APPLY) 1. Street connection ***CCONSTRT*** 2. House connection ***CCONHOUS*** 3. Phone connection ***CCONPHON*** 4. Through a beeper ***CCONBEEP*** 5. Crack house ***CCONCHSE*** 6. Other (SPECIFY):_____ ***CCONBUSN*** ***CCONFRND*** ***CCONOTHR*** (IF MORE THAN ONE METHOD IS GIVEN, ASK A)

A. What type of connection do you most often use?
CCONOFTN

(WRITE IN CODE NUMBER FROM ABOVE)

CONNECTION _____

7. Do you have a main source—one dealer you most often buy/obtain cocaine/crack from?
CMNSRCE

(CIRCLE ONE)
1. No (GO TO QUESTION 8)
2. Yes (ASK A through F)

A. How long have you used this source?
CMNSRTIM

(PUT IN NUMBER AND CIRCLE TIME PERIOD)
_____ # OF DAYS / WEEKS / MONTHS / YEARS

B. What type of connection is this main source?
CMNSRCON

(READ ALL, CIRCLE ONE)
1. Street connection
2. House connection
3. Phone connection
4. Through a beeper
5. Crack house
6. Other (SPECIFY):_____

C. Does this main source live in your neighborhood?
CMNSRHD

(CIRCLE ONE)
1. No
2. Yes

D. Do you purchase/obtain other drugs from this main source?
CMNSRDRG

(CIRCLE ONE)
1. No
2. Yes (SPECIFY DRUG(S)):_____

E. What do you usually do if your main source is not around?

(CIRCLE ALL THAT APPLY)
1. Go to someone else
CMNSRELS
2. Get it through a friend
CMNSFRD
3. Use other drugs
CMNSRODR
4. Will not buy
CMNSRNO
5. Other (SPECIFY):_____
CMNSROTH

F. What is the ethnicity of your main source?
CMNSRETH

(CIRCLE ONE)
1. Black (not Hispanic)
2. White (not Hispanic)
3. Hispanic
4. American Indian/Alaskan Native
5. Asian/Pacific Islander
6. Other (SPECIFY):_____

8. In the past 12 months, was there a time when you had the money, but you couldn't buy/obtain cocaine/crack?
M12COCBY

(CIRCLE ONE)
1. No (GO TO QUESTION 9)
2. Yes (ASK A THROUGH C)

A. How long ago was the last time?
M12COCT2

(PUT IN NUMBER AND CIRCLE TIME PERIOD)
_____ # OF DAYS / WEEKS / MONTHS AGO

B. What was the reason you couldn't buy/obtain cocaine/crack?
M12COCRN

(CIRCLE ONE)
1. No reason
2. Dealer not available
3. Police activity hot
4. Dealer out of cocaine/crack
5. Holiday/Sunday
6. Dealer charging too much money
7. Other (SPECIFY):_____

C. How did you get through the experience?
M12COCEP

(CIRCLE ONE)
1. Didn't do anything/didn't use
2. Used/bought another drug
3. Found another connection
4. Other (SPECIFY):_____

9. During the last 3 months, what is the most consecutive days in a row you used cocaine/crack?
M3COCDAY

(PROBE: HOW MANY DAYS DID YOU USE COCAINE/ CRACK WITHOUT A BREAK?)

_____ # OF DAYS

10. During the last 3 months, what is the longest time you went without using cocaine/crack?
M3COCTM2

(PUT IN NUMBER AND CIRCLE TIME PERIOD)
_____ # OF DAYS / WEEKS / MONTHS
(IF ANSWER IS "0" GO TO QUESTION 11)

A. Why did you go that long without using cocaine/crack?
M3COCWHY

(CIRCLE ONE. PROBE FOR MOST SPECIFIC ANSWER. IF TWO SPECIFIC ANSWERS ARE GIVEN, PROBE FOR MOST IMPORTANT ONE.)
1. Tired of life associated with cocaine/crack (passive answer)
2. Wanted to change/improve life (active answer)
3. Couldn't afford cocaine/crack
4. In treatment
5. Because of my family/kids
6. Switched to other drug
7. Jailed/incarcerated
8. Subjected to drug testing
9. Cocaine/crack is hard to find
10. Health reasons
11. Stigma of cocaine/crack use
12. Not a daily or dependent user/that is my regular use pattern
13. Other (SPECIFY):_____

11. A. In the past 30 days did you get cocaine/crack for free (did not pay money for it)?
C30COCFR

(CIRCLE ONE)
1. No (GO TO B)
2. Yes (ASK SUBQUESTION)

–Who gave you cocaine/crack for free in the past 30 days?

(READ ALL AND CIRCLE ALL THAT APPLY)
1. Dealer
C30DEALR
2. Friend
C30FRND
3. Spouse/lover
C30SPOUS
4. Other relative/family member
C30FAMLY
5. Co-worker
C30COWKR
6. Other (SPECIFY):_____
C30OTHR

B. In the past 30 days did you get cocaine/crack by participating in drug-related activities, for example, selling or holding drugs, finding buyers, etc.?
C30ACTIV

(CIRCLE ONE)
1. No
2. Yes

C. In the past 30 days did you get cocaine/crack by trading sex for it?
C30TRDSX

(CIRCLE ONE)
1. No
2. Yes

D. In the past 30 days did you get cocaine/crack by trading something else for it?
C30TRELS

(CIRCLE ONE)
1. No
2. Yes

E. In the past 30 days did you get cocaine/crack by stealing it?
C30STEAL

(CIRCLE ONE)
1. No
2. Yes

12. How do you usually get the money you need to buy cocaine/crack?

(READ ALL AND CIRCLE ALL THAT APPLY)
1. Through legal means (legal job, welfare, savings)
CMNYLEGL
2. Steal
C30STEAL
3. Prostitution/sex work
CMNYSEX
4. Deal/sell drugs/help sell drugs
CMNYDRUG
5. Rob someone
CMNYROB
6. Borrow/ask for money
CMNYBORR
7. Work at illegal job (other than dealing drugs)
CMNYILGL
8. Don’t spend money on drugs
CMNYODR
9. Other (SPECIFY):_____
CMNYOTH

13. ASK THIS QUESTION ONLY IF PARTICIPANT IN #11B OR #12(4) SAID THEY PARTICIPATED IN DRUG-RELATED ACTIVITIES TO GET MONEY FOR COCAINE/CRACK OR GET THE DRUG ITSELF. IF NO DRUG-RELATED ACTIVITY WAS REPORTED, GO TO QUESTION 14.

In the past 30 days, did you participate in any of the following drug-related activities to get money for cocaine/crack or get the drug directly?	(READ EACH ACTIVITY AND CIRCLE ONE FOR THAT ACTIVITY)
A. Sold drugs to street dealer? ***CACTDLR***	1. No 2. Yes
B. Sold drugs to another person using drugs (not a dealer)? ***CACTNODL***	1. No 2. Yes
C. Steering and/or finding buyers? ***CACTBUYR***	1. No 2. Yes
D. Acting as a middleman? ***CACTMDMN***	1. No 2. Yes
E. Holding drugs or money? ***CACTHOLD***	1. No 2. Yes
F. Providing street security? ***CACTSEC***	1. No 2. Yes
G. Cutting, packaging or cooking drugs? ***CACTPKG***	1. No 2. Yes
H. Providing space for using drugs? ***CACTSPAC***	1. No 2. Yes
I. Selling or renting pipes/works/rigs or other paraphernalia? ***CACTPARA***	1. No 2. Yes
J. Any other activities not mentioned? ***CACTOTHR***	1. No 2. Yes, (SPECIFY):_____

14. A. In the past 30 days, did you own a gun? ***C30GUN***	(CIRCLE ONE) 1. No 2. Yes
B. In the past 30 days, have you carried a gun while you were obtaining cocaine/crack? ***C30GUNOB***	(CIRCLE ONE) 1. No 2. Yes
15. (IF QUESTION #1B IS COCAINE POWDER) How much cocaine powder do you usually use each time you get high? ***COCUSEGR***	_____ # OF GRAMS _____ SPECIFY OTHER DESCRIPTION

(IF QUESTION #1B IS CRACK) Crack is packaged in different ways. In the past 30 days have you purchased/obtained it:	(READ ALL CHOICES, CIRCLE ALL THAT APPLY) 1. In vials ***CRKVIAL*** 2. In plastic baggies or zip lock baggies ***CRKBAG*** 3. Wrapped in tin foil ***CRKFOIL*** 4. By the rock - no packaging ***CRKROCK*** 5. In other packaging (SPECIFY):_____ ***CRKPKOT***
	(IF MORE THAN ONE METHOD IS GIVEN, ASK A)
A. Which type of packaging do you usually purchase/obtain crack in?	(WRITE IN CODE NUMBER FROM ABOVE) PACKAGING _____ ***CRKPKAGE***
B. How much is in a typical _____ (SPECIFY ANSWER GIVEN IN A)?	_____ # of GRAMS ***CRKGRAMS*** _____ # of ROCKS ***CRKROCKS*** _____ SPECIFY OTHER DESCRIPTION
C. How much crack do you usually use each time you get high? ***CRKUSEUT***	(PUT IN QUANTITY AND CIRCLE TYPE OF PACKAGING) QUANTITY: _____ # OF ***CRKUSEQT*** 1. Vials 2. Plastic baggies or zip lock baggies 3. Tin foil packets 4. Rocks 5. Other packaging (SPECIFY):_____
16. Would you consider yourself a daily cocaine/crack user? ***COCDAILY***	(CIRCLE ONE AND ASK <u>ONLY</u> RELEVANT FOLLOW-UP QUESTIONS) 1. No (ASK C ONLY) 2. Yes (ASK A & B ONLY)
A. During the past seven days, how often did you use cocaine/ crack on a typical day? ***C7DAILY***	_____ # OF TIMES PER DAY
B. In the past seven days how many days were there that you did not use any cocaine/crack? ***C7NOTUSE***	_____ # OF DAYS DIDN'T USE
C. How many times did you use cocaine/crack during the past seven days? ***C7NUMTME***	_____ # OF TIMES USED IN PAST SEVEN DAYS

17. Compared to a year ago, what, if any, changes have you noticed about the purity of the cocaine/crack you're using? ***COCPURTY***	(CIRCLE ONE) 1. Purity is lower now 2. Purity is the same now 3. Purity is higher now 4. N/A
18. Compared to a year ago, what, if any, changes have you noticed about the price you pay for cocaine/crack? ***COCPRICE***	(CIRCLE ONE) 1. Price is lower now 2. Price is the same now 3. Price is higher now 4. N/A
19. (IF QUESTION #1B IS COCAINE POWDER) The last time that you purchased cocaine, how much did you buy? ***COCBUYGR***	_____ # of GRAMS _____ SPECIFY OTHER DESCRIPTION
(IF QUESTION #1B IS CRACK) The last time that you purchased crack, how much did you buy? ***CRKBUYUT*** ***CRKBUYQT***	(PUT IN quantity AND CIRCLE TYPE OF PACKAGING) QUANTITY: _____ # OF 1. Vials 2. Plastic baggies or zip lock baggies 3. Tin foil packets 4. Rocks 5. Other packaging (SPECIFY):_____
20. How much did you pay for that amount? ***COCBUYPY***	$ _____
21. Have you purchased cocaine/crack in the past seven days? ***C7COCBUY*** A. IF NO PURCHASE IN PAST SEVEN DAYS ASK: How many weeks ago did you last purchase cocaine/crack? ***C7WKSAGO***	(CIRCLE ONE) 1. No (ASK A, WHICH COMPLETES COCAINE SECTION) 2. Yes (GO TO QUESTION 22) _____ # of WEEKS (COCAINE SECTION COMPLETED)
22. How many times did you buy cocaine/crack in the past seven days? ***C7BUYTME***	_____ # times per seven days
23. During the past seven days, what was the total amount of money you spent for the cocaine/crack you purchased? ***C7BUYMNY***	$ _____ TOTAL SPENT PAST SEVEN DAYS
24. The last time you bought cocaine/crack, do you remember approximately what time it was when you had the money in hand and you made your first move toward buying it? ***CTIMEMNY***	(PUT IN NUMBER AND CIRCLE AM OR PM) ____:____ AM / PM
25. Do you remember approximately what time it was when you actually bought the cocaine/crack? ***CTIMEBUY***	____:____ AM / PM

26. (USING QUESTIONS 24 AND 25, CALCULATE IN HOURS AND MINUTES HOW LONG IT TOOK TO PURCHASE THE COCAINE/CRACK. THEN CONFIRM THIS SEARCH TIME WITH PARTICIPANT) So it took you _____ minutes to buy cocaine/crack from the time you had the money in hand until you actually purchased the cocaine/crack? ***CMINSRCH***	(MAKE SURE THE # OF MINUTES GIVEN JIVES WITH THE TIMES GIVEN IN 24 AND 25. IF NOT, PURSUE QUESTIONING UNTIL BOTH TIMES MAKE SENSE. IF SO, ASK A AND B) _____ MINUTES OF TOTAL SEARCH TIME
A. Of the total number of minutes it took you to buy cocaine/crack, how much of that time did you spend traveling to where you bought the cocaine/crack? ***CMINTRVL***	_____ MINUTES TRAVELING
B. How much of that time did you spend waiting for the dealer to show up or get back to you? ***CMINWAIT***	_____ MINUTES WAITING (CONTINUE WITH HEROIN SECTION IF APPLICABLE)

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