



# National Institute of Justice

## Research in Brief

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### Issues and Findings

**Discussed in this Research in Brief:** An analysis of 1987–1996 data on booked arrestees' recent use of cocaine/crack, as detected by urinalysis conducted through the National Institute of Justice's Drug Use Forecasting (DUF) program in 24 cities nationwide. The data confirm the researchers' model of a drug epidemic, composed of four distinct phases: incubation, expansion, plateau, and decline.

**Key issues:** Standard epidemiological models and observation of prior drug epidemics suggest that the crack epidemic, which began in the 1980s, has been following this natural course from incubation to decline. DUF data, which documented the rates of drug use for both juvenile and adult arrestees over the study period, offer additional insight on age, period, and cohort effects on cocaine/crack use. Local factors can affect the development and course of the crack epidemic, demonstrated by variations across cities in the same region. Being able to pinpoint the stage of the epidemic in particular cities enables local criminal justice and health officials to develop better strategies and deploy their resources more effectively to respond to the epidemic.

**Key findings:** The crack epidemic has been following this general pattern:

*continued...*

## Crack's Decline: Some Surprises Across U.S. Cities

by Andrew Lang Golub and Bruce D. Johnson

Crack cocaine has been the source of much concern to local officials across the United States ever since it entered the scene in the 1980s. Cocaine sellers' turf wars and the broader health consequences of crack use have heightened the challenges to criminal justice and public health agencies. To gather useful information for local officials on the course of illicit drug use, including crack cocaine, the National Institute of Justice launched the Drug Use Forecasting (DUF) program in 1987 (see "The Drug Use Forecasting Program").

This report examines the progress of the crack epidemic at each of 24 locations served by the DUF program from as early as 1987 (for some locations) through 1996.<sup>1</sup> This information can be helpful for current efforts to control crack use. To the extent that future drug epidemics are similar to the crack epidemic, agencies can use the DUF data to better deploy their drug control resources. In general, the study findings suggest the following:

- **Drug epidemics tend to follow a natural course.** The popularity of a particular drug—such as crack cocaine—tends to start within a limited subpopulation. Sometimes use of a drug catches on and the rate of use increases dramatically until it is widespread. At some point the drug may go out of favor, leading to a slow but steady ebb in its use.

- **Drug epidemics tend to be local.** Which drugs are most popular and when can vary substantially across the country. The crack epidemic started and began declining at different times in different locations. As of 1996, crack use was in decline at most DUF locations, especially those on the East and West Coasts. However, in some noncoastal cities the crack epidemic appeared as strong as ever.

- **Local data can inform efforts to control drugs.** Information about the prevalence of certain drugs, such as those monitored by the DUF program, can help identify the phase of a drug epidemic a community is experiencing, as it occurs. The effectiveness of various drug abuse control strategies might vary across phases. For example, a warning message broadcast in the early part of an epidemic may go unheeded, but the same message, introduced later, may prove effective at speeding the end of the epidemic. Additional research is clearly needed in this area.

- **Changes in use by youths indicate important transitions in a drug's popularity.** New drug epidemics tend to start among older, more established drug abusers. Use of a drug by youths first coming of age (around age 18) indicates that a drug epidemic has established a strong foothold. Similarly, a drug epidemic is about to end when substantially fewer

## Issues and Findings

*continued...*

- A subgroup of hard-core users of other drugs are the first users of cocaine in a local area (the incubation phase), followed by a rapid expansion of use among their more numerous friends and associates (during the expansion phase).
- When the drug becomes popular, it is adopted by youths coming of age (around age 18). At this time the epidemic is well established (defining a plateau phase).
- When new young people coming of age no longer see crack as the drug of choice, the decline phase sets in. Experience in DUF cities has shown decline in juvenile crack use to be the precursor to a more general decline.

The crack epidemic appears to be in the decline phase in all the cities on both the East and West Coasts where DUF has been gathering urinalysis data. For some (but not all) sites in interior sections of the country, the epidemic is still in its plateau stage. Two sites, Omaha and San Antonio, show no signs of a crack epidemic.

**Target audience:** Local law enforcement, court, and correctional officials; public health officials; administrators of juvenile justice agencies and youth departments; drug-crime researchers; and local policymakers.

youths start using the drug than in preceding years. This indicator of a drug's waning popularity may precede a more general decline in use by several years.

### Structure of a drug epidemic

The analysis reported here was guided by a conceptual model of the crack epidemic developed from standard epidemiological and demographic models and based on observations regarding prior drug epidemics. The model identifies four distinct phases in a drug's popularity over the course of an epidemic: incubation, expansion, plateau, and decline. With regard to the crack epidemic, each phase can be distinguished by the proportion of hard drug users (such as previous users of cocaine or heroin) at any

location who use crack. Given the strong relationship between drugs and crime, this variation should be reflected in the rate of cocaine/crack use among arrestees detected by the DUF program, now being reconfigured and expanded (see "Arrestee Drug Abuse Monitoring").

Note that the DUF program detects recent cocaine use via urinalysis but not the mode of consumption; however, self-reports suggest that most of the arrestees whose urine contained cocaine metabolites had smoked crack. In this Research in Brief, the more technically accurate but awkward term "detected cocaine/crack" is used to denote the substance detected by urinalysis, that is, cocaine in all its forms, including crack.

### The Drug Use Forecasting Program

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he Drug Use Forecasting (DUF) program was established in 1987 by the National Institute of Justice to measure trends in illicit drug use among booked arrestees in most large cities (or counties) with a total population of at least 1 million, as well as many smaller cities representing all regions of the United States. The program collects urine samples (along with self-reported information) from about 225–250 male and 100 female arrestees at each location, quarterly. The program expanded to include 24 locations, and at some locations a juvenile DUF program was also instituted to track trends among arrestees charged as juveniles. As of 1996, more than 250,000 arrestees had participated.

DUF samples are typically not representative of the general communities where data collection occurs. Given the drug-crime nexus, DUF data provide excellent information about drug use among many of the most serious drug abusers at each location. Hence, this report discusses the crack epidemic among arrestees.

The EMIT urinalysis screen used in the DUF program detects use of cocaine within the previous 48 to 72 hours but does not distinguish mode of use (e.g., snorting, smoking, or injecting). Hence, this report refers to detected cocaine/crack use. Many of the arrestees who tested positive for cocaine are cocaine snorters and injectors. Presumably, much of the increase in detected cocaine prevailing during the observation period reflected the increased popularity of crack.

Information about self-reported drug use suggests that most of the cocaine use detected by the DUF program resulted from use of crack. Three-quarters of the DUF arrestees aged 18 and above whose use was detected and who admitted to recent cocaine use (in any form) reported having used crack within the previous 72 hours. On the other hand, only half of the detected cocaine users admitted their use. It is possible that cocaine snorters were substantially less likely to admit recent drug use.

Ethnographic reports, particularly about New York City, provide detailed documentation of substantive changes in the use of cocaine prevailing in the 1980s.<sup>2</sup> In New York City, cocaine smoking started primarily among groups of cocaine dealers and wealthier individuals who met from 1979 to 1981 at afterhours clubs to smoke cocaine. These users typically employed the more technically challenging and dangerous method of freebasing that involves heating cocaine powder with ether over an open flame and inhaling the vapors. During this early period, referred to as the incubation phase, DUF would be expected to detect relatively few crack users, and most of these would be older arrestees.

The development and acceptance of crack cocaine, which occurred between 1982 and 1986 in New York City, allowed more individuals to engage in cocaine smoking due to its low price and ease of use, leading to the expansion phase of the epidemic. News of this innovative, easier method for consuming cocaine spread rapidly, probably by word of mouth. Most likely, the initial group of cocaine smokers told some of their associates about the practice; these then became crack smokers. Subsequently, the pioneers and first new recruits probably told other acquaintances. By this means, the number of smokers and recruiters snowballed.<sup>3</sup> The epidemic was now in its expansion phase, and DUF would be expected to detect a rapidly increasing number of cocaine smokers, most of them older.

The dramatic growth of crack use in New York City did not last forever. It was physically limited by the number of people willing to try crack—primarily

## Arrestee Drug Abuse Monitoring

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his year NIJ announces the transformation of DUF into the Arrestee Drug Abuse Monitoring (ADAM) program. For more than 10 years, DUF data have played an important role in constructing the national picture of drug abuse and have been a central component in studying the drug-crime nexus. As DUF's successor, ADAM will be implemented in the 23 existing DUF sites. Moreover, increased funding for the program has been requested to eventually expand ADAM to 75 cities.

While ADAM will retain many of DUF's features, it will also incorporate new elements that will significantly strengthen the value of the data collected. New ADAM program elements will include redesign of data collection and sampling methodology that will provide policymakers and practitioners with a rigorous basis from which to assess local drug use trends and patterns and evaluate local policies.

If increased funding of ADAM is approved, NIJ is proposing:

- Development of local coordinating councils that will generate local research projects for execution at the ADAM sites and assume a prominent role in disseminating the sites' findings to policy, practitioner, and public constituencies.
- Establishment of an outreach program that will annually collect one additional quarter of data from a targeted population, such as a suburban, rural, or Native-American jurisdiction.

those who were already using other hard drugs. Once most of these had become crack users, or at least had the opportunity to try the drug, the crack epidemic entered the plateau phase. During this period, crack was the drug of choice among hard drug users. As a result, youths who came of age during the plateau phase and would become hard drug users started with the "popular" hard drug of their day, crack. During the plateau phase, DUF data would be expected to detect a relatively high and constant rate of cocaine/crack use among arrestees, including youthful arrestees.

Ethnographic evidence suggests that the crack epidemic in New York City entered a decline around 1990 when youths began to disdain crack use.<sup>4</sup> They considered "crackhead" a dirty

word and even took to abusing crackheads. Such a change in attitude among youths heralded the beginning of the decline phase of the crack epidemic.

However, hard drug users tend to keep using a particular drug even after its broader popularity has slipped. This has certainly been the case in New York City with heroin injection. Injecting heroin was quite popular during the 1960s and early 1970s, but in the 1970s heroin fell out of favor and only a few individuals initiated its use, youths not among them.<sup>5</sup> In the early 1990s, about 20 percent of New York City arrestees interviewed by the DUF program were detected as recent heroin users, which suggests that heroin use was still quite widespread. However, the majority of these detected users were middle aged and had been

## Distinguishing Age, Period, and Cohort Effects



Three types of factors which can influence an individual’s drug use—age, period, and cohort effects—can be identified from a two-way table of detected cocaine/crack use as a function of interview year and birth year. Exhibit 1 presents such an age-period-cohort analysis for detected cocaine/crack use among DUF-sampled Los Angeles arrestees.

**Exhibit 1: Age-Period-Cohort Analysis of Cocaine/Crack Use Detected by DUF—Los Angeles (1987–1996)**

Percentage of DUF-Sampled Arrestees Detected as Cocaine/Crack Users <sup>a</sup>											
Interview Year \ Birth Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total 18+ <sup>b</sup>
pre-1945	32	42	39	43	36	45	50	41	45	35	<b>42</b>
1945–49	48	60	58	59	57	59	65	58	59	60	<b>59</b>
1950–54	61	63	71	61	62	69	69	67	60	65	<b>65</b>
1955–59	60	67	63	63	62	67	61	63	62	68	<b>64</b>
1960		80	63	63	57	74	68	62	58	51	<b>65</b>
1961		58	57	51	58	69	56	59	58	56	<b>58</b>
1962		66	59	48	54	62	66	60	50	55	<b>58</b>
1963		61	70	50	54	65	48	54	52	47	<b>55</b>
1964	62	65	58	56	57	65	53	52	57	49	<b>58</b>
1965		68	63	41	59	55	50	55	46	55	<b>55</b>
1966	41	43	50	45	46	50	44	51	41	50	<b>46</b>
1967		57	54	43	40	53	54	47	45	51	<b>50</b>
1968		47	42	35	36	43	52	47	47	43	<b>43</b>
1969		44	45	38	36	43	45	44	35	41	<b>41</b>
1970			39	30	32	41	46	42	33	26	<b>36</b>
1971			20	19	31	28	30	34	27	42	<b>29</b>
1972				18	26	31	31	29	35	29	<b>29</b>
1973					17	19	41	39	28	17	<b>28</b>
1974						18	23	30	28	28	<b>26</b>
1975						16	25	33	33	28	<b>31</b>
1976						9	13	15	19	27	<b>24</b>
1977						9	8	8	18	25	
1978						2	11	6	13	15	
1979							6	9	11	18	
1980								3	13	11	
1981									5	11	
1982										17	
<b>Total 18–20</b>	<b>47</b>	<b>46</b>	<b>37</b>	<b>25</b>	<b>26</b>	<b>23</b>	<b>30</b>	<b>25</b>	<b>28</b>	<b>24</b>	<b>29</b>
<b>Total 18+</b>	<b>55</b>	<b>60</b>	<b>56</b>	<b>49</b>	<b>49</b>	<b>54</b>	<b>52</b>	<b>50</b>	<b>46</b>	<b>46</b>	<b>51</b>
<b>N<sup>c</sup> =</b>	<b>387</b>	<b>1,759</b>	<b>940</b>	<b>1,783</b>	<b>1,970</b>	<b>2,130</b>	<b>1,784</b>	<b>1,454</b>	<b>1,533</b>	<b>1,621</b>	<b>15,361</b>

<sup>a</sup> Each entry reported is based on a subsample of at least 25 arrestees.

<sup>b</sup> Average by birth for adults, defined for this study as 18 and above.

<sup>c</sup> Sample size aged 18 and above.

Note: Data in white area indicate percentage of DUF-sampled arrestees aged 18,19, and 20 years old in each interview year.

The variation across elements in a row indicates how detected cocaine/crack use varied with age for members of a birth cohort (individuals born in a given year). Only 18 percent of the sampled Los Angeles arrestees born in 1972 were detected as recent cocaine/crack users in 1990, when they were 18 years old. The rate increased to 31 percent in 1992, when the cohort reached age 20,

and hovered around that level in subsequent years. These findings suggest that many members of the 1972 birth cohort initiated regular use of crack between ages 18 and 20 and few at subsequent ages. This is an *age effect*. (Note: the identification of an age effect is based on the extent to which DUF provides a similar random sample from the 1972 cohort in each year.)

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In contrast to the increase in detected cocaine/crack use observed among the 1972 cohort in Los Angeles, detected cocaine/crack use among all arrestees aged 18 and above declined from a peak of 60 percent in 1988 down to 49 percent in 1990. Two factors could potentially account for this phenomenon—a period or a cohort effect. Informally, these could be distinguished as a passing fad or a lasting fad specific to a generation. A drug epidemic could potentially come to a dramatic end if most users were to cease at once. Indeed, many social phenomena follow such fad-like behavior: Yo-yos and bell-bottom pants were once widely popular but virtually disappeared after a few years. Demographers call such a short-lived fad a *period effect*.

A period effect would be identified in this analysis as a consistent decline in detected cocaine/crack use across the columns in Exhibit 1. However, this was generally not the case. For example, the rate of detected cocaine use among arrestees born from 1955 to 1959 remained at about 64 percent from 1988 to 1990 and beyond. These findings suggest that members of the 1955–1959 birth cohort who became cocaine/crack users tended to persist in their habits through 1996, which is a *cohort effect*.

Drugs, unlike yo-yos, are often habit forming. Much research suggests that many individuals who become involved with regular use of a hard drug tend to persist as it becomes part of their lives. In a similar manner, many baby boomers still listen to their rock-and-roll

records instead of switching to rap or grunge, musical genres that have become associated with members of a more recent birth cohort called Generation X. Demographers call such life long patterns a cohort effect. Unlike a period effect, a cohort effect lasts for years as many individuals in a generation persist in their habits.

Multivariate statistical analyses were used to test the relative importance of cohort and period effects in explaining the observed decline in detected cocaine use for those locations that experienced a decline (see Golub, Hakeem, and Johnson, 1996). These analyses confirmed that differences across birth years in the rate of detected cocaine/crack use were both substantial and statistically significant. Most important, these cohort effects could account for the full extent of the declines observed. Moreover, in every DUF location where a decline was observed, the period effect was not statistically significant, with one exception. The analyses suggested that a substantial portion of individuals in Houston had ceased their use of cocaine and crack.

Exhibit 1 indicates strong variation in detected cocaine/crack use across birth cohorts. Only 29 percent of Los Angeles arrestees born in 1972 were detected as cocaine/crack users, in strong contrast to the 58 percent detected among the 1964 cohort (right-most column). This cohort effect also resulted in the dramatic decline in detected cocaine/crack use among youthful arrestees from 47 percent in 1987 to 24 percent in 1996 (third row from bottom).

heroin injectors since the 1960s and 1970s.<sup>6</sup> By analogy, the decline in the crack epidemic should be first noticeable when fewer youths become crack users than in previous years. During the decline phase, DUF would be expected to detect a gradual decrease in the detected rate of recent cocaine/crack use among all arrestees and a dramatic decrease among youthful arrestees.

### Geographic variation in the crack epidemic

The study examined the progress of the crack epidemic at each DUF location through changes in the prevalence of recent cocaine/crack use detected among arrestees, particularly changes among youthful arrestees defined as those aged 18–20 for the purpose of this analysis.<sup>7</sup> The DUF data made it

possible to identify and analyze some of the factors that affect drug use (see “Distinguishing Age, Period, and Cohort Effects”).

Another recent study has examined the use of crack cocaine by particular populations to aid in the development of informed, more effective criminal justice policies. It is described in “Careers in Crack: Study Findings” (see p. 11).

Subsequent sections of this Research in Brief present and analyze the time series for locations on the East Coast, West Coast, and interior sections of the country, respectively. For each location, the analysis identified the state of the epidemic by 1996, the year in which the decline phase was first discernible (if possible), and the speed of the decline (if appropriate).<sup>8</sup> A rapid decline was distinguished as one for

which both the rates of detected cocaine/crack use among youthful arrestees and among all arrestees decreased substantially. A slow decline was one in which the rate among all arrestees remained relatively constant in spite of a dramatic decline among youthful arrestees.<sup>9</sup>

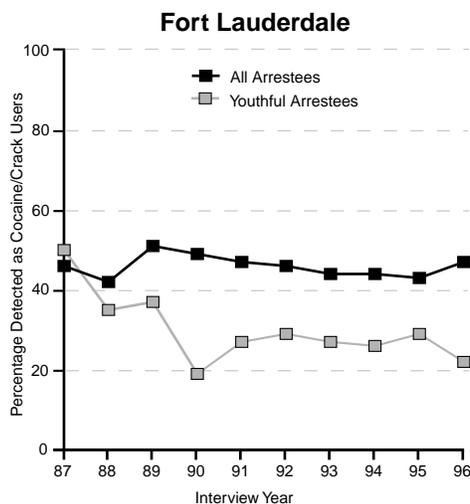
Exhibit 2 indicates the state of the crack epidemic in 1996 among arrestees at each of the DUF locations. As of 1996, the epidemic was in decline in 17 of 24 DUF locations, including all 9 locations on the East and West Coasts. However, at five locations in the interior of the country, the epidemic appeared to be continuing as strong as ever. Two locations showed no sign of any epidemic yet. Most striking, the timing of the crack epidemic differed at several DUF sites near each other.

Exhibit 2: State of the Crack Epidemic Among Arrestees, 1996



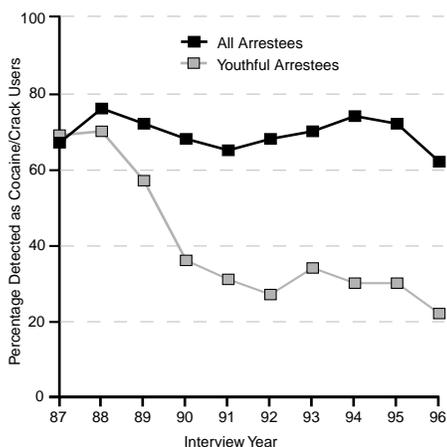
**The crack epidemic from 1987 to 1996 on the East Coast**

**Fort Lauderdale—Slow decline starting in 1988.** The crack epidemic in Fort Lauderdale exhibited a decline from 1987 to 1996. Although the rate of detected cocaine/crack use hovered around 45 percent during this period, the rate among youthful arrestees went down from 50 percent in 1987 to 19 percent by 1990. The rate returned to about 27 percent from 1991 to 1995 and dropped back to 22 percent in 1996.



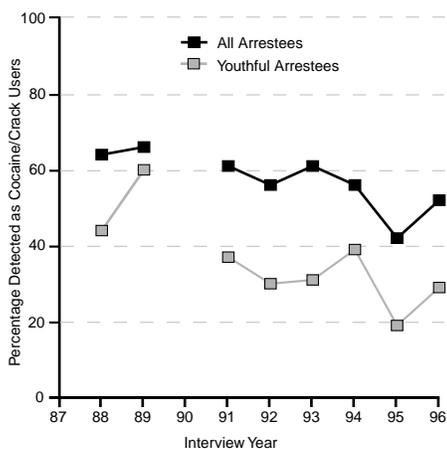
**Manhattan—Slow decline starting in 1989.** The epidemic showed a decline starting in 1989. From 1987 to 1995, the overall rate of detected cocaine/crack use hovered around 70 percent and then showed a moderate drop to 62 percent in 1996. The rate among youthful arrestees went from 70 percent in 1988 down to 31 percent in 1991, where it remained through 1995. It declined further to 22 percent in 1996.

**Manhattan**



**Miami—Moderate decline starting in 1991.** In Miami the epidemic started to decline in 1990 or 1991. A lack of data for 1990 prevents giving a more precise date. The rate of detected use among youthful arrestees dropped from 60 percent in 1989 to 30 percent in 1992. The overall rate fell moderately from 61 percent in 1991 to 52 percent in 1996.

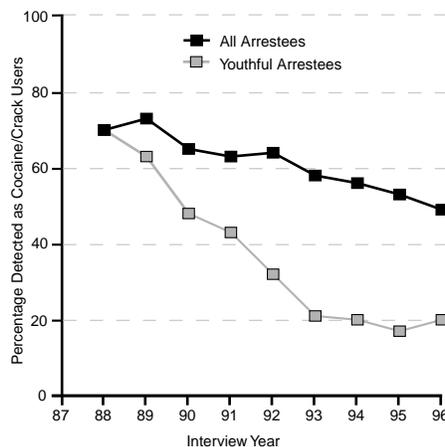
**Miami**



**Philadelphia—Rapid decline starting in 1989.** A substantial decline began in Philadelphia in 1989. The rate of detected cocaine/crack use among youthful arrestees went from 70 percent in 1988 down to only 21 percent in 1993. The overall rate of detected

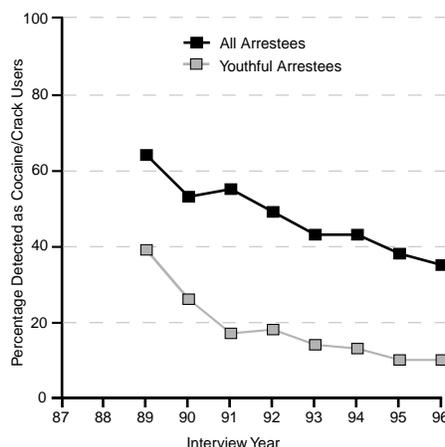
cocaine/crack use also came down from 73 percent in 1989 to 49 percent in 1996.

**Philadelphia**



**Washington D.C.—Rapid decline starting in 1990.** From 1989 to 1996 Washington, D.C., experienced a substantial decline in crack use, and the decline may have started prior to 1990. However, an earlier decline could not be detected because the DUF program started data collection in Washington only in 1989. The rate of detected cocaine/crack use among youthful arrestees decreased from 39 percent in 1989 to only 10 percent by 1995–1996. The overall rate of detected cocaine/crack use declined from 64 percent in 1989 to 35 percent in 1996.

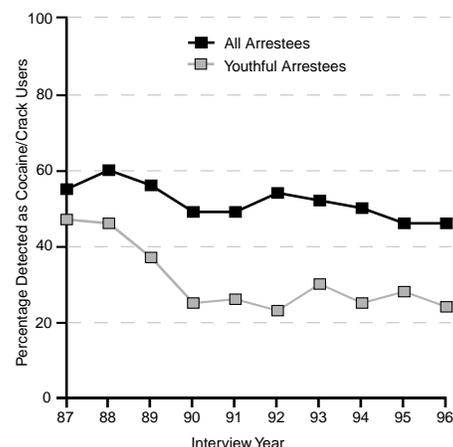
**Washington D.C.**



**The crack epidemic from 1987 to 1996 on the West Coast**

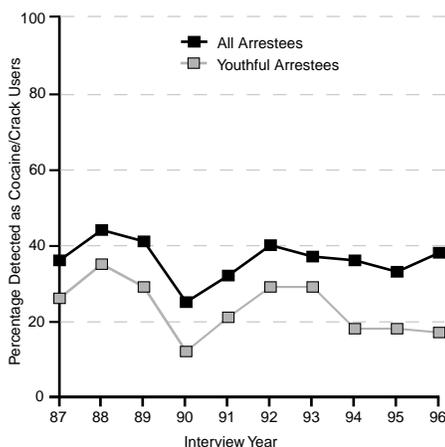
**Los Angeles—Slow decline starting in 1989.** The crack epidemic in Los Angeles exhibited a decline starting in 1989. The overall rate of detected cocaine/crack use decreased modestly from 60 percent in 1988 to 46 percent in 1996. In contrast, the rate among youthful arrestees declined from 46 percent in 1988 to 25 percent in 1990, where it remained through 1996.

**Los Angeles**



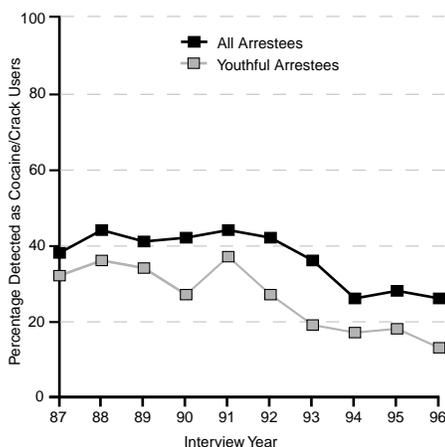
**Portland (Oregon)—Slow decline starting in 1994.** The epidemic in Portland showed evidence of a decline starting in 1994. The overall rate of detected use took an anomalous dip from 41 percent in 1989 down to 25 percent in 1990 but within 2 years returned to 40 percent. The rate of detected cocaine/crack use among youthful arrestees subsequently declined from 29 percent in 1993 to 18 percent in 1994, where it remained through 1996. This decline appears to be more sustained than the previous one.

**Portland**



**San Diego—Rapid decline starting in 1992.** From 1992 to 1996 San Diego experienced a sustained decline in cocaine/crack use. The rate among youthful arrestees declined continually from 37 percent in 1991 to 13 percent in 1996. Furthermore, the overall rate of use went down from 44 percent in 1991 to 26 percent by 1994.

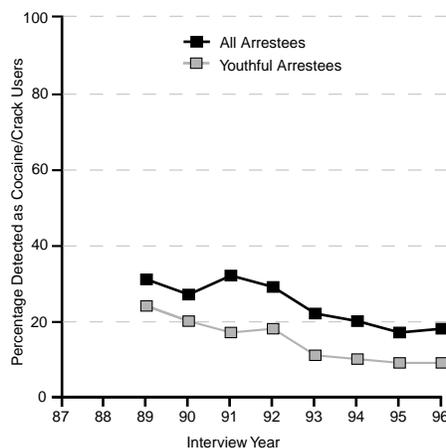
**San Diego**



**San Jose—Rapid decline starting in 1990.** In San Jose the crack epidemic showed a dramatic decline starting as early as 1990. The decline may have started prior to 1990 but would not have been detected because the DUF program did not collect data in San Jose until 1989. The rate of de-

tected cocaine/crack use among youthful arrestees descended steadily from 24 percent in 1989 to only 9 percent in 1996. Furthermore, the overall rate of detected cocaine/crack use declined from 31 percent in 1989 to only 18 percent by 1996.

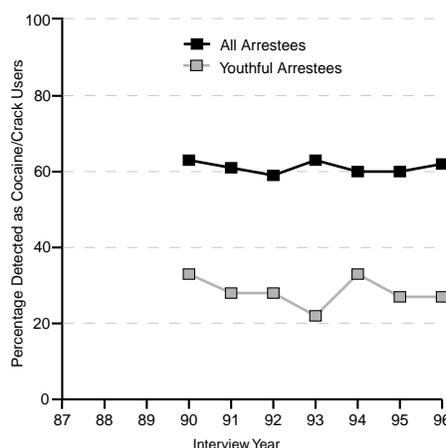
**San Jose**



**The crack epidemic from 1987 to 1996 in interior sections of the country**

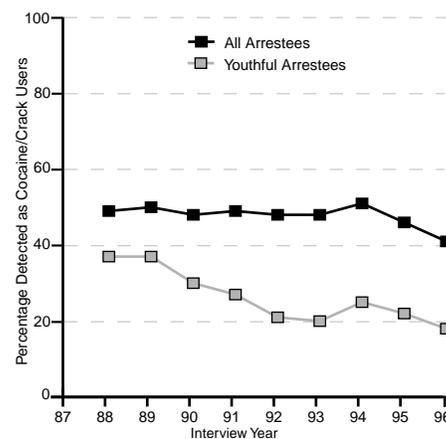
**Atlanta—Plateau.** The crack epidemic in Atlanta was in the plateau stage from 1990 to 1996, with the overall rate hovering around 60 percent. The rate among youthful arrestees was much lower (about 30 percent) but similarly stable over the observation period.

**Atlanta**



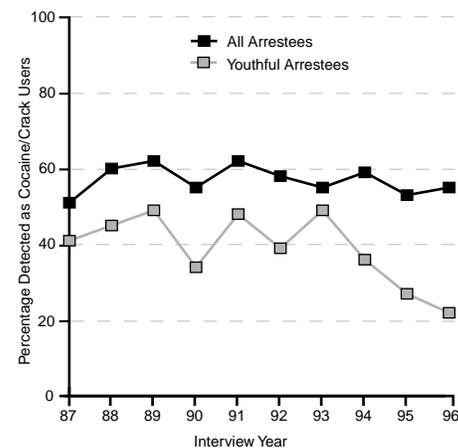
**Birmingham—Slow decline starting in 1990.** The crack epidemic in Birmingham started to decline in 1990. Among youthful arrestees it went down from 37 percent in 1989 to 21 percent by 1992, where it roughly remained through 1996. The overall rate remained constant at about 50 percent through 1994 and subsequently declined to 41 percent by 1996.

**Birmingham**

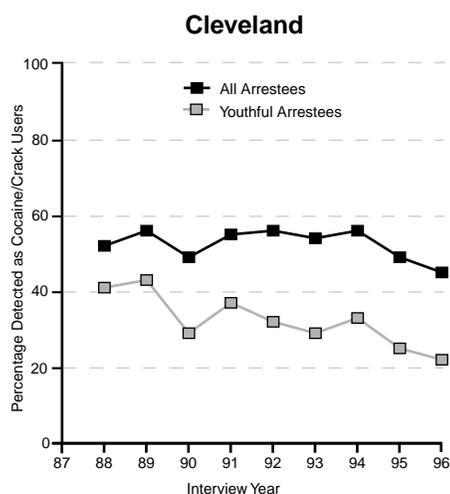


**Chicago—Slow decline starting in 1994.** In Chicago the decline started in 1994. The rate among youths went down steadily from 49 percent in 1993 to 22 percent by 1996. The overall rate continued to hover around 58 percent.

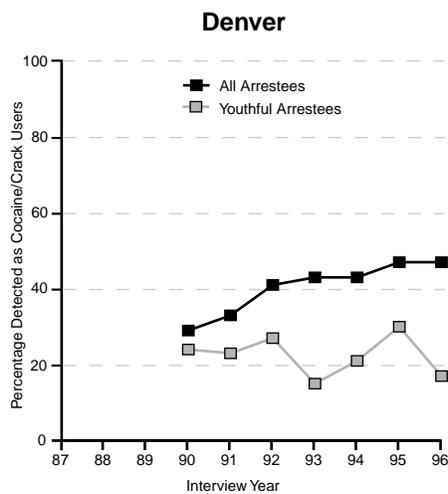
**Chicago**



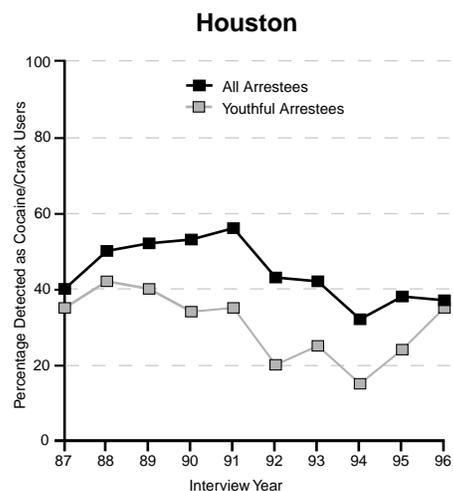
**Cleveland—Slow decline starting in 1990.** The crack epidemic in Cleveland entered a particularly slow but steady decline starting in 1990. The rate of detected cocaine/crack use among youthful arrestees declined in bits from 43 percent in 1989 to 22 percent by 1996. The overall rate hovered at around 55 percent through 1994 and subsequently dropped to 45 percent in 1996.



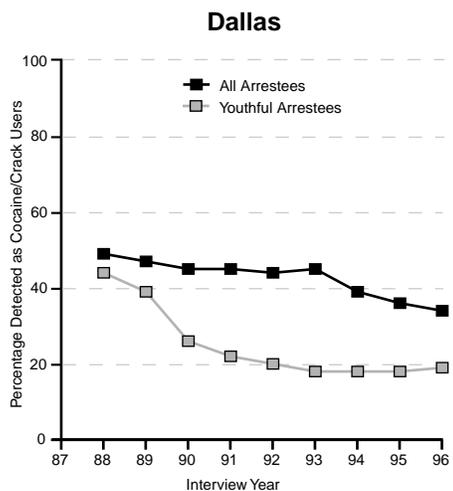
**Denver—Plateau.** From 1990 to 1992, the crack epidemic in Denver expanded, after which it entered a plateau phase. The overall rate of detected cocaine/crack use increased solidly from 29 percent in 1990 to 41 percent in 1992 and then continued up more gradually to 47 percent by 1996. The rate among youthful arrestees ranged erratically around 20 percent.



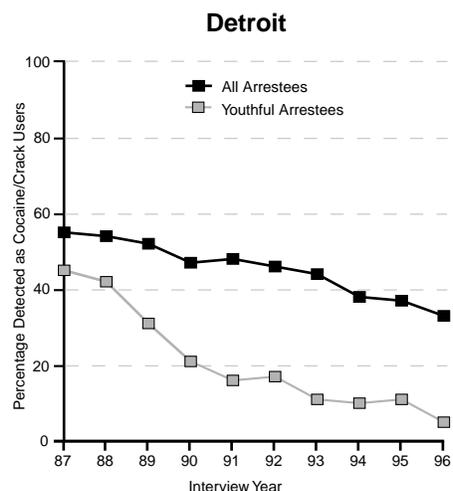
**Houston—Erratic decline starting in 1992.** The peak of the crack epidemic in Houston appears to have been short lived. The overall rate of detected cocaine/crack use rose from 40 percent in 1987 to a high of 56 percent in 1991, then declined precipitously to 43 percent by 1992 and more slowly to 37 percent by 1996. This was the only DUF location in which the overall decline occurred at the same time and as strongly as that of youthful arrestees. These data suggest that a substantial portion of the existing crack users apparently ceased their use in 1992. The rapid increase in the rate among youthful arrestees from its low of 15 percent in 1994 back up to 35 percent in 1996 suggests that Houston may have experienced a resurgence in crack use, but only among youths.



**Dallas—Slow decline starting in 1989.** In Dallas the epidemic showed a decline starting in 1989. The rate of detected cocaine/crack use among youthful arrestees went from 44 percent in 1988 down to 18 percent by 1993, where it roughly remained through 1996. The overall rate also began to exhibit a modest decline from 45 percent in 1993 and then somewhat more rapidly to 33 percent in 1996.



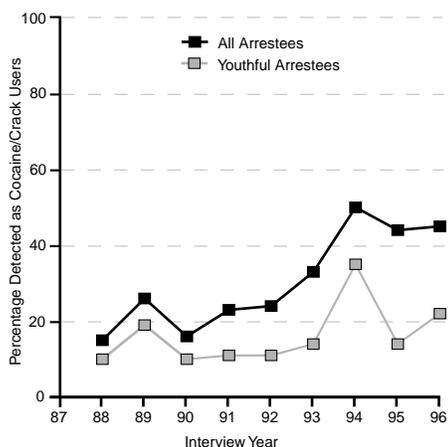
**Detroit—Slow decline starting in 1988.** Detroit experienced a consistent decline from 1987 to 1996. The rate among youthful arrestees went down steadily from 45 percent in 1987 to only 5 percent by 1996. The overall rate went down slowly from 55 percent in 1987 to 44 percent in 1993 and then somewhat more rapidly to 33 percent by 1996.



**Indianapolis—Plateau/decline.** The crack epidemic in Indianapolis exhibited a dramatic expansion from 1992 to 1994. The overall rate of detected cocaine/crack use increased from 24 percent in 1992 to 50 percent in 1994. The rate among youthful arrestees spiked at 35 percent in 1994 and returned to 14 percent in 1995. This dramatic drop in detected use among youths suggests that the crack epidemic may have immediately entered a decline in 1995, virtually skipping the

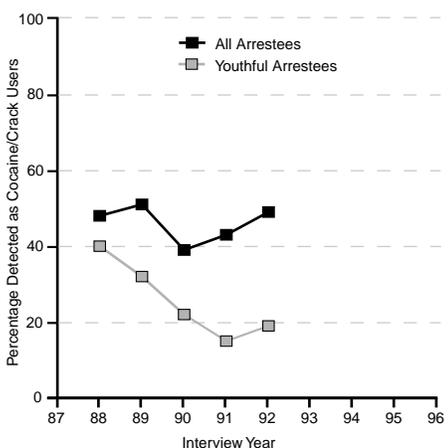
plateau phase. However, the return to 22 percent in 1996, instead of a further decline, suggests that the magnitude of both the peak and the subsequent decline may have been anomalous. Data from future years will confirm whether the crack epidemic in Indianapolis entered a decline in 1995.

**Indianapolis**



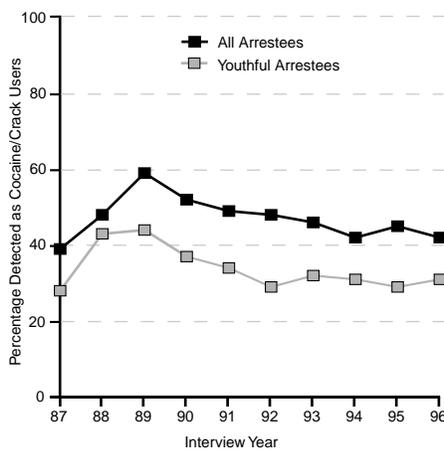
**Kansas City (Missouri)—Slow decline starting in 1989.** The crack epidemic in Kansas City showed a decline from 1988 to 1992. Although the overall rate continued to hover around 45 percent, the rate for youth declined from 40 percent in 1988 to as low as 15 percent in 1991. The DUF program stopped data collection in Kansas City in 1993.

**Kansas City**



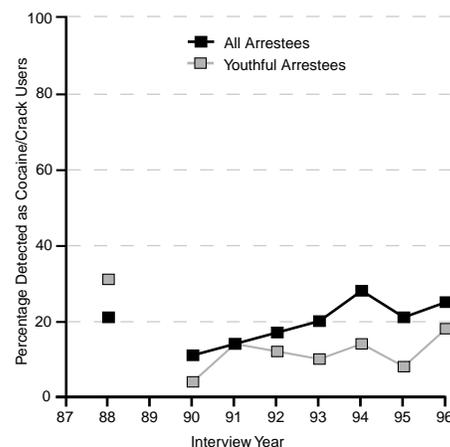
**New Orleans—Slow decline starting in 1990.** Crack use in New Orleans started to go down in 1990. The overall rate peaked at 59 percent in 1989 and appears to have declined slowly to 42 percent by 1996. However, this variation is not statistically significant after controlling for birth cohort and demographic effects.<sup>10</sup> The rate among youths declined moderately from a high of 44 percent in 1989 to 29 percent in 1992, where it roughly remained through 1996.

**New Orleans**



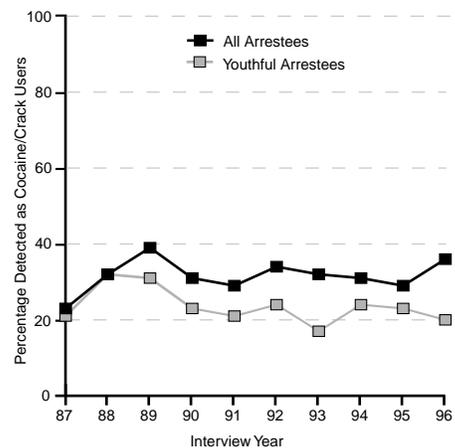
**Omaha—No significant epidemic.** Omaha does not appear to have experienced a substantial crack epidemic from 1988 to 1996. The rate of detected cocaine/crack use increased slowly from 11 percent in 1990 to 20 percent in 1993, approximately where it had been back in 1988. The rate then jumped to 28 percent in 1994. However, this increase resulted from a change in DUF procedures. In 1994 the Omaha DUF location first started interviewing female arrestees, whose rate was about 10 percent higher than the male rate.

**Omaha**

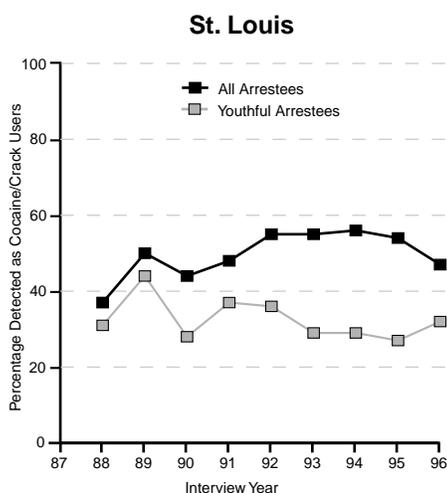


**Phoenix—Plateau.** The crack epidemic in Phoenix was in its plateau phase from 1987 to 1996, with the rate among all arrestees hovering around a moderate 30 percent. The rate was slightly lower (24 percent) among youthful arrestees.

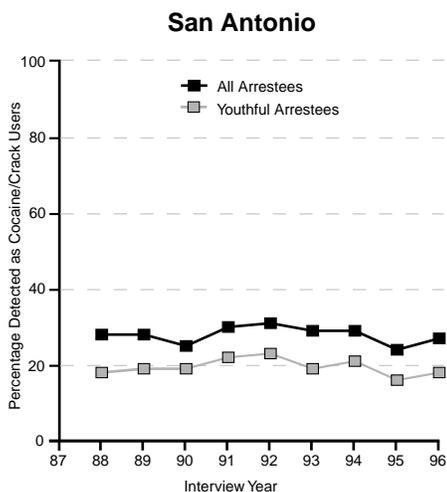
**Phoenix**



**St. Louis—Plateau.** Crack use expanded in St. Louis from 1988 to 1989. The overall rate of detected cocaine/crack use increased solidly from 37 percent in 1988 to 50 percent in 1989 and inched up to 55 percent by 1992 where it roughly remained through 1996. The rate among youthful arrestees rose to 44 percent in 1989 and settled back to a more stable 30 percent from 1993 to 1996.



**San Antonio—No significant epidemic.** The overall rate of detected cocaine/crack use in San Antonio exhibited a stable and low rate (about 28 percent) from 1988 to 1996. The youthful rate was similarly stable and slightly lower (about 19 percent).



**Conclusion**

This study confirmed that in much of the country the crack epidemic was in decline by 1996. The abundance of local data provided by the Drug Use Forecasting program allowed for an extensive analysis by major city. Such localized data are essential to informed drug policy. In this regard, the study confirmed how the popularity of

**Careers in Crack: Study Findings**

**A**nother study, initially funded by NIJ and subsequently funded by the National Institute on Drug Abuse, begun in 1987, consisted of interviews with more than 1,000 crack users—released arrestees, probationers and parolees, and participants in selected drug treatment programs—to gather information on the use of crack cocaine, its impact on criminal careers, and the effectiveness of criminal justice policy in addressing the crack epidemic in New York City.<sup>11</sup> The study found that:

- Virtually all crack users had been frequent users of other drugs, and most also had extensive histories of prior drug abuse, drug selling, and nondrug criminality.
- Crack selling emerged suddenly as a new crime category in 1983 and, by 1988, sales income from crack surpassed that from other drugs.
- Crack was no more “instantly addicting” than cocaine powder, heroin, or marijuana.
- Marijuana (but not alcohol) served as the key gateway to further substance abuse.
- In 1988 crack users were only slightly more likely to commit aggravated assault and rape than were noncrack drug users. Crack use, itself, did not appear to be associated with initiation of violent behavior.
- Female crack users did not initiate prostitution subsequent to their starting to smoke crack. However, existing prostitutes reported dramatically higher frequency of prostitution following initiation of crack.
- Punitive policies were routinely imposed on all crack sellers and abusers, regardless of the seriousness of the presenting offense or the extent of the prior record.
- These tougher sanctions appeared to have no major deterrent effect. Analysis indicated that the severity of the sanction was not related to future recidivism after controlling for variations in age, minority status, prior time served, and prior arrest rates.

The researchers concluded that a more appropriate policy might emphasize drug prevention and treatment in lieu of or in addition to any criminal sanctions.

any particular drug, in this case cocaine/crack, can vary widely across the country. A substantial decline of at least 10 percent in the overall rate of detected cocaine/crack use was observed in Cleveland, Dallas, Detroit, Houston, Los Angeles, New Orleans, Philadelphia, San Diego, San Jose, and Washington, D.C. Other locations exhibited substantial declines in detected cocaine/crack use among youths, which suggested declines in the overall rate were forthcoming in Birmingham, Chicago, Fort Lauder-

dale, Kansas City, Manhattan, Miami, and Portland. At a few locations in the interior of the country, the crack epidemic raged on as strong as ever; this includes Atlanta, Denver, Indianapolis, Phoenix, and St. Louis. Two locations, Omaha and San Antonio, exhibited no major evidence of having yet experienced a crack epidemic.

Moreover, the study demonstrates the DUF program’s potential for monitoring a drug epidemic while it occurs and an ability to distinguish four

phases in an epidemic. The existence of these phases and the ability to monitor them can provide an important basis for documenting the overall effectiveness of drug abuse control policies. Currently, the impact of a policy is typically measured by comparing drug use in one year to that of the preceding year. However, during the expansion phase, this measure is unrealistic. The course of the epidemic itself will result in dramatically increasing rates. Drug abuse control policies need not be blamed for such increases. Indeed, a constant rate or only a slight increase between years could suggest that a policy was very effective. Similarly, during the decline phase the overall rate can be expected to go down slowly across the years. A decline in the rate would not necessarily indicate an effective policy unless the decline also occurred among older arrestees, who tend to be more persistent in their drug use.

## Notes

1. The 1996 DUF data included in this analysis are not in their final, archived form. Minor changes to the final 1996 data set, to be publicly released later this year, are possible.
2. Several excellent ethnographic accounts of the crack epidemic in New York City include Bourgois, 1995; Hamid, 1992; Seigel 1982; and Williams, 1989 and 1991. Johnson, Golub, and Fagan, 1995, provide important findings about the nature of the epidemic based on extensive interviews with 1,003 hard drug abusers from inner-city New York (see “Careers in Crack: Study Findings” on p. 11).
3. The DUF program started data collection in Manhattan in 1987, after the expansion phase had ended. Golub and Johnson (1994a) estimated that this phase lasted in New York City from 1984 to 1986 based on an analysis of reported year of first use by serious crack abusers.
4. See Hamid, 1992; and Williams, 1991.
5. See Boyle and Brunswick, 1980; Clayton and Voss, 1981; Hunt and Chambers, 1976; and Johnson and Manwar, 1991.
6. See Golub and Johnson, 1994b; and Johnson, Thomas, and Golub, 1997.
7. Logistic regression and postdiction analysis were also employed to determine if the observed changes were statistically significant and substantial. Golub, Hakeem, and Johnson (1996) provide complete results of these statistical analyses and present age-period-cohort analyses for each of the 24 DUF locations based on the data collected from 1987 through 1994.
8. These determinations were based on a subjective comparison of the time series for each DUF location with the expectations from the hypothesized structure of the crack epidemic.
9. The speed of the decline in a community depends upon the number of established crack users and their persistence in addition to other factors such as the nature of the DUF sample. If youthful arrestees constitute a substantial portion of the DUF arrestees at a location, then the observed decline in the overall rate of detected cocaine/crack use will be faster.
10. See Golub, Hakeem, and Johnson, 1996.
11. See Johnson, Golub, and Fagan, 1995.

## Selected references

- Bourgois, Philippe. 1995. *In Search of Respect: Selling Crack in El Barrio*. New York: Cambridge University Press.
- Boyle, J., and A.F. Brunswick. 1980. “What Happened in Harlem? Analysis of a Decline in Heroin Use Among a Generation Unit of Urban Black Youth.” *Journal of Drug Issues* 10:109–130.
- Clayton, R.R., and H.L. Voss. 1981. *Young Men and Drugs in Manhattan: A Causal Analysis*. Research Monograph No. 39. Rockville, Maryland: U.S. Department of Health and Human Services, National Institute on Drug Abuse.
- Golub, Andrew, and Bruce D. Johnson. 1996. “The Crack Epidemic: Empirical Findings Support a Hypothesized Diffusion of Innovation Process.” *Socio-Economic Planning Sciences*, 30(3):221–231.
- Golub, Andrew, and Bruce D. Johnson. 1994a. “A Recent Decline in Cocaine Use Among Youthful Arrestees in Manhattan (1987–1993).” *American Journal of Public Health* 84(8):1250–1254.
- Golub, Andrew, and Bruce D. Johnson. 1994b. “Cohort Differences in Drug Use Pathways to Crack Among Current Crack Abusers in New York City.” *Criminal Justice and Behavior* 21(4):403–422
- Golub, Andrew, Farrukh Hakeem, and Bruce D. Johnson. 1996. *Monitoring the Decline in the Crack Epidemic With Data From the Drug Use Forecasting Program*. Final Report to the National Institute of Justice.

Hamid, Ansley. 1992. "The Developmental Cycle of a Drug Epidemic: The Cocaine Smoking Epidemic of 1981–1991." *Journal of Psychoactive Drugs* 24(4):337–348.

Hunt, L.G., and C.D. Chambers. 1976. *The Heroin Epidemic: A Study of Heroin Use in the U.S., 1965–1975* (Part II). Holliswood, New York: Spectrum.

Johnson, Bruce D., and Ali Manwar. 1991. "Towards a Paradigm of Drug Eras: Previous Drug Eras Help To Model the Crack Epidemic in New York City During the 1990s." Paper presented to the American Society of Criminology. New York: National Development and Research Institutes, Inc.

Johnson, Bruce D., Andrew Golub, and Jeffrey Fagan. 1995. "Careers in Crack, Drug Use, Drug Distribution and Nondrug Criminality." *Crime and Delinquency* 41(3):275–295.

Johnson, Bruce D., George Thomas, and Andrew Golub. 1997. "Trends in Heroin Use Among Manhattan Arrestees From the Heroin and Crack Eras." In Inciardi, J., Lana Harrison, and J. French. *Heroin in the Age of Crack-Cocaine*. Thousand Oaks, California: Sage.

Seigel, R.K. 1982. "Cocaine Smoking." *Journal of Psychoactive Drugs* 14(4):277–359.

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

Williams, Terry. 1991. *Crackhouse*. Reading, Massachusetts: Addison-Wesley.

Williams, Terry. 1989. *The Cocaine Kids: The Inside Story of a Teenage Drug Ring*. Reading, Massachusetts: Addison-Wesley.

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NCJ 165707

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