Trends in Cocaine Abuse Reflected in Emergency Room Episodes Reported to DAWN

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Synopsis

The National Institute on Drug Abuse supports the Drug Abuse Warning Network (DAWN), a voluntary data collection system through which hospital emergency room (ER) and medical examiner facilities report information on medical crises and deaths related to the use of drugs. This study is based on cocaine-related episodes seen at 453 consistently reporting hospital emergency rooms located primarily in 21 U.S. metropolitan areas.

Cocaine-related medical emergencies reported to DAWN increased from 16,033 in the first half of 1987 to 25,607 in the first half of 1989; they decreased to 22,796 in the second half of 1989. In the Boston, Buffalo, Dallas, Detroit, Minneapolis, New York, Newark, Phoenix, and Washington, DC, areas, cocaine-related ER episodes decreased for at least the last two consecutive semiannual periods.

Consistent with the prevalence of crack, smoking was the most frequently reported route of administering cocaine. Patients who had smoked the drug generally were younger and less likely to use other drugs in combination than were those who took cocaine by other routes. The proportion of black patients increased from 57 to 63 percent in cocaine-related ER episodes overall, and from 74 to 77 percent in episodes where the drug was smoked. Heroin used in combination with cocaine was reported in 12 to 15 percent of cocaine episodes, and both drugs were injected in 75 to 78 percent of the cases where both were involved, suggesting so-called speedballing. Patients who combined heroin with cocaine were generally older than patients in cocaine episodes overall.

REPORTS OF THE RISING TIDE OF COCAINE ABUSE and associated problems have inundated the popular media and the professional literature since the mid-1980s.

The 1988 National Household Survey on Drug Abuse, the most recent general survey of drug use conducted by the National Institute on Drug Abuse (NIDA), found that 1.5 percent of the U.S. household population 12 years of age and older had used cocaine in the previous 30 days. This rate reflects a decrease from 1985, when use of cocaine in the previous 30 days was reported by 2.9 percent (*1–3*). However, the number of persons who used cocaine weekly or more often increased from 647,000 in 1985 to 862,000 in 1988 (*4*).

Cocaine use among high school seniors, arguably a leading indicator of general population trends, has been decreasing for the past few years. Data from Monitoring the Future, an annual high school senior and college student drug abuse survey conducted by the University of Michigan and funded by NIDA, showed that current (in the previous 30 days) cocaine use decreased from 3.4 percent in 1988 to 2.8 percent in 1989 among high school seniors (*5*). Comparable proportions were 6.7 percent for 1985, 6.2 percent for 1986, and 4.3 percent for 1987.

Data on acute adverse health consequences associated with the use of cocaine and other drugs are reported to NIDA from hospital emergency rooms (ERs) and medical examiners (MEs) through the Drug Abuse Warning Network (DAWN). DAWN data shows that cocaine has been the leading drug related to ER episodes since the second half of 1986 (*6*), and in ME cases since the second half of 1987 (*7*).

We examined trends in data on cocaine-related ER episodes reported to DAWN for semiannual periods from January–June 1987 through July–December 1989. The data were taken from records submitted by 453 ER facilities that reported consistently during the 3-year period; the criterion for consistency was reporting on at least 90 percent of the days in each of the years. The facilities, located primarily in 21 metropolitan areas, were not selected according to a statistical sampling plan. Consequently, the data are not necessarily representative of the nation or the respective metropolitan areas. In addition, because of the lack of a representa-

Table 1. Number of cocaine-related emergency room episodes reported to DAWN, by metropolitan area, January–June 1987 through July–December 1989

Location	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total	16,033	21,176	23,064	25,374	25,607	22,796
Atlanta	273	302	301	574	918	990
Baltimore	278	362	394	420	523	482
Boston	483	791	709	781	751	702
Buffalo	94	93	74	134	113	107
Chicago	1,255	1,696	1,944	2,122	2,183	2,039
Dallas	438	464	652	618	583	487
Denver	196	250	308	389	316	326
Detroit	1,714	2,340	1,675	2,141	2,062	1,553
Los Angeles	1,434	1,542	1,809	1,897	2,068	1,653
Miami	80	73	88	71	98	48
Minneapolis	181	198	252	229	209	207
New Orleans	771	1,081	1,541	1,581	1,656	1,435
New York	4,521	5,280	5,044	5,310	4,639	4,104
Newark	695	823	1,037	1,489	1,332	1,263
Philadelphia	1,036	2,081	2,770	2,763	3,271	2,901
Phoenix	335	433	626	582	423	364
St. Louis	99	168	138	201	314	390
San Diego	111	155	128	163	181	175
San Francisco	408	436	416	483	690	680
Seattle	316	452	554	544	516	571
Washington, DC	1,139	1,893	2,353	2,577	2,443	2,008
National panel	176	263	251	305	318	311

NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. The national panel consists of facilities located outside of the 21 DAWN metropolitan areas.

SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

Table 2. Percent distribution and numbers of cocaine-related emergency room episodes, by patient's sex, race or ethnicity, age, and average age, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	16,033	21,176	23,064	25,374	25,607	22,796
Sex:[1]						
Men	67.3	66.8	68.0	68.5	68.7	67.4
Women	32.7	33.2	32.1	31.5	31.3	32.7
Number of episodes	15,896	20,936	22,871	25,186	25,417	22,619
Race or ethnicity:[2]						
White non-Hispanic	30.9	28.9	29.0	27.3	26.5	26.3
Black non-Hispanic	57.2	60.3	60.1	61.9	62.8	63.2
Hispanic	11.4	10.5	10.5	10.4	10.3	10.0
Other	0.4	0.3	0.4	0.4	0.5	0.5
Number of episodes	14,795	19,543	21,511	23,605	23,898	21,108
Age:[3]						
6–17 years	2.7	2.4	2.4	2.2	2.1	1.9
18–25 years	30.9	31.7	31.5	30.5	28.8	27.3
26–34 years	45.5	44.8	43.7	44.4	45.0	44.8
35–44 years	17.6	17.7	18.8	19.1	20.2	21.5
45 years and older	3.3	3.5	3.5	3.7	3.9	4.6
Average age	29.1	29.2	29.3	29.5	29.8	30.3
Number of episodes	15,970	21,103	23,015	25,308	25,560	22,729

[1]Excludes episodes for which sex was unknown or not reported.
[2]Excludes episodes for which race or ethnicity was unknown or not reported.
[3]Excludes episodes for which age was unknown or not reported.

NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.

SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

tive sample from which inferences can be made, statistical tests generally are not performed on the DAWN data. Comparisons discussed in this paper were selected on the basis of general interest and relative degree of change or difference.

This analysis was based on records submitted by the end of March 1990 in order to reduce the effects on trends of reporting lags for the most recent period. DAWN ER data are generally 99.6 to 99.8 percent complete 3 months following the date of occurrence.

For the purpose of reporting to DAWN, drug abuse is defined as the nonmedical use of a substance to achieve psychic effects, because of dependence, or as a means of attempting or committing suicide. As the data reflect only those instances of drug abuse that have resulted in a medical emergency and have been seen at one of the participating facilities, patterns in DAWN data should not be construed to reflect profiles in the prevalence of drug use in the general population. For more complete information about the source and general nature of DAWN data, refer to recent semiannual (*8*) and annual (*9*) reports published in the NIDA Statistical Series.

We present data on patterns of cocaine-related ER episodes according to the metropolitan area and characteristics of patient demographic factors, drug episodes, and drug use. During the period covered, there were no changes in DAWN data collection forms that would affect the continuity of the coding for these variables. A certain proportion of data was missing or unknown for each of the variables. These categories have been excluded in calculating percent distributions. As a result, the number of cases that the distributions are based on differs among variables.

Overall Trends

As shown in table 1, cocaine-related emergency room episodes in the consistently reporting facilities increased from 16,033 in the first half of 1987 to a 3-year high of 25,607 in the first half of 1989 and decreased to 22,796 in the second half of that year. The proportion of cocaine-related episodes relative to all drug-related episodes at consistently reporting ERs showed a similar pattern, as illustrated in the following table.

Period	*Percent of total ER drug abuse episodes involving cocaine*
January–June 1987	30.0
July–December 1987	36.1
January–June 1988	38.0
July–December 1988	40.4
January–June 1989	41.1
July–December 1989	40.6

Metropolitan area. The numbers of cocaine-related episodes in the 21 metropolitan areas are shown in table 1. The overall pattern of uninterrupted increases in the first 5 half-year periods, followed by a decrease in the last half of 1989, was observed in Baltimore, Chicago, Los Angeles, and New Orleans. In Atlanta and St. Louis, there were generally increasing trends with no downturn at the end of the period. In the Seattle area, cocaine-related episodes increased from the first to the second half of 1989 after two previous declines. In several areas, the 3-year peak in semiannual cocaine episodes occurred before the first half of 1989. In these areas, Boston, Buffalo, Dallas, Detroit, Minneapolis, New York, Newark, Phoenix, and Washington, DC, cocaine-related ER episodes decreased for at least the last two consecutive semiannual periods.

Grouping the metropolitan areas by census region, the only systematic difference in trends in cocaine-related cases was that all areas in the Northeast showed decreases at the end of the period, whereas cases continued to increase in one city in each of the other regions.

Demography. The sex distribution of patients in cocaine-related ER episodes remained relatively constant at a little more than two men for every woman (table 2). The proportion of black patients, who were in the majority in cocaine episodes throughout the 3-year period, increased from 57 to 63 percent. Complementing this trend, the proportion of white patients decreased from 31 to 26 percent. The average age of patients in cocaine-related ER episodes increased slightly from 29.1 years in the first half of 1987 to 30.3 years in the last half of 1989. Consistent with this increase in average age, the proportion of patients 35 years of age and older increased from 21 percent at the outset of the period to 26 percent at the end. Complementary decreases were observed for patients 25 years of age and younger.

Episode. Distributions of cocaine-related ER cases by selected episode characteristics are shown in table 3. The proportion of episodes in which drug use was motivated by dependence increased from 64 percent in the first half of 1987 to 70 percent in the second half of that year, then remained between 70 and 73 percent for the rest of the 3-year period. The most commonly reported reason for the ER visit was an unexpected drug reaction, and the proportion of cases in this category remained in the range of 24 to 27 percent. Patients seeking detoxification accounted for 23 to 26 percent of the episodes; this category is used when persons with an identified chronic substance abuse problem are to be admitted to a detoxification program and receive prior

Table 3. Percent distribution of cocaine-related emergency room episodes by drug use motive and reason for emergency room visit, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	16,033	21,176	23,064	25,374	25,607	22,796
Drug use motive:[1]						
Psychic effect	29.1	23.8	22.4	22.3	21.6	22.7
Recreational use	26.5	21.8	20.3	18.9	17.8	20.1
Other psychic effects	2.5	1.9	2.1	3.4	3.9	2.6
Dependence	64.1	70.2	71.4	71.8	72.5	70.9
Suicide	6.0	5.3	5.6	5.3	5.3	5.7
Other	0.8	0.7	0.6	0.6	0.6	0.7
Number of episodes	13,736	17,848	20,208	22,185	22,897	20,088
Reason for ER visit:[2]						
Unexpected reaction	27.1	24.9	24.3	24.0	26.7	26.2
Overdose	16.6	15.2	13.5	14.0	12.3	12.5
Withdrawal	2.4	1.8	1.6	1.7	1.5	1.7
Chronic effects	20.8	23.0	26.9	26.3	23.9	22.6
Seeking detoxification	22.5	24.4	24.3	23.6	26.3	25.7
Accident or injury	3.2	3.3	3.9	4.4	5.0	7.2
Other	7.4	7.5	5.6	5.9	4.3	4.0
Numer of episodes	15,400	20,490	22,331	24,475	24,722	21,805

[1]Excludes episodes for which drug use motive was unknown or not reported.
[2]Excludes episodes for which reason for ER visit was unknown or not reported.
NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

Table 4. Percent distribution of cocaine-related emergency room episodes, by route of administration, form in which the drug was acquired, drug concomitance, and percent involving other drugs frequently mentioned in combination, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	16,033	21,176	23,064	25,374	25,607	22,796
Route of administration:[1]						
Injected	35.7	33.4	33.5	30.9	28.0	28.7
Smoked (crack or freebase)	38.1	41.6	42.3	45.4	49.0	48.3
Sniffed (snorted)	20.4	19.0	17.8	16.4	15.9	16.0
Other or multiple	5.8	5.9	6.4	7.3	7.1	7.0
Number of episodes	11,826	15,877	16,955	18,334	18,131	15,625
Form in which cocaine was acquired:[2]						
Powder	61.9	56.5	56.1	52.2	49.5	49.4
Pieces or chunks	18.2	22.4	20.4	24.4	28.3	28.0
Injectable liquid	11.4	11.5	13.0	12.7	10.6	10.8
Cigarette	3.3	5.9	6.7	6.9	7.3	7.2
Other or multiple	5.2	3.8	3.8	3.7	4.3	4.6
Number of episodes	8,713	11,339	12,392	13,569	13,572	11,694
Drug concomitance:						
Single drug episode	44.9	46.2	45.9	46.0	46.6	44.0
Multiple drug episode	55.1	53.8	54.1	54.0	53.4	56.0
Number of episodes	16,033	21,176	23,064	25,374	25,607	22,796
Drugs frequently mentioned in combination with cocaine:						
Alcohol-in-combination	30.8	30.4	32.0	33.7	34.7	37.5
Heroin or morphine	14.8	13.8	13.0	12.9	12.0	13.2
Marijuana or hashish	10.5	9.3	9.2	8.0	8.1	8.1
PCP or PCP combinations	6.1	6.2	5.3	4.9	3.7	2.5
Diazepam	2.5	1.8	1.5	1.2	1.1	1.0
Methamphetamine	1.4	1.2	1.1	1.0	0.9	0.9
Number of episodes	16,033	21,176	23,064	25,374	25,607	22,796

[1]Excludes episodes for which route of administration was unknown or not reported.
[2]Excludes episodes for which form was unknown or not reported.
NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

Table 5. Total number of emergency room episodes for which cocaine was administered by smoking, and percent of smoked-cocaine emergency room episodes, according to metropolitan area, January–June 1987 through July–December 1989

Location	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	4,504	6,609	7,168	8,324	8,890	7,545
Percent total[1]	38.1	41.6	42.3	45.4	49.0	48.3
Atlanta	19.9	26.4	29.4	36.5	37.5	55.4
Baltimore	6.0	8.3	10.7	14.0	12.2	10.8
Boston	19.5	23.9	25.2	25.6	29.4	30.6
Buffalo	10.7	5.6	11.1	18.8	25.8	14.5
Chicago	32.7	28.3	27.3	26.6	31.9	33.8
Dallas	16.0	32.0	33.9	41.0	44.8	46.2
Denver	14.5	16.9	19.5	22.0	19.5	23.6
Detroit	74.5	84.3	84.3	85.2	78.8	69.2
Los Angeles	44.4	45.9	43.0	51.1	58.8	54.8
Miami	39.6	43.5	56.9	33.3	44.0	65.5
Minneapolis	24.3	35.3	32.3	40.9	48.7	46.4
New Orleans	24.7	30.2	42.2	51.3	64.5	73.6
New York	45.2	47.6	50.1	53.0	53.1	52.3
Philadelphia	31.5	34.7	34.6	34.5	45.9	42.7
Phoenix	14.2	10.4	10.5	12.0	12.9	17.7
St. Louis	22.6	32.5	34.7	36.5	53.6	62.6
San Diego	31.1	13.3	26.3	17.7	22.1	18.8
San Francisco	33.7	36.7	37.0	42.2	46.7	45.6
Seattle	28.0	24.5	25.7	25.2	32.1	25.7
Washington, DC	41.3	53.4	63.2	68.9	71.3	75.7
National panel	9.0	6.7	11.0	13.3	23.4	23.9

[1]Denominators for percentages exclude cases for which route of administration was unknown.

NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. The national panel consists of facilities located outside of the 21 DAWN metropolitan areas.

SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

medical clearance or treatment by emergency department staff. Visits prompted by an accident or injury, one of the less frequently reported categories, increased from 3 to 7 percent.

Drug use. Smoking was the most common way of administering cocaine, and the proportion of episodes involving this route increased from 38 percent in the first half of 1987 to 49 and 48 percent in first and second halves of 1989, respectively (table 4). The proportion of cocaine episodes involving injection decreased from 36 to 29 percent over the period, and sniffing or snorting declined from 20 to 16 percent.

The increase in smoking may reflect the prevalence of crack, which was already common before the study period began. However, smoking also is reported as the route of administration when users obtain cocaine in a form different from crack and convert it to freebase for smoking. DAWN collects data on the form in which the patient originally obtained each drug. The category "pieces/chunks" can theoretically be used to identify crack cocaine. However, drug form is not well reported and was unknown or missing in 47 percent of cocaine-related episodes during the 3-year period. Consequently, episodes in which cocaine is administered by smoking are frequently used as a proxy for cases in which the drug is obtained in the form of crack.

Nevertheless, when the missing and unknown data for drug form are excluded, the proportion of cocaine episodes involving pieces or chunks increased from 18 to 28 percent (table 4). Complementing this trend was a decrease in the proportion of cocaine use in the form of powder (from 62 to 49 percent).

The proportion of episodes in which cocaine use alone was mentioned remained in the range of 45 to 47 percent throughout the 3-year period (table 4). The proportion of cocaine cases that also involved alcohol increased from 31 to 38 percent, while the proportion in which heroin or morphine was reported in combination with cocaine decreased from 15 percent in the first half of 1987 to 12 percent in the first half of 1989, and increased to 13 percent in the last half of 1989. Mentions of marijuana or hashish decreased from 11 percent to 8 percent. Combination mentions of phencyclidine (PCP) in cocaine-related cases decreased from 6 to 3 percent, while mentions of combinations of diazepam dropped from 3 to 1 percent.

Smoked cocaine. As indicated previously, data for drug form are not sufficiently complete to provide an

Table 6. Percent distribution of emergency room episodes for which cocaine was administered by smoking, by sex, race-ethnicity, and age, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	4,504	6,609	7,168	8,324	8,890	7,545
Sex:[1]						
Men	63.4	63.8	66.0	65.9	66.6	64.8
Women	36.6	36.2	34.0	34.1	33.4	35.2
Number of episodes	4,487	6,529	7,122	8,275	8,829	7,493
Race or ethnicity:[2]						
White non-Hispanic	17.2	15.5	15.5	14.9	13.9	14.8
Black non-Hispanic	73.8	77.5	76.7	77.3	76.8	77.2
Hispanic	8.8	6.8	7.6	7.6	8.9	7.8
Other	0.2	0.3	0.3	0.2	0.4	0.3
Number of episodes	4,176	6,149	6,812	7,969	8,513	7,126
Age:[3]						
6–17 years	3.0	2.2	2.1	1.7	1.5	1.6
18–25 years	38.1	36.9	37.4	36.2	33.1	31.0
26–34 years	43.4	45.1	44.3	44.3	45.8	46.8
35–44 years	13.1	13.3	13.6	15.0	16.8	17.1
45 and older	2.5	2.5	2.6	2.8	2.8	3.4
Average age	27.8	28.1	28.1	28.5	29.0	29.3
Number of episodes	4,490	6,588	7,153	8,309	8,879	7,520

[1]Excludes episodes for which sex was unknown or not reported.
[2]Excludes episodes for which race or ethnicity was unknown or not reported.
[3]Excludes episodes for which age was unknown or not reported.

NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

Table 7. Percent distribution of emergency room episodes for which cocaine was administered by smoking, by drug use motive and reason for emergency room visit, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	4,504	6,609	7,168	8,324	8,890	7,545
Drug use motive:[1]						
Psychic effect	32.8	25.9	24.3	23.7	19.7	25.4
Recreational use	30.0	23.7	21.4	18.4	17.2	23.3
Other psychic effects	2.9	2.2	2.9	5.2	2.5	2.1
Dependence	61.9	69.9	71.0	71.8	76.2	69.1
Suicide	5.0	4.1	4.5	4.3	4.0	5.1
Other	0.3	0.3	0.2	0.3	0.2	0.4
Number of episodes	3,960	5,641	6,527	7,757	8,275	6,969
Reason for ER visit:[2]						
Unexpected reaction	31.5	28.3	27.1	26.6	27.1	28.0
Overdose	12.7	11.0	9.5	9.9	8.9	9.4
Withdrawal	1.3	1.3	0.9	1.1	1.2	1.3
Chronic effects	19.6	20.9	25.1	26.1	23.4	21.5
Seeking detoxification	26.4	28.0	28.8	26.3	29.8	30.3
Accident or injury	1.8	2.0	2.4	3.2	4.2	6.0
Other	6.7	8.6	6.2	6.9	5.3	3.6
Number of episodes	4,348	6,435	7,029	8,137	8,672	7,240

[1]Excludes episodes for which drug use motive was unknown or not reported.
[2]Excludes episodes for which reason for ER visit was unknown or not reported.
NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

Table 8. Percent distribution of emergency room episodes for which cocaine was administered by smoking, by form in which the drug was acquired, drug concomitance, and percent of these episodes involving other drugs frequently mentioned in combination, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	4,504	6,609	7,168	8,324	8,890	7,545
Form in which cocaine was acquired:[1]						
Powder	40.9	33.4	37.5	32.4	27.9	30.1
Pieces or chunks	46.7	51.2	45.6	51.1	55.6	53.6
Cigarette	8.7	14.0	15.7	15.3	15.0	14.7
Other or multiple	3.6	1.3	1.2	1.3	1.5	1.7
Number of episodes	3,160	4,684	5,177	6,050	6,486	5,581
Drug concomitance:						
Single drug episode	56.4	57.7	56.4	54.8	55.9	53.0
Multiple drug episode	43.6	42.3	43.6	45.2	44.1	47.0
Number of episodes	4,504	6,609	7,168	8,324	8,890	7,545
Drugs frequently mentioned in combination with cocaine:						
Alcohol-in-combination	26.4	26.8	28.5	32.3	32.5	36.1
Marijuana or hashish	11.7	9.6	9.9	8.3	8.3	8.6
PCP or PCP combinations	8.1	7.7	6.8	6.2	5.2	3.7
Heroin or morphine	4.4	4.0	3.2	3.5	3.4	3.7
Diazepam	1.6	1.1	0.9	0.7	0.4	0.6
Methadone	0.5	0.4	0.3	0.2	0.3	0.3
Methamphetamine	0.4	0.2	0.2	0.3	0.3	0.4
Number of episodes	4,504	6,609	7,168	8,324	8,890	7,545

[1]Excludes episodes for which form was unknown or not reported.
NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

accurate measure of trends in ER episodes related to crack. Therefore, cases in which the drug was administered by smoking are taken as a proxy for crack cases. As shown in table 5, the number of mentions of smoked cocaine increased from 4,504 in the first half of 1987 to 8,890 in the first half of 1989, and decreased to 7,545 in the second half of 1989. Because the use of crack cocaine started to increase prior to 1987, this analysis does not reflect the full dimension of the increase in emergency room episodes related to smoked cocaine.

Considered in proportion to all cocaine-related episodes in which the route of administration was reported, smoked-cocaine cases increased from 38 percent in the first half of 1987 to 49 and 48 percent in the two halves of 1989 (table 5). Metropolitan area data for the last half of 1989 reveal that smoking was involved in more than 50 percent of the cocaine cases in Atlanta, Detroit, Los Angeles, Miami, New Orleans, New York, St. Louis, and Washington, DC.

At the end of the study period, the proportion of smoked-cocaine episodes had reached new 3-year highs in the Atlanta, Boston, Chicago, Dallas, Denver, Miami, New Orleans, Phoenix, St. Louis, and Washington, DC, areas. Little clear evidence of decline was observed; Baltimore was the only area for which, at the end of the study period, the proportion of smoked-cocaine cases showed two successive decreases (from 14 to 12 to 11 percent during the 3 half-years ending with July–December 1989).

In cocaine episodes in which the drug was smoked, the proportion of males increased from 63 percent in the first half of 1987 to 67 percent in the first half of 1989, and decreased to 65 percent in the second half of 1989. Comparing the sex distributions in table 6 with those in table 2, the proportion of women was 2 to 4 percentage points higher in cases in which cocaine was smoked than it was overall (for example, 35 percent compared with 33 percent in the second half of 1989).

Trends in the race or ethnicity distribution of patients in episodes in which cocaine was smoked showed that the proportion of patients who were black increased from 74 in the first half of 1987 to 77 percent in the second half of that year and remained at that level for the balance of the 3-year period. These cases contrast with the overall data for cocaine, in which the proportion of black patients ranged from 57 to 63 percent (table 2).

The average age of patients who had smoked cocaine increased steadily from 27.8 years in the first half of 1987 to 29.3 years in the second half of 1989 (table 6). These patients were about 1 year younger, on average, than those in the overall cocaine group (tables 6 and 2), although the proportion of 6- to 17-year olds was a little higher among all cocaine patients than among patients in smoked cocaine episodes, in most time periods.

Table 9. Percent distribution of emergency room episodes for which cocaine and heroin were mentioned in combination, by sex, race or ethnicity, age, and routes of administration, January–June 1987 through July–December 1989

Characteristic	1987		1988		1989	
	Jan.–June	July–Dec.	Jan.–June	July–Dec.	Jan.–June	July–Dec.
Total episodes	2,365	2,922	2,991	3,261	3,070	2,999
Sex:[1]						
Men	70.5	69.5	69.3	69.2	70.2	68.5
Women	29.5	30.5	30.7	30.8	29.8	31.5
Number of episodes	2,338	2,883	2,966	3,237	3,037	2,980
Race or ethnicity:[2]						
White non-Hispanic	30.0	27.1	28.1	25.8	27.8	27.6
Black non-Hispanic	56.1	59.0	57.7	59.7	56.4	57.5
Hispanic	13.5	13.7	13.6	14.0	15.3	14.6
Other	0.5	0.2	0.6	0.5	0.5	0.3
Number of episodes	2,231	2,753	2,821	3,080	2,920	2,827
Age:[3]						
6–17 years	0.7	0.7	0.4	0.8	0.6	0.6
18–25 years	16.0	14.9	16.0	14.0	13.2	13.8
26–34 years	49.9	47.0	43.8	44.4	44.4	40.4
35–44 years	27.6	31.0	32.4	33.9	34.4	36.7
45 years and older	5.8	6.3	7.4	6.9	7.3	8.5
Average age	32.3	32.7	32.9	33.2	33.4	33.8
Number of episodes	2,352	2,912	2,985	3,253	3,067	2,992
Routes of administration:[4]						
Both drugs injected	74.6	74.5	76.1	78.1	75.6	75.3
Other	25.4	25.5	23.9	21.9	24.4	24.7
Number of episodes	1,802	2,285	2,356	2,503	2,319	2,203

[1]Excludes episodes for which sex was unknown or not reported.
[2]Excludes episodes for which race or ethnicity was unknown or not reported.
[3]Excludes episodes for which age was unknown or not reported.
[4]Excludes episodes for which route of administration of either cocaine or heroin was unknown or not reported.

NOTE: Excludes data from facilities that did not meet criteria for consistent reporting. Percent distributions may not sum because of rounding.
SOURCE: National Institute on Drug Abuse, Drug Abuse Warning Network, March 1990.

Distributions of smoked cocaine episodes by drug use motive and reason for ER visit are shown in table 7. The proportion of episodes in which drug use was motivated by psychic effect decreased from 33 percent in the first half of 1987 to 20 percent in the first half of 1989, and increased to 25 percent in the last half of 1989. Conversely, the proportion of dependency cases rose from 62 to 76 percent over the first 5 half-year periods, and declined to 69 percent in the last period. The trends for smoked cocaine episodes are in the same direction as those for all cocaine-related cases (tables 7 and 3).

The proportion of smoked cocaine cases in which the patient was seeking detoxification increased from 26 to 30 percent during the period of the analysis (table 7). Comparing the smoked cocaine cases to the overall cocaine data (table 3), the proportion of patients who were seeking detoxification was somewhat higher when cocaine was smoked (26 to 30 percent, compared with 23 to 26 percent).

As shown in table 8, patients who had smoked cocaine acquired the drug in the form of pieces or chunks (crack) in an increasing proportion of cases (47 percent in the first half of 1987, compared with 54 percent in the second half of 1989). Powdered cocaine, which presumably would have to be freebased in order to be smoked, decreased from 41 to 30 percent in the smoked cocaine episodes during the 3-year period.

The proportion of smoked cocaine episodes in which the use of that drug alone was mentioned ranged from 53 to 58 percent, with the lowest percentage occurring in the last half-year period (table 8). These proportions of single drug cases observed when cocaine was smoked were approximately 10 points higher than those observed for all cocaine-related cases (table 4). Thus, patients were less likely to use other drugs in combination when they smoked cocaine than when they took it by other routes.

The proportion of smoked cocaine cases involving specific other drugs reported in combination (table 8) showed an increase in mentions of alcohol from 26 to 36 percent. Decreases were observed in proportionate mentions of marijuana or hashish (from 12 to 9 percent) and PCP or PCP combinations (from 8 to 4 percent). Use of heroin or morphine reported in combination with smoked cocaine remained in the range of 3 to 4 percent during the period.

Comparing the data in tables 4 and 8, heroin or mor-

phine use was far less likely to be mentioned in combination with cocaine, if cocaine was smoked; heroin was reported in 12 to 15 percent of all cocaine episodes, compared with 3 to 4 percent of episodes in which cocaine was smoked. Alcohol use was less likely to be mentioned in combination with other drugs when patients had smoked cocaine, although the proportion of alcohol mentions increased among these patients, as well as among all patients in cocaine-related episodes.

Conversely, PCP was more likely to be reported in combination with cocaine when cocaine was smoked than in the overall data; in the first half of 1987, for example, PCP was mentioned in 6 percent of cocaine episodes overall, but it was reported in 8 percent of cases in which cocaine was smoked. Methamphetamine, on the other hand, was less likely to be reported if cocaine was smoked (for example, 0.4 in January-June 1987 for smoked cocaine compared with 1.4 percent for all cocaine episodes).

Heroin-cocaine combination. Heroin was mentioned in 12 to 15 percent of cocaine-related ER episodes (table 4). The actual numbers of episodes in which these two drugs were reported in combination increased from 2,365 in the first half of 1987 to 3,261 in the second half of 1988, and decreased to 2,999 in the second half of 1989. The proportion of male patients in episodes involving heroin and cocaine remained in the range of 69 to 71 percent during the 3-year period (table 9); this was consistently 2 to 4 percentage points higher than the proportion of men in all cocaine episodes (table 2).

The proportion of such episodes in which patients were white dropped from 30 percent in the first half of 1987 to 27 percent in the second half of that year, and it remained in the range of 26 to 28 percent through the last half of 1989 (table 9). The proportion of black patients ranged from 56 to 60 percent during the period.

The average age of patients in ER episodes involving heroin and cocaine increased steadily from 32.3 to 33.8 years. The proportion of patients aged 26 to 34 years decreased from 50 to 40 percent, and the proportion of patients 35 years of age and older increased in a complementary pattern. Comparison of the data in tables 9 and 2 reveals that patients who had used both heroin and cocaine were about 3 years older, on average, than the overall group of cocaine patients.

The use of heroin and cocaine in combination is referred to as speedballing if the two drugs are mixed in liquid form and injected using the same syringe. Table 9 shows the joint distribution of route of administration for heroin and cocaine in cases when both were reported. Injection of both drugs occurred in 75 to 78 percent of the cases, excluding cases in which the route was unknown for either drug.

'The most recent data in this analysis suggest that serious medical consequences associated with cocaine use may have turned the corner, at least for the present.'

Discussion

Despite decreases in the use of cocaine in the general household population from 1985 to 1988 (*1–3*), serious medical consequences of cocaine use, as reflected in the ER data, continued to increase at least through the end of 1988. The most recent data in this analysis suggest that serious medical consequences associated with cocaine use may have turned the corner, at least for the present. This downturn cannot be attributed to reporting lag, as subsequent tabulations with later, more complete files continue to show it, and trend data through the first and second quarters of 1990 showed additional decreases.

Although it is not apparent from the percentage data presented in this paper, the leveling off and decrease in cocaine episodes by the end of 1989 was observed for men and women; blacks, whites, and Hispanics; for each age group; for each route of administration; and, generally speaking, regardless of the involvement of specific other drugs.

More detailed analysis shows that the downturn started somewhat earlier for whites than for blacks, and for injection and snorting of cocaine as compared to smoking. Recent overall declines notwithstanding, the ER data presented indicate that cocaine use continues to be a serious problem.

References

1. National Institute on Drug Abuse: National Household Survey on Drug Abuse: population estimates, 1988. DHHS Publication No. (ADM) 89–1636. U.S. Government Printing Office, Washington, DC, 1989.
2. National Institute on Drug Abuse: National Household Survey on Drug Abuse: main findings, 1985. DHHS Publication No. (ADM) 88–1586. U.S. Government Printing Office, Washington, DC, 1988.
3. National Institute on Drug Abuse: Highlights of the 1988 National Household Survey on Drug Abuse. NIDA Capsules, Rockville, MD, August 1989.
4. U.S. Department of Health and Human Services: Press release, Secretary Louis W. Sullivan, MD, on the 1988 National Household Survey on Drug Abuse. Washington, DC, July 31, 1989.
5. Johnston, L. D., O'Mally, P. M., and Bachman, J. G.: 1989 National High School Senior Drug Abuse Survey, Monitoring the Future. University of Michigan News and Information Services, press release, Feb. 9, 1990.
6. National Institute on Drug Abuse: Semiannual report, trend data

through July–December 1986, data from the Drug Abuse Warning Network (DAWN). Statistical series G, No. 19. DHHS Publication No. (ADM) 87–1529. U.S. Government Printing Office, Washington, DC, 1987.
7. National Institute on Drug Abuse: Semiannual report, trend data through January–June 1988, data from the Drug Abuse Warning Network (DAWN). Statistical series G, No. 22. DHHS Publication No. (ADM) 89–1607. U.S. Government Printing Office, Washington, DC, 1989.
8. National Institute on Drug Abuse: Semiannual report, trend data through December 1989, data from the Drug Abuse Warning Network (DAWN). Statistical series G, No. 24. DHHS Publication No. (ADM) 90–1664. U.S. Government Printing Office, Washington, DC, 1990.
9. National Institute on Drug Abuse: Annual data 1989, data from the Drug Abuse Warning Network (DAWN). Statistical series I, No. 9. DHHS Publication (ADM) 90–1717. U.S. Government Printing Office, Washington, DC, 1990.

Cancer Mortality in Cuba and Among the Cuban–Born in the United States: 1979–81

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Synopsis

The Cuban-born population of the United States, enumerated at 608,000 in the 1980 census, has been little studied with regard to cancer mortality. Being older and rarely migrating back to Cuba, Cuban Americans present a good subject for comparative cancer mortality. Age-adjusted death rates for selected causes of cancer are compared in this paper for Cubans in Cuba, the Cuban-born in the United States, and all whites in the United States.

Two forms of cancer have been of particular concern in Cuba, cancer of the lung and cancer of the prostate, because of their relatively high death rates. The age-adjusted death rates for both of these cancers are lower among the Cuban-born in the United States than they are among Cubans in Cuba and whites in the United States. Death rates for cancer of the cervix and cancer of the rectum among the Cuban-born in this country are also low relative to Cubans in Cuba and whites in the United States. Stomach cancer mortality among Cuban-born men in the United States is lower than for men in Cuba or for white men in the United States, but Cuban-born women in this country have rates that are slightly higher than those of U.S. white women. Mortality rates from colon cancer in both sexes and breast cancer among women are intermediate between the lower rates in Cuba and the higher rates among U.S. whites. Finally, the Cuban-born in the United States have higher death rates from cancer of the liver than do Cubans in Cuba or whites in the United States.

In general, the profile found for the Cuban-born in the United States reflects the high socioeconomic status of the pre-1980 migrants as well as their exposure to the U.S. environment.

CUBAN IMMIGRANTS to the United States constitute an interesting group for the study of health and migration. They are older and include enough people of the ages at which cancer becomes a major cause of mortality. In the 1980 census (as of April 1), they numbered 608,000 (*1*). Also, because of the political nature of the migration, there has been relatively little reverse migration. For cancer research it is especially important that immigrants experience a long and relatively uninterrupted period in a new society, since many cancers develop over decades following exposure. When mortality is the end-point, the period is even longer (*2*).

On the other hand, there are limitations regarding the comparative study of cancers among Cubans on the island and the Cuban-born in the United States. Cuban immigrants are not a representative cross-section of the Cuban population and, until recently, have been disproportionately affluent, urban, older, and well-educated, with white collar occupations. All of these characteristics are known to be associated with certain forms of cancer. In addition, epidemiologists have pointed out that persons who choose to migrate are a selective population of the healthy (*3*). Therefore, on the average, we might expect that those who left Cuba tended to be in relatively good health, at least prior to 1980.

Before the 1959 Cuban revolution, mortality in Cuba was typical of developing countries, with a low life expectancy at birth, 58 years in 1959 (*4*), and with relatively high rates of infectious and parasitic diseases (*5*). By 1989, Cuban life expectancy had reached 74 years,