
Use of Drugs Among Persons Admitted to a County Jail

AMASA B. FORD, MD, HAROLD B. HOUSER, MD,
and EDGAR B. JACKSON, Jr, MD

OVERCROWDED CONDITIONS in an antiquated county jail, among other factors, led the voters of Cuyahoga County, Ohio, to pass a \$61 million bond issue in 1970 for the construction of a new justice center, which is now nearing completion. The possibility of improving elements of the criminal justice system at the time of transfer to the new facility stimulated a private criminal justice reform agency, the Administration of Justice Committee, to commission a study of the prisoners' health status and medical services at the jail.

The primary objectives of the study were to describe the mental and physical health problems of the prisoners and their demographic characteristics and to recommend appropriate changes in medical care to meet the needs identified. The use of drugs was recognized as a major health problem in the population under study. Our report describes this aspect of the results. A general report of the study will be published elsewhere.

The Cuyahoga County Jail was built in 1930 to house 300 prisoners. There were more than 600 inmates at the time of the study. More than 90 percent were being held for trial, sentencing, appeal, or transfer, and most were in jail because they were unable to furnish bail. The offenses for which they had been arrested (but

□ *Dr. Ford is professor of community health and family medicine, Dr. Houser is acting director of the Department of Biometry and professor of epidemiology, and Dr. Jackson is assistant professor of medicine and community health, Case Western Reserve University School of Medicine. Dr. Jackson is also director of the M.I.G.H.T. Group, Glenville Health Association, Cleveland.*

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not convicted) ranged from failure to pay alimony to rape and murder. A census conducted just before the present study showed the population to be predominantly young (average 26.6 years, with only 4 percent older than 46), predominantly male (96 percent), and predominantly black (68 percent) (1). The average length of stay was 3.4 months; 46 percent stayed 1 month or less; 84 percent stayed 6 months or less; 5 percent stayed from a year to 19 months (2).

The medical and related services available in the jail were limited. The medical staff consisted of one part-time physician (a gynecologist), a part-time dentist, and nursing personnel sufficient to have one registered or practical nurse on duty round the clock. The administrative lines of authority for health care were not clearly defined but appeared to extend through the sheriff to the county commissioners. Routine services consisted of a cursory physical examination of the inmate at the time of admission, daily sick call conducted mainly by a nurse, and the transportation of prisoners to Cleveland Metropolitan General Hospital (the county hospital) for emergencies and more extensive diagnosis and treatment. Recreational and rehabilitation services were minimal, in part because of the crowded conditions.

Methods

Data were collected at the jail from May through July 1972. A sample of 427 persons was obtained by taking at random half of the daily admissions during this period of men under 45 years of age, plus all admissions of men over 45 and all admissions of women.

Each subject was given a 66-item health questionnaire and helped to complete it if necessary. Only a small number needed such help, which was provided by the nurse or the physician. A physician then reviewed the answers with the prisoner and conducted a complete physical examination, including rectal and pelvic examinations. Laboratory studies included routine blood and urine examinations, urine tests for drug abuse, a battery of automated blood determinations, the sickle cell test, a serologic test for syphilis, a test for visual acuity, throat and genital cultures when in-

dicated, cervical cytology, an electrocardiogram on all men over 45 and on others as indicated, and a tuberculin test. Chest X-rays could not be done routinely because of lack of equipment, but X-rays were requested for all who showed positive tuberculin test results.

Because of a special interest in drug use, four items relating to this topic were included in the questionnaire. In addition, physicians recorded whether needle marks were present or absent, and specimens of the inmates' urine were examined at the county toxicology laboratory for morphine, quinine, methadone, barbiturates, and amphetamines. At the conclusion of the physical examination, the physicians listed the problems (diagnoses or unexplained symptoms or findings) that they had identified. These problems were subsequently coded according to the International Classification of Diseases (3).

Results

Ninety prisoners (21.1 percent) were identified by the physicians as having a problem that could be classified as drug dependence exclusive of alcohol (ICD 304). Of these 90 prisoners, 12 were drug dependent by history only, while the rest were currently using drugs. In 72 cases, the drug or drugs were identified, and in 18 cases they were not. The specific drugs most frequently mentioned were heroin (56 persons), methadone (6 persons), amphetamines (6 persons), barbiturates (5 persons), cocaine (4 persons), and hallucinogens (2 persons). One person was found to be dependent on other sedatives. Seven persons were found to be using more than one drug.

The physician's estimate of the prevalence of drug dependence is shown in table 1. This estimate is compared with separate estimates based on responses obtained by specific questions and on information from the booking sergeant's addict report to the Federal Government, from observation of needle marks, and from urine testing. At least 9 percent of the prisoners were, or had been, drug users according to their own statements at the time of admission to the jail; the true proportion is evidently higher.

Table 1. Prevalence of drug use among 427 prisoners admitted to a county jail, according to 9 separate criteria

Criteria	Positive		Negative		Unknown	
	Number	Percent ¹	Number	Percent ¹	Number	Percent ¹
Physician's diagnostic impression	90	21.1	337	78.9	0	0
Identified on Federal addict report	37	8.7	390	91.3	0	0
Are you using heroin now?	40	9.4	381	89.2	6	1.4
Are you shooting up now?	39	9.1	384	89.9	4	0.9
Have you ever shot up drugs?	107	25.1	318	74.5	2	0.5
Are you using street drugs now?	51	11.9	372	87.1	4	0.9
Needle marks observed by physician	60	14.1	365	85.5	2	0.4
Urine positive for morphine	7	² 1.6	362	84.8	58	13.6
Urine positive for morphine, quinine, or methadone	35	³ 8.2	334	78.2	58	13.6

¹Percentage of all 427 prisoners.

²1.9 percent of the subjects whose urine was examined.

³9.5 percent of the subjects whose urine was examined.

As a screen for the detection of drug use, the urine test was not by itself a satisfactory measure, since urine specimens could not be obtained from 13.6 percent of the prisoners, and only 5.5 percent (57 percent of those with positive results on urine tests) had been admitted the same day as they were arrested. Accordingly, several combinations of the measures listed in table 1 were compared with each other and with the physician's impressions as to their effectiveness in determining drug use. A useful screening measure proved to be the criterion of current use, which was based on (a) an affirmative response either to the question, "Are you shooting up now?" or to the question, "Are you using heroin now?" or (b) positive results in a urine test for morphine, methadone, or quinine (quinine is commonly used for "cutting" heroin). Use of the urine test increased the sensitivity of the measure, since the drug use of only 31 of the 35 prisoners found to have positive results on urine tests was detected by the questions alone. The measure selected for detection of past use of drugs was (a) an affirmative answer to the question, "Have you ever shot up drugs?" and (b) not meeting any of the criteria for current use. Our analysis in the rest of this paper is based on these definitions, rather than on the results of the physician's diagnosis, because the definitions are more uniform and reflect the results of urine testing, which were not available to the physicians. If the physician's impression is taken as the "true" measure, then the screening criteria just described for current and past use of drugs had a sensitivity of 91.1 percent (8.9 percent false negatives) and a specificity of 90.5 percent (9.5 percent false positives).

Current and past users of drugs comprised 26.8 percent of the study group of 427 prisoners. The prevalence of drug use in this jail population, as determined by our criteria, was as follows:

Drug users	Positive		Negative	
	Number	Percent	Number	Percent
Current	66	15.5	361	84.5
Past	48	11.3	379	88.7
Total	114	26.8	313	73.2

Characteristics of drug users. The current and past drug users were predominantly young (65 percent were age 25 or younger), but they did not differ significantly in age distribution from nonusers (58 percent of whom were 25 years or younger). The chi-square test for significance was used in this comparison and subsequent ones, with $P < 0.05$ as the level of significance. There were only 44 females among the 427 prisoners studied (10 percent). The distributions by sex of the drug users and nonusers did not differ significantly.

Users were also compared with nonusers in terms of personal and social characteristics. The dominant group among the prisoners, men 45 years and younger, constituted 81 percent of those examined, and the following description applies to this group; the 44 women and the 49 older men comprised groups too small for separate analysis.

Demographic characteristics. Drug users among the men 45 and under did not differ significantly from nonusers in respect to race, type of offense (State, Federal, or other), size of place of birth, region of birth, occupation, or marital status. There were, however, exceptions. There were significantly more blacks (83.3 percent) among current users than among nonusers (62.9 percent), but when the current and past users were combined, the proportion of blacks (67.7 percent) was not significantly different from that among nonusers (62.9 percent). Also, current users were more likely to be married (46 percent) than were nonusers (34 percent) or past users (20 percent), but current and past users combined (35 percent) did not differ from nonusers in this respect.

Both current and past users had more stable residences, 80 percent having lived at the same address for a year or more, compared with 65 percent of the nonusers ($P < 0.05$).

Evidence of associated disease. Laboratory studies were undertaken to detect other disease conditions that might be associated with drug dependency, such as hepatitis transmitted by unsterilized needles or diseases related to the physical and social environment in which drug-dependent persons are likely to live—specifically, environments in which there is alcoholism, venereal disease, and tuberculosis. For both current and past drug users, the rates of positive test results for these diseases did not differ significantly from the rates found among nonusers. An exception was the serum glutamic oxaloacetic transaminase (SGOT) levels, which were elevated about twice as frequently among users of drugs as among nonusers ($P < 0.005$). This enzyme may be elevated in several conditions other than hepatitis, and the possibility of hepatitis in the inmates with high levels was not confirmed by the other liver function tests used—hepatitis-associated antigen (HAA), lactic dehydrogenase (LDH), and bilirubin. Some of the elevated SGOT levels may have been related to muscle trauma, since 12.5 percent of the prisoners reported a "bad injury."

The extent of illness among the subjects of the study can be measured by observing the total list of health problems identified by the examining physicians. If drug dependency (ICD 304) is excluded, current and past users in our study had an average of 2.12 problems per person—the same average as nonusers. Furthermore, if drug use is excluded, the proportions of persons with no health problems were also identical in the user and nonuser groups, namely, 18 percent. Aside from drug use itself, therefore, drug users in this jail population do not appear to present health problems that differ in number or type from those of the prisoners not using drugs.

Need for services. The diagnostic and treatment plans recommended by the examining physicians (who were not part of the regular jail staff) were ideal or hypothetical forms of treatment that these physicians

considered appropriate. The recommended plans were entered in the regular jail medical record, but shortages of staff and other constraints frequently meant that they were not carried out. If we exclude plans specifically related to the treatment of drug addiction, the examining physicians recommended an average of 2.9 plans per person for current and past users, and 2.7 for nonusers. Differences in the number and types of recommended plans were not statistically significant.

Three forms of treatment were recommended for the drug users. A program of drug withdrawal was specified for 64 percent of the current users. The examining physicians recommended psychiatric consultation for 38 percent of the current users, 27 percent of the past users, and 20 percent of the nonusers. Drug counseling was recommended for only four of the current and past users. Since the details of treatment were not spelled out and we did not discuss them with the physicians, it is difficult to be sure whether drug counseling represented an essentially different plan from that of psychiatric consultation.

Followup examinations were done at 4 and 8 weeks after the original physical examination. As has been found in other studies, many prisoners remained in the jail for prolonged periods. At the end of 4 weeks, 29.7 percent of those originally admitted were still incarcerated, and at the end of 8 weeks, 19.2 percent still remained prisoners. Drug users were no more likely than other prisoners to be detained for these extended periods. Withdrawal reactions were reported at the 4-week followup by 21 of the 114 prisoners identified as current or past users, and in 16 these reactions were described as moderate to severe. Two in the group classified as nonusers also reported mild withdrawal reactions. Seventeen of those who experienced withdrawal reactions stated that they had received treatment for them, but only nine found that the treatment helped.

Use of drugs in jail. At the time of the 4-week and 8-week interviews, a specimen of urine was to be obtained and analyzed for drug metabolites. Only 74 of the 127 prisoners still in jail at the time of the 4-week interview furnished specimens. At the 8-week interview, 72 of 82 prisoners gave specimens. There was concern that persons who might have drugs present in their urine were not cooperating in the provision of specimens. Comparison of the prisoners supplying and not supplying specimens in terms of their original classification as users or nonusers, however, showed no statistically significant difference.

At the 4-week interview, 7 of the 74 specimens of urine tested showed the presence of drugs (amphetamine—1, barbiturate—5, and morphine—1). Two of the five persons with barbiturate in their urine specimens at 4 weeks had specimens that had tested positive for barbiturate upon admission; the specimens of the other three at admission revealed methadone in one instance, negative tests results in another, and unknown test results in the third. Only one of the five per-

sons was receiving prescribed medication containing a barbiturate (Tedral). The two persons whose urine specimens showed amphetamine or methadone had had negative results on urine tests on admission. At 8 weeks, of the 65 urine specimens for which results were known, 3 were positive—2 for methadone and 1 for barbiturate. The person with barbiturate in his urine had had negative results on urine tests on admission and at 4 weeks. One person with methadone in his urine at 8 weeks had morphine and barbiturate in his urine on admission and no sample at 4 weeks. The remaining person with methadone had a negative result on his urine sample on admission and no sample at 4 weeks. The results of the urine testing at 4 weeks and at 8 weeks suggest that a small proportion of prisoners (less than 10 percent) had access to and used drugs while in jail.

Drugs and crime. Since none of the prisoners examined in this study had been tried or convicted, information about the crimes of which they were accused was limited to the "booking charges." Among drug users, 70.5 percent of the charges were felonies, while the percentage of nonusers charged with felonies was 61.9; the difference was not statistically significant. Since crimes against property are thought to be especially common among drug users, who need money to buy drugs, the charges were classified into crimes against person and against property (table 2). Although there were slightly more charges of crimes against property among the drug users, this difference also was not significant ($P < 0.10$).

Table 2. Charges registered against 427 prisoners admitted to county jails

Kinds of charges	Current and past users		Nonusers		Total	
	Number	Percent	Number	Percent	Number	Percent
Crimes against person	60	46.5	176	51.9	236	50.4
Crimes against property	63	48.8	135	39.8	198	42.3
Not classified	6	4.7	28	8.3	34	7.3
Total	129	100.0	339	100.0	468	100.0

¹The total number of charges is greater than the number of prisoners because some prisoners had more than one type of charge made against them.

Discussion

Our study provides information about prisoners in a county jail, and not about drug use in the general population. The picture of the drug-using prisoner that emerges from it matches the stereotypes in some respects, but definitely not in others. The jail and its prisoners are similar to those described in recent studies of the Orleans Parish Prison, New Orleans (4) and of the District of Columbia jail (5), although these are both penal institutions as well as transient jails. As

in the other jails, the prisoners we studied were mainly young black men. The proportion of blacks among drug users, however, is not significantly greater than among prisoners who are not drug users.

The prevalence of addiction to heroin among prisoners in the D.C. jail, as measured by interviews and urine testing, was reported as 45 percent, or almost twice the rate found in Cleveland for all drugs. The Washington study evidently took place close to the peak (1969) of an "epidemic" of heroin addiction in that city. The prevalence of this addiction has subsequently dropped markedly, apparently in response to an extensive treatment program combined with a decrease in the availability of the drug (6). No such dramatic fluctuation in drug use has been reported for Cleveland, although scattered observations indicate that the use of heroin is decreasing here also.

The study of prisoners in the District of Columbia, like the present study, did not demonstrate a significantly greater proportion of serious crimes against property among drug users than among other prisoners. Heroin users in the D.C. jail were reported to have fewer ties to the conventional community than other prisoners; in fact they were less likely to attend church, to come from large families, or to be employed. The results of the present study seem to point in the opposite direction: drug users reported more stable residences than the nonusers. The discrepancy may arise from differences between the two communities, the character of the jails (penal versus transient), or the research methods, since different questions were asked.

Conclusions

Our study shows that screening for drug use among jail prisoners is feasible. A simple questionnaire, supplemented by urine testing, is nearly as effective as a physician's examination in such screening. Even the crude method already in use, namely, questioning of the prisoner by the sergeant at the booking desk (Federal addict report), identified close to half of the drug users. The examining physicians had the impression that little effort was made by the prisoners to deny or conceal drug use.

The unsolved problem defined by this study is that of treatment. With the exception of the routine, limited

use of sedative drugs during withdrawal reactions, none of the treatment methods recommended by physicians for drug users were actually available in this jail. The use of methadone was specifically prohibited by the policies of the sheriff and the jail physician.

We believe that a minimum program for dealing with drug use in such a jail population would include: (a) a routine screening procedure for all persons admitted to the jail and (b) a treatment program administered by trained health professionals, in which methadone could be used for the management of the acute symptoms of heroin withdrawal, as recommended by Dole (7); in this treatment program, there would also be a counseling program with individual and group therapy, and psychiatric consultation for acute and severe drug abuse problems would be readily available.

Our study has shown that screening for drugs is practicable. Drug use calls for the same quality of professional treatment as other illnesses, and its management should be part of a comprehensive medical program. Some form of counseling or psychotherapy was frequently recommended by the examining physician. Although the prisoners in our study were not serving sentences, almost a third remained in the jail for a month or more. This extended period of idle time in the lives of a population characterized by a high rate of drug dependency offers a unique opportunity for treatment and prevention of one of the major health problems of modern American cities.

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SYNOPSIS

FORD, AMASA B. (Case Western Reserve University), HOUSER, HAROLD B., and JACKSON, EDGAR B.: *Use of drugs among persons admitted to a county jail. Public Health Reports, Vol. 90, November-December 1975, pp. 504-508.*

Examinations of 427 prisoners at the time of their admission to a large

urban county jail showed that more than a quarter were, or had been, users of potentially addictive drugs. Except for their drug problems, the drug users did not present any more or different health problems than the nonusers. The treatment for drug abuse recommended by the examining physicians was, for the most part, not

available in the facility.

Evidence of continued drug use in the jail by less than 10 percent of the prisoners was obtained at 4-week and 8-week followup examinations. Detection of drug use by means of questionnaires and urine testing was shown to be feasible among persons admitted to such a jail.