Eduardo N. Siguel and William H. Spillane National Institute on Drug Abuse

#### INTRODUCTION

The Client Oriented Data Acquisition Process (CODAP) is a data collection system developed and operated by the National Institute on Drug Abuse (NIDA) in treatment facilities (clinics) that receive Federal funds. Its purpose is to provide current information which describes clients and the treatment provided to them in order to aid in planning, management and evaluation activities. This report presents a concise summary of CODAP and describes some uses of CODAP in regard to the epidemiology of drug abuse.

#### HISTORY

CODAP has been evolving since 1972. During this time there has been a substantial increase in the number of clients admitted to drug abuse treatment programs and reported on the CODAP system. The system has been adapted in order to be more responsive to user needs.

CODAP was initially designed by the Special Action Office for Drug Abuse Prevention (SAODAP) to satisfy the requirements outlined in P.L. 92-255. When the system design was completed, the responsibility for its implementation was transferred to NIDA's predecessor, the Division of Narcotic Addiction and Drug Abuse of the National Institute of Mental Health, U.S. Department of Health, Education and Welfare. CODAP, which has been operational since 1973, requires reporting by all recipients of Federal funds designated for the provision of drug treatment and rehabilitation services.

During CODAP's first year of operation, over 130,000 Admission Reports for clients entering treatment were processed from nearly 900 reporting clinics. Because drug abuse activities were expanding so rapidly at that time, an evaluation of CODAP was performed by the staff members of participating Federal and State agencies. The system was found to be lacking flexibility in the collection of significant information for Federal, state and program management requirements. It was determined, however, that with some revision CODAP would not only meet more sophisticated management needs but also would fulfill, to a greater degree, basic state information requirements. From April to August of 1974, a pretest of the revised CODAP system was performed in three states and several local programs. The pretest effort and a series of conferences with 36 participating Single State Agencies (SSA's) and other local treatment agencies resulted in the current design of CODAP. This revised version became operational November 1, 1974.

# CURRENT STATUS

Approximately 1,600 clinics currently report to CODAP on a regular basis. These clinics account for more than 30,000 client admissions and discharges each month. Agencies participating with NIDA in the CODAP data collection effort include: The Veterans Administration (VA), the Bureau of Prisons (BOP), the Law Enforcement Assistance Administration (LEAA) and the Department of Housing and Urban Development (HUD). While clinics may receive funds from several Federal or non-Federal sources, most of the reporting clinics receive NIDA funding. The SSA's responsible for administering drug abuse services also participate in the CODAP effort. In several states the SSA's implement the standard CODAP data collection instruments on a state-wide basis, while in others, SSA's obtain the necessary data from existing systems modified to comply with Federal standards for the collection of CODAP data.

The current CODAP system offers not only greater flexibility than the previous version, but also provides additional analytical potential and increased protection of client confidentiality. Its emphasis is on collecting client-related data at the points of admission to and discharge from treatment. CODAP forms are completed by trained clinic staff and do not reflect either the opinions or value judgments of the client. The revised CODAP provides descriptions of:

drug abuse phenomena such as:

demographic characteristics of drug abusers seeking treatment; geographic location (county, Standard Metropolitan Statistical Area (SMSA), state) of acute drug problems; indicators of the incidence and prevalence of drug abuse as well as patterns of abuse including the number and type of drugs being abused, the frequency of use of these drugs and the time interval from onset of drug use to continuing use and treatment.

the treatment process such as:

the number of clients being treated in different modality/environment treatment regimens, including the number of individuals waiting to be treated; the kinds of treatment services being provided; the impact of various treatment endeavors on specific patterns of drug abuse; the characteristics of clients likely to complete treatment and the reasons for discharge from and the length of time spent in treatment.

Data described in both of these categories are necessary for the development and execution of an effective strategy to counter drug abuse. Specific illustrations of potential managerial applications of these data are presented in the last section.

This article was written by Dr. Siguel and Dr. Spillane in their private capacity. No official support or endorsement by NIDA is intended or should be inferred.

#### FUTURE OUTLOOK

As with any new national system of this magnitude, the development of CODAP has not been without problems. The training of a few thousand clinic staff involved in the data collection process was a major undertaking. In addition, extensive education was required to demonstrate to the clinics and the public that client confidentiality safeguards were adequate. After one year of operation, new considerations are appearing that were not evident at the time of the pilot test. For example, discharge reports are more difficult to match to admission records than was anticipated. Also, certain data items are proving to be less useful than was expected while others require more clarification than was originally foreseen.

In the near future, as the system becomes further refined and the information becomes more available to the states, increased utilization and many new applications of the data are anticipated. For example, an SSA may request copies of its state CODAP data tape files from NIDA. NIDA will provide the tapes as well as any technical assistance required to interpret them via standard statistical packages so that SSA's may produce tabulations to be used in management decision-making at the state level. Procedures have been developed to provide CODAP data to the scientific community for research and evaluation.

# DATA COLLECTED

CODAP provides drug abuse program management with not only client-related data as to the type and pattern of drug usage, educational and employment status and demographic characteristics, but also with clinic activity data indicating treatment approaches, services provided and the number of clients treated.

In contrast to the original CODAP system which collected aggregate data on a quarterly basis, the revised CODAP collects individual client data on a monthly basis:

Admission Report - This form is completed for each client as he is admitted to a clinic for treatment after being screened and accepted. It provides data regarding the date of admission to the clinic, admission type (first admission, readmission, transfer), treatment modality (detoxification, maintenance, drug free, oth er), treatment environment (prison, hospital, residential, day care, outpatient), medication(s) prescribed, legal status (voluntary or involuntary), demographic characteristics (sex, year of birth, race or ethnic group), employment status (employed or unemployed), educational status (last formal school year completed and educational or skill development program enrollment at admission), number of prior treatment experiences (including months since last treatment experience), and pattern of drug abuse for the primary, secondary and tertiary drug types. The pattern of drug abuse is specified in terms of the drug type used, frequency of use at admission, year of first use, year of

last continuing use and whether or not the client has a problem with more than three drugs.

Discharge Report - This form is completed for each client as he is discharged from a clinic. It provides data concerning the date of discharge from and admission to the clinic, the reason for discharge (completed treatment-no drug use, completed treatment-drug use at discharge, treatment no completed, transfer, referral, noncompliance to program rules, incarceration, or death), modality and environment at time of discharge (see description of Admission Report for categories), medication(s) prescribed, length of time in treatment (in any and all clinics in the program), employment and educational status and drug(s) used at time of discharge.

Client Flow Summary - This report provides a client census by modality and environment as of the last day of the report month, a summary of screening and referral activity during the month, the number of individuals currently on the waiting list and the number of admission and discharge reports submitted for the month.

Client Progress Report, Bureau of Prison (BOP) - This report is submitted quarterly only for BOP clients and provides information regarding their individual progress.

Submission of the Activity Report, which provided data concerning clinic activities during the month and characteristics of clients in treatment at the end of the report month, was made optional to the SSA's as of November 1, 1975.

In addition, NIDA maintains a separate Control File for each state which contains clinic administrative data including identification information, funding sources and program (organizational) linkages. The Control File is updated quarterly with about one-third of the states being processed each month during the quarter.

PROCEDURES FOR DATA COLLECTION AND PROCESSING

NIDA provides training in the completion of the above forms to all programs and clinics receiving Federal funds. In addition, the Institute trains SSA staff in the CODAP data collection requirements, definitions, and procedures so that they can assist in the data collection process.

Trained clinic personnel are responsible for form completion and submission either directly to NIDA, or to the SSA's which in turn send the completed material to NIDA. Completed forms for each report month are due by the 7th of the following month. After editing and keypunching, data files for a given month are available approximately one and one-half months after the end of the report month. For example, data regarding activities during the month of October are ready for analyses around the 15th of December. The actual forms are generally available to NIDA after the middle of November.

By using the CODAP reports and descriptive information for each clinic obtained from the Control File, the following files are prepared: the Admission and Discharge Files which contain the Admission and Discharge Reports, respectively; the Clients-in-Treatment File which contains records for all clients admitted but not yet discharged; the Client Flow Summary File which contains all data submitted on the Client Flow Summary Reports; Historical Clients File which contains all data on clients who have been discharged - Admission and Discharge Reports are matched and stored together on this file to allow for analyses of discharge data as a function of admission data. For example, the reasons for discharge and length of time in treatment as a function of the pattern of drug abuse at admission can be evaluated through the use of this file.

A client identifier number assigned by the treatment clinic appears on each Admission and Discharge Report form. The primary function of this client identifier is to serve as a means of matching admission and discharge data for the client. Data files with the original data including the client identification number are available to selected NIDA staff in order that they may either provide information to the clinics in case some or all of their records are lost or to correct any erroneous or missing information.

#### QUALITY CONTROL AND CONFIDENTIALITY

The accuracy of the system is being monitored continuously. Clinics that are late in reporting are contacted to determine the reasons for the delay. Continuous delays are not allowed. If necessary, additional training and technical assistance are provided. Tests for internal validity and report consistency have been computerized. Internal validity tests are performed on the incoming forms to make certain that the responses are within acceptable ranges as defined in the CODAP National Management Handbook. Data items found to be invalid become part of an error report produced by the data processing system to facilitate manual resolution. Internal consistency tests are performed to insure that the reported data items are consistent with one another. For example, each discharge date is tested to determine if it is after the admission date and the year of birth is tested to see if it is before the year of admission. Even though the tabulations for January-March 1975 indicated that after editing and keypunching, less than five percent of the forms contained invalid codes a comprehensive strategy has been developed to test the internal consistency of CODAP data. Also, a separate study of the external validity of the data which compares the items reported with other clinic records is currently under way.

The CODAP system fully adheres to the requirements for confidentiality established through the amendments (section 303 (a) of PL-93-282) to section 408 of the Drug Abuse Office and Treatment Act of 1972. Safeguards have been implemented to prevent the possible identification of clients from data. Only the clinic maintains files of the previously mentioned client numbers that allow cross-referencing between client numbers and individuals. Furthermore, CODAP data cannot be linked to other Federal data (such as U.S. Bureau of the Census data) because the data describing the client is not sufficient to match records. Thus, no Federal agency has a crossreference index to the client's identification.

### DATA LIMITATIONS

There are several factors which should be considered when interpreting CODAP data. While the universe of federally-funded drug abuse treatment clinics should be reporting all of the requested CODAP information consistently and accurately. there are limitations to the collection of data which can lead to some inconsistencies and incomplete reporting. The universe of reporting clinics varies from time to time because new clinics are being created, old ones are closing and not all of the existing clinics are reporting consistently each month. Although the characteristics of the population of nonreporting federally-funded clinics are unknown, most of the nonreporting clinics are new and have relatively few clients. Thus, the percentage of clients actually being reported is higher than the percentage of clinics reporting.

This large core of clinics consistently reporting to CODAP provides a broad data base with which to perform useful analyses. While the absolute numbers reflect only those clinics which reported, the percentage relationships derived from these numbers adequately reflect activity in all federally-funded clinics, and provide indicators of drug abuse phenomena outside the clinics. Thus, profiles of drug abuse phenomena related to treatment activity can be developed through cross-tabulations of CODAP data. The large number of clients for whom data are collected allows analyses to be performed which are not feasible when only a few thousand individuals are surveyed. Any one variable against any other(s) can be tabulated for a defined subset of the CODAP population to provide insight into specific abuser characteristics. For example, the following can be tabulated: 1) the percentage of women under 21 with a high school education who use heroin; 2) the probability that the successful completion rate increases or decreases as the number of prior treatment experiences; 3) the age, race and sex distribution of clients admitted to treatment and their patterns of drug abuse; 4) length of time in treatment can be analyzed for purposes of evaluating use of resources; 5) selected indicators of clinic's characteristics, clients in treatment and treatment approaches which can be compared across clinics or programs.

# ILLUSTRATIVE APPLICATIONS OF CODAP

This section illustrates some potential applications of CODAP data to the epidemiology of drug abuse. It is not the purpose of this presentation to analyze drug abuse or drug abuse treatment. Therefore, specific data and tables are presented merely for purposes of illustration. The total number of clients reflected in each table are not always the same. This is due to the fact that the number of missing values depends on the client variables presented. Therefore, the number of observations excluded from a table because of missing data was dependent on the nature of the particular variables under consideration.

The more acutely managers are aware of the characteristics of drug abusers and their drug problems, the better they will be able to direct the activities of intervention programs to respond to abusers' needs for treatment. Data describing both demographic characteristics of drug abusers and drug abuse patterns are available from the CODAP Admissions File.

# Pattern of Drug Abuse

Age, race, sex, educational background, and employment status are among the data collected for each client at the time of admission to treatment. Table 1 depicts a tabulation of selected demographic and drug use variables of clients admitted to treatment during 1975. Knowledge of selected demographic and social characteristics of clients in treatment will result in greater utilization of more appropriate treatment approaches. For example, it is important that members of the treatment staff be able to communicate with clients. This may require the matching, to some extent, of such characteristics as age, race, and sex for certain staff positions with those characteristics for the client population. Educational background and job status can be used in conjunction with age, race, and sex to plan counseling approaches. A large number of young clients with weak educational backgrounds would indicate that program emphasis be placed on continuing education or vocational training. Older unemployed clients with a high school education, however, may require more emphasis on job training and job placement. Current estimates indicate that the employment rate increases when age increases and about 25% of the clients admitted to treatment are employed.

Characteristics of clients' drug abuse problems are also particularly valuable in developing treatment strategies. CODAP not only provides data identifying the drugs being abused by clients at time of admission but also their patters of previous drug abuse. This includes data pertaining to the combinations of drugs used, the number of prior treatment experiences, and the time intervals between the various stages of drug abuse for each client. This data can naturally be crosstabulated with other client characteristics.

It can be seen from Table 1 that race (or ethnicity) and age are related to opiate utilization. While the use of opiates increases with age, the use of marihuana decreases. The relationship between age, race and primary drug of abuse can be used to anticipate and plan for the kinds of drug treatment appropriate for a clinic based on the age/race distribution of its potential clients. This relationship suggests the types of treatment approaches that may be appropriate for particular age groups. For instance, if one were to establish a drug counseling program in a youth center that caters principally to individuals younger than 18, the emphasis could be placed on marihuana as the primary drug of abuse. On the other hand, a community center that attracts individuals over 30 may want to emphasize treatment for alcohol and heroin use.

Tabulations of various client data pertaining to the severity of drug problems can be produced for individual treatment programs in addition to all programs within specific geographical areas. The number of prior treatment experiences for clients can be cross-tabulated with the number and types of drugs abused and other drug abuse pattern variables such as the length of time between first use and first continuing use. Tables of this nature will provide the managers with an indication of the trends in drug abuse activity in particular areas and will facilitate comparisons among programs, states, and other geographical regions.

Often preconceptions exist pertaining to the types and combinations of drugs being abused. Since such notions influence the general approach taken to combat drug abuse, it is worthwhile to examine data from CODAP in order to acquire more factual evidence.

### Trends in Drug Abuse

Clients' drug histories can be viewed as a series of three critical points in time for each particular drug used. The first of these is the year when a drug is first used (referred to as onset of drug abuse). The second is the year of first continuing use, and the third is the year of admission to a treatment program. CODAP includes this drug history data and thus allows for analysis of the time intervals among these three points in time. These data may help managers to better direct prevention and treatment activities at target populations before continuing drug usage occurs by identifying the age at onset. The age at first use of a given drug may be used to develop programs aimed to those individuals with greatest risk of beginning to use drugs (peak of curve describing year of first use). CODAP data may be used to monitor trends in the age at first use. Population groups with specific demographic and drug abuse pattern characteristics can be compared in terms of the distributions of the above time intervals to determine if there are basic differences between the groups. Such information can be used to estimate future demands for treatment based on current problems and expected time lags between first use, continuing use, and need for treatment. Changes over time (such as trends) in patterns of drug abuse can be described using the above time intervals. Figure 1 shows the percent of individuals who began to use heroin during 1975. The peaks around 1969 are interpreted as evidence of a 1969 epidemic while the peak around 1972 is related to the peak of waiting time to enter treatment. Mathematical models are being developed to study waiting times to first treatment, waiting times between consecutive treatment experiences and other related times. For example, preliminary analysis suggests that a Weibull distribution fits data on waiting times between first and continuous use.

The number of times clients have previously been treated for drug abuse also indicates the severity of their problem. Preliminary tabulations suggest that as the number of prior treatment experiences increase, the probability of a client being admitted to a detoxification modality increases and his probability of **analysis** being placed in a drug free modality decreases. Such insights could be valuable in planning strategies for admission and treatment. For example, the number of opiate users with prior treatment experiences could be used to estimate the demand for detoxification programs.

### SUMMARY

CODAP can be an extremely valuable tool for managers at the national, state and local level. CODAP helps to answer a myriad of questions regarding the problem of drug abuse and drug abusers, such as the determination of target groups for prevention efforts based on patterns and history of drug abuse; the allocation of resources; and the planning for the demand for treatment approaches (such as detoxification and maintenance); the estimation of incidence and prevalence; and the evaluation of the effectiveness of treatment programs. Trends in selected indicators can be used to monitor the performance of clinics. Applications of CODAP will increase using 1975 Admissions and Discharges (without client, clinic or program identification) which the National Institute on Drug Abuse made available to the scientific community during 1976.

# Acknowledgements

Several people provided valuable comments on the preparation of this paper. In particular, we would like to thank the staff of the Division of Scientific and Program Information for their suggestions and editing.

# References

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TABLE 1	TYPES OF	PRIMARY	DRUG USE	D BY	SEX-AGE-RACE	CHARACTERISTICS	OF	CLIENTS	(IN	PERCENTAGES)	)
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PRIMARY DRUG		SEX	AGE					RACE				
	Male	Female	18	18 - 20	21 - 25	26 - 30	30	White	Bl <b>a</b> ck	Sp <b>anis</b> h	0ther	
None	2.7	4.2	6.2	3.0	2.3	2.5	3.0	2.4	4.2	2.8	2.4	
Opi <b>ates</b>	59.6	53.7	3.9	33.3	69.7	77.7	67.2	42.6	77.0	73.6	36.2	
Alcohol	8.2	5.4	7.7	5.5	3.4	4.6	18.4	10.1	4.9	2.8	9.0	
Barbiturates	4.3	6.4	8.4	8.8	4.7	2.8	2.5	7.4	1.9	1.9	4.3	
Amphetamines	4.2	5.1	5.5	7.2	4.7	3.7	2.2	7.3	1.2	1.1	4.3	
Marihuana	14.1	16.4	50.4	29.7	9.7	4.6	2.1	19.5	8.3	11.0	26.9	
0ther	6.9	8.9	17.9	12.5	5.5	4.1	4.5	10.6	2.6	6.7	16.8	
Total Percentage	100.0	100.1	100.0	100.0	100.0	99.9	99.9	99.9	100.1	99.9	99.9	
Total N	35460	12298	5784	6357	15643	10586	9188	24946	16864	5191	668	
Row Percent	74.2	25.8	12.2	13.4	32.9	22.3	19.3	52.3	35.4	10.9	1.4	

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