

**A MULTI MODALITY DRUG ABUSE TREATMENT PROGRAM
FOR HIGH ECONOMIC-STATUS PATIENTS**

David M. Ockert

**Submitted in partial fulfillment of the requirements
for the degree of Doctor of Social Welfare
in the School of Social Work**

COLUMBIA UNIVERSITY

1983

D.S.W. converted to Ph.D. in 2011

ABSTRACT

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This study was a pre-post, single group evaluation of a drug-abuse treatment program at a private psychiatric hospital located in the north eastern United States.

Subjects consisted of 101 consecutive atypical patient admissions. They were predominantly white male professionals in their late twenties who earned almost \$45,000 per year and had about two years of college.

The data-base included patient information obtained using: The Addiction Severity Index (ASI), The Brief Psychiatric Rating Scale, The Beck Depression Scale, drug history variables and a natural support systems matrix.

Seventy-four of the patients successfully completed the inpatient treatment protocol, 26 did not and 1 died. Subsequently, 51 entered the outpatient program.

Telephone followups on the patients were carried out 3.5 months post discharge from the inpatient program; on these interviews the ASI was administered. At these followups 51 subjects

were found to be readdicted, 46 were drug free and data for 4 were unobtainable.

The relationships of social, psychological and biochemical factors to occurrence and severity of drug use at post-treatment followups were examined.

The analytic strategy employed chi square, correlation, hierarchical multiple regression, and residualized change score analyses.

The results indicated that the longer a patient remained in treatment the more likely he was to be drug free at followup, especially if the patient entered the outpatient program.

Antecedent factors predicting longer length of stay in treatment were 1) strong economic support status and 2) the existence of a supportive conjugal dyad.

Two other antecedent factors were directly related to incidence of readdiction and its severity at followup. First, the greater the degree of pre-treatment legal involvement the greater the probability and severity of post-treatment readdiction. Second, the type of pre-induction drug of abuse predicted post-treatment readdiction and severity--methadone being the greatest predictor followed in order by "speedball" (a mixture of heroin and cocaine), heroin and cocaine. Additionally, it was found that the subjects taking psychotropic medication during the inpatient and continuing into outpatient phase of treatment were the most likely to be drug-free at followup, especially for the high psychiatric severity patients.

The total pattern of results indicate that a social, psychological and biochemical treatment strategy is necessary to fulfill the treatment needs of drug abuse patients.

ACKNOWLEDGMENTS

I want to acknowledge the contribution of the many people who have helped me in the development and bringing to completion of the dissertation.

My parents, Edward and Teresa Ockert and my brother, Ed, who made it all possible through their love and encouragement. Robert J. Pandina for his friendship and support. Hal Ginzberg for his generosity and advise. Richard Resnick for his ideas. Rick Rawson for his personal style. Tom McLellan for the ASI, his expertise and my first research job. Ted Coons for his friendship, support and being there at the right time. Shirley Jenkins for the NIMH research training fellowship, academic advice and her no holds barred criticism. And especially Irving F. Lukoff for his steady and expert guidance throughout the entire process.

Additionally, I want to thank the research population plus Irl Extein and Mark Gold for their interest and cooperation. Finally, I want to thank everyone else who helped me with the analysis, writing and typing of the manuscript.

Thank you--ALL.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	vi
DEFINITION OF RELEVANT TERMS	ix
CHAPTER	
1 INTRODUCTION	1
Costs of Drug Addiction	2
The Research Environment	3
Overview of Treatment Program	4
Study Design and Theoretical Framework	7
Conclusion	12
2 REVIEW OF THE LITERATURE	13
Methadone	14
Naltrexone	20
Psychotropic Drugs	27
Conclusion	27
3 METHODOLOGY	28
The Detoxification Stage	35
The Drug-Free Unit	37
Outpatient Therapy	38
Conclusion	40

Table of Contents (cont'd)

Page

CHAPTER

3 (cont'd)

Limitations 41

4 THE RESEARCH DATA 42

Comparison of Demographic
Characteristics 45

Antecedents that Predict Outcome 52

Treatment Process Variables 62

Critical Periods Analysis 71

Dominant Treatment Process Variables 80

Natural Support Networks 84

Pre-Post Residualized Change Score
Analysis 91

Psychotropic Medication 94

Clonidine Detoxification 113

5 CONCLUSION 121

Outcome 124

The Residualized Change Score
Analysis 127

Socialization Variables 127

Implications for Social Work Treatment 128

Psychological and Biochemical
Treatment Strategies 129

The Treatment Program 130

Clonidine Detoxification 131

Summary 132

Table of Contents (cont'd)

Page

BIBLIOGRAPHY	134
APPENDICES	143
A. Reliability Rating for the Addiction Severity Index	144
B. Explanation of Drug Class	153
C1. Consent Form	155
C2. Drug History Variables Process Variables	157
C3. Addiction Severity Index	159
C4. Natural Support Systems Matrix	165
D1. Brief Psychiatric Rating Scale	167
D2. Beck Depression Inventory	169

LIST OF TABLES

Table		Page
1	Patient Demographics	44
2	Income Estimates	47
3	Demographic Comparisons	48
4	Drug History Variables	51
5	Completed Followups by Drug Use at Followup . .	54
6	Drug of Abuse by Drug Use at Followup	56
7	Opioids and Cocaine by Drug Use at Followup . .	57
8	Opioids and Cocaine by Drug Use at Followup: Controlling for Income	59
9	Heroin and Methadone by Drug Use at Followup . .	60
10	Cocaine and Speedball by Drug Use at Followup .	61
11	Outpatient Program Participation by Drug Use at Followup	62
12	Inpatient Program Completion by Outpatient Program Participation	64
13	Referral Source by Inpatient Program Completion	65
14	Treatment Process Participation and Drug Use Severity at Followup	67
15	Treatment Process Results	70
16	Hierarchical Multiple Regression Analysis of Age of Onset, of Drug Use Treatment Contact, First Arrest, and Program Completion by Drug Use Severity at Followup	75
17	Hierarchical Multiple Regression Analysis of Economic and Legal Severity by Drug Use Severity at Followup	76

Tables (cont'd)	Page
18 Profession, Trade or Skill by Entry into Outpatient Program	77
19 Hierarchical Multiple Regression Analysis of Education, Age of First Treatment Contact, Number of Treatment Episodes and Legal Severity by Drug Use Severity at Followup	78
20 Hierarchical Multiple Regression of Treatment Process Participation and Drug Use Severity at Followup	81
21 Type of Charge at First Arrest	83
22 Charge at First Arrest by Drug Use Pre- and Post- First Arrest	83
23 Likert Type Scale	85
24 Hierarchical Multiple Regression Level of Support of the Conjugal Dyad and Treatment Process Variables by Drug Use Severity at Followup	86
25 Hierarchical Multiple Regression of Drug Using Friends and Treatment Process Variables by Drug Use Severity at Followup	88
26 Age-Mate Friends by Entry to the Outpatient Program	89
27 Residualized Change Scores between the Pre- and Post-Administration of the ASI	92
28 Psychotropic Medication by Drug Use at Followup	99
29 Entry into Outpatient Program by Drug Use at Followup	100
30 Psychotropic Medication by Outpatient Program Participation	101
31 Psychotropic Medication by Drug Use at Followup: Controlling for Outpatient Participation	102
32 Multiple Regression of Treatment Process Variables by Drug Use Severity at Followup	105

Tables (cont'd)	Page
33 Psychiatric Severity Rating by Drug Use at Followup	107
34 Psychotropic Medication Administration by Drug Use at Followup: Controlling for Psychiatric Symptom Severity	108
35 Psychiatric Severity by Type of Psychotropic Medication	109
36 Drug Class Use by Type of Psychotropic Medication	110
37 Significant Correlation Relationships between Time and Dose of Clonidine and Variables Logically Related to Level of Opioid Use	116
38 Regression Analysis of Time and Dose of Clonidine Use--Predicting Pre-Treatment Drug Use Severity Rating (ASI)	117
39 Time and Dose of Clonidine Predicting Post- Treatment Drug Use Severity Rating (ASI)	119

DEFINITION OF RELEVANT TERMS

Opioid Analgesics

Opioids are meant as any drug, regardless of chemical structure, that act like morphine. These include: heroin (diacetylmorphine); oxycodone (percodan); methadone (prinadol); d-propoxyphene (darvon); codeine (methyilmorphine); hydromorphone (dilaudid); oxymorphone (numorphan). These may be administered by intravenous, oral, nasal, or subcutaneous methods.

The Opioid Antagonist

In brief, Naltrexone antagonizes or prevents morphine (opioid) produced narcosis, analgesic test responses, and respiratory depression (Wikler, 1980). Essentially, this means that an individual on a single 50 mg. dose of Naltrexone will have no euphoric effects from subsequent administration of a morphine-like substance. Naltrexone blocks the effects of opioids and is considered a "pure" opioid antagonist, devoid of opioid-like agonistic actions (Blumberg and Dayton, 1972).

Clonidine Hydrochloride

Clonidine hydrochloride is a non-opioid detoxification substance that is reported to suppress the symptoms of opioid withdrawal in man (Gold et al., 1978a, 1978b; Washton et al., 1979).

CHAPTER 1

INTRODUCTION

The goal of this study is to evaluate a drug abuse treatment program in a private psychiatric hospital located in a north eastern suburban community. The drug abuse treatment program uses multiple treatment modalities, both psycho-social and biochemical, employing staff social workers, psychiatrists, psychologists, ex-addict drug counselors, psychiatric nurses, and medical internists.

Unlike many drug abuse treatment programs, this program's patient population is dominated by affluent and upwardly mobile men. During the period of this study from February 1982 to December 1982, the typical patient accepted for treatment of drug abuse was a white male professional in his late twenties, with approximately two years of college, earning almost \$45,000 per year. In addition the treatment program is expensive--a semi-private room in 1982 cost \$6,000 per week. In February 1982 the total patient population was 160 of which 45 were registered for treatment of drug-abuse.

This treatment program merits attention for a number of reasons. First, the study population--those patients undergoing treatment for drug abuse during the period of this study--has received scant

attention in the annals of drug abuse treatment literature. With rare exceptions, the literature focuses on the poor and under-privileged, that is, urban drug abusers who because of poverty must seek treatment within publicly funded programs.

Second, the wide variety of resources used in the program and the responsiveness of policymakers there to on-going problems created an environment that was rich in the variety of treatment modalities offered in the drug abuse program. These conditions, in fact, were the antithesis of the assembly-line treatment and bureaucratic red tape all too often associated with publicly funded drug abuse treatment programs.

Costs of Drug Addiction

The need for more effective drug abuse treatment programs is not difficult to appreciate. Statistics from the National Institute of Drug Abuse (NIDA) indicate that in 1982 the cost of all drug abuse treatment programs in the United States amounted to \$500 million (NIDA, 1982). One must also bear in mind the enormous amounts spent on law enforcement by the federal Drug Enforcement Administration (\$280 million, 1982)* and additionally the manpower (and the money it represents) directed against drug trafficking by state and local governments.

*Telephone Communications with DEA representative, August 1983.

In addition to the high monetary costs, the social costs of drug abuse are incaluable--individual lives are destroyed, families are broken up, and the emergence of the illegal drug distribution system that is associated with drug abuse. In a quarterly report NIDA indicates that only 23 percent of the patients in state and federally funded drug abuse treatment programs completed their treatment. Of these patients only 16 percent were reported to have had no drug use during the month preceding discharge (NIDA, 1979). Clearly, then, the need for more effective drug abuse treatment programs is obvious and unequivocal.

The Research Environment

The hospital accepted voluntary patients only, excluding those who were deemed potentially violent or otherwise medically unstable, that is, those who were in potentially life-threatening situations. In general, the treatment program for drug abusers lasted a total of eight weeks with each patient making a commitment to complete the program as a condition of admittance. Hospital fees, as stated previously, amounted to \$6,000 per week and were paid for primarily by private insurance plans held by the patient's employer and/or family.

During the period covered by this study, from February 1982 to December 1982, the hospital's total drug abuse patient population averaged 45 patients in a given week. As noted before, 101 patients being treated for drug abuse were included in the present study. The hospital treated approximately 200 patients per year in its program for drug abusers which had been in operation for three years prior to 1982.

The hospital complex totaled five buildings, four of which were used for patient care; the other building contained administrative offices and impressive laboratories with state-of-the-art equipment. Two of the patient-care buildings were older and two newer. The two older buildings were the original hospital building, constructed in the late 70's, and a large Victorian-style house used for recreational and group therapy meetings.

Of the newer buildings, one had been opened within the past five years and was quite spacious with, for example, lots of windows. The second newer building was, at the time of this study, under construction and opened in 1983.

It should be emphasized that a very high standard of cleanliness was maintained throughout, and that the equipment and facilities were of the quality expected of a first-class research hospital (although this hospital was not a medical-school affiliate). The equipment and facilities were enhanced by elegant furniture in the reception areas and by modern paintings which hung throughout the hospital complex.

Professional staff members included 12 social workers, 6 psychologists, 15 psychiatrists, 8 ex-addict drug counselors, 4 psychiatric nurses, and about 5 medical internists. Key supervisory personnel included an M.D. research director, an M.D. drug-unit director, and an exaddict drug-unit supervisor.

Overview of Treatment Program

Upon entry to the hospital, each drug-abuse patient began the hospital's three-stage treatment program.

During the period of this study, the hospital was controlled by a group of young doctors with a keen interest in developing innovative approaches to drug abuse treatment. The primary treatment goal, of course, was drug free status. The psychosocial treatment objectives were to encourage patients toward acceptable resocialization. This was achieved by using an in-patient treatment approach aimed at socially structured limit setting, and cooperative living arrangements geared toward the development of motivation for successful detoxification and eventual drug-free outpatient status. There was emphasis on reentry and adaptation to the community, using medical and psychosocial support.

The medical objective was to detoxify and stabilize each patient, a necessary part in achieving a drug-free existence.

The three treatment stages were:

In-Patient

- a. Evaluation, detoxification and stabilization unit.
- b. Drug-free unit.

Outpatient

- c. Community reentry.

The evaluation and stabilization stage took place during the first two weeks of in-patient status. The evaluation consisted of:

- a. Family and psychosocial evaluation by a social worker.
- b. Determining the type of drug or drugs abused and drug-use level(s) by the M.D. medical staff.
- c. Eliciting demographic information by a psychiatric nurse.
- d. Psychiatric and psychological status as determined by the

Brief Psychiatric Inventory and the Beck depression scale administered by a psychiatrist.

e. Medical evaluation by the M.D. medical staff.

While in the evaluation stage the patients were seen daily by a physician, who assessed vital signs including blood pressure. During this stage, the patient also was seen by an ex-addict counselor.

During the detoxification stage clonidine hydrochloride was used when appropriate for all opioid abuse patients (Washton, Resnick and Rawson, 1979). The starting dose of Clonidine was 1.7 micrograms-per-milligram shifting to a dose protocol regiment as needed (PRN).

During this stage patients and their families began family group meetings with a social worker as group leader. In addition the patients attended a drug group meeting five days a week with an ex-addict drug counselor, a social worker, and a psychiatric nurse. The various meetings lasted, on the average, from one to two hours as needed. During the detoxification stage the patients saw an M.D. three times per week for medical evaluation and most patients began daily exercise and gym-participation requirements led by a recreational therapist. During the drug free stage patients saw a psychologist one to three times per week and sexual-dysfunction group therapy also began in detoxification, if needed.

The community reentry stage included multiple-family group meetings led by a social worker, individual family therapy with a social worker, and psychotherapy one to three times per week with a Ph.D. psychologist.

Study Design and Theoretical Framework

The hospital setting offered a further inducement for study of its drug-abuse treatment program in addition to a select patient population, a high staff-to-patient ratio, multi-faceted treatment strategy, and modern facilities and equipment--the hospital staff carried on extensive bio-chemical research and, thus, this facility could properly be classified as a research hospital (see above, page 4, for a description of its laboratories). The hospital environment was, therefore, a highly refined milieu in which to address the central question of this study: how effective was the drug-abuse treatment program at the hospital.

To aid in answering this question, the study design was divided into three parts: premeasurement, treatment process data and discharge status, and the post-measurement (see Chapter II, "Methodology," for more detailed information). In shaping the study design, one was keenly aware that the available evidence suggested a variety of treatment interventions and modalities were not only possible but also efficacious. However, it remains difficult to compare different drug abuse treatment programs for this very reason, that is, the varying evaluation and treatment methodologies often work against establishing a reliable basis of comparison (see Chapter II, pp. 15 and 22).

Nevertheless, assumptions regarding drug abuse treatment programs, and the patients in these programs, can be made.

Pre-treatment. First, the pre-treatment status of drug abusers is, of course, a salient factor. Kleinman and Lukoff (1980) identified two critical periods in the lives of addicts; periods which they

believe are crucial to predicting drug abuse treatment outcome.

The first pre-treatment period involves the variables of employment status, crime rate, and marital status variables at entry that affect outcome. The second period occurs in late adolescence and the variables are age of addiction, age of first arrest and years of education completed.

Lukoff (1974) found that those with arrests preceding the onset of their drug abuse tended to persist in criminal behavior. In addition, youthful onset of regular drug use is associated with higher rates of criminality, less education, and poor employment history than those who began their drug use later in life. The data suggested that the younger the age at which drug use or crime began, the more prone these subjects were to increased deviance in general (Lukoff, 1974). Earlier onset of drug use or criminal behavior was related to proportionately less employment, education, and marriage.

Lukoff in fact has suggested that early onset of either deviant behavior pattern may constitute a truncated socialization, resulting in a less developed ability to cooperate with a treatment protocol. Specifically, earlier onset of drug use or crime generally resulted in a shorter stay in treatment and a poor prognosis for positive treatment outcome. In other words, the earlier age of first treatment contact, the earlier the age of onset of regular drug use and the earlier the age of first arrest were indicators of an earlier truncated socialization, thereby producing less successful treatment outcomes. One of the assumptions made regarding the present study was that the earlier the age of first arrest, the less likely the patient was to complete a drug abuse treatment program.

Treatment. The drug abuse treatment program utilized in-patient professional treatment and in-patient self-help groups that resembles family relations. In-patient status required the addicts to live together on a twenty-four hour basis in a family-like tie. Additionally, there was great emphasis on the mobilization of primary-group support networks in order to prepare the patients for re-entry into the community and encourage participation in the outpatient phase of the treatment protocol.

The development of adverse physical symptoms (common in detoxification) which impede everyday living often made it difficult for anyone to live with a patient. When the detoxification phase of treatment was successfully completed, one could readily recognize that there were everyday forms of temporary mental stress requiring non-uniform tasks which experts were not available to handle.

Litwak (1978) suggested that optimum mental health care is produced when patients have access to reliable non-experts who aid in assuaging minor sources of anxiety while also having access to professional experts and institutions for enduring anxiety problems.

Resnick (1979) and others have proposed that the incentive for seeking and using opioids for some addicts is due to physical or emotional distress of a magnitude comparable to psychiatric symptoms. If the addict is "self-medicating" his psychiatric symptoms, that is, abusing drugs in order to relieve the symptoms, then one way to remove the incentive for seeking and using opioids is to remove the symptoms.

Another assumption of the present study was that the more resources the patient could draw upon--for example, fellow patients, family and friends, job skills--the greater the likelihood that the patient would successfully complete the drug abuse treatment program.

Yet another part of the treatment program was the use of psychotropic drugs. Drug therapy for treatment of drug abuse remains controversial; many professionals look upon drug therapy as merely transferring dependence from one drug to another.

Drug therapy at the hospital, then, deserves particularly close scrutiny, presented later in the study (see Chapter 4, page 97).

The treatment strategy at the hospital called for the use of Clonidine, a nonopioid medication, during detoxification followed, when appropriate, by the prescription of psychotropic drugs. Clonidine significantly reduced the discomfort associated with withdrawal from drug abuse, but did not induce euphoria (Gold et al, 1980).

Yet another assumption of this study was that Clonidine could prove useful in forecasting how well patients would perform during the follow-up of this study. It is assumed that higher doses of opioids at intake produce poorer follow-up outcomes. In this instance high doses of Clonidine may indicate higher preinduction doses of opioids.

Outpatient treatment. Follow-up research has long constituted a knotty problem in evaluation research. An additional assumption of this study: a patient who was drug free at a follow-up enjoyed a more stable living environment than a patient who had become readdicted.

In The Psychiatrically Severe Drug Abuse Patient, McLellan, et al. (1982), examined the effects of pre-treatment psychiatric status

and treatment modality on response to drug abuse rehabilitation. Improvement at six months was measured by three criteria--drug use, employment, and criminality. In both the Therapeutic Community (TC) and Methadone Maintenance (MM) programs, all measures showed a direct relation between treatment duration and improvement. The data indicated that when the treatment group was divided between low, mid, and high psychiatric severity groups (as determined by the ASI) the high-severity group generally had the least improvement in outcome criteria. In contrast, the low and mid-severity groups reported greater improvements at the six-month follow-up (McLellan, et al. 1982).

If the high psychiatric severity group were "self-medicators" following (Resnick, 1979), then those patients who experienced significant psychiatric symptomology may become addicted largely due to the symptom-reduction effects of illegal non-prescription drugs. According to Resnick this group generally had less favorable follow-up outcomes. Self-medicators may be at a higher risk of impulsive readdiction than nonself-medicators during the critical community reentry period. The drug abuse treatment strategy included stringent controls and a great deal of support from the staff and other drug abuse patients. Although the outpatient reentry program offered individual and group psychosocial supports, this may not have been enough for the self-medicators. Resnick in referring to the conditioned-abstinence

hypothesis (see Chapter 2, page 21), stated that in addition to psycho-social support, self-medicating patients may need biochemical support for successful outcomes.

One may speculate that without biochemical support (in addition, of course, to psychosocial support) there could be a greater likelihood of the patient, during a period of increased emotional lability, to impulsively use illegal nonprescription drugs for their symptom-reduction effects and become readdicted.

Conclusion

Treatment for drug addiction remains a matter of considerable discussion and controversy. Treatment programs and evaluation methods vary widely. A range of treatment modalities, and the setting in which they are administered, has been outlined in Chapter I. In Chapter II, "Literature," a fuller exploration of the relevant writing on the subject will be conducted.

CHAPTER 2

REVIEW OF THE LITERATURE

The literature survey will begin with an historical review of the various treatment rationales for opiate abuse and the existing evidence for efficacy of the various treatment modalities. An approach of this nature is appropriate because of the effect these rationales and treatment outcomes have had on the course of opioid abuse, treatment, and research. Reference to the epidemiological literature will be used to shed light on the development of current treatment strategies and treatment evaluation methods.

Prior to the Harrison Act of 1914, legal access to opiates was relatively unrestricted and they were available without a doctor's prescription. Following passage of this act, physicians resorted to the only treatment legally available for drug addiction, that of opiate maintenance. However, physician prescription of opiates was almost immediately halted by legal pressures (Terry and Pellins, 1928). The subsequent development of an illegal drug-distribution system, coupled with the rising cost of heroin and a quickly developed tolerance, were thought to drive the so-called opiate-hungry addict to steal in order to support his habit. Therefore, in the 1920's, local health boards introduced morphine-maintenance clinics in order to deal with the assumed criminal connection of addicts. These maintenance programs, however, were closed by 1924 due to patient abuse and a rising moral fervor against the use of all drugs (Musto, 1973).

Methadone

Treatment of opiate dependence did not again exist in institutional form until 1935 in response to the growing number of opiate addicts in federal prisons. Federal prison hospitals were established during that year within the federal prisons at Lexington, Kentucky and Fort Worth, Texas; their purpose was to isolate criminal addicts from the rest of the prison population and treat them in a drug-free environment which stressed opioid (methadone) detoxification. Patients at the two prison hospitals formed the first research population in the United States of opiate abusers and their medical treatment (Ball and Chambers, 1970; Baganz and Maddux, 1965; O'Donnell, 1964; Vaillant, 1966, 1968, 1973). These studies were undermined by two serious drawbacks: first, the research population was composed exclusively of prison-hospital inmates and, second, readdiction was rigidly defined as any use of illegal drugs following release. Thus, these initial follow-up studies concluded that most subjects had returned to drug use and crime soon after release.

In New York City, an early evaluation of a drug-free program for adolescents at Riverside Hospital also concluded that the program had little, if any, impact upon patients after their release (Alksne et al., 1959). This was especially damaging due to the widespread belief that younger addicts were more amenable to treatment. The poor outcomes of these early drug-treatment programs and the growing number of drug abusers in the 1960's led Dole and Nyswander to reject psychological factors as essential for understanding and treating drug addiction. Instead, they concentrated on the "metabolic

deficiencies" which were, they maintained, induced by heroin addiction. Methadone maintenance was their suggested remedy.

Although the metabolic theory remains unsupported in the literature, treatment programs based on "methadone for life" were, and still are, the major form of treatment for opioid dependence. Frances Gearing's 1970 and 1974 evaluations of Beth Israel Hospital's Methadone Maintenance Treatment Program played a significant role in the growing use of methadone. Gearing maintained--without adequate controls or breakdowns of patient characteristics--that heroin use diminished and became negligible after an initial methadone-maintenance period. However, contradictory data from other researchers (Jaffee, 1970; Chambers and Taylor, 1970) showed that heroin use continued for many patients. The opposing results might have been due to different research variables including patients, treatment programs, or research methodology (Lukoff, 1971).

Gearing also assumed that if the need for heroin abated, then "attendant" crimes would disappear, suggesting erroneously that crime reduction was dramatic. She made inappropriate comparisons between arrest rates of patients who either remained in treatment, were discharged, or who withdrew to those who only underwent detoxification. This was an error because the length of treatment was a misleading basis of comparison. Obviously, the patient profiles for those who remained in treatment may have differed from those who withdrew.

Indeed, the role crime has played in an addicts life can conceivably lead to different expectations concerning treatment outcome. Lukoff (1974) suggested that the type of crime--whether

narcotic or nonnarcotic--plays an important part in this analysis. In a methadone-treatment evaluation study, he sorted criminal charges into three categories: drug-related, assaultive, and property or petty crime. Pretreatment drug-related crime, in Lukoff's sample, constituted one-third of all crimes. Referring again to Gearing's claims about the dramatic reduction in attendant crime after the provision of methadone (assuming that methadone reduces heroin use), then the greatest crime reduction should be in the drug-related arrests (Lukoff, 1974).

However, Lukoff distinguished between the age at onset of regular drug use and the age of first arrest. He found that those with arrests preceding heroin abuse tended to persist in their criminal behavior. In addition, youthful onset of heroin abuse was also linked to higher rates of criminality compared to those who began drug use later (Lukoff, 1974).

These findings suggested, according to Lukoff, that the younger the age of onset of either deviant behavior pattern (drug use or crime), the more indicative they were of increased deviance in general. Thus, earlier age of drug-abuse onset was associated with higher rates of crime, shorter stay in treatment, and poorer prognosis for treatment outcome than those who started drug-abuse later in life. Earlier drug-abuse onset was also related to the likelihood of less employment, lower education, and being unmarried (Lukoff, 1974). Lukoff stated that these findings supported the thesis that early onset was associated with "truncated socialization" in which the important socializing influences of education, employment, and personal relationships were

incomplete and fragmented. Lukoff concluded that the earlier an addict's drug addiction occurred, the more severely inhibited his socialization patterns were likely to be. This conclusion may partly account for the poorer treatment outcome generally reported for younger addicts.

These foregoing studies mandate future evaluations which will follow up on the work accomplished to date. For drug treatment programs to be fully evaluated, patient profiles must record variations in drug use variations, in treatment modalities, and consequent effects on patients' psychosocial characteristics. Otherwise, patients cannot be matched with the optimum therapies.

The earlier view of the irreversibility of drug addiction and the belief that any post-treatment drug abuse, however slight, signaled a return to addiction led to the rigid follow-up criteria of the Lexington, Fort Worth, and Riverside studies. The common assumption concerning lifelong addiction was based on these studies and seemed reasonable in light of their short-term treatment outcomes. The studies' major failing was in focusing on a short-term follow-up of a marginal population of drug abusers, namely, those in the prison hospitals and of the adolescent treatment program at Riverside Hospital.

However, a longer follow-up study by Duvall et al. (1963) found that by the fifth year after discharge from the Lexington Hospital only 46 percent of the relapsed addicts had become readdicted; Vaillant (1966) found a similar relapse rate after twelve years. Winick (1962) found a decline in relapse rate between the ages of 35 and 40, and speculated that it might have been due to maturation. In a follow-up

study of Puerto Rican males who had been treated at Lexington, Ball and Snarr (1969) concluded that the maturation hypothesis might have been valid for approximately one-third of opioid addicts. Three years later Zahn and Ball (1972) found that onset of opioid use among Lexington addicts at 16 or 17 years of age could be associated directly with a poor prognosis for eventual cure- while onset at 32 years of age was most likely to result in an eventual cure.

Advances in the epidemiological exploration of what determines opioid use have done much to change the heretofore extreme view of the opioid user by demonstrating: a) that heroin experimentation did not lead necessarily to addictive levels of usage for a large segment of the sample population; b) that heroin use was not irreversible; and c) that controlled use (or occasional use) was possible for some individuals.

In relation to the above, Winick (1962) observed that older addicts were underrepresented among known opioid users to such a degree that their higher mortality rate was an inadequate explanation. Winick advanced the "maturing-out" hypothesis, that is, many heroin addicts voluntarily stop heroin use as they grow older. The maturing-out hypothesis was reinforced in 1967 when Robins and Murphy investigated a nontreatment sample of black men in St. Louis. They demonstrated that many had used heroin frequently at one time, but then were drug-free at the time of investigation. These studies were ignored in treatment circles until the early 1970's (Lukoff, 1976).

More recently, studies by O'Donnell (1976), Robins (1973) and Nurco (1975) have supported the earlier findings of Winick, Robins

and Murphy. In 1973 Robins studied heroin use among Vietnam soldiers with a one-to-three year follow-up. She found that one-third of those detected as users at the time of their discharge from the armed forces continued to use opiates after discharge. However, only 7 percent were using opiates approximately one year after discharge. These findings were relatively stable over the three-year follow-up period. Nurco's Baltimore study was taken from a police register of addicts compiled between 1952 and 1971 and were contacted in 1974. Among those who were not incarcerated 57 percent were nonusers, 17 percent were classified as occasional users and only 7 percent were regular users. In sum, many previously identified addicts were now opiate-free.

Zinberg (1979) studied a selected group of controlled users. His findings also supported the notion that controlled use without subsequent addiction or treatment seems possible for some opioid users.

If "maturing out" from chronic use is a viable hypothesis, and controlled (or occasional) use is possible, then the success of treatment programs must be evaluated within this context. The above studies infer that age at drug-use onset, length of addiction, and age at onset of treatment must be considered as covariables; the outcome measure of abstinence should be modified to include level and frequency of use.

These findings are of obvious relevance to the traditional assumptions upon which most drug-abuse treatment programs, especially methadone-maintenance, are based. For example, the so-called disease, or permanent addiction, model is now outmoded. One additional conclusion might be that the traditional treatment models' limited success is attributable to the patient selection, maturing out, or that the programs

merely maintain the addicts until they are ready to exit the drug scene (Lukoff, 1974).

Naltrexone

The relatively recent advances in understanding the physiologic mechanisms of opioids have led to so-called opioid antagonist treatment. The prime ingredient in opioid antagonist treatment is Naltrexone, a compound that selectively blocks the euphoric and physiologic effects of morphinelike drugs, that is, opioids such as heroin and methadone. Naltrexone is nonaddicting with no abuse potential, since it cannot produce an addict's "high".

However, to be effective Naltrexone must be prescribed and ingested only after opioid detoxification has occurred. Thus, if a person who is no longer physically dependent on opioids takes Naltrexone, he will be protected against readdiction: even if heroin is used, he will experience no euphoria and will not develop opioid dependence (Resnick et al., 1979). Theoretically, having this protection, the patient could return to the community where opioid-free rehabilitation involving behavioral and psychosocial therapy can be administered on an outpatient basis despite the availability of heroin or other opioids (Wikler in Resnick et al., 1979).

The theoretical basis for antagonist treatment for opioid dependence was developed by Wikler (1965, 1973) who suggested that conditioning factors of which neither the therapist nor the patient are aware may be responsible for the relapse to heroin use in detoxified addicts. Basing his argument on principles of operant and Pavlovian

conditioning, Wikler proposed a two-factor theory of relapsing behavior, suggesting that through the process of operant conditioning the relief from emotional and physical distress provided by an injection of heroin constitutes a powerful reinforcement that can establish and maintain opioid-using behavior.

In addition, through repeated pairings between stimuli in the addict's environment, withdrawal symptoms and their relief, Pavlovian conditioning is triggered, causing a craving for heroin in the previously detoxified addict when he comes in contact with these same environmental stimuli. This conditioned-abstinence response can cause the detoxified addict to reinitiate opioid use and, consequently, result in a relapse to heroin addiction.

Furthermore, according to this model, when heroin-reinforcing properties are blocked by the opioid antagonist Naltrexone, drug-seeking behavior will cease as a result of the extinction of previously conditioned responses.

These conditioning factors contribute to the explanation of why detoxification treatments not followed by nonopioid pharmacological support generally have not been successful (Resnick et al., 1979). Essentially an adjunct treatment to cognitive, behavioral, and psychosocial treatment methods, Naltrexone's reputation rests on its inability to produce a noticeable physiological effect. However, it does allow a treatment system to develop around the behavioral, psychosocial, and physiological explanations of drug-using behavior--as opposed to the limited biological notions methadone-maintenance programs have labored under for so long.

Martin (1966), an early pioneer in using opioid-antagonist treatment, stated three objectives for the opioid antagonist in its role as an adjunct treatment: a) to remove the incentive for seeking and using opioids; b) to extinguish the conditioned-abstinence response; and c) to facilitate an outpatient abstinence period. Commenting on this last objective, Wikler (1980) stated:

Such a period of outpatient status would have advantages over detoxification followed by forced abstinence from opioids (by prison sentences, probation, hospitalization, etc.) in that it would permit the patient to expose himself to the conditioned environmental stimuli which evoke craving without the danger of their reinforcement by the pharmacological actions of opioid drugs.

Thus, psychosocial and behavioral treatment techniques can be stressed in a low-risk outpatient treatment period which, in the opinion of the present author is a requirement for successful treatment.

Like other treatment modalities Naltrexone, coupled with psychosocial treatment, may be useful for only a select group of patients such as those motivated to curtail use but unable to remain drug-free during the initial, critical period of resocialization. As stated previously, it is imperative, therefore, to identify patient characteristics that would seem to indicate a successful treatment outcome.

Although, in theory, the opioid antagonist as an adjunct treatment has great potential, early indications seem to suggest that Naltrexone has been used to date only in isolated cases. An essential at this early stage in its evolution as an opioid antagonist should be to standardize prognostic and evaluative data-collection instruments. The goal, of course, should be clear-cut identification of the ideal conditions and population for use of this treatment technique.

Currently, as in the norm with experimental drugs, the use of Naltrexone as an opioid antagonist has drawn mixed reviews. For example, reports of Naltrexone's clinical efficacy have indicated high preinduction dropout rates and poor retention of those patients who began treatment with Naltrexone (Bradford, 1976). In response one researcher has concluded that Naltrexone may be useful only for a select group of highly motivated addicts (Hollister, 1976, 1978). Another approach to developing a Naltrexone strategy was to assume that treatment problems were a function not only of unmotivated patients, but also of the manner in which Naltrexone has been used (Rawson, 1979). The overriding importance of effective counseling and psychotherapy as treatment tools in conjunction with Naltrexone has been stressed by Wikler (1976), Resnick et al. 1976, and Resnick and Washton (1978).

Too, Rawson (1979) and Callahan et al. (1976) evaluated the benefits of Naltrexone combined with behaviorally structured therapeutic support and concluded that Naltrexone plus behavioral therapy was markedly superior to Naltrexone alone. Superiority in their studies was defined as retention in treatment; in other words, those who took Naltrexone tended to remain in treatment longer. Treatment duration as a measure of superiority is also supported in the literature by Resnick and Washton (1978) who reported follow-up data for 267 Naltrexone patients over varying periods before voluntary termination. Among this study population the opiate-free patients had taken Naltrexone for a significantly longer period than those who became readdicted. Greenstein et al. (1976), Lewis et al. (1976), and Callahan et al. (1979) also found that longer Naltrexone maintenance contributed favorably to treatment outcome.

The problem here is that retention in treatment may be caused by other factors besides the type of program offered. Specifically the patient type may be the determining factor that contributes to longer retention in treatment. This study's research design precludes answering the question as to what causes a patient to stay in treatment longer. In the present study patient type is equally likely to facilitate retention in treatment as is program type.

In another recent study Rawson, Resnick and Washton (1979) compared low and high intervention groups--low meant no psychotherapeutic involvement while high meant regular weekly psychotherapeutic involvement--finding that the high intervention group had a significantly longer stay in treatment.

Other factors which appeared to influence Naltrexone's success as an opioid antagonist were the type of opiate addiction, that is, heroin or methadone, and the use level immediately prior to detoxification and beginning Naltrexone. The available findings indicated that methadone maintenance subjects had a higher induction rate onto Naltrexone than did heroin addicts. The data also suggested that the lower the level of opioid dependence, the more likely the success of the subsequent Naltrexone treatment (Rawson et al., unpublished manuscript, 1979).

Resnick et al. (1970) developed a typological classification in an attempt to identify those drug abusers most likely to benefit from opioid-antagonist treatment. Two major groups of drug abusers were found to have different treatment outcomes: a) self-medicators, that is, those who, when drug-free, reported having impaired capacity to function and who appeared to use opioids to relieve symptoms of chronic emotional

problems and/or stress; b) environmental users, or those who did not have overt emotional problems and who, when drug-free, did not report an impaired capacity to function. The former group discontinued treatment prematurely while members of the latter group, on the average, stayed in treatment longer.

In relation to the above groups Haertzen (1966) developed the MBG Scale (Morphine-Benzedrine Group Scale), calling it a useful measure of the euphorogenic actions of drugs. This scale measures feelings of well-being, popularity, and efficiency, the opposites of hypophoric states.

Martin et al. (1971) and Jasinski et al. (1971) contrasted euphoria and hypophoria, using the MBG Scale together with doses of morphine, amphetamines, and pentobarbital. They found dose-related elevations of MBG Scale scores, indicating that these drugs might have been used by patients as an antidote to their hypophoric feelings as well as to produce feelings of well-being (Martin, 1980).

Later analyses by Rawson et al. (1979) and Resnick et al. (1978) found dose-related treatment outcomes where "higher levels of opioids at intake were inversely related to success rates in treatment".

McLellan et al. (1980) studied the relationship between severity of chemical abuse and the status of other problems on the Addiction Severity Index (ASI). They found "moderate general" relationships in both improvement scores and in outcome status measures between the psychological index and reduction of drug use. They went on to say that "it has long been speculated that...psychological problems are the basis for many forms of addiction, and that chemical abuse may

serve as medication for these underlying problems" (Khantzian, 1974; Wurmser, 1979; Woody and Blaine, 1979).

The dose-related hypophoria results of Martin (1980), plus Resnick et al. (1978) and Rawson's et al. (1979) findings of more positive treatment outcomes for lower levels of addiction and McLellan's et al. (1980) ASI findings are important when considering outcome and need for symptom reduction.

Presently, determining Naltrexone treatment efficacy has been limited by program evaluations which have inadequately accounted for variations in program-acceptance criteria, geographical location, and the consequent variation in patient parameters. The significance, for example, of geographical location is that the cultural milieu may quite possibly differ for Chicanos in Los Angeles and blacks in New York. As in the earlier methadone evaluations, acceptance criteria alone could account for the varying success ratios claimed by the different drug-treatment programs.

Psychosocial and drug-history variables that are more common to successful patients (success being defined as abstinence or a longer time in treatment) include the following: a) evidence of an ongoing personal relationship with a nonaddict mate; b) maturing out after a long history of addiction; c) regular employment; and d) previous psycho-therapy. When these variables are adopted as acceptance criteria by drug-treatment programs, they result in the acceptance of generally older addicts. Thus, such a program might be expected to record a higher success ratio than a program which admitted younger as well as older patients.

Callahan et al. (1976), using randomized clinical trial methodology, based their acceptance of a patient into a Naltrexone treatment program on the patient's willingness to sign a contract agreeing to comply with program rules and regulations. This method eliminated the step of specifying socially acceptable behavior, replacing it instead with psychological criteria encompassing commitment and motivation.

Psychotropic Drugs

The literature on the efficacy of psychotropic drugs in the treatment of drug-abuse is nonexistent. The primary reason, of course, is the general prohibition within the treatment community of prescribing drugs to drug addicts except in the case of methadone, which has only limited acceptance.

Conclusion

While the criteria discussed above may serve a legitimate treatment function, they are no substitutes for a thoroughgoing exploration of patient histories and the development of outcome criteria which adequately measure a drug-treatment program's psychosocial effects on different patients. Until these concerns have been addressed, it will remain impossible to be certain of the appropriate treatment modality for a given group of patients.

CHAPTER 3

METHODOLOGY

As a national problem drug addiction is widespread in the urban centers of this country. The most obvious victims of illegal drugs are the habitual consumers, that is, drug addicts. As seen in the preceding chapters of this study, the bureaucratic change within the drug treatment response has been in response to emerging social problems. When drug addiction swept into the American middle class during the 1960's and 1970's, new solutions for the problem were demanded.

In choosing which of the many drug abuse treatment programs to evaluate in the New York City metropolitan area, a number of constraints were deemed important: first, a program which had not been the subject of previous study; second, a patient population which had not been studied before; and third, free and open access to the treatment program, the patients enrolled in it, and the physicians and other staff members responsible for the program's operation.

Although a number of candidate programs meeting the above criteria were located within metropolitan New York City, the drug-abuse treatment program at this hospital was selected as the most promising for the purposes of this study. The treatment program was stable, if relatively new, having been in place for approximately three years. In addition, its patient population--the majority of whom were young, white, affluent males--presented a rare opportunity for scrutiny

of a sector of the drug abusing population which had been virtually ignored. In this case, the hospital, as a private institution, was not in need of government funding. Thus, lack of funding resulted in a lack of motivation by outsiders to conduct research there.

In discussing this study, one must be careful to emphasize the patience and understanding required of the researcher during the period of preliminary negotiations with the host program. No matter how well-recommended the researcher might be, or how closely the research goals and proposals are set forth, one should be prepared to wait a considerable period prior to acceptance, appreciating the dilemma confronting the program's administrators, namely, that an outsider often is viewed as a potential threat by staff members because a program evaluation might lead to adverse publicity and, consequently, a loss of patients. One should also remember that time is required to fit a new researcher into the flow of an on-going treatment program. Too, one might be well-advised to answer even the most routine questions in a cooperative spirit no matter how often a question is repeated.

Once a research proposal has been accepted, then the real work begins. New patients were accepted into the program throughout the year, the average number during the eleven-month research period being approximately two hundred. By the time agreed upon for research to commence, the researcher was generally familiar with the format of the hospital's drug abuse treatment program because he had made site visits to the hospital a number of times to discuss his proposed research and, in turn, had been briefed by staff members.

In general, the plan was to follow a group of 101 consecutive patient admissions to the drug abuse treatment program through each stage in the program including their participation in the hospital's outpatient therapy. A three-part study design, entitled Pre- and Post-nonexperimental Design, was envisioned:

First, the premeasurement consisting of a patient interview employing the full Addiction Severity Index (ASI) plus a natural support system matrix and drug history variables.

Second, treatment process data, medication used, and patient status at discharge.

Third, a postmeasurement consisting of a telephone follow-up interview approximately three and a half months after discharge employing the composite ASI plus a natural support system matrix.

The Addiction Severity Index (ASI) is a diagnostic and evaluative instrument. The ASI produces a ten-point problem severity profile of each patient through an analysis of six general areas that commonly pose treatment problems. The areas are: 1) chemical abuse, 2) medical, 3) psychological, 4) legal, 5) family/social and 6) employment/support.

In addition to the two interviews and the ASI, the research data base ^{will be} was composed of patient files and pharmacy records, the Brief Psychiatric Inventory, and the Beck Depression Scale.

(Overall et al. 1962; Beck et al. 1961)

New admissions to the drug-abuse treatment program were isolated in the hospital's intake unit for a period usually not exceeding seven days. In effect, this was the detoxification

unit for the program. Prior to being admitted for inpatient treatment, each patient was interviewed by a staff member and required to sign a contract stipulating, among other things, that the patient would abide by the program's rules and would not leave the program without giving at least seventy-two hours notice. The goal here was to make each patient responsible for his own actions and to confront the patient with the responsibility for completing the program.

The drug abuse treatment program was well suited to research purposes because of its stability and the incorporation of multiple treatment modalities supported by a comprehensive treatment team including, as stated previously in Chapter 1, social workers, psychologists, psychiatrists, ex-addict counselors, psychiatric nurses, medical internists, and recreational therapists. The psychosocial treatment modalities focused on individual psychotherapy and drug counseling as well as group psychotherapy, drug group meetings, family therapy, multiple family groups, and physical exercise.

Interfaced with the strong psychosocial treatment model was biochemical support in the form of clonidine hydrochloride for opioid detoxification and psychotropic medication used when severe psychiatric symptoms were apparent.

With these facts in mind it is important to note that this study was not intended to tease out the impact of all of these services. However, the treatment information concerning patient attributes and length of stay in various treatment modalities is

emphasized as are the direct effects of the biochemical treatments offered.

The specific psychosocial treatment modalities included a modified treatment community approach in which the inpatient emphasis was on psychosocial support (for detoxifying) that came from the staff, other patients, and family members. Daily drug groups and psychotherapy groups met three times a week and were designed to deal with the many feelings the patient experienced daily while undergoing detoxification. These groups stressed appropriate social behavior that was acceptable in primary-group living arrangements.

Family supportive involvement was emphasized on entry to the facility, during detoxification, and was heavily stressed during the outpatient phases of treatment. The family emphasis was intended to encourage a noninstitutional type of support for the detoxified addict by the family and/or conjugal unit, who would be in daily contact with the patient. Support for this line of thinking came from the perceived increase in post-hospitalization treatment protocol compliance by patients whose families were actively involved in the treatment process.

A primary goal in treatment was, of course, to mobilize a combination of professional treatment and primary group support in order to realize the ultimate benefit for the patient.

Litwak (1978) stated that it is often necessary to have both types of tasks performed by both groups, professional and primary, if the overall objectives of a given endeavor are to be accomplished.

Both groups have their own tasks that they are most suited to deal with. For example, major problems in mental and physical health care require large-scale institutions and/or professional help. Professional experts are necessary for handling uniform tasks such as detoxifying addicts. The development of physical symptoms (common in detoxification) which impede everyday living often makes it difficult for anyone to live with the patient. When the detoxification phase of treatment is successfully completed, one must recognize there are everyday forms of temporary mental stress that require nonuniform tasks which experts are unavailable to handle.

Litwak (1978) suggested that optimum mental health care is produced where individuals have nonexperts they can rely on to handle the daily fleeting sources of anxiety while also having professional experts and institutions to handle the more enduring forms of anxiety.

Some studies have suggested that psychiatric patients returning from institutionalization must have primary group support if they are to succeed (Litwak 1978). The natural support system consists of families, friends, neighbors and kin. Following Litwak, the primary group is defined as small, face-to-face, noninstrumental, having diffused goals as well as being affective and having long-term commitments.

The drug treatment unit utilized inpatient professional treatment and inpatient self-help groups that resembled family relations. Inpatient status required the addicts to live together

on a twenty-four hour basis in a family-like tie. Additionally, there was great emphasis on the mobilization of primary-group support networks in order to facilitate the patients reentry into the community and encourage compliance with the outpatient phase of the treatment protocol.

During the detoxification period, medical evaluation and stabilization of the patient took two forms--walk rounds and patient rounds. Walk rounds occurred on Tuesday and Thursday. Here, a multidisciplinary team of, say, three people visited each patient for a few minutes.

Patient rounds were more elaborate and occurred on Monday, Wednesday, and Friday. The patients met individually, and privately, with an assembled multidisciplinary team for ten to fifteen minutes. Each patient was summoned to the meeting room by an attendant. The team was able to interview ten to fifteen patients in a two-and-a-half-hour-to-three-hour span. Thus, each patient attended patient rounds three times a week. Patient rounds reinforced the patient contract in that the meetings involved direct questioning of the patient by staff members about his condition including prior conflicting statements made by the patient.

The patients also received the usual nursing care routines provided in a hospital environment. The goal of detoxification was to promote each patient into the second treatment stage--the drug-free unit--as quickly as possible. At the hospital the team concept was an integral part of the hospital's strong treatment model. Specifically, each staff member involved in medical

treatment and/or patient rehabilitation was considered an essential part of the treatment process. Staff meetings to discuss patient care were held three times a week prior to patient rounds. During these meetings the files of patients undergoing detoxification were reviewed. It is important to emphasize here that the researcher was welcomed to all staff meetings, accompanied the staff during rounds, and, for practical purposes, was considered a research and participant observer member of the team.

The Detoxification Stage

During the period of this study, February 1982 to December 1982, a typical day in the detoxification unit included a patient population of ten to fifteen. During one week an average of four patients were admitted to the unit. New admissions were by appointment, that is, the patients arrived at a prearranged time which coincided with the availability of beds. Normally, patients were housed two to a room--semi-private accommodations. The occasional celebrity patient or other patient desiring solitude arranged, at a commensurate rate, for a private room.

Breakfast was followed by either walk rounds or patient rounds. Since the researcher was accepted by the patients as part of the staff (he attended rounds), patients in the detoxification unit were not alarmed by the appearance of the researcher, who then requested an interview from them. A research goal was to conduct the initial interview within, at most, the first week of admittance to the detoxification unit.

During the five-month period February 1982 through June 1982, 101 patients were interviewed in the detoxification unit. If the patient was unavailable for an interview following morning rounds, then the researcher returned in the afternoon. The interview instrument, the ASI, was a multicategory format of primarily forced-choice questions. Typically, an interview was conducted in one session and lasted forty-five minutes to an hour.

To describe the patients' demeanor as serious at this stage would be, in most cases, an understatement. Typically, patients enrolled in the drug abuse treatment program because drug use had become their overriding concern and they no longer were in control of their own actions. In fact, they were desperate.

In the afternoon the prescriptions of the morning were carried out including individualized treatment in the form of social work group counseling and/or one-on-one sessions with an ex-addict drug counselor. The detoxification protocol included the prescription of Clonidine to counter the patients' abrupt cessation of opioid drug use. The starting dose of Clonidine was 1.7 micrograms per millegram which was then varied as needed based on a close perusal of each patient's vital signs and verbal reports of discomfort. The starting dose usually was given on the first day of detoxification.

At the hospital the more quickly each patient responded to treatment, the more involved the patient became in his own rehabilitation, for the highly structured treatment model focused on reactivating a patient as quickly as possible. The treatment philosophy was supported by an array of counseling and therapeutic tools at both the detoxification and drug-free levels. In effect, staff members had a considerable

variety of treatment modalities to offer the patient. However, due to the programmatic format, most patients participated in all planned activities.

Following the researcher's first week at the hospital, he began to monitor the progress of those patients who were promoted to the drug-free unit. As stated previously, page 34, this was done not for data-collection purposes, but rather to further observe hospital routine and obtain patient acceptance. Thus, the plan of observation widened as part of each day was spent in the detoxification unit and part in the drug-free unit. After an initial period of eight weeks, research was again broadened to include the monitoring of patients who had reached the outpatient stage of the program. Here, business-office records were consulted to confirm discharge status. In mid-June interviews in the detoxification unit were completed and in mid-July follow-up interviews commenced--approximately three and a half months after the first interviewees were released from the hospital.

At this point it is appropriate to state that the researcher spent four days a week, Monday through Thursday, at the hospital during the research period; the balance of time was used in coding data for computerization. The research file on each member of the study population contained approximately 175 pieces of information. The researcher kept his files at home, taking them back and forth to the hospital each day, where he was assigned a desk and chair in a social work staff office.

The Drug-Free Unit

As in the detoxification unit, life for patients in the hospital's drug-free unit was highly structured. Patients received individual and

group counseling and participated in a host of group treatment and recreational activities aimed at equipping them to cope with life, without illegal drugs, after completing the eight-week inpatient program. The medical staff also engaged in daily treatment planning meetings; and patients participated in daily group therapy sessions.

Individual and group therapy in the drug-free unit continued the modalities introduced in the detoxification unit. Drug-group sessions were held five times a week and multifamily support groups led by a social worker, ex-addict drug counselor, and psychiatric nurse, met one time a week. Individual therapy was based on thrice-weekly sessions with a psychiatrist or psychologist. Counseling for sexual dysfunction was scheduled as required.

Medically, as detailed in Chapter IV, patients were prescribed psychotropic drugs as part of their rehabilitation when severe psychiatric symptoms were apparent. As in detoxification recreational therapy in the gymnasium was prescribed on a daily basis for all patients. Within the context of the drug-free unit the researcher's role was to attend treatment planning meetings, monitor the progress of the original interviewees from the detoxification unit, and chart the administration of detoxification and psychotropic drugs to the study population.

Outpatient Therapy

After completion of inpatient treatment patients were expected to participate in the outpatient stage of the program. However this commitment was not always adhered to, and thus the outpatient treatment was administered to only part of the patient population.

Basically, patients were expected to attend five-time-a-week group-therapy sessions, and could attend one to three times per week as they resumed outside activities.

Some patients fulfilled their obligation and attended faithfully while others--particularly those who became readdicted--quickly dropped out or attended sporadically. From the researcher's viewpoint, the advantage of the outpatient program was that the results or lack of results from the researcher's follow-up interview could be compared with the results noted by the outpatient program staff.

As stated previously, the follow-up interviews were conducted by the researcher approximately three and a half months after release from the inpatient program. Based on the 101 initial interviews in the detoxification unit, 97 follow-up attempts were completed. Of these 97 follow-up attempts, 64 full followup ASI interviews were conducted successfully, that is, the ex-patient was contacted and responded to the interview questions until completion.

As stated previously, these were telephone interviews; a multiple callback procedure was followed. In some cases, the researcher attempted unsuccessfully to contact interview subjects on as many as fifteen separate occasions.

In some unsuccessful cases contact was made, then broken off by the patient; specifically, the ex-patient declined to be interviewed. A typical response was that the drug addiction and subsequent treatment had been a painful chapter in the subject's life and that he had no desire to reawaken unhappy memories. In other cases, the subjects refused to come to the telephone or were otherwise unlocatable, a

second party saying that the subject was not there or had moved away without leaving a forwarding address or telephone number.

Conclusion

The hospital's drug-abuse treatment program offered a study population which had received scant attention from psychosocial researchers. The program was staff-intensive, allowing for individualized attention when needed within a well-defined treatment program format.

Limitations

Sample. The sample clearly does not represent the total fabric of the addicted population that enters treatment. Therefore generalizability of results is limited, to only the treatment population studied.

Design. One-group dependent measures designs suffer from the inability to truly attribute (pre-post) change to the treatment intervention itself.

Change may be due, in part, to the pre-measurement "sensitizing" of the individual to factors that occur between the measures, thereby confounding memory and self-report, especially if one is measuring variables that are highly reactive (Campbell 1966).

Two other important sources of extraneous variance are history and maturation. Kerlinger (1973) points out that the longer the period of time between measures, the greater chance of these variables affecting the reported outcome. Regression effects also must be considered as inherent with this type of design.

CHAPTER 4

THE RESEARCH DATA

Of the 101 patients in the hospital's drug abuse treatment program who were interviewed at the Intake stage, and thus composed the research population, 74 completed the inpatient program, 25 left the hospital prior to completion, and 1 died while in the hospital and 1 as the result of a drug overdose after release from treatment. During the postmeasurement period, commencing approximately three and a half months after discharge from the in-patient program, followup data was completed on 97 of the 100 patients released from the hospital.

Sixty-four of these 97 patients participated in followup interviews while the remaining 33 patients, as stated previously (page 39), were generally unreachable or uncooperative, volunteering little, if any, information and often declining even to speak to the investigator. Thus, information on this latter patient group was necessarily obtained from secondary sources such as friends, family members, and drug counselors in the outpatient program.

As both the pre- and post-measurement interviews were self-reports, it is important to note that McLellan (1983) found less than a 5 percent inconsistency when he performed spot checks of his research population, assessing the ASI data in the light of urinalyses,

pharmacy records and law-enforcement files. Similar findings have been reported by other investigators including Sobell et al. (1975), Bale et al. (1977), and LaPorte et al. (1981).

In addition to the above data, it is appropriate to note here that 51 patients were readdicted at followup, 46 were drug-free and 4 were unclassifiable as to drug status. Also, 20 readdicted patients reentered treatment for drug abuse prior to followup. A list of drugs as defined in the present study can be seen in Appendix B.

Table 1 breaks down the patient demographics of drug addiction at time of entry to the hospital as well as the race and religion of the research population.

TABLE 1
PATIENT DEMOGRAPHICS
(N=101)

Preinduction Drugs of Abuse	%
Heroin	25
Program methadone	18
Street methadone	4
Poly opioids	13
Speedball	22
Hits	6
Cocaine	<u>13</u>
TOTAL	100% (N=101)
<u>Race</u>	
White	78
Black	18
Pacific Island	1
Hispanic Cuban	2
Other Hispanic	<u>1</u>
TOTAL	100% (N=101)
<u>Religion</u>	
Protestant	24
Catholic	55
Jewish	14
Other	5
None	<u>2</u>
TOTAL	100% (N=101)

Comparison of Demographic Characteristics

A comparison of demographic characteristics among different treatment populations is often difficult because of wide variations in collection and reporting techniques. In the case of the present study, the drug abuse treatment program was unusual in that it was an inpatient facility and, as stated previously, cost approximately \$6,000 per week for a double-occupancy room. These conditions influenced the composition of the patient population in at least two distinct ways: first, the patients were generally more psychiatrically dysfunctional than patients in many outpatient programs for drug abuse (outpatient programs predominant in treatment of drug-abusing populations). And second, the family of the patient was wealthy, the patient was well-to-do in his own right, or the patient had excellent insurance, a characteristic of wealth, large companies and union jobs. In fact, employee-assistance programs accounted for 18 percent of the research population.

Among the parents of patients in the research population, parents of 66 patients were reported to have an income averaging \$102,000 a year with a range of \$10,000 to \$1,500,000. Parents of 35 patients were reported as having no income or as retired.

Eighty-one patients reported incomes, ranging from \$12,000 to \$1,000,000 with an average income of \$44,732. Some of the 20 patients who claimed no income were the beneficiaries of trusts which might have put them among the wealthiest of the patients. These

figures contrasted sharply with those of most urban drug addicts undergoing treatment; their reported incomes ranged from \$4,000 to \$9,000 (for comparisons of Income see Table 2).

Seventy-five percent of the research population reported a profession, trade or skill while 25 percent reported no job training. Sixty-eight percent said they worked full-time, 27 percent part-time or were students, while only 5 percent said they were presently unemployed. In comparison to other studies, the present research population had a minute fraction unemployed. McLellan et al. (1982) reported 62 percent with a profession, trade or skill; Resnick et al. (1978) reported 54 percent employed; Tennant and Rawson (1981) reported 55 percent employed while Sells (1979) reported only 33 percent employed. The average educational level of the research population was 13.5 years. This average was high compared with other studies. McLellan (ibid. 1982) reported 11.7 years, Resnick (1978) reported 11.3 years, and Tennant (1981) reported 11.5 years. Clearly, the present research population was unusual in regard to income, education and employment.

As can be seen in Table 3, the racial composition of the research population was 78 percent white, 18 percent Black and 4 percent Hispanic.

In contrast, McLellan (1982) reported 47 percent white and 52 percent non-white, Hunt (1977) reported 26 percent white and 73 percent non-white, and Sells (1977) reported 52 percent white and 48 percent non-white. The range from this sample of treatment populations was from 26 percent white to 52 percent white. Thus,

TABLE 2
INCOME ESTIMATES*

Author	Primary Income Source	Annual Income	Year
Tennant/Rawson	Blue Collar	\bar{X} ranges from \$10,000 to \$15,000	1983
McLellan	Laborer (Pre Rx) (Post Rx)	\bar{X} \$4,092 year income	1983
		\bar{X} \$6,852 year income	1983
Washton	Public Assistance	\bar{X} ranges from \$4,000 to \$10,000	1983
Ockert	White Collar	\bar{X} \$44,732	1983

*All information in this table acquired through personal communication, 1983.

TABLE 3
DEMOGRAPHIC COMPARISONS

Author	N	Age	% White	% Non-White	% Male	% Female	Years of Education	Years of Addiction	Average Number of Treatment Episodes	Area Year
McLellan	282	31	47	52	100	0	11.7	6	5	Philadelphia 1981 62% skilled
Hunt	2,906		26	73	72	28				Texas 1973
Sells/DARP	9,890	22-25	44	56	71	29				General 1972-1973
Totals/DARP	27,460	22-25	35	65	75	25				General 1969-1973
Codap) DARP)	48,530	22-25	52	48	74	26				General 1975
Simpson	3,248	22-25	38	62	74	26				1982 Average Age of Onset 16.6* Average Age of First Arrest 17.9
Tennant Rawson	178	30.7	42	58	70	30	11.2	10.7	3.2	California 1981 55% Employed 41% Married

*Additional information provided when available.

TABLE 3--CONTINUED
 DEMOGRAPHIC COMPARISONS

Author	N	Age	% White	% Non-White	% Male	% Female	Years of Education	Years of Addiction	Average Number of Treatment Episodes	Area Year
Resnick Washton	81	27					11.3	7.5		New York City 1979 Average Age of Onset 19.5 53% Employed 37.5% Married
McLellan	272	30.5	37	63	100	0	12	8.5	3.5	Philadelphia 1982
Ockert	101	28.59	83	18	78	22	13.5	7	3.3	New Jersey 1983 Average Age of First Arrest 19 Average Age of Onset 18.53

racial composition was another distinguishing feature of the present research population.

The percentage of men to women in the research population was 78 percent to 22 percent--within the range of other studies surveyed in Table 3 with one exception: McLellan studied the population of a Veterans' Administration hospital.

In regard to age, the research population's average age at entry was reported as 28.5 years old and ranging from 18 years old to 48 years old. The other studies used in this comparison ranged from an average age of 22 years old to 31 years old at entry to treatment.

Other demographic indicators are presented in Tables 3 and 4. These indicators relating to drug and legal history are noteworthy even though comparison data are rather sparse. For example, the average age of first arrest in the research population was 19 years old while the average age of addiction to the primary drug of choice was 18.53 years with an average of 7 years of addiction at entry to the hospital. In comparison, Tennant (1981) reported an average of 10.7 years of addiction, Resnick (1978) reported an average of 7.5 years and McLellan (1982) reported an average of 6 years of addiction for patients at entry to treatment. Sells (1975) reported an average age at first arrest of 17.9 years with age of onset of addiction to primary drug of choice as 16.6 years. Age of onset of drug addiction reported by Resnick (1978) was 19.5 years.

The average number of previous treatment episodes that patients had had upon entry to the hospital was 3.3; McLellan (1981) reported an average of 5 treatment episodes, Tennant (1981) reported

TABLE 4
DRUG HISTORY VARIABLES

Age of First Drug Use	$\bar{X} = 13.85$ years	Range = 6 to 23 years
Age of Onset of Regular Use of Major Drug Abuse	$\bar{X} = 18.53$ years	Range = 12 to 46 years
Money Spent on Drugs and Alcohol Monthly	$\bar{X} = 1,627$ ^{Drugs} \$	Range = 0 to 9,000 \$
	$\bar{X} = 49$ ^{Alcohol} \$	Range = 0 to 600 \$
Number of Treatment Episodes	$\bar{X} = 3.3$	Range = 1 to 20 Episodes
Preinduction Drugs of Abuse-- General breakdown	87% opioids	13% Cocaine
Referral Source Origin	38% self	18% Employee Assistance Programs
		41% Other Treatment Sources
Controlled Environment prior to Treatment Entry	82% No	18% Yes
Years Addicted	$\bar{X} = 7$ years	Range = 1 to 25 years

\bar{X} = mean.

an average of 3.2 episodes and McLellan, in a later study (1982), reported an average of 3.5 episodes.

In summarizing the significance of the statistics presented above, one might conclude that, in contrast to the reports presented in the comparison studies, the present research population was composed primarily of middle-class and upper-middle-class male, white, drug abusers in their late twenties. At the same time it is important to emphasize that, with rare exceptions, the available literature focuses on those subjects who had arrest records and/or received treatment for drug abuse from federally supported drug-abuse treatment programs. As pointed out previously in Chapter 3, the hospital was privately owned and supported, receiving no direct government subsidies. Thus, while research populations comparable to this hospital's may in fact exist, the literature does not discuss them.

Antecedents That Predict Outcome

Variation in operationalization of outcome variables. The two major outcome variables used in the data analysis were, first, a post-treatment drug-use severity rating which was a ten-point problem rating on the Addiction Severity Index (ASI). This drug severity index specifies, among other things, the amount and kind of drugs used at followup, the frequency of use, the amount of money spent on drugs, the patients' subjective judgment of their need to enter treatment again, and how the patient rates the extent of his drug problem (See Appendix C-3). The post-treatment drug-use severity index was

used in most correlation and regression analyses in this study. The second major outcome variable was drug-use outcome at followup a dichotomous variable--this was essentially a judgment made by the researcher as to whether the patient was readdicted at followup. The key indicator was whether the patient was currently using drugs regularly at addictive levels. For example, if a patient was reported to have used drugs only once within the average three-and-a-half-month period between release from the inpatient program and followup contact, he was judged to be not involved in drug-using.

The dichotomous drug-using outcome variable was assigned in 97 cases (Drug use outcome group). This included the patients in the 64 patient-to-researcher followup interviews (Drug use severity group) and the aforementioned secondary sources in the other 33 cases including outpatient staff members, family members and friends, and employee-assistance counselors at the patients' place of employment.

As in any study, variables are subject to underlying restrictions. Here, the post-treatment drug-use severity rating was dependent on talking directly with a patient and, as pointed out previously on page 39, 64 patients among the research population submitted to the followup interview. Therefore the post-treatment drug use severity group is a selective population because only 64 patients were contacted and submitted to the followup interview.

One might appropriately note here that followup interviews or contacts have long been considered among the more challenging research problems. Indeed, a common assumption has been that a readdicted patient will be more difficult, or even impossible, to reach at the followup stage because of a less stable living environment.

Table 5 below cross-tabulates followup interviews with drug use at followup.

TABLE 5
COMPLETED FOLLOWUPS BY DRUG USE
AT FOLLOWUP
(N=97)

	Incomplete Followups	Completed Followups
<u>Using Drugs at Followup</u>		
No	18	62
Yes	<u>82</u>	<u>38</u>
	100% (N=33)	100% (N=64)

$\chi^2=17.15$ df=1 P<.0001 Phi=.42

As one can see above, 64 subjects in the research population had completed ASI followups and 33 did not, although knowledge of drug use was known. As discussed, those with completed followups were significantly more likely to be drug-free at followup than those who were not contacted personally for a followup interview. These results should be kept in mind because of their effect on the following analyses.

When examining factors antecedent to treatment that predict outcome on followup, it is important to determine what factors, taken alone, have an effect on outcome. Then it is important to look at additional variables that may add to the understanding of the variance explained. These explanatory variables help determine under what conditions the original relationship is strong or weak. In a pre-post nonexperimental design in which causal attributions are inappropriate, the reliance on statistical controls for a reasonable explanation of the results depends on specifying the effects under different conditions.

Table 6 below presents the distribution of subjects by drug of abuse and drug using outcomes at followup.

TABLE 6
 DRUG OF ABUSE BY DRUG USE
 AT FOLLOWUP

<u>Preinduction Drug of Abuse</u>	Using Drugs at Followup (N=97)		
	<u>No</u>	<u>Yes</u>	<u>Total %</u>
Heroin	13	11	25
Program Meth	3	14	18
Street Meth	1	2	4
Cocaine	11	2	13
Poly opioid	8	5	13
Speedball	9	13	22
Hits	<u>1</u>	<u>4</u>	<u>6</u>
TOTAL	47% (N=46)	53% (N=51)	100%

28% of the expected cell frequencies are less than 5.0.

$$\chi^2=14.22 \quad df=6 \quad P=.0272$$

Table 6 indicates that the type of preinduction drug of abuse has a significant relationship to drug use at followup. While, for example, both heroin and methadone were heavily represented in the research population, many more patients addicted to heroin were reported as non-drug-using at followup.

It has long been assumed that the type of drug a patient is addicted to may influence his chances of recovery. In the following pages, the preinduction drug of addiction is related to drug use at outcome. These relationships are necessarily limited lacking, for example, an interplay in poly-drug abuse. Table 7 below is a comparison of drug use at followup collapsed into two major classes of drugs: opioid and nonopioid (in this instance nonopioid refers to cocaine).

TABLE 7
OPIOIDS AND COCAINE BY DRUG USE
AT FOLLOWUP
(N=97)

	Opioids	Cocaine
<u>Using Drugs at Followup</u>		
No	42	85
Yes	<u>58</u>	<u>15</u>
TOTAL	100% (N=83)	100% (N=13)

$\chi^2=8.33$ df=1 p=.0039 Phi=.29

Table 7 above shows that those in the research population who entered treatment as opioid addicts were significantly more likely to be readdicted at followup than those who entered primarily using cocaine. This finding could relate to the greater physiological addictiveness of opioids or indicate that perhaps the drug abuse treatment received by the research population worked better for cocaine addicts. To further clarify these results it is necessary to determine if there were additional contributing factors.

Cocaine appears to be a drug used by a broad social economic status group when compared to heroin and methadone. Table 8 shows the same relationship controlling for the patients' annual income. In this three-variable analysis one should not expect income, (when inspecting the relative proportions) even with a larger population, to have any effect on outcome. Even in a correlation analysis income alone did not predict drug use severity outcome; opioid addicts were therefore significantly more likely to be readdicted at followup than cocaine addicts.

Opioids in this study, include heroin, methadone, codeine and dilaudid. Heroin and methadone are the most prevalent and also will be examined here due to the longstanding assumption that methadone addiction is more difficult to treat successfully than heroin addiction. However, in clinical circles, this assumption is made because of methadone's longer detox period, i.e., methadone remains in the body

TABLE 8
 OPIOIDS AND COCAINE BY DRUG USE AT FOLLOWUP: CONTROLLING FOR INCOME
 N=92

	Opioids			Cocaine		
<u>Using Drugs at Followup</u>	<u>*Lo Income</u>	<u>Hi Income</u>		<u>Lo Income</u>	<u>Hi Income</u>	
No	40	44		75	88	
Yes	<u>60</u>	<u>56</u>		<u>25</u>	<u>13</u>	
	100% (N=35)	100% (N=45)	(N=80)	100% (N=4)	100% (N=8)	(N=12)

*Lo Income = < 20,000
 Hi Income = ≥ 20,000

tissues longer than heroin and is associated with depression. The heroin addict often can be completely detoxified in 5 to 8 days, whereas a methadone addict might take from 8 to 14 days for a complete detoxification.

Table 9 compares heroin and methadone patients by drug use at followup.

TABLE 9
HEROIN AND METHADONE BY DRUG USE
AT FOLLOWUP
(N=45)

	Heroin	Methadone
<u>Using Drugs at Followup</u>		
No	54	24
Yes	<u>46</u>	<u>76</u>
	100% (N=24)	100% (N=21)

$\chi^2=4.30$ df=1 P=.0381 Phi=.31

The above presentation indicates that heroin addicts in the research population were significantly more likely to be drug-free at follow-up than were methadone addicts.

Another drug of abuse that has become quite popular among drug abusers is speedballing, that is, intravenously administering a mixture of both heroin and cocaine. The comparison below, Table 10, is of drug-using outcomes cross-tabulated with cocaine and speedball.

TABLE 10
COCAINE AND SPEEDBALL BY DRUG USE
AT FOLLOWUP
(N=35)

	Cocaine	Speedball
<u>Using Drugs at Followup</u>		
No	85	41
Yes	<u>15</u>	<u>59</u>
	100% (N=13)	100% (N=22)

$\chi^2=6.37$ df=1 P=.0116 Phi=.43

In Table 10 speedball users were significantly more likely to be readdicted at followup than cocaine users; further analysis is not warranted due to the small N.

Treatment Process Variables

The treatment process variable that best predicted outcome in the research population was whether or not a patient entered the outpatient program. Table 11 below illustrates drug-using outcome compared with entry into the outpatient program.

TABLE 11
 OUTPATIENT PROGRAM PARTICIPATION
 BY DRUG USE AT FOLLOWUP
 (N=97)

<u>Using Drugs at Followup</u>	Entered Outpatient Program	
	<u>No</u>	<u>Yes</u>
No	35	59
Yes	<u>65</u>	<u>41</u>
	100% (N=46)	100% (N=51)

$\chi^2=5.60$ df=1 P=.0179 Phi=.24

Table 11 indicates that 51 of 97 patients entered the outpatient program. Here, it is clear that those who entered the outpatient program were significantly more likely to be drug-free at followup than those who did not enter. This finding is supported by a Pearson correlation coefficient with slightly

different variables. The variables in the correlation analysis are length of stay in the outpatient program and post-drug severity as rated on the ASI at followup. In other words, the longer a patient stayed in the outpatient program the lower the post-drug severity rating was at followup ($r=-.31$, $P<.05$, $N=64$). These findings must be interpreted with caution because it is not clear why some patients stayed in treatment longer than others (a self selection bias may have been operating).

In view of the fact that outpatient program attendance and length of attendance were related directly to positive followup outcomes, a logical next step at this point was to isolate other variables related to participation and length of stay in the hospital's outpatient program. As stated previously, those patients in the research population who successfully completed the inpatient treatment protocol were allowed to enter the outpatient program. Twenty-seven of 101 patients did not successfully complete the inpatient program and only 3 of 27 entered the outpatient program;* of the 74 who successfully completed the inpatient program, 48 actually entered the outpatient program. Thus, although completion of the inpatient program was not related directly to drug use at followup, it was linked directly to outpatient program participation, and, through this linkage, to significantly lower drug-use severity ratings at followup on the ASI. Table 12 shows graphically the inpatient program-outpatient program relationship:

*The three exceptions were granted a waiver by the hospital administration in order to enter the outpatient program.

TABLE 12
 INPATIENT PROGRAM COMPLETION
 BY OUTPATIENT PROGRAM PARTICIPATION
 (N=101)

Successfully Completed Inpatient Program		
<u>Went into Outpatient Program</u>	<u>No</u>	<u>Yes</u>
No	89	35
Yes	<u>11</u>	<u>65</u>
	100% (N=27)	100% (N=74)

$\chi^2=22.87$ df=1 P<.0001 Phi=.48

Table 12 shows that those who successfully completed the inpatient program were significantly more likely to go into the outpatient program than those who did not successfully complete. One might add that length of stay in the inpatient treatment protocol significantly correlated with completing the program at an $r=.32$ ($P<.05$, $N=64$), but it did not directly predict outcome.

The next variable, referral source, when subdivided into health professional or self-referral, predicted successful completion of the inpatient program. Here, a health professional referred to professionals such as a psychiatrist or other M.D., an employment assistance program counselor, social worker or drug counselor.

Table 13 illustrates the relationship:

TABLE 13
REFERRAL SOURCE BY INPATIENT PROGRAM COMPLETION
(N=90)

		Referral Source	
		<u>Health Professional</u>	<u>Self-Referred</u>
Completed Inpatient Program	No	18	40
	Yes	<u>82</u>	<u>60</u>
		100% (N=55)	100% (N=35)

$\chi^2=5.20$ df=1 P=.0225 Phi=.24

The data portrayed in Table 13 suggest that, contrary to long-held beliefs in this field, patients who are referred by a health professional are significantly more likely to complete the inpatient program than those who are self-referred. This result may be explained in treatment compliance or practice terms, that is, if the referral was from a health professional, the patient may have had more experience in treatment process and may have been consequently more compliant with program demands. One might also tentatively conclude that the motivational level may have been different--with the health-professional--referred patient more

motivated to succeed both because of support from the professional and the patients previously demonstrated desire for help. This result is surprising because of the previous widespread belief that self referrals were more motivated for success in treatment.

It was shown in Table 12, that a patient who successfully completed the inpatient program was significantly more likely to go into the hospital's outpatient program than a patient who did not complete the inpatient program. Too, if a patient entered the outpatient program, he was significantly more likely to be drug-free at followup than those who did not enter the outpatient program. The analysis performed to show these relationships primarily used dichotomous variables of entry or non-entry into the outpatient program and completion or noncompletion of the inpatient program. The drug-using outcome measure referred to readdictive levels of drug use or non-drug use.

To gain further insight into these relationships other measurements will be used here that are suitable for multiple regression analysis. Thus, the independent variables employed are length of stay as inpatient, completion of the inpatient program, and length of stay as outpatient; the dependent variable is post-treatment drug use severity assessed on the ASI. Table 14 displays these variables:

TABLE 14
TREATMENT PROCESS PARTICIPATION AND DRUG USE
SEVERITY AT FOLLOWUP
(N=64)

Drug-Use Severity at Followup (ASI)				
<u>Hierarchical Order of Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Length of stay as inpatient	-.19	.19	.04	-.10
Completion of program	-.27	.30	.09	-.13*
Length of stay as outpatient	-.31	.35	.12	-.22

*Values, 0 = did not complete.
1 = completed.

Table 14 is a hierarchical regression analysis and the variables used in combination account for 12 percent of the outcome variance. Modest as the result may be, it nevertheless supports the notion that the more treatment a member of the research population received at the hospital, the more likely he was to have a lower post-treatment drug-use severity rating at followup.

Table 14 indicates that length of stay as an inpatient did not contribute much to understanding the outcome variance. This might have been due to length of stay and completed program sharing variance. Moreover these results indicate that more of the outcome variance is explained with the addition of treatment process variables. Furthermore, the variable length of stay as outpatient contributed most to the explanation of the drug use severity outcome variance.

Summary. In reviewing the variables covered thus far, one can state with confidence that the composition of the research population was different from the drug-addicted populations that generally have been researched. White upper class addicts with a high education level and high income characterized this research population. An antecedent factor related to followup outcome was the preinduction drug of abuse in that type of drug significantly affected drug use at outcome. Methadone addiction, in this research population, was more difficult to treat successfully than heroin or cocaine addiction. Note that economic or other covariant factors did not play a role in these particular findings.

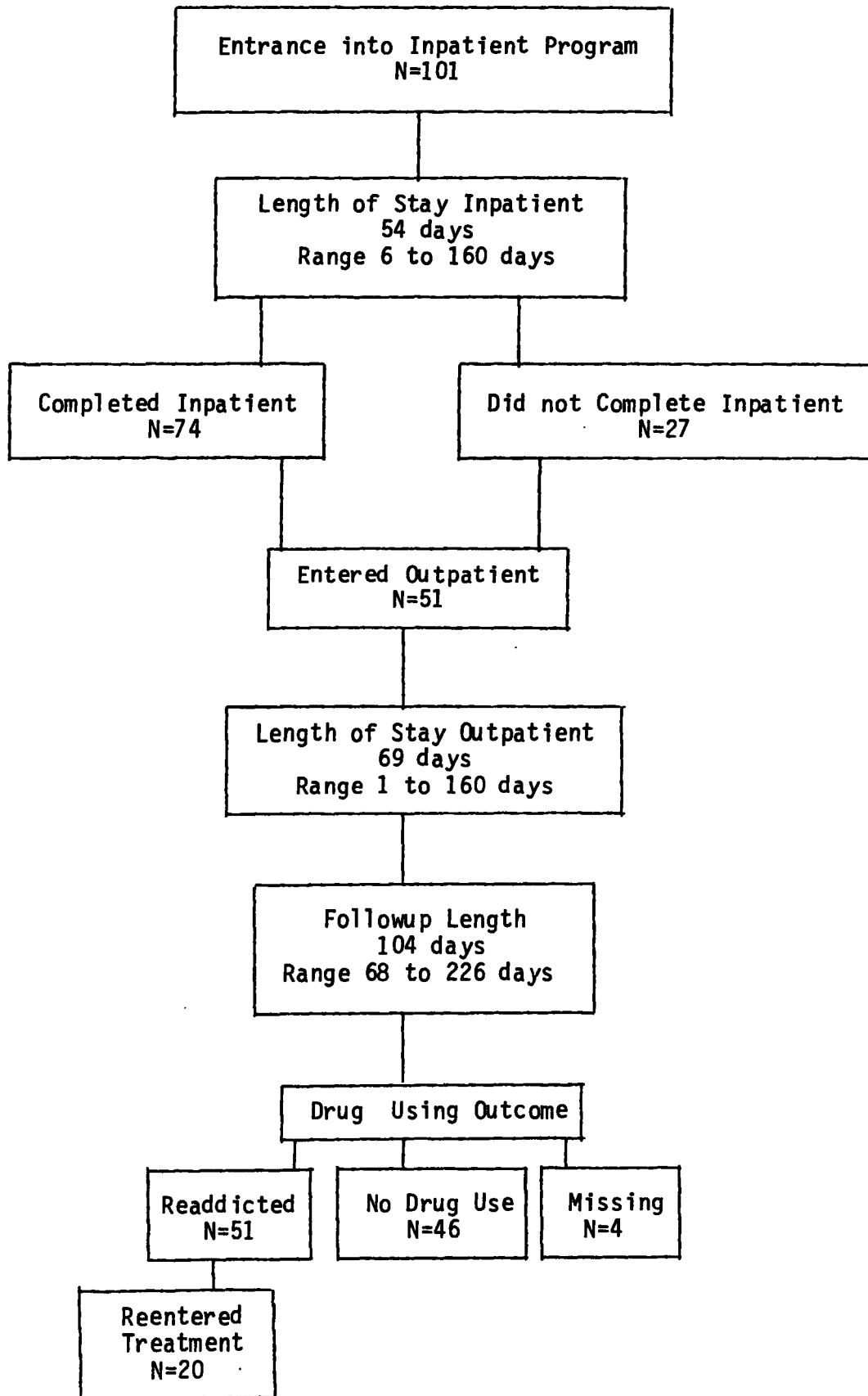
Table 13 suggested that those patients referred to the hospital by a health professional were significantly more likely to have successfully completed the two-month inpatient treatment program than those who were self referrals. Motivation or practice effects were considered salient factors in this case. One should note also that the sixty-four patients in the research population

who were contacted at followup were more likely to be drug-free than other members of the research population. This result conformed to findings in the literature and may have related to stability in living arrangements or, for example, merely, to desire by the patient to be contacted. Overall, the research population was successful on a three-and-a-half month followup outcome with 46 percent of the patients remaining drug-free. Resnick, Washton and Rawson, (1979) reported a 30 percent success rate (that is, drug free) at a six month followup from intake.

Based on the data discussed thus far, an observer might reasonably conclude that the more treatment a patient received the better were his chances of being drug-free at followup. Successful completion of the inpatient protocol was, in fact, linked to lower followup drug use severity rating on the ASI. Among the treatment process variables, entering the outpatient program and length of stay in the outpatient program had the most significant effect on followup outcome. Length of stay in the outpatient program might have been the variable that was most indicative of the patients' motivation for treatment, for there was no obvious external motivating force to keep them in treatment as in the inpatient protocol. As stated previously, inpatients were required to give seventy-two hours notice before being allowed to leave.

Finally, while this hospital attracted an atypical population, thus making comparisons to other treatment programs inappropriate, it had a superior success rate when compared to other populations

TREATMENT PROCESS RESULTS



in the available literature. Table 15 summarizes the treatment process results.

Critical Periods Analysis

As pointed out on page 7, Kleinman and Lukoff (1980) identified two critical periods in the lives of addicts--times which, they hypothesized, are crucial to predicting drug-abuse treatment outcome. The first critical period preceded entry into treatment and the contributing variables are employment status, crime rate, and marital status. The second critical period occurs in the late adolescence and the relevant variables are age of addiction, age of first arrest and years of education completed.

In this section the present results are viewed in terms of how they support just-mentioned "two critical periods" formulation of Kleinman and Lukoff. The assessment of the data's relevance to the first critical period hypothesis will proceed in terms of 1) economic support status (treated as equivalent to Kleinman and Lukoff's employment status), 2) legal severity (equivalent to their crime rate, and 3) marital status, the discussion of which, however, will be deferred to the section on Natural Support Systems (see p. 87). The assessment of the data's relevance to the second critical period hypothesis will proceed in terms of 1) age of first arrest, 2) age of drug use onset (equivalent to age of addiction), and 3) years of education. In the course of these assessments a few other factors and their correlation with the factors of primary concern will be considered.

Economic support status--an ASI rating of income, job-holding ability and training for a profession, trade, or skill--is pertinent to Lukoff's truncated socialization hypothesis (see Chapter 1, page 8) . If, for example, a patient's first arrest was early in life, then his ability to achieve a well-developed economic support status is more than likely questionable. The same holds true for conjugal relationships: the more criminal or drug-abuse history in a patient's past, the less likely he will have a conjugal relationship.

Legal severity was measured by the ASI (see Appendix C-3) and correlated with the ASI drug-use severity rating at followup. The variables that predict post-treatment drug use severity outcomes directly as measured by the ASI (A post-treatment drug use severity treatment need rating) are, legal severity, i.e. the higher the patients legal severity, the greater is his post drug use severity rating. This finding was expressed in a significant ($P < .05$) Pearson correlation coefficient where $r = .31$, and $N = 64$.

The number of previous treatment episodes also correlates significantly with higher drug-use severity rating at followup with a correlation of $r = .28$, which is also significant (again, $N = 64$, $P < .05$). Completing the program (a dichotomous variable where 0 = did not complete and 1 = successfully completed program) correlated with $r = -.26$ with drug-use severity at followup which

was significant (still, $N = 64$, $P < .05$).

The age at first treatment contact significantly correlated--
 $r = -.32$ ($N = 95$, $P < .05$) with the number of treatment episodes and
larger number of treatment episodes correlated with earlier onset of
regular drug use. The earlier age of treatment contact did relate
directly to more drug treatment problems later.

The next hypothesis tested was that the earlier the age at
first arrest, for any charge, the less likely it was that a patient
would successfully complete the inpatient treatment protocol. In
a Pearson correlation analysis, the age at first arrest significantly
correlated as $r = -.29$ ($N = 95$, $P < .05$) with completing the program.
As stated previously, the earlier the age of first arrest, the more
truncated the patient's socialization was likely to have been and
the less likely he was to have completed the treatment program
leading to a high drug-use severity rating on the ASI.

Table 16 is a hierarchical multiple regression using the
dependent variable of drug-use severity at followup:

Table 16 indicates a modest amount of variance and shows that
the variable "completed program" significantly added to the outcome
variance explained. This modest result may have been due to two
factors: first, the measures themselves can be questioned regarding
measurement error; second, the research population was a select group
and tended toward homogeneity, thereby yielding lower amounts of
explained variance. Age at first arrest alone did not directly
account for an important amount of outcome variance; however,
age at first arrest together with completed program signifi-
cantly affected the outcome variance. Moreover, Table 16

illustrates that the earlier the age of first arrest and onset of drug abuse did, to some extent, influence compliance with, and completion of, the inpatient program. Therefore, earlier age at first arrest and drug abuse suggested a behavioral nonconformity that affected treatment compliance and, in turn, affected drug-use outcome at followup. This finding agreed with Lukoff's work mentioned previously here and in Chapter 2. The earlier the age of drug-use onset, the earlier the subject's first treatment contact, the earlier the age of first arrest, then the less likely the patients in the research population were to complete the inpatient program and, therefore, the more likely they were to have had a higher drug-use severity rating at followup.

HIERARCHICAL MULTIPLE REGRESSION ANALYSIS OF AGE OF ONSET, OF DRUG USE
TREATMENT CONTACT, FIRST ARREST, AND PROGRAM COMPLETION BY DRUG USE
SEVERITY AT FOLLOWUP
(N=36)

Drug-Use Severity at Followup (ASI)				
Hierarchical Order of Independent Variables	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Age of onset of drug use	.05	.05	.01	.28
Age of first treatment contact	-.08	.11	.01	-.02
Age of first arrest	-.06	.15	.02	-.30
Completed program	-.42	.50	.25	-.52*

*Sig. $P < .05$

Although the low N limits the strength of this analysis, obtaining a significant increase in explained variance and accounting for 25 percent of the outcome variance indicates a stable and robust relationship.

The legal severity rating on the ASI significantly correlated (Pearson $r = .37$ at $P < .05$, $N = 62$) with economic support status severity, implying that the more legal severity, the higher the economic support status severity. Legal severity significantly correlated at $r = .31$ ($P < .05$, $N = 62$) with drug-use severity at followup.

TABLE 17
 HIERARCHICAL MULTIPLE REGRESSION ANALYSIS OF ECONOMIC AND LEGAL SEVERITY
 BY DRUG USE SEVERITY AT FOLLOWUP
 (N=62)

Drug-Use Severity at Followup (ASI)				
<u>Hierarchical Order of Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Economic support status severity	.18	.18	.03	.10
Legal severity	.32	.33	.11	.29*

*Sig. $P < .05$

Economic support status and legal severity in Table 17 account for 11 percent of the drug-use severity outcome variance at followup among the research population. Although this is a small amount of variance explained, it is noteworthy because of the relationship between poor economic support status and greater legal severity, resulting in a higher drug-use severity rating at followup.

Previously, treatment compliance was shown to significantly affect outcome to the extent that if a patient in the research population successfully completed the inpatient program and entered the outpatient program, he was significantly more likely to be drug-free at followup.

TABLE 18
PROFESSION, TRADE OR SKILL BY ENTRY
INTO OUTPATIENT PROGRAM
(N=101)

		Profession, Trade or Skill	
<u>Entered Outpatient Program</u>		<u>No</u>	<u>Yes</u>
	No	68	43
Yes	<u>32</u>	<u>57</u>	
	100 % (N=25)	100 % (N=76)	

$\chi^2=4.55$ df=1 P=.0330 Phi=.21

Table 18 shows that a patient with a profession, trade or skill was significantly more likely to enter the outpatient program than were those patients who claimed no profession, trade or skill. Thus, if a patient did have a profession, trade or skill he was likely to have participated and complied with some form of training either through education or on-the-job training. Those who had not achieved

this level of socialization may not have had the capacity to comply with programmatic rules and regulations, thereby increasing the probability that they would not complete the program and thus would be readdicted at followup.

Table 19 below includes years of education, age of first treatment contact, number of previous treatment episodes and legal severity as independent variables, using the drug-use severity rating at followup (ASI rating) as the dependent variable:

TABLE 19

HIERARCHICAL MULTIPLE REGRESSION ANALYSIS OF EDUCATION AGE OF FIRST TREATMENT CONTACT, NUMBER OF TREATMENT EPISODES AND LEGAL SEVERITY BY DRUG USE SEVERITY AT FOLLOWUP (N=62)

Drug Use Severity at Followup (ASI)				
<u>Hierarchical Order of Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Educational level	-.02	.02	.00	-.00
Age of first treatment contact	-.11	.12	.01	-.01
Number of treatment episodes	.28	.29	.08	.24
Legal severity	.34	.41	.17	.31*

*Sig. P<.05

Table 19 indicates that education does not add to this explanation. This result may have occurred because of the narrow range education has in the study population. However, the earlier age of first treatment contact leads to more treatment episodes, and greater legal severity. Together, these factors relate directly to drug use severity at followup. Furthermore, these data seem to indicate that the more prior drug-abuse treatment episodes, the more likely the patient is to be readdicted or have higher levels of drug-use severity at followup.

The preceding table seems to indicate that the earlier the age of drug treatment onset within the research population, the more truncated the socialization (more treatment episodes and legal problems), and the less likely to successfully finish the inpatient treatment program, consequently yielding higher drug-use severity ratings at followup.

In summary these data support the critical periods theory of Kleinman and Lukoff (1980). This analysis indicated that employment status, criminal involvement and support through a conjugal relationship affected treatment outcome either directly or in combination with treatment process variables.

The second critical period in the lives of drug addicts according to the above researchers encompasses age of first drug-abuse treatment contact and age of first arrest. These data

also support the truncated socialization hypothesis Lukoff (1974). Here, the earlier any of the above deviant behavior patterns occurs the more profound became the related behavioral problems.

Dominant Treatment Process Variables

At this point in the examination of the research data, it is appropriate to single out treatment variables which have seemed to be of central importance to the goal of this study, namely, to evaluate the drug-abuse treatment program. The variables are the following:

- a. length of stay in the inpatient program;
- b. whether or not the patient successfully completed the inpatient program;
- c. length of stay in the outpatient program and/or whether they entered the outpatient program.

Table 20 relates these variables with drug use at followup:

TABLE 20

HIERARCHICAL MULTIPLE REGRESSION OF TREATMENT
PROCESS PARTICIPATION AND DRUG USE
SEVERITY AT FOLLOWUP
(N=64)

Drug-Use Severity at Followup (ASI)				
<u>Hierarchical Order of Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Length of stay inpatient	-.19	.19	.04	-.10
Completed program	-.27	.30	.09	-.13
Length of stay outpatient	-.31	.35	.12	-.22

Although Table 20 relates only to the patients in the research population who were contacted directly, there seem to be connections here worth noting. It appears that the patient who went furthest in the treatment process increased their changes for a positive outcome at followup. This, of course, would be a logical goal of any treatment facility: the more treatment received, the more likely the patient is to achieve a positive outcome at followup. In the case

of this study population, the result gives some credence to the notion that the drug-abuse treatment program may have been helpful. However these results may say very little about the efficacy of the treatment program. Instead patient selection bias may be operating, that is, the patient who goes further in the program could be the type of patient that is more likely to be drug free at followup. There can be no conclusions reached regarding this issue because the research design is not adequate to answer this question.

An assumption discussed previously is that a patient arrested prior to first drug use is more likely to first have been arrested for a nonnarcotic charge. Nevertheless, in all likelihood he became involved with drugs through association with the illegal drug distribution system. If first arrest followed onset of regular drug use, the charge was most likely narcotic. Table 21 illustrates whether first arrest in the research population was narcotic or nonnarcotic:

TABLE 21
TYPE OF CHARGE AT FIRST ARREST
(N=101)

Charge at First Arrest	
Nonnarcotic	40
Narcotic	26
Not applicable	<u>35</u>
TOTAL	100% (N=101)

Table 22 compares charge at first arrest and whether drug use started before or after first arrest:

TABLE 22
CHARGE AT FIRST ARREST BY DRUG USE
PRE- AND POST- FIRST ARREST
(N=66)

	Charge	
	<u>Nonnarcotic</u>	<u>Narcotic</u>
Drug use prior to first arrest	53	89
Drug use post- first arrest	<u>48</u>	<u>12</u>
	100% (N=40)	100% (N=26)

$\chi^2=0.17$ df=1 P=.0025 Phi=.37

Table 22 indicates that the patients first arrested on a narcotic charge were significantly more likely to have started their drug use prior to first arrest. This result suggests that the patient arrested prior to first drug use may have been involved in a criminal life style prior to their drug abuse.

Natural Support Networks

Natural support networks are relevant to this discussion because they help to predict treatment process variables (completing the inpatient program and entering the outpatient program) which, in turn, are useful in predicting outcome. It has been assumed that, if a patient was involved in a conjugal relationship, he would be more motivated and compliant than a patient who was not involved in such a relationship. Thirty-one patients in the research population reported that they were married and seventy reported being unmarried or divorced. This classification unto itself did not significantly influence completion of the inpatient program, nor does it significantly relate to entering the outpatient program, or forecast drug-using behavior at followup.

Furthermore, conjugal associations or lack of same did not significantly influence program completion, outpatient participation or drug use at followup. However, when evaluating the estimated level of support within the conjugal dyad, a different story emerged. In Pearson correlations using, as the predictor, estimated level of

support of the conjugal mate on a Likert-type scale rating the estimated level of support of the patient's abstinence and treatment (see Table 23) significant relationships were found with program completion, outpatient participation and drug use at followup.

TABLE 23
LIKERT TYPE SCALE

Estimated Level of Support of the Patients Treatment by the Conjugal Mate			
-2 Attempt to sabotage	-1 Not supportive	+1 Supportive	+2 Very supportive

Note that a -2 (attempt to sabotage) rating was also applied when there was a drug-using conjugal mate; "not supportive" means no interest in the patient's abstinence or treatment, "supportive" and "very supportive" imply an effort and concern for the well-being of the drug-addicted mate.

The support level of the conjugal dyad significantly correlated, $r = .17$ ($N = 95$, $P < .05$), with completion of the inpatient program. Completing the inpatient program significantly correlated at $r = .38$ ($N = 95$, $P < .05$) with length of stay in the outpatient program,

correlated in turn, with $r = -.31$ ($N = 64$, $P < .05$), with drug-use severity at followup. Although a multiple regression was performed with these variables, the outcome explanation was slight and the variance explained was not significant with an R^2 equalling .126 percent. However, estimated level of support as shown in Table 24 contributes to the explained variance at outcome.

Table 24 is a Hierarchical Regression presentation of the aforementioned variables:

TABLE 24
HIERARCHICAL MULTIPLE REGRESSION LEVEL OF SUPPORT
OF THE CONJUGAL DYAD AND TREATMENT PROCESS
VARIABLES BY DRUG USE SEVERITY AT FOLLOWUP
(N=64)

Drug Use Severity Rating at Followup (ASI)					
<u>Hierarchical</u> <u>Order of</u> <u>Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>	
Estimated level of support conjugal dyad	-.16	.16	.02	-.07	
Length of stay inpatient	-.19	.23	.06	-.10	
Completed program	-.27	.31	.09	-.12	
Length of stay outpatient	-.31	.36	.13	-.21	

Although Table 24 does not yield a significant explanation of the drug-use severity outcome at followup, all indications in the research population were that a supportive conjugal mate enhanced the patient's chances of completing the inpatient program. Consequently, this fact increased the probability that the patient entered the outpatient program and achieved a more favorable followup outcome than a patient without a supportive conjugal mate.

Another natural support network variable was seen in the examination of treatment process and outcome in the research population. A tally of drug-using friends significantly correlated ($N=53$, $P < .05$) at $r = .37$ with length of stay as an inpatient which, in turn, significantly correlated with completing the program. This latter variable significantly correlated with both length of stay as outpatient and drug-use severity at followup.

This linkage is striking because a higher frequency of drug-using friends in a patient's natural support network might have encouraged him to remain in treatment longer. This may have been because the patient (and/or the parents of the patient or staff members) knew that his friends' influence would be deleterious to his abstinence, so that the patient remained longer in the inpatient program.

It is characteristic of the group having drug-using friends that they were mostly male. Also the data indicate that these patients had a larger number of relatives in the network and may have been living at home.

The point is that drug-using friends significantly correlated with the patient remaining longer in treatment. And, the patient's

prospects for a favorable outcome at followup were improved correspondingly. Staying in treatment longer yields better followup outcomes insofar as the research data were concerned. These variable relationships are shown below in a multiple regression analysis.

TABLE 25

HIERARCHICAL MULTIPLE REGRESSION OF DRUG USING FRIENDS
AND TREATMENT PROCESS VARIABLES BY DRUG USE SEVERITY AT FOLLOWUP
(N=35)

Drug Use Severity at Followup (ASI)				
<u>Hierarchical Order of Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Drug using friends	-.13	.13	.02	.02
Length of stay inpatient	-.22	.23	.05	.21
Completing inpatient program	-.02	.23	.05	.23
Length of stay outpatient	-.28	.37	.14	.35

As seen in Table 20, length of stay in treatment, completing the inpatient program and length of stay as outpatient accounted for .12 percent variance of drug-use severity at followup. The addition of drug-using friends brought the amount of explained

variance up to .139 = .14 percent. While not a significant contributor to understanding of the outcome variance, the relationship sheds some light on drug-use severity at followup.

As for the existence of age-mate friends in the support network opposed to those patients in the research population claiming no friends, Table 26 compares the existence of age-mate friends with entry to the outpatient program:

TABLE 26
AGE-MATE FRIENDS BY ENTRY
TO THE OUTPATIENT PROGRAM
(N=101)

		Age-Mate Friends	
		No	Yes
Entered the Outpatient Program	No	61	39
	Yes	39	61
		100% (N=49)	100% (N=52)

$\chi^2=5.23$ df=1 P=.0222 Phi=.22

As can be seen above, those patients with age-mate friends were more likely to enter the outpatient program than those patients with no friends. Since patients with age-mate friends were significantly

more likely to enter the outpatient program, they were therefore more likely to be drug-free at followup.

The presence of age mate friends may indicate greater social responsiveness and as a result, a greater degree of treatment compliance.

Summary. In summarizing the data presented in Tables 16 through 26, one can say that they tended to support both Lukoff's truncated socialization hypothesis and the critical periods thesis promoted by Kleinman and Lukoff. For example, the data indicate that employment status, criminal involvement and estimated level of support in a conjugal relationship affect treatment outcome separately or in combination. Age at addiction and age of first arrest also influence treatment outcome according to these data. The frequency of past drug-abuse treatment contacts also may be an indicator of past drug-use history according to the data.

The treatment implications of these variables and their relationship to treatment outcome strongly supports the establishment of adolescent-directed prevention and awareness programs or other early intervention strategies. Conjugal associations and age-mate friend networks (either drug-using or not) also support social work treatment efforts emphasizing engendering conjugal support or separation from a conjugal mate who attempts to sabotage a patient's drug-abuse treatment and drug-use abstinence.

Pre-Post Residualized Change Score Analysis

The residualized analysis is suggested by Cohen and Cohen (1975) where they say "the simple gain score is not adequate in the analysis of change. The problem lies in their necessary dependence on pre-scores and this incurs a liability of low reliability. Residualized change scores are computed by partializing one variable from another and thereby producing a residual variable from which you compute change."

The residualized change score approach makes sense because people are relatively consistent over time; therefore, the correlation relations between pre- and post-scores needs to be divided by the standard deviation--yielding the amount of variance that corrects for the amount of change which cannot be contributed to the inherent correlation between pre-and post measures.

The seven life areas assessed pre- and post-inpatient treatment on the ASI are: medical severity, economic support status severity, alcohol severity, drug severity, legal severity, family social severity and psychiatric severity.

TABLE 27
RESIDUALIZED CHANGE SCORES*
BETWEEN THE PRE- AND POST-ADMINISTRATION
OF THE ASI
(N=64)

Residualized Change Scores					
<u>Variable</u>	<u>R</u>	<u>R</u> ²	<u>B</u>	<u>F</u>	<u>Sig.</u>
Medical Severity	0.17	0.03	0.25	1.93	NS.
Economic Support Status Severity	0.27	0.07	0.30	4.77	Sig.*
Legal Severity	0.44	0.19	0.75	14.85	Sig.*
Family Social Severity	0.29	0.08	0.19	5.41	Sig.*
Alcohol Severity	0.36	0.13	0.96	9.29	Sig.*
Drug Severity	0.03	0.00	0.16	0.05	NS.
Psychiatric Severity	0.11	0.01	0.79	0.79	NS.

*(p<.05)

$$\text{Formula: } r_{bc} = r_b (a-b) = \frac{r_{ab} s_{da} - s_{db}}{\sqrt{s_d^2 + s_d^2 - 2r_{ab} s_d s_d}}$$

(Cohen 1975)

Six month assessments using residualized change score analysis in four of the seven problem areas assessed on the ASI showed significant and pervasive improvements in most patients relative to their admission status.

The residualized change score analysis Table 27 shows that pre-post medical severity did not change significantly; this is not unusual since longstanding medical problems usually are not amenable to change in a six-month period. Economic support status severity, however, did change significantly pre- and post- as did alcohol severity, legal severity and family social severity--all variables related to a drug-using lifestyle. However, drug severity pre- and post- did not change significantly, nor did psychiatric severity.

Summary. This analysis showed that diffused treatment goals might indeed have impacted significantly on the life of the patient, but not on drug abuse, medical or psychiatric problems. These various aspects of change (that is, outcome) were not interrelated with other measures. Therefore, the simple assumption that drug use caused problems in other areas of living was overstated in terms of these findings.

These results suggest that when diffused treatment goals built into the treatment program create a lack of tailoring to particular needs of the individual, the result may cause no change in drug abuse and psychological areas, which are the two major foci of the program (Lukoff Personal Communication 1983).

The introduction of different facets of treatment should have contributed to positive outcomes within the research population, and, indeed, they did. However, they were limited to specific behavior within a life area, not associated directly with drug-using behavior.

In other words, change took place but it was not tied, via a one-to-one relationship, to drug-using behaviors. Therefore, an assumption of a simple relationship between these life areas and drug-taking behavior was invalid in this scheme.

Psychotropic Medication

When an opioid addict is detoxified, the patient theoretically can return to the community where opioid-free rehabilitation in the form of behavioral and psychosocial therapeutic support can be administered on an outpatient basis despite a critical adjustment period and the availability of illegal drugs. A theoretical basis for opioid-antagonist treatment was developed by Wikler (1965, 1973) who suggested that conditioning factors of which neither the therapist nor the patient are aware may be responsible for relapse to opioid use in detoxified addicts.

Basing his argument on principles of operant and Pavlovian conditioning, Wikler proposed a two-factor learning theory of relapsing behavior, namely, that through the process of operant conditioning the relief from emotional and physical distress provided by an injection of heroin constitutes a powerful reinforcement that can establish and maintain opioid-using behavior (See Chapter 2, page 21). In addition, through repeated pairings between stimuli in the addict's environment, withdrawal symptoms and their relief, Pavlovian conditioning comes into play causing a craving for heroin in the previously detoxified addict when he contacts these same environmental stimuli. As a result, this so-called conditioned-abstinence response can provoke the detoxified addict into reinitiating opioid use and, consequently, relapsing into opioid addiction. This emotionally induced craving may reflect a physiological state of arousal in turn triggered by physical or emotional discomfort that the addict experiences as part of his drug-free community re-entry period.

According to this particular model, when opioid-reinforcing properties are blocked by the opioid antagonist, drug-seeking behavior will cease because previously conditioned responses are extinguished (Resnick, 1979). Resnick asserts that conditioning factors may explain why detoxification treatments without pharmacological supports generally have not been successful.

It may be possible that a family of pharmacological supports is effective in this paradigm depending upon precise circumstances. For example, if the conditioned-abstinence response is, in fact, "state dependent," then a pharmacological therapy that alters the state of the patient also may lead to the extinction of the conditioned-abstinence response. For example, administering a mood-stabilizing psychotropic medication to the patient during drug-free reentry into the community may block or partially deflect the conditioned abstinence response because of earlier intervention in the readdictive two-factor-theory process (when the state of arousal caused by emotional and/or physical discomfort occurs) then the behavioral reaction to the conditioned environmental stimuli of getting high would be less attractive and thus have a reduced impact on the addict.

In discussing the conditioned-abstinence response Resnick and others have suggested that for some addicts the incentive for seeking and using opioids is physical or emotional distress comparable to psychiatric symptoms. Thus, if the addict is self-medicating psychiatric symptoms, then removing the incentive for seeking and using opioids is to preclude the appearance of the symptoms. Emotional lability and distress are acute in the community reentry phase of treatment for the detoxified addict. The use of appropriate psychotropic medication may stabilize the addict's emotional balance and extinguish the conditioned-abstinence response. Psychotropic medications that achieve the above two objectives would preclude a patient's exposure to the reinforcing properties of opioid drugs.

Thus, with biochemical outpatient support, psychosocial and behavioral treatment techniques can be stressed in a low-risk outpatient treatment period, which is, in the author's opinion, a necessary precondition for successful treatment outcome. In view of the foregoing discussion, mood-stabilizing medication may be more useful with a select group of patients, namely, those with marked emotional lability or pronounced psychiatric symptom severity. This group may be called "crossovers" or "self-medicators". This self-medicating class of drug users are those whose addiction may be due in part to existing psychiatric symptoms that are reduced by nonprescription drug administration. In the final analysis, however, biochemical support can be only an adjunct to psychosocial and behavioral treatment modes.

It is appropriate to note here that the idea of medicating drug addicts, as in the case of methadone treatment, is viewed by many professionals as simply changing drug dependence from one substance to another. It is fair to state that generally prescribing mood-altering medication for detoxified addicts is frowned upon by many professionals. Thus, there is a widespread prohibition on the use of psychotropic medications in drug-abuse treatment (McLellan, 1980). Naltrexone has been justified to a limited extent on the grounds that it does not produce euphoria. The widespread contempt for medicating detoxified addicts in fact may account for the lack of studies in the literature (see Chapter 2) on other medications used in the treatment process. However, if the self-medicating premise discussed above is viable, then the lack of supportive alternative

medication in the community-reentry critical period after detoxification--is likely to result in poorer treatment outcome. Indisputably, the longer a patient remains drug-free while in the community, there is a greater chance that he will learn new, more adaptive and flexible coping behavior than he previously had as a drug addict.

Psychotropic medication type. Psychotropic medications prescribed for the research population fell into three main categories:

- a. Tricyclic antidepressants.
- b. Neuroleptics: antipsychotics for agitation and/or psychosis.
- c. Mono-amine-oxide inhibitors (MAOIs): Anti-depressants for a particular type of patient. MAOIs require a special diet.

In the following discussion of the 25 patients in the research population on psychotropic medication, 20 took Tricyclic antidepressants, 3 took MAOIs and 2 took Neuroleptics. Therefore, Tricyclic antidepressants constituted the majority of the psychotropic medications prescribed during this study.

Table 28 is a comparison of drug-using outcome among 92 patients, 25 of whom took psychotropic medications for 1 to 2 months after inpatient treatment and 67 of whom did not take psychotropic medication. Drug-using in this case means the patient had returned to addictive levels of drug use within 3.5 months after discharge from inpatient treatment.

TABLE 28
 PSYCHOTROPIC MEDICATION BY DRUG USE
 AT FOLLOWUP
 (N=92)

Psychotropic Medication		
<u>Using Drugs at Followup</u>	<u>Yes</u>	<u>No</u>
No	76	40
Yes	<u>24</u>	<u>60</u>
	100% (N=25)	100% (N=67)

$\chi^2=9.28$ df=1 P=.0023 Phi=.32

Table 28 above indicates that those who received psychotropic medications for their reentry protocol were significantly more likely to be drug-free at followup than those who were not prescribed medications. It is important to remember that patients were on these medications an average of one and a half months post-discharge from the inpatient hospital program, and none were still being medicated at the 3.5 month followup. In Table 28 above the Phi is .32, which indicates a strong relationship. Explanatory variables included in this presentation that further specify the nature of the relationship are whether or not the patient entered the outpatient program (for Chi. Sq. analysis) and the length of

stay in the outpatient program (for correlation and regression analysis).

These above variables are important because entry into outpatient treatment alone predicts outcome at followup as seen below in Table 29:

TABLE 29
ENTRY INTO OUTPATIENT PROGRAM
BY DRUG USE AT FOLLOWUP
(N=97)

Entry Into Outpatient Program		
<u>Using drugs at Followup</u>	<u>No</u>	<u>Yes</u>
No	35	59
Yes	<u>65</u>	<u>41</u>
	100% (N=46)	100% (N=51)

$$\chi^2=5.60 \quad df=1 \quad P=.0179 \quad \text{Phi}=.24$$

The result here is not as robust as the psychotropic medication results, as can be seen by the Phi of .24. However, this result, combined with the fact that if a patient was on psychotropic medications he was significantly more likely to be in the outpatient program, contributes information that prompts the question: What actually was responsible for the effect on drug use at followup? Table 30 below sheds further light on the question:

TABLE 30
 PSYCHOTROPIC MEDICATION BY OUTPATIENT PROGRAM PARTICIPATION
 (N=95)

		Psychotropic Medication	
		Yes	No
<u>Outpatient Program Participation</u>	No	24	54
	Yes	<u>76</u>	<u>46</u>
		100% (N=25)	100% (N=70)

$$\chi^2=6.80 \quad df=1 \quad P=.0091 \quad \text{Phi}=.27$$

Table 30 above shows that patients on psychotropic medication were significantly more likely to be in the outpatient program than those who were not. This finding is not startling since, to obtain prescriptions, patients usually maintained some contact with the outpatient program. The question still stands: Was it the outpatient program, psychotropic medications--or both--that accounted for the outcome?

In order to gain further insight into this relationship, we must examine psychotropic medication and outcome, statistically controlling for outpatient involvement. The following three-variable table, Table 31, is composed of the independent variable psychotropic medication, the dependent variable drug use at followup, controlling

TABLE 31

PSYCHOTROPIC MEDICATION BY DRUG USE AT FOLLOWUP:
 CONTROLLING FOR OUTPATIENT PARTICIPATION
 (N=92)

	No Outpatient				Outpatient	
	Psychotropic Medication				Psychotropic Medication	
<u>Using Drugs at Followup</u>	<u>Yes</u>	<u>No</u>		<u>Using Drugs at Followup</u>	<u>Yes</u>	<u>No</u>
No	67	34		No	79	47
Yes	<u>33</u>	<u>66</u>		Yes	<u>21</u>	<u>53</u>
	100 % (N=6)	100% (N=35) (N=41)			100 % (N=19)	100 % (N=32) (N=51)

50% of the valid cells have expected frequencies less than 5-0.

Fishers Exact. NS.

$\chi^2=5.06$ df=1 p=.0244 Phi=.32.

for the explanatory variable outpatient involvement.

The presentation in the no-outpatient portion of Table 31 suffers from lack of sufficient expected-cell-frequencies. Therefore, a Fisher exact test was performed, but did not yield a significant result. However, visually inspecting the relative proportions of those patients in the research population on psychotropic medication who did not enter the outpatient program, 67 percent were still drug-free, while in the no-medication group a greater proportion were drug-using than not. At least this result indicated the expected direction, although this might have been due to chance. A logical expectation would be that a larger N in the drug group would yield a significant relationship between psychotropic medications and non-drug-using at followup.

The outpatient portion of Table 31 did show if a subject entered the outpatient program and also was on psychotropic medications, then he was significantly more likely to be drug-free at followup than an outpatient who did not receive psychotropic medications. This finding is robust as indicated by Cramers Phi of .32. These results indicate that the outpatient program alone was not as likely to yield a positive outcome as the combination of psychotropic medication and outpatient participation. At this point in the data presentation, an adequate explanation has yet to be advanced regarding the effect of outpatient and psychotropic medication taken both together and separately.

In order to determine if these two variables operate in combination and/or separately, and which variable contributed most

to the explanation of the followup outcome, additional analysis was performed using a different outcome measure and measure of outpatient participation. Drug-use severity as a followup outcome measure is a ten-point need-for-treatment rating on the ASI. Drug-use severity ratings at followup were obtained only for those patients who actually completed followups. The N for drug-use severity in this example was 63 whereas the N for the drug-using dichotomous outcome in previous tables had an N of 95. It should be stressed here that drug using outcome information was available through sources other than the patient himself (see Chapter 4, page 55). As stated earlier, the drug-use severity rating at followup was only for those who were personally contacted--that is, 64 out of 101 patients in the research population had full followups. Therefore, this group has a restricted range and, as shown earlier, was significantly more likely to be drug-free at followup than those who did not have completed followups.

If a patient was stable enough to be reached at followup and allowed himself to be contacted, he was significantly more likely not to be readdicted than those who did not have, for example, stable addresses, telephone numbers or who were otherwise noncontactable. Length of stay in the outpatient program was a continuous variable. The third variable in this equation was a dichotomous variable.

These variables and an N of 63 satisfied the requirements for the multiple-regression analysis seen in Table 32 below:

TABLE 32
MULTIPLE-REGRESSION OF TREATMENT PROCESS VARIABLES
BY DRUG USE SEVERITY AT FOLLOWUP
(N=63)

Drug-Use Severity at Followup (ASI)				
<u>Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Length of stay outpatient	-.32	.32	.11	-.25*
Psychotropic medication	.31	.39	.15	.25*†
Interaction 1 x 2	-.22	.39	.15	-.00

*Sig. at $P < .05$

*†Dichotomy 1=medication
2=no-medication

In this regression it can be seen, with this selective group, that both outpatient participation and psychotropic medications contributed equally and significantly ($*P < .05$) to the explanation of the outcome variance. In addition, the test for interaction did not reveal any additional explanation of the outcome variance in this group. Thus, the lack of interaction between these variables indicated no facilitating effect.

The original explanation has a more representative N and, therefore, still stands: of the patients in the outpatient program, those who took psychotropic medications were significantly more likely to be drug-free at followup than those who did not take psychotropic medications. Both alone were obviously significant and important contributions to the outcome variance. The lack of interaction effects added important information regarding the understanding of this relationship in that, if there is no interaction effect, then other variables might be important to the understanding of these main effects.

Since prescriptions of psychotropic medications usually indicated an affective disorder, psychiatric symptom severity as determined by the ASI was an important patient parameter to examine. It is important to bear in mind that the hospital was an inpatient psychiatric hospital with high security locked units and that 81 percent of the research population had a high psychological symptom severity profile.

"In concept and function, the ASI psychiatric severity rating is comparable to the health-sickness rating scale developed by Luborsky (1974) or its derivative, the Global Assessment Scale used in the SADS Interviews (Endicott et al., 1976) and provides a general estimate of overall psychological/psychiatric status" (McLellan, 1981).

Patients in the research population who were rated low in severity were generally asymptomatic or had problems of anxiety or depression in their past, but no clear history of recurring or

persistent symptoms. Patients in the high-severity group generally reported severe and prolonged symptoms such as suicidal ideation, thought disorder and/or cognitive confusion. In Table 33 below, the psychiatric symptom severity rating was subdivided into high and low groups. As can be seen in Table 35, 81 percent of the research population had a high psychiatric severity rating.

TABLE 33
PSYCHIATRIC SEVERITY RATING BY DRUG USE AT FOLLOWUP
(N=97)

	Low Severity	High Severity
<u>Using Drugs at Followup</u>		
No	47	47
Yes	<u>53</u>	<u>53</u>
	100% (N=19)	100% (N=78)

NS.

As shown in Table 33, high and low psychiatric-symptom severity alone did not predict a drug-using outcome.

Next, in Table 34, a three-variable presentation compares psychotropic medication with drug-using outcomes, statistically controlling for psychiatric symptom severity.

TABLE 34

PSYCHOTROPIC MEDICATION ADMINISTRATION BY READDICTIVE LEVELS OF
 DRUG USE AT FOLLOWUP CONTROLLING FOR PSYCHIATRIC SYMPTOM SEVERITY
 (N=93)

Psychiatric Symptom Severity (ASI)					
Low Severity			High Severity		
<u>Using Drugs at Followup</u>	<u>Psychotropic Medication</u>		<u>Using Drugs at Followup</u>	<u>Psychotropic Medication</u>	
	<u>Yes</u>	<u>No</u>		<u>Yes</u>	<u>No</u>
No	83	33	No	74	42
Yes	<u>17</u>	<u>67</u>	Yes	<u>26</u>	<u>58</u>
	100 % (N=6)	100 % (N=12) (N=18)		100 % (N=19)	100 % (N=55) (N=74)
Fishers Exact. NS.			$\chi^2=5.74$ df=1 P=.0166 Phi =.27		

In the above cross tabulation under the low psychiatric severity portion, a Fishers exact test was employed due to a small N. For the low psychiatric severity group there was no significant difference on outcome across the psychotropic and non-drug-using groups. However upon examining the relative proportions in the low severity group I would expect that with a larger N this result would achieve significance. Of the patients in the high psychiatric severity group, those who were medicated for their psychological symptoms were significantly more likely to be drug-free at followup than those who were not medicated. This was an important finding because symptoms alone did not predict drug-using outcomes unless medication was used. Again, this high psychiatric severity group may be referred to as self-medicators or crossovers due to their treatment response.

Table 35 below shows that the majority (75 percent) of those on psychotropic medication also were high in psychiatric severity:

TABLE 35
PSYCHIATRIC SEVERITY BY TYPE OF PSYCHOTROPIC MEDICATION
(N=95)

<u>Psychotropic Medication</u>	<u>Psychiatric Severity (ASI)</u>	
	<u>Low</u>	<u>High</u>
Tricyclics	5	16
Neuroleptics	1	1
MAOI	0	3
NA	<u>13</u>	<u>61</u>
TOTAL	19% (N=18)	81% (N=77)

MAOI and Tricyclic medications were indicated for depression and, as stated previously, accounted for the majority of the psychotropic medications prescribed to the research population.

Interestingly enough, considering the general prohibition on the use of psychotropic medications in drug-abuse treatment, fifty-eight unmedicated patients were in the high psychiatric symptom class and medication thus might have been indicated for these patients.

Table 36 below compares the preinduction drug of addiction, identified as opioids or cocaine, with the category of psychotropic medication:

TABLE 36
DRUG CLASS USE BY TYPE OF PSYCHOTROPIC MEDICATION
(N=95)

	Opioids	Cocaine
<u>Psychotropic Medications</u>		
Tricyclics	15	5
Neuroleptics	2	0
MAOI	2	1
Not applicable	<u>63</u>	<u>7</u>
TOTAL	82	13

Table 36 shows that in this research population more opioid addicts have been medicated than cocaine addicts, although the proportions indicate relatively more cocaine addicts were prescribed psychotropic medications than opioid addicts. This may be due to a higher incidence of agitation experienced in a cocaine detoxification. As shown earlier in Table 7, comparing opioid and cocaine groups, cocaine addicts were significantly more likely to be drug-free at followup than opioid addicts.

Summary. Recidivism to regular drug use usually occurs on emotional impulse within the first three months after release from inpatient treatment. Assuming the high psychiatric severity group may have been self-medicators, those patients who experienced significant psychiatric symptomology and became addicted largely due to the symptom-reduction effects of nonprescription drugs. According to Resnick (1979), this group tended toward less favorable followup outcomes. Self-medicators among the research population may have been at higher risk of impulsive readdiction during the critical period of reentry into the community. The hospital's inpatient drug abuse treatment program has stringent controls and intensive professional support.

An outpatient reentry protocol offering individual and group (psychosocial) supports may not have been enough for many of these patients. Resnick, referring to the conditioned-abstinence hypothesis, stated that in addition to psychosocial support, patients may need biochemical support to achieve successful outcomes.

The data suggested that high psychiatric severity patients may have benefitted from short-term biochemical support in the form of

psychotropic drugs during the critical reentry period when emotional lability was at its peak. Without biochemical support (in addition to a well-developed reentry protocol) there was a greater likelihood that a patient, in a period of increased emotional lability, would impulsively use illegal drugs, for their symptom reduction effects, and, thus become readdicted. The data suggest that controlling mood lability with appropriate psychotropic medications increased the probability that the patient would successfully negotiate the critical reentry period and remain drug-free.

The reentry period may have been a relearning period during which short-term psychotropic administration was indicated as an adjunct to psychosocial treatment. The findings indicated that this was especially true for those patients who were identified as "self-medicators", i.e., those with high psychiatric symptom severity. The data also suggested that a community reentry period facilitated by psychosocial and short-term biochemical support may yield better followup outcomes, especially for those patients in the research population identified as members of a high psychiatric symptom group, i.e., self-medicators.

Clonidine Detoxification

~~Published studies on Clonidine relevant to the issues discussed in~~
this study are nonexistent because of the very recent introduction of this nonopioid medication into some detoxification treatment strategies. At the time of the present study, February 1982 to December 1982, Clonidine still awaited FDA approval.*

As a detoxification medication Clonidine significantly reduces the discomfort due to withdrawal from opioid addiction. Previously all detoxification medications were opioid-based compounds such as darvon N and methadone. However, when using opioids for detoxification the patient still has to go through a six-to-ten day detoxification period when the opioid-based detoxification medication is withdrawn for his system to be drug free. Additionally, Clonidine does not produce euphoria as do other detoxification medications. This point is important to the following explanation:

Commonly, the addiction level of a patient at entry to a drug-treatment facility is determined via self-report of the patient's street drug dosage and the money spent for drugs. Obviously, this self-report can be misleading insofar as the variable quality and price of street drugs is concerned. Or, if the patient has been previously placed on methadone until he reports feeling physically comfortable, then this dosage level of methadone is used as an

*As of October 1983 Clonidine still was under study and awaiting FDA approval for an opioid detoxification indication.

indicator of addiction level. However, this method of indexing addiction level poses intrinsic problems. Specifically, when a drug addict enters detoxification treatment, prescribing a euphoric drug may encourage his accepting higher levels of it because it probably will be his last opioid-induced high prior to detoxification. The available literature previously has reported dose-dependent outcomes (Resnick, Washton 1978; Rawson 1979) based on either self-reporting of amount, price and frequency of use or a stabilizing methadone dose. A methadone stabilizing dose may indicate other parameters such as a patient's motivation and/or willingness to become drug-free. These motivational traits or attributes would seem to predict a less favorable outcome when the patient requests more methadone than is necessary for him to become stabilized. This measurement may reveal more about motivation than the biological level of addiction. Therefore, the stabilizing methadone dose and the self-report measurements both are subject to measurement problems.

In regard to a Clonidine detoxification strategy, on the other hand, at high dosage levels Clonidine produces dysphoria due to the patient's marked reduction in blood pressure. In a Clonidine detoxification procedure, high doses indicate a greater need for withdrawal-symptom reduction rather than a need to get high. Additionally, the longer a patient is administered Clonidine the greater his addiction may be.

The methadone stabilizing dose is generally considered a poor, if not misleading, measurement of the biological addiction level. Clonidine, however, because of its noneuphoric effect does not

involve the drawbacks of methadone as a measurement of drug-use severity at entry to treatment. Clonidine may be a useful, accurate and unbiased index for determining addiction levels because it bypasses the reporting problem and the induced-euphoria problems encountered with traditional opioid detoxification medications.

In the present study, indicators of addiction levels used were incorporated in the ASI and included years addicted, frequency of drug administration, weekly amount of money spent and number of previous treatment episodes (see Appendix B-3). Clonidine's fourth-day stabilizing dose (i.e., how much Clonidine was needed \overline{PRN} on the fourth day of the detoxification protocol) and the length of time a patient used Clonidine might have been indicative of pre-treatment addiction level. Therefore, both the fourth-day stabilizing dose and length of Clonidine administration were used in the following as independent variables. Twenty-three patients in the research population used Clonidine as their detoxification medication. All of the following Pearson correlations in Table 37 were significant at $P < .05$ ($N=23$):

The significant relations among the variables in Table 37 were both logically and statistically related to pre-treatment level of opioid use and there was some overlapping across the two sets of variables.

Based on the previously stated assumptions regarding measurements of the biological level of opioid drug use and the above correlation relationships, a multiple regression was performed using an ASI rating of drug-use severity on entry to treatment as the dependent variable. Both the Clonidine fourth-day stabilizing dose

TABLE 37

SIGNIFICANT CORRELATION RELATIONSHIPS BETWEEN TIME AND DOSE OF CLONIDINE
AND VARIABLES LOGICALLY RELATED TO LEVEL OF OPIOID USE
(N=23)

<u>Variables Related to Drug-Use Level</u>	<u>Time on Clonidine r</u>
Years addicted	.55
Frequency of daily administration	.61
Weekly amount spent	.38
Monthly amount spent	.41
Number of previous treatment episodes	.49
Stabilizing dose of Clonidine	.51
	<u>Fourth-day Stabilizing Dose</u>
Years addicted	.36
Drug severity (ASI)	.53
Drug summary post treatment	.38
Time on Clonidine	.51

$p < .05$

and the time spent on Clonidine for detoxification were used as independent variables as seen below in Table 38:

TABLE 38
REGRESSION ANALYSIS OF TIME AND DOSE OF CLONIDINE USE--
PREDICTING PRE-TREATMENT DRUG USE SEVERITY RATING (ASI)
(N=23)

<u>Independent Variables</u>	Pre-treatment Drug-Use Severity Rating (ASI)			
	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Clonidine Stabilizing dose	.54	.54	.29	1.13*
Time on Clonidine	.12	.56	.32	0.30*
1 x 2 Interaction	.29	.61	.38	-.89*

*Sig. $P < .05$.

This regression in Table 38 demonstrates that both variables-- Clonidine stabilizing dosage and time on Clonidine--significantly contributed to the explanation of the variance of the dependent variable drug-use severity on entry to treatment. Additionally, the interaction term in Table 38 indicates there was a definite, robust interaction between time on Clonidine and fourth-day stabilizing dose, resulting in the combination of time and dosage offering the best explanation of the Pre-treatment drug-use severity variance. To explain this amount of

variance with a small N of 23 is a significant, important and robust finding. Regarding dose-related outcomes, the interaction of time and Clonidine dose as a detoxification procedure far outweighed methadone as a useful, valid and unbiased indicator of drug-use level on entry to treatment.

The next step was to determine whether this measurement of opioid addiction significantly related to dose-related drug-treatment followup outcome. Using dichotomous variables comparing patients on Clonidine to those who did not elect to use Clonidine as their detoxification medication, significant differences appeared neither on drug-using outcomes nor on process outcomes such as completing the inpatient program and/or entering the outpatient program.

However, when looking at drug-use at followup as assessed by the ASI (used in most regression analyses in this study), a problem occurred. Specifically, the number of subjects on Clonidine was twenty-three which might have been adequate for two independent variables since the Clonidine dose and time were strong continuous, concrete variables. However, when looking at drug-use outcomes at followup, it must be remembered that a full followup interview was obtained for 64 of the 101 subjects in this study. Consequently, due to missing data, the number of subjects for the regression dropped from 23 to 14 which did not adequately meet the requirements for the regression analysis. An N of 14 would make it very difficult to reach statistical significance. With this problem in mind, we proceed to Table 39.

TABLE 39

TIME AND DOSE OF CLONIDINE PREDICTING POST-TREATMENT
 DRUG USE SEVERITY RATING (ASI)
 (N=14)

Post-Drug Severity Rating ASI				
<u>Independent Variables</u>	<u>r</u>	<u>R</u>	<u>R²</u>	<u>Beta</u>
Stabilizing Dose on Clonidine	-.19	.19	.04	.76
Time on Clonidine	.25	.44	.19	1.46
1 x 2 Interaction	-.06	.57	.33	-1.93*

*Sig. (P<.05)

The interaction term in Table 39 significantly increased the amount of outcome variance accounted for and explained a great deal of the drug-use severity outcome variance. Although especially surprising when operating with such a small N where the probability of a significant increase in explained variance is low, therefore, viewing this as a preliminary analysis the length of time a patient remained on Clonidine times the fourth-day stabilizing dose predicted poorer drug use outcome at followup. With a larger N this finding probably would be significant and important for the explanation of the outcome variance.

These results plus a significant ($p < .05$) Pearson correlation ($r = .35$, $N = 14$) between fourth-day stabilizing dose and drug-summary post-treatment (where the drug summary is the sum of how many drugs used and how many days a patient used drugs in the month prior to the followup interview) gave strong support to this dose-related discussion.

CHAPTER 5

CONCLUSION

The goal of the present study was to evaluate the drug-abuse treatment program at a private psychiatric hospital located in the north eastern United States. During the period covered by this study, February 1982 to December 1982, it was found that the patient population undergoing treatment for drug abuse was atypical of those patient populations discussed in the available literature (see Chapter 2).

More specifically, the 101 patients originally included in the research population for this study tended to be white male professionals in their late twenties who earned almost \$45,000 per year. In addition, one might suspect a correlation existed between the patients' relatively high socioeconomic status and the cost of treatment--\$6,000 per week for a semiprivate room at the time of this study.

Besides the patient population and the cost, a number of other unusual factors were detected during the study period concerning the drug-abuse treatment program. First, this is one of the few hospital based inpatient programs for the treatment of drug abuse; although there are many programs for drug abusers, the overwhelming majority are outpatient programs.

Second, within a carefully designed treatment framework the patient was viewed as an individual whose personal history and problems should be, and were, the focus of intense scrutiny and followup attention.

Third, and perhaps of greatest significance, the program was staff-intensive, possessing abundant personnel and physical resources. For example, the treatment staff included social workers, ex-addict drug counselors, psychologists, psychiatrists, psychiatric nurses, and medical internists. Also, the hospital had its own laboratory where analyses were carried out of the patients' biochemical status and an ongoing research program was conducted. Modern, state-of-the-art medical equipment was employed and elegant furniture and modernistic paintings enhanced the appearance of the five hospital buildings including access to a well-equipped gymnasium.

The elaborate facilities and well-qualified treatment team were found to support, as noted in Chapter 1, a three-stage treatment strategy:

- a. inpatient evaluation, detoxification and stabilization (two weeks);
- b. inpatient drug-free therapy and rehabilitation (six weeks);
- c. outpatient reentry into the community.

The eight-week inpatient stage was found to be composed of continuous evaluation, reevaluation and therapy through different forms of group and individual meetings between patients,

patients and their family members and/or close friends, and patients and treatment-staff members.

In regard to the literature on the subject of drug-abuse treatment, the discussion in Chapter 2 showed that evaluation and treatment of drug addiction remains controversial. Methadone has achieved limited acceptance as a treatment agent, perhaps because of its relatively long involvement with drug-addiction treatment. More recent drug compounds such as Naltrexone, Clonidine and certain psychotropic drugs are still in the experimental stage, however promising they may have appeared to be in certain treatment environments.

One might tentatively conclude, with regard to the literature that many valuable, even pioneering, studies have been conducted with selected patient populations. A further step in building on previous studies might well be the widespread acceptance of generally agreed-upon evaluation criteria and standards.

In conducting the present study, as seen in Chapter 3, "Methodology," a three-part study design drew upon the following data base:

- a. pre- and post-treatment patient interviews incorporating the ASI, Drug History variables and a natural support system matrix;
- b. patient files and pharmacy records;
- c. the Brief Psychiatric Inventory;
- d. the Beck Depression Scale.

In order to gain patient acceptance and observe hospital routine the researcher was allowed to accompany treatment

staff members during their meetings with patients and at exclusively staff meetings. The inside view of the treatment program's operations was invaluable in obtaining patient cooperation.

Outcome

As seen in Chapter 4, "The Research Data" of the 101 patients in this research population, 51 were readdicted at followup (20 of whom reentered treatment prior to the followup interview). Forty-six were drug-free and data for 4 on this parameter was unobtainable. Seventy-four patients successfully completed the inpatient treatment protocol, 25 did not and 2 died. Of the 74 patients who completed the inpatient program 51 entered the outpatient program.

The results indicated that the longer a patient remained in treatment the more likely he was to be drug-free at followup, especially if the patient entered the outpatient program. These results suggested that outpatient involvement was a major component in the treatment success of these patients. These conclusions supported length of stay in treatment as one of the most substantial indicators of outcome in the literature. In other words, the longer a patient stays in treatment the greater the likelihood that he will be drug-free at followup.

Clinically, the implication is that a significant effort should be made by treatment personnel to encourage outpatient participation.

Antecedent factors that predicted length of stay in treatment were economic support status and the existence of a supportive conjugal dyad. The better the economic support of the patient at treatment entry, the longer his length of stay in treatment was likely to be. A supportive conjugal dyad also indicated a longer stay in treatment. Consequently, the presence of both variables yielded better treatment outcomes.

Antecedent factors that directly indicated outcome were legal involvement and type of preinduction drug of abuse. Greater legal involvement directly indicated poorer followup outcomes.

Of the variety of preinduction drugs of abuse methadone patients made up the largest proportion of treatment failures. When comparing heroin and methadone vis-a-vis outcome, those addicted to methadone were significantly more likely to be readdicted at followup than were heroin addicts. This fact should cause concern for proponents of methadone treatment, particularly professionals responsible for recruiting addicts--especially the young--into methadone maintenance treatment. Speedballing refers to a potent mixture of heroin and cocaine. Although not posing the treatment problems

presented by methadone addiction, speedballing accounted for the second largest group of treatment failures.

When comparing cocaine addicts to opioid addicts, the opioid addicts were significantly more likely to be readdicted at followup than were the cocaine addicts. It is interesting to note that age, sex, income and other drug-history variables did not play a role in these relationships.

The existence of positive treatment process variables such as length of stay in the inpatient program, successful completion of the inpatient program, entry into the outpatient program and length of stay in the outpatient program all contributed to more positive followup outcomes. Entry into outpatient and length of stay in the outpatient program accounted for the majority of the post-drug-use severity outcome variance explained in the hierarchical regression analysis (see page 71). These results indicated, that the longer a patient stayed in treatment the more successful he was likely to be at followup.

The sixty-four patients who were personally contacted for a followup interview were significantly more likely to be drug-free at followup than those who were not contacted directly. This result was consistent with other findings in the literature, and may have related to, for example, stability in living arrangements or desire on the part of the patient to be contacted at followup. Hopefully, future studies can further explore the significance of followup interviews beyond the limitations of the present study.

The Residualized Change Score Analysis

Residualized change scores were computed across the pre- and post-administrations of the ASI in seven life areas: medical severity, economic support status severity, alcohol severity, drug severity, legal severity, and family social severity. The purpose of this analysis was to determine in which life areas patients in the research population changed during the treatment and post-treatment periods.

The results show that medical severity did not change significantly, this is not unusual since longstanding medical problems are not usually amenable to change during a six-month period.

Economic support status severity, however, did change significantly as did alcohol severity, legal severity and family social severity--all of these variables being logically related to a drug-using lifestyle. However, neither drug severity nor psychiatric severity changed significantly. These outcomes suggest that perhaps diffused treatment goals might, indeed, have impacted on the patients' lives, but not, unfortunately, on their drug-abusing patterns or medical and psychiatric problems. These various changes were not interrelated with another measures; therefore, any assumption that drug use in and of itself causes problems in other life areas is oversimplified in terms of the findings (Lukoff, personal communication 1983).

Socialization Variables

The data from the present study support the critical periods theory of Kleinman and Lukoff (1980). This analysis indicated that

employment status, criminal involvement and support through a conjugal relationship affected treatment outcome either directly or in combination with treatment process variables.

The second critical period in the lives of drug addicts according to the above researchers encompasses age of first drug-abuse treatment contact and age of first arrest. The data in the present study support the truncated socialization hypothesis (Lukoff, 1974). Here, the earlier any of the above deviant behavior patterns occurs the more profound became the related behavioral problems.

For example, earlier identified drug abuse or legal problems occurring in the patient's life significantly related to low economic support status and poor conjugal relations. The earlier the first drug abuse contact occurred in the life of a patient, vis-a-vis a professional treatment agency, the more profound the (identified) drug-abuse history tended to be. With the occurrence of more prior drug abuse treatment episodes, it was more likely that the patient would be readdicted and/or have higher levels of post-drug-use severity at followup.

Implications for Social Work Treatment

The ecological perspective in social work provides a conceptual framework for program and practice implications related to the present study. According to Germain (1979), an ecological practice orientation ideally is one directed toward improving the transactions between people and environments in order to facilitate adaptive capacities

and improve the environments for all who function within them.

These findings herein suggest environmental and social interactions have direct effects on treatment compliance and outcome success.

These findings support the value of adolescent-directed drug-intervention programs stressing the need for adaptive social transactions between the adolescent and his family, friends and the education and criminal justice systems. These early intervention programs should be community-based and focused on the young patients and their family, social and community problems.

Conjugal associations and friendship networks (whether drug-using or not) relate to treatment outcome, supporting a social work treatment effort specifically emphasizing either positive conjugal support or separation from a spouse or friends who may create a negative treatment environment.

Psychological and Biochemical Treatment Strategies

Recidivism to addictive drug use levels following treatment usually occurs on impulse within the first three months' post-detoxification and inpatient treatment.

Those patients who experience significant psychiatric symptomology (that is, self-medicators) may be more prone to readdiction largely due to the symptom-reduction effects of illegal nonprescription drugs. According to Resnick (1979), self-medicators are those patients who initially become addicted due to alleviation of their own psychiatric symptoms, drop out early from treatment and

generally have less favorable followup outcomes.

McLellan (1980) also supports this contention in his research: specifically, those patients who enter treatment with high psychiatric symptom severity (according to the ASI) are the group less likely to have successful followup outcomes. Thus, self-medicators may be at higher risk of impulsive readdiction during the critical period of community reentry.

The Treatment Program

The inpatient program for drug abuse treatment had strong controls and intensive staff and patient support. The point here is that an outpatient community reentry protocol offering individual and group therapeutic support may be inadequate for many patients. Resnick (1979), in referring to the conditioned abstinence response hypothesis, suggested that, in addition to psychosocial support, drug abuse patients may need biochemical support for successful treatment outcomes.

The data resulting from the present study suggest that, in addition to psychosocial support, high psychiatric severity patients especially, may benefit from short-term biochemical (psychotropic medications, primarily antidepressants) support, when indicated, during the critical community reentry period when emotional lability is at its peak. Without biochemical support (in addition to a well-developed psychosocial reentry treatment strategy), a greater likelihood exists that the psychiatrically severe patient, in a period of increased emotional lability, will impulsively use illegal drugs for

their symptom-reduction effects and thus become readdicted.

A drug-free community reentry period, in effect, may be a necessary relearning period during which short-term psychotropic administration, when indicated, could function as a useful adjunct to a psychosocial outpatient community reentry treatment strategy.

These findings in this study indicated that this was especially true for those patients identified as self-medicators. These results underscored the great need in drug abuse treatment for a well-developed psychosocial and biochemical outpatient treatment strategy aimed at community reentry.

One of the areas for future research might be a randomized clinical trial comparing multiple treatment groups--i.e., drug, no drug, and high- and low-pathology groups--to determine the utility and efficacy of the treatment described in the present study. Such research ideally should employ strict controls on drug type, dosage, body weight and duration of drug administration. To achieving the goal of a more comprehensive assessment of the existence and nature of pathology, the DSM III could be used in combination with the ASI.

Clonidine Detoxification

The biological level of street addiction, or dose-related analysis, has suffered in the drug abuse literature from a lack of an accurate and reliable measurement standard.

In the present study, Clonidine dose times time interaction (compared to present assessment methods) appears to have served as an unbiased biochemical indicator of addiction level. The data suggest that this Clonidine index is capable of indicating dose-related

outcomes. Specifically, higher levels of opioid addiction at intake were inversely related to success rates in treatment. These analyses are, of course, preliminary and require further testing among varying populations and program environments where controls relating to dose, time and weight can be closely monitored.

Summary

All things considered, the drug-abuse treatment program was a viable, treatment alternative for drug-abuse problems. Generally, social and treatment process variables conformed to the existing drug-abuse literature. However, certain psychological variables did not conform, but this might have been due to the administration of psychotropic medications to patients with obvious psychological problems--thus changing the direction of expected results. Generally, in this study, there were no significant age or sex differences regarding outcome among this research population.

The drug-abuse patient who was most likely to be successful at outcome had a strong economic support status, a supportive conjugal mate, less criminal involvement, entered the outpatient program, and most likely took psychotropic medications on discharge to outpatient status.

This patient profile is directly related to a longer time in treatment and successful treatment outcome.

One might remember at this juncture that, in general, there have been two major treatment approaches to the drug abuse patient: a) methadone, which stresses only biochemical processes and operates

under the implicit assumption that psychosocial causation is unimportant to treatment outcome, and b) drug-free outpatient and therapeutic community approaches which have stressed psychosocial processes that essentially bypass biochemical interventions.

The data in this study would seem to underscore the importance of an interactive view in drug-abuse treatment, that is, one that offers a combination of social, psychological and biochemical treatment modalities yielding an interactive treatment strategy capable of meeting or fulfilling the treatment needs of drug-abuse patients. One hopes, then, that the present study has contributed to a more complete understanding of the problems associated with the treatment of drug-abuse patients.

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APPENDICES

APPENDIX A
RELIABILITY RATING
FOR THE
ADDICTION SEVERITY INDEX

An Improved Diagnostic Evaluation Instrument for Substance Abuse Patients

The Addiction Severity Index

A. THOMAS McLELLAN, Ph.D., LESTER LUBORSKY, Ph.D., GEORGE E. WOODY, M.D.,
AND CHARLES P. O'BRIEN, M.D., Ph.D.¹

The Addiction Severity Index (ASI) is a structured clinical interview developed to fill the need for a reliable, valid, and standardized diagnostic and evaluative instrument in the field of alcohol and drug abuse. The ASI may be administered by a technician in 20 to 30 minutes producing 10-point problem severity ratings in each of six areas commonly affected by addiction. Analyses of these problem severity ratings on 524 male veteran alcoholics and drug addicts showed them to be highly reliable and valid. Correlational analyses using the severity ratings indicated considerable independence between the problem areas, suggesting that the treatment problems of patients are not necessarily related to the severity of their chemical abuse. Cluster analyses using these ratings revealed the presence of six subgroups having distinctly different patterns of treatment problems. The authors suggest the use of the ASI to match patients with treatments and to promote greater comparability of research findings.

The mental health field has traditionally profited from attempts to divide patients into homogeneous groups based upon relevant symptomatology. As in the examples of psychosis and especially affective disorders, such diagnostic classifications have added focus to research efforts and improved the specificity and effectiveness of treatments. However, within the field of substance abuse treatment, efforts to evaluate and classify the patient population have been far less useful. In our view, these less than satisfactory attempts are due in part to a somewhat restricted view of addiction, and in part to failure in developing a standardized, reliable, and valid evaluation instrument which would be suitable for use with both alcoholic and drug-addicted patients. The design for such an instrument was first proposed in a National Institute of Drug Abuse Conference on Treatment Efficacy (14, 30) and has led to the development of a multidimensional clinical research instrument for addicted clients, the Addiction Severity Index (ASI) (13, 26, 27). The present paper reviews some of the existing problems

with diagnostic evaluation in the field of substance abuse and reports the results of reliability, validity, and patient classification studies using the ASI.

If addiction is considered as a unitary treatment problem manifested by a psychophysiological dependence upon a particular chemical agent, then the problem is adequately described by the symptoms of amount, duration, and frequency of chemical use. Emphasis upon these symptoms has led to the traditional diagnostic classifications of alcoholic *vs.* drug addict. However, within recent years there has been increasing recognition that the dichotomous typology is oversimplified (8, 14), is not systematically related to treatment outcome (1, 31), and does not correspond well with actual patterns of abuse (2, 3, 24).

Despite general recognition of the variation and complexity of treatment problems within the substance abuse population (12, 33, 37), it has been difficult and time consuming to develop individual analyses of each patient's problems. Although a number of particularly useful instruments have been developed to assess the nature and extent of actual chemical use (29, 34), very few provide a comprehensive analysis of addiction-related treatment problems (32, 35, 38), and virtually none have been developed for use as a diagnostic clinical instrument (32).

An examination of more than 70 admission surveys, questionnaires, and indexes currently in use suggested several major problems from our perspective. Possibly the most serious of these is the restrictive concentration on pattern-of-chemical-use information (*i.s.*, refs. 10, 18, 36). Whereas most of these instruments provide

¹ Department of Psychiatry, University of Pennsylvania, Philadelphia, and Philadelphia Veterans Administration Medical Center. Send reprint requests to Dr. McLellan, Drug Dependence Treatment Service, Veterans Administration Hospital, University and Woodland Avenues, Philadelphia, Pennsylvania 19104.

This work was supported by Health Services Research and Development Project #284 from the Veterans Administration and was developed in part from the Pilot Alcohol/Drug Abuse Treatment Project of the Veterans Administration. The cooperation and assistance of the Substance Abuse Treatment Unit of the Coatesville Veterans Administration Medical Center is gratefully acknowledged.

excellent objective information concerning amount, duration, and pattern of chemical use, they generally do so at the cost of excluding or seriously limiting information on associated treatment problems. For example, a large number of these instruments lack items which illustrate the patient's pretreatment living conditions, family supports, and work and educational skills. These are the social assets and liabilities (23) which may in large part predict his post-treatment status (22).

An additional problem which affects the content of even the more comprehensive instruments is the influence of a particular approach, orientation, or strategy throughout all items. For example, an admission interview which examines the patient's history of addiction from a psychological perspective (15, 17) may be heavily loaded with psychologically oriented questions and concentrate only upon those aspects of the addiction which are amenable to a psychological interpretation. This often results in a biased picture of the patient's syndrome by omission of relevant information which may fall outside the particular orientation of the instrument. In its extreme form this is most clearly shown by the absence of drug abuse questions in alcohol-oriented questionnaires, or the cursory treatment of alcohol abuse in drug-oriented scales.

Several problems are also noticeable in the organization and administration of many substance abuse instruments. Many of the more comprehensive interviews are not sufficiently integrated to permit a summarized account of specific treatment problems. Others make no attempt to separate objective items from subjective patient reports. Finally, these instruments are often quite lengthy and may require administration by a professional or highly trained interviewer.

In summary, our evaluation of the majority of substance abuse interviews currently in use suggested that many lacked the organization which would permit the computer coding necessary for the researcher, whereas others lacked the orientation and/or the information necessary for a rapid and accurate clinical evaluation. These problems, plus our need for a brief, easily administered format and the need within the field for an analytic approach to the addiction syndrome, suggested the design for an alternative evaluation instrument.

Description of the Addiction Severity Index²

Design

The design of the ASI is based upon the premise that addiction must be considered in the context of

those treatment problems which may have contributed to and/or resulted from the chemical abuse. The objective of the ASI is to produce a problem severity profile of each patient through an analysis of six general areas which commonly result in treatment problems. These include: a) chemical abuse; b) medical; c) psychological; d) legal; e) family/social; f) employment/support.

Within the ASI, severity is defined as "need for additional treatment," and offers a potentially different estimate of severity than other perspectives. For example, the patient who has very poor uncorrected vision, but has been fitted with glasses which allow him to see adequately, would still be considered to have a severe vision problem if severity were defined as "deviation from optimal function." However, the ASI estimate would be quite low since no *additional* treatment would be required. This operational definition of severity was adopted since it relates directly to the primary mission of health care facilities: delivery of treatment.

The severity of each of the treatment problem areas is assessed individually and independently through two types of information.

Objective Information

The data collected within the objective section detail the number, intensity, and duration of problem symptoms in each of the six areas. Verifiable data from objective questions as well as test results, laboratory reports (where appropriate), physical examinations, and psychological interviews are collected to develop a factual representation of the patient's life pattern in each of the six areas.

Patient's Judgments of Severity

The second of each problem area is designed to measure the subjective intensity of problem symptoms and allows him to participate directly in the evaluation of his treatment needs. The patient is requested to rate, using a 5-point scale, the extent to which he has been bothered by problems in each of the six areas, and the extent to which he feels that treatment for those problems is important, as follows:

- 0 = not at all
- 1 = slightly
- 2 = moderately
- 3 = considerably
- 4 = extremely.

The time frame for these evaluations is the previous 30 days, permitting a recent assessment of perceived problem severity as well as a time-based rating which may be compared with subsequent ratings following treatment.

² The ASI and the manual for its use are available from the senior author.

Severity Ratings

The data from the objective information and patient report section of each problem area are integrated by the interviewer to produce the severity ratings. These six severity ratings form the basis for the clinical profile of each patient, providing a diagnostic and evaluative summary of the patient's treatment needs. In this respect the ASI has utilized the approach taken by the Health-Sickness Rating Scale (HSRS; refs. 19-21). Both instruments rely on objective information and analyses of problem components as a means toward developing clinical ratings of severity. Whereas the HSRS uses a 100-point scale anchored by descriptions based upon seven criteria of mental health, the ASI uses a 10-point [0 to 9] unanchored scale to achieve severity estimates.

Administration

The ASI may be administered to all types of substance abuse clients by an easily trained technician in an average time of 25 to 30 minutes. The interview was designed for initial use shortly after admission to treatment, and then for repeated administrations at subsequent follow-up periods. The ASI is administered most effectively under conditions of privacy and confidentiality where the interviewer maintains an atmosphere of professional concern and warmth. A brief introduction to the interview, in which the technician explains the design of the ASI and the use of the patient rating scale, is considered necessary to the development of a productive and valid interview.

The results of 750 admission interviews from 421 alcoholics and 329 drug addicts indicate that the ASI is applicable to, and often appreciated by, the majority of patients. Many have reflected positively upon the patient estimate sections, commenting that they have been able to focus upon the individual aspects of their addiction. Only 11 of these 750 interviews were discarded for invalid information, and only 14 others were eliminated due to inadequate comprehension by the patients.

Validity

We have performed preliminary assessments of validity for each of the problem severity scales by correlating the scale scores with other independent items having clear relationships to the particular problem area. These correlation coefficients are presented in Table 1. As can be seen, each of the severity scales correlates with the comparison items at midrange or higher levels, and in the expected direction, with the comparison items. Although these early results are encouraging, it should be clear that these data are only indicative of presumptive or face validity. A more comprehensive assessment of validity requires the scales to be compared with several types of items. The scales are then expected to show high positive correlation with items measuring the same trait, low correlations with neutral or orthogonal items, and high negative correlations with items measuring antithetical or mutually exclusive traits. This measure of convergent validity (5, 6, 7) is the most conservative index and is a strategy which we are currently pursuing.

TABLE 1
Validity of ASI Scales: 524 Male Veteran Substance Abuse Clients

Scale	Independent Variables	Correlation Coefficient
Abuse	Times overdosed, blackout, seizure	.72
	Total years of regular use of alcohol/drugs	.66
	Amount spent on alcohol/drugs per week	.54
Medical	Number of current medical symptoms, VA system review	.69
	Amount of medical disability/pension	.60
	Number of previous hospitalizations	.58
Employment/support	Ratio of earned to unearned income, past month	-.64
	Months of continuous full-time work	-.62
	Hollingshead SES rating	.56
Family/social	Proportion of friends with abuse problems	.52
	Proportion of family with abuse problems	.48
	Number of close friends	.43
Legal	Total convictions	.71
	Total months incarcerated	.68
	Proportion of income gained legally	.62
Psychological	Maudsley <i>N</i> Scale	.64
	Beck Depression Inventory	.61
	Hamilton Depression Scale (<i>N</i> = 111)	.58

Reliability Testing

The reliability of the Addiction Severity Index was initially assessed during the performance of our evaluation study (25) and was reassessed periodically during that study and in two others (28, 40). In the basic design one research technician has conducted an interview while three others rated the videotaped presentation. The results to be reported are based upon the judgments of these four baccalaureate level research and rehabilitation technicians with little previous interviewing experience. The data for 25 male veteran patients rated by these judges are presented in Table 2.

The first line of Table 2 shows the mean per judge reliability coefficients (Spearman-Brown formula; see ref. 39) calculated for the first 16 patients interviewed. As can be seen, the coefficients are particularly high given that the judges had had very little experience with substance abuse patients or the ASI. Although it seems likely that the forced uniformity of the procedure (one interview instead of four) may have artificially enhanced the reliability, we were mainly concerned that the high coefficients were the result of a systematic bias developed over the course of training in the inexperienced judges. To test for this possibility, we repeated the reliability assessment procedure following a 2-month, and then a 4-month period of independent on-the-job interviewing experience by the four judges. The results for these additional reliability tests are presented in the second and third lines of Table 2, and, as can be seen, no significant decrements were observed in the average reliabilities for each scale.

Given the generally high level of reliability demonstrated, we attempted to determine whether there were significant differences in reliability between several obvious subgroups of our substance abuse clients.

The second section of Table 2 presents reliability coefficients for these 25 patients divided into alcoholic ($N = 14$) and drug addict ($N = 11$) subgroups. Again the reliability results for each group are quite high. These subjects were then divided on the basis of age and by their total (sum of six scales) severity scores, to determine the extent of difference in reliability of severity estimates. The results of these comparisons are presented in the third and fourth (respectively) sections of Table 2, and again the coefficients remain high, with no significant differences between the groups on any of the scales.

Basis for Scale Reliability

Given the encouraging results from our reliability studies, it became important to determine the basis for these findings. For example, it was possible that high reliability for a scale was produced through a restricted range of scoring by the judges. That is, the full range of the severity scale (10 intervals) may not have been generally useful to the judges, and they may have concentrated their estimates around mid-level scores, thereby reducing the functional range and increasing the probability of interjudge agreement. To test this possibility we examined the frequency distribution of scores on each scale for each of the four judges, for a total of 325 male veteran alcohol and drug abuse patients (approximately 80 clients per judge). The data indicated that each judge had used each value of each scale, except the substance abuse scale, and with that exception scores on all scales were normally distributed across patients for each judge. Since the admission complaint of all patients in the study was substance abuse, we expected to find a somewhat reduced functional range in that scale. As expected, the distribution of values was skewed toward higher severity estimates for all judges (mean = 6.5; SD 1.7), and the range in values was from 3 to 9.

TABLE 2
Inter-Rater Reliability Coefficients on Problem Severity Ratings*

Test	Substance Abuse	Employment/Support	Medical	Legal	Family/Social	Psychological	Average
(Sept.) Subjects 1-16	.90	.89	.92	.88	.85	.92	.896
(Nov.) Subjects 17-19	.89	.90	.92	.89	.86	.91	.906
(Jan.) Subjects 20-25	.91	.91	.90	.90	.86	.92	.906
All subjects 1-25	.90	.90	.92	.89	.86	.92	.918
Alcoholics ($N = 14$)	.90	.91	.93	.88	.85	.92	.908
Drug patients ($N = 11$)	.91	.88	.91	.90	.87	.91	.906
Age <35 ($N = 11$)	.90	.89	.91	.90	.84	.89	.886
Age >35 ($N = 14$)	.91	.91	.91	.88	.87	.93	.912
Cumulative severity score >30 ($N = 15$)	.90	.91	.93	.88	.86	.94	.915
Cumulative severity score <30 ($N = 10$)	.89	.88	.91	.89	.85	.90	.886

* Ratings were based upon 4 judges; per judge reliability coefficients were calculated by the formula (39):

$$\frac{MS_b - MS_w}{MS_b + (K - 1) MS_w} = R.$$

These data suggested that the high reliabilities were not due to a restricted range of the severity estimates, since each judge's scores were normally distributed on five of the six scales. However, it was still possible that the severity estimates were being influenced to a large extent by one or two items within each problem area, and that the high interjudge agreement was due more to the influence of these few powerful items than to the method of problem analysis. To test this possibility we performed a stepwise multiple regression analysis (9, 11) using the items from each problem area to account for (predict) variation in the problem severity rating. The stepwise procedure incorporates that item which accounts for the maximum amount of variation first, and then adds additional items to the regression equation in a hierarchical manner to produce that order and number of items which maximally accounts for variation in the dependent variable. The results of these analyses are presented in Table 3, which includes (in order) the top three or four items for each scale, and the proportion of variance is explained (R^2). As can be seen, this item analysis indicates that the extent to which a scale rating may be accounted for (predicted) by the scale items varies according to the scale. For the medical and psychological scales, the amount of variance accounted for is rather high (.71 and .83, respectively), whereas the remaining four scales show relatively low levels of predictiveness even from the best combination of the most robust items. This suggests that a certain amount of clinical judgment is

required for these estimates in all problem areas, but especially in the substance abuse, legal, employment/support, and family/social scales.

In an additional analysis we asked the four judges to indicate those items which they felt were most important for developing their estimates of severity in each problem area. We then compared the items selected by the judges with the items selected from the stepwise regression analysis. Results of these comparisons were remarkably alike between the judges ($r = .71$), and similar to the item analysis results ($r = .80$), indicating that the *method* of rating severity is quite uniform for all judges, and that the items the judges say they are using are the ones actually used.

With regard to these results, it seems clear that the high reliability shown in the severity estimates is not due merely to the powerful effect of a few items, even in those scales which do show a high cumulative R^2 . This suggests the importance of the interviewing process for determining problem severity and therefore makes the high reliability results even more surprising considering the prior backgrounds of the judges. In an attempt to examine the role of the interview process in determining problem severities, we assessed scale reliabilities in interviews which were replayed on audiocassette *but not seen*, as well as in situations where only the completed items were given to the judges without any interview at all. The per judge estimates of reliability for the same four judges fell to .71 in the nonviewing interview condition, and to .58 in the no

TABLE 3
Item Analysis of ASI Scale Ratings (Stepwise Multi-Regression)

Scale	Best Variables	Cumulative R^2
Substance abuse	How important to you is treatment for substance abuse?	.30
	Total years regular use of drugs and alcohol?	.37
	Total days use of drugs and alcohol past month?	.42
	Total times treated for substance abuse?	.44
Medical	How important to you is medical Rx?	.52
	Do you have physical problems that interfere?	.66
	How many days in past month have you been bothered?	.71
Employment/support	How important to you is employment counseling?	.34
	How many days paid for working past month?	.45
	Usual employment pattern past 3 years?	.49
Legal	How many months incarcerated?	.23
	Are you awaiting trial or sentence?	.36
	Total charges in life?	.44
	How important is counseling?	.51
Family/social	How many days in past month were you troubled?	.34
	How many close friends?	.46
	Total years in present living situation?	.51
Psychological	How many days in past month were you troubled?	.62
	Total number of psychiatric symptoms in life?	.77
	How important to you is psychiatric Rx?	.83

interview condition. These data again demonstrate the necessity for a structured clinical interview in making the severity estimates.

One additional comment is necessary regarding the nature of the items found to be most powerful in accounting for the severity ratings. For each of the scales, at least one of the patient report items made a significant contribution to the cumulative R^2 . For example, the item "How important to you now is treatment for substance abuse?" produced a multiple R^2 of .30 alone. Thus, the patients' subjective reports of their problems were found to be prominent in the interviewer's estimates of severity. This again underscores the necessity of the clinical aspects of the interview and suggests the importance of including patient reports with objective items in formulating the severity estimates.

A final issue raised by the uniformly high reliability across the six problem scales is the extent to which the problem areas are interrelated. If the problem areas and their severity estimates are highly related to each other, then the determination of one severity estimate (*i.e.*, substance abuse severity) might exert a controlling influence upon the other scales, thereby accounting for their high reliabilities. In order to determine the nature and extent of the relationships among the scales, correlation coefficients were calculated on the ASIs of 524 male veteran substance abuse clients (Table 4). As can be seen, the intercorrelations are generally quite low, with the exception of the psychological and family/social scales (.41), indicating a considerable degree of independence among the scales. This result was much different from our experience with the Health-Sickness Rating Scale, in which the components of mental health tended to be highly intercorrelated and highly correlated individually with the global rating (19). As a further test of these relationships, we performed the same analysis with several obvious subgroups of the population. These included alcoholics, drug addicts, those over 45 years old, those less than 45 years old, blacks, and whites. Although several small differences in the interrelationships of these ratings were noticed between the subgroups, the majority of the coefficients remained quite low.

The independence of the six problem areas indicates that the treatment problems presented by addicted

patients are not necessarily related to the severity of their chemical abuse. This result in particular suggests that the proposed method of analyzing a patient's total condition by the severity of his component problems is both reasonable and necessary for the development of an effective treatment plan.

Utility of the ASI

The Addiction Severity Index was developed to provide a more comprehensive and effective method for analyzing the total complex of problems found in the substance-abusing patient. It was hoped that through this method we would be able to differentiate patients on the basis of their treatment needs and provide more directed forms of intervention to more homogeneous groups of patients. In order to assess the discriminative ability of the ASI we compared 354 male veteran alcoholics with 110 male veteran drug addicts across the six scales. The mean values of the ASI scales are presented for both groups in Table 5. As expected, the groups were significantly different with regard to the severity of the medical problems (due to the greater age, and longer period of abuse). However, when the severity of the remaining four problem areas is considered, there are no statistically significant differences between the two groups. This does not necessarily suggest that the patients in these two groups are similar, but rather that the extent of variation within each group is greater than the differences between the groups. In other words, although the distinction between alcoholic and drug abuser may account for some variation in legal and medical problems, this classification does not appreciably reduce within-group variation in the other treatment prob-

TABLE 5
ASI Severity Ratings: Mean Values for 464 Male Veteran Alcohol and Drug Patients

Scale	Alcohol	Drug
N	354	110
Abuse	6.5	6.7
Medical	3.4	2.0*
Employment/support	4.4	4.8
Legal	2.3	4.0*
Family/social	4.6	4.6
Psychiatric	4.2	4.3

* Difference significant at $p < .01$.

TABLE 4
ASI Severity Ratings: Correlation Coefficients for 524 Male Veteran Substance Abuse Patients

	Medical	Employment/Support	Legal	Family/Social	Psychological
Abuse	.10	.19	.09	.14	.18
Medical		.16	.06	.16	.24
Employment/support			.27	.21	.17
Legal				.15	.11
Family/social					.41

lems. It should be noted that this interpretation is consistent with the findings from our analysis of ASI scale intercorrelations (see Table 4), and these two results combine to suggest that our substance abuse population may be composed of several subgroups of patients, each with a somewhat different pattern of treatment problems.

As a test of this possibility, and as a means of assessing the utility of the ASI in differentiating patients into relatively homogeneous subgroups, we performed a cluster analysis on 150 randomly selected patients (75 alcohol, 75 drug) using their six ASI scale values as independent variables. In the particular type of cluster analysis selected (4, 16), groups (clusters) of patients are formed by minimizing the difference (Euclidean distance) between values on each of the scales within the clusters and maximizing the differences in mean values of the scales between clusters. Since we had no theoretical or mathematical rationale for variable weighting of the scale values, all six were treated equally in the analysis. Prior to presentation of the results, it should be noted that this method is only one type of cluster procedure (11, 16) and will produce systematically different results from methods which group on the basis of correlations or covariances between variables.

The results of this analysis are presented in Table 6, which shows the resulting six statistically different ($p < .01$) clusters and the mean values for their six problem severity scales. The differences between clusters in the scale severity scores explain in large part the low intercorrelations between the scales when the data are ungrouped (Table 4). Analyses of scale intercorrelations within each of these clusters indicate rather high (.75 to .90) relationships among three or four scales within each cluster.

The mean severity profiles of the clusters are interesting, since they correspond with several "types" of patients which are commonly seen during treatment. For example, cluster 4 corresponds to the medical model of addiction as a progressive syndrome. The average profile for this group is demonstrative of patients with significant problem severity in all aspects of their condition. In contrast, cluster 3 depicts patients with a high substance abuse severity but few additional problems. Cluster 5 is especially noteworthy,

since the mean profile of this group indicates that although substance abuse may be their presenting complaint it is not their most severe treatment problem.

In summary, the results of this cluster analysis do suggest the utility and effectiveness of the ASI as an evaluative method for differentiating clients into subgroups with different patterns of treatment problems. It is beyond the focus of this paper to pursue in depth the rationale and methodology involved in cluster analysis. We have considered several clustering strategies with multiple methods for combining cases, and these results will be presented in another paper. It should be clear that the particular clusters presented here may not be indicative of groups found in other clinics, especially programs with adolescents, women, nonveterans, etc. However, the data suggest that the ASI scales can be effective in differentiating a substance abuse population into whatever appropriate subgroups exist.

Conclusions

We have attempted to show the need for a standardized clinical research instrument suitable for general use in the study and treatment of substance abuse. This instrument should have the capacity to analyze the total addiction profile into its component treatment problems, and to estimate reliably and validly the severity of each of these problems. Our early results with the ASI suggest that it may have the potential for being such an instrument.

Clearly, much work is still required to establish further the reliability and validity of the instrument with other patient populations and other teams of judges. Despite the considerable work remaining, we expect that the ASI should fill the need for an instrument to assist the clinician in integrating and summarizing the background and current status of patients. In addition, we feel the ASI may be of special assistance in determining a treatment plan for the individual client.

We are also encouraged by the potential benefit of the ASI to research in the field of addiction. After proper standardization we would hope that the ASI would be suitable for general use in clinical research and thus facilitate greater comparability of results

TABLE 6
ASI Severity Ratings: Analysis of Patient Subtypes in 150 Male Veteran Substance Abuse Patients (75 Alcoholic, 75 Drug Addicted)

Cluster	N	Abuse	Medical	Employment/Support	Legal	Family/Social	Psychological
1	40	6.5	1.5	5.5	3.5	5	2
2	32	7	2	4.5	1	5	5.5
3	27	6	2	2	1.5	1.5	2
4	25	7	5	6.5	5	6	7
5	14	5	1	2.5	4	5.5	6.5
6	12	5	4.5	2	5	5	5

(34). In addition, an instrument such as the ASI may permit more effective matching of patients at the start of experimental treatments and a more comprehensive evaluation of post-treatment outcome.

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APPENDIX B.
EXPLANATION OF DRUG CLASS

EXPLANATION OF DRUG CLASS

1. Heroin: opiate, that is usually intravenously administered.
2. Program methadone: oral opioid = (synthetic opiate) that is administered in mgs doses from government-sponsored clinics.
3. Street methadone: the program methadone that finds its way to the street.
4. Cocaine: a nonopioid with analgesic properties.
5. Polyopioid: oral and IV administration of synthetic prescription opiates such as codeine, dilaudid, percodan. These may be obtained through prescription or through illegal means.
6. Speedball: a combination of heroin and cocaine administered intravenously.
7. Hits: a combination of codeine and doridian--both having analgesic and sedative effects--taken orally.

APPENDIX C1
CONSENT FORM

Fair Oaks Hospital
Consent to Participate in a Clinical Research Study

You are invited to participate in an exploratory study which is trying to evaluate the success of our drug abuse program in the treatment of opiate addicts. While this study will not benefit you directly in this hospitalization, it may help us improve upon what we already know about who benefits most and who benefits the least from our treatment program. This study may help the program improve itself. By giving your consent you allow Dr. Gold, Mr. David Ockert, Dr. Extein or Dr. Annitto to copy and retain your pharmacy records, outpatient program attendance and outpatient drug abuse records and speak to you by telephone at 3-6 month intervals to find out how you are doing. Your records and all information about you will be confidential, filed and stored by patient number and not by name. Your consent to a video taped Addiction Severity Interview (ASI) is also requested. Once this tape is rated and used in your treatment by Dr. Annitto and the program it will be erased. The tape will only be saved if you request that it be retained as part of your medical records in writing prior to FOH discharge. Your consent to this study is voluntary. If you decide not to become involved in this study your decision will not effect any current or future treatment here at FOH. Your name or identifying information will not be used in any paper or book written about this study. If you have any additional questions whatsoever about the purpose or nature of this study please ask before signing.

The purpose of this study has been explained to me. I understand this study and give my consent to become involved in this study. I have had an opportunity to ask questions and have had my questions answered to my satisfaction or I have no questions.

_____ (patient name) _____ (date)

_____ (witness) _____ (date)

APPENDIX C2
DRUG HISTORY VARIABLES
PROCESS VARIABLES

FAIR OAKS HOSPITAL
INTAKE DATA FORM FOR DRUG USERS

158

NAME _____ PHONE _____ AGE _____

ADDRESS _____

CHART NUMBER: _____

- 1) Age of first drug use _____
- 2) Age of onset of opioid use _____
- 3) Years addicted _____
- 4) Age at first treatment contact _____
- 5) Age at first arrest _____ Charge: Narcotic _____ Non narcotic _____
- 6) Pre-induction drug use:
 - a. Heroin _____
 - b. Methadone: Program _____ Street _____
 - c. Cocaine _____
 - d. Alcohol _____
 - e. Other _____
- 7) Level of use: Frequency per day _____ Weekly \$ _____ Program meth. _____ mg.

PROCESS DATA:

- 1) Time on clonidine _____
Average stabilizing dose (fourth day) _____
- 2) Time on naltrexone _____
Number of naltrexone Administrations/DOSF _____
- 3) Other drugs used _____

- 4) Treatment contacts: Family group _____ Multiple family group _____

APPENDIX C3
ADDICTION SEVERITY INDEX

SUMMARY OF PATIENT'S RATING SCALE

- 0 - Not at all
- 1 - Slightly
- 2 - Moderately
- 3 - Considerably
- 4 - Extremely

ADDICTION SEVERITY INDEX

SEVERITY RATINGS

The severity ratings are interviewer estimates of the patient's need for additional treatment in each area. The scales range from 0 (no treatment necessary) to 9 (treatment needed to intervene in life-threatening situation). Each rating is based upon the patient's history of problem symptoms, present condition and subjective assessment of his treatment needs in a given area. For a detailed description of severity ratings' derivation procedures and conventions, see manual.

INSTRUCTIONS

1. Leave No Blanks - Where appropriate code items: X = question not answered
N = question not applicable
Use only one character per item.
2. Item numbers printed in red are to be asked at follow-up. Items with a red asterisk are cumulative and should be rephrased at follow-up (see Manual).
3. Space is provided after sections for additional pertinent information.

GENERAL INFORMATION

I.D. NUMBER

LAST 4 DIGITS OF SSN

DATE OF ADMISSION

DATE OF INTERVIEW

TIME BEGUN :

TIME ENDED :

CLASS:

- 1 - Intake
- 2 - Follow-up

CONTACT CODE:

- 1 - In Person
- 2 - Phone
- 3 - Mail

ORIGIN:

- 1. Pvt. Psych/Psy
- 2. Pvt. MD/Other
- 3. MMTP
- 4. EAP
- 5. Self Treatment

TREATMENT EPISODE NUMBER

INTERVIEWER CODE NUMBER

SPECIAL:

- 1 - Patient terminated
- 2 - Patient refused
- 3 - Patient unable to respond

NAME _____

CURRENT ADDRESS _____

GEOGRAPHIC CODE

1. How long have you lived at this address? yrs. mos.

2. Is this residence owned by you or your family?

0 - No 1 - Yes

3. DATE OF BIRTH

4. RACE

- 1 - White (Not of Hispanic Origin)
- 2 - Black (Not of Hispanic Origin)
- 3 - American Indian
- 4 - Alaskan Native
- 5 - Asian or Pacific Islander
- 6 - Hispanic - Mexican
- 7 - Hispanic - Puerto Rican
- 8 - Hispanic - Cuban
- 9 - Other Hispanic

5. RELIGIOUS PREFERENCE

- 1 - Protestant 4 - Islamic
- 2 - Catholic 5 - Other
- 3 - Jewish 6 - None

6. Have you been in a controlled environment in the past 30 days?

- 1 - No
- 2 - Jail
- 3 - Alcohol or Drug Treatment
- 4 - Medical Treatment
- 5 - Psychiatric Treatment
- 6 - Other _____

7. How many days?

TEST RESULTS

Shipley

C.Q.

I.Q.

Beck

Total Score

62

CARD 80

SEVERITY PROFILE

9									
8									
7									
6									
5									
4									
3									
2									
1									
0									
PROBLEMS	MEDICAL	EMP/SUP	ALCOHOL	DRUG	LEGAL	FAM/SOC	PSYCH		

I.D.

1. How many times in your life have you been hospitalized for medical problems? *(Include o.d.'s, d.t.'s, exclude detox.)*

2. How long ago was your last hospitalization for a physical problem? yrs. mos.

3. Do you have any chronic medical problems which continue to interfere with your life?

0 - No 1 - Yes

4. Are you taking any prescribed medication on a regular basis for a physical problem?

0 - No 1 - Yes

MEDICAL STATUS

5. Do you receive a pension for a physical disability? *(Exclude psychiatric disability.)*

0 - No
1 - Yes _____
Specify

6. How many days have you experienced medical problems in the past 30?

FOR QUESTIONS 7 & 8 PLEASE ASK PATIENT TO USE THE PATIENT'S RATING SCALE.

7. How troubled or bothered have you been by these medical problems in the past 30 days?

8. How important to you now is treatment for these medical problems?

INTERVIEWER SEVERITY RATING

9. How would you rate the patient's need for medical treatment?

CONFIDENCE RATINGS

Is the above information significantly distorted by:

10. Patient's misrepresentation?

0 - No 1 - Yes

11. Patient's inability to understand?

0 - No 1 - Yes 20

COMMENTS

1. Education completed *(GED = 12 years)* yrs. mos.

2. Training or technical education completed mos.

3. Do you have a profession, trade or skill?

0 - No
1 - Yes _____
Specify

4. Do you have a valid driver's license?

0 - No 1 - Yes

5. Do you have an automobile available for your use? *(Answer No if no valid driver's license.)*

0 - No 1 - Yes

6. How long was your longest full-time job? yrs. mos.

7. Usual (or last) occupation.

(Specify in detail)

8. Does someone contribute to your support in any way?

0 - No 1 - Yes

9. *(ONLY IF ITEM 8 IS YES)* Does this constitute the majority of your support?

0 - No 1 - Yes

EMPLOYMENT/SUPPORT STATUS

10. Usual employment pattern, past 3 years.

1 - full time (40 hrs/wk)
2 - part time (reg. hrs)
3 - part time (irreg., daywork)
4 - student
5 - service
6 - retired/disability
7 - unemployed
8 - in controlled environment

11. How many days were you paid for working in the past 30?

(Include "under the table" work.)

How much money did you receive from the following sources in the past 30 days?

12. Employment *(net income)*

13. Unemployment compensation

14. DPA

15. Pension, benefits or social security

16. Mate, family or friends *(Money for personal expenses).*

17. Illegal

18. How many people depend on you for the majority of their food, shelter, etc.?

19. How many days have you experienced employment problems in the past 30?

FOR QUESTIONS 19 & 20 PLEASE ASK PATIENT TO USE THE PATIENT'S RATING SCALE

20. How troubled or bothered have you been by these employment problems in the past 30 days?

21. How important to you now is counseling for these employment problems?

INTERVIEWER SEVERITY RATING

22. How would you rate the patient's need for employment counseling?

CONFIDENCE RATINGS

Is the above information significantly distorted by:

23. Patient's misrepresentation?

0 - No 1 - Yes

24. Patient's inability to understand?

0 - No 1 - Yes 71

COMMENTS

I.D. 1

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DRUG/ALCOHOL USE

CODE #

CODE #	Description	PAST 30 DAYS			LIFETIME USE		
		DAYS	YRS.	MOB.	YRS.	MOB.	MOB.
*01	- Alcohol - Any use at all						
*02	- Alcohol - To intoxication						
*03	- Heroin						
*04	- Methadone						
*05	- Other opiates/analgesics						
*06	- Barbiturates						
*07	- Other sed/hyp/tranq.						
*08	- Cocaine						
*09	- Amphetamines						
*10	- Cannabis						
*11	- Hallucinogens						
*12	- Inhalants						

Handwritten notes: "2/20/80" and "10/20/80" with arrows pointing to rows *02 and *07 respectively.

CARD 3 80

Note: See manual for representative examples for each drug class.

*13 - More than one substance per day (incl. alcohol).

DAYS	YRS.	MOB.

14. Which substance is the major problem? (Please code as above or 00-No problem; 15-Alcohol & Drug [Dual addiction]; 16-Polydrug; when not clear, ask patient).
15. How long was your last period of voluntary abstinence from this major substance? (00 - never abstinent).
16. How many months ago did this abstinence end? (00 - still abstinent).
- *17. How many times have you:
 Had alcohol d.t.'s
 Overdosed on drugs
- *18. How many times in your life have you been treated for:
 Alcohol Abuse
 Drug Abuse
- *19. How many of these were detox only?
 Alcohol
 Drug
20. How much would you say you spent during the past 30 days on:
 Alcohol
 Drugs

21. How many days have you been treated in an outpatient setting for alcohol or drugs in the past 30 days? (Include NA, AA).
22. How many days in the past 30 have you experienced:
 Alcohol Problems
 Drug Problems

FOR QUESTIONS 23 & 24 PLEASE ASK PATIENT TO USE THE PATIENT'S RATING SCALE

23. How troubled or bothered have you been in the past 30 days by these:
 Alcohol Problems
 Drug Problems
24. How important to you now is treatment for these:
 Alcohol Problems
 Drug Problems

INTERVIEWER SEVERITY RATING

25. How would you rate the patient's need for treatment for:
 Alcohol Abuse
 Drug Abuse

CONFIDENCE RATINGS

Is the above information significantly distorted by:

26. Patient's misrepresentation?
 0 - No 1 - Yes
27. Patient's inability to understand?
 0 - No 1 - Yes

CARD 4 80

COMMENTS

I.D.

--	--	--	--

LEGAL STATUS

1. Was this admission prompted or suggested by the criminal justice system (judge, probation/parole officer, etc.)?
- 0 - No 1 - Yes
2. Are you on probation or parole?
- 0 - No 1 - Yes

*15. How many of these charges resulted in convictions?

How many times in your life have you been charged with the following:

- *16. Disorderly conduct, vagrancy, public intoxication
- *17. Driving while intoxicated
- *18. Major driving violations (reckless driving, speeding, no license, etc.).
- *19. How many months were you incarcerated in your life?
20. How long was your last incarceration?
mos.
21. What was it for?
(Use code 3-14, 16-18. If multiple charges, code most severe)
22. Are you presently awaiting charges, trial or sentence?
- 0 - No 1 - Yes
23. What for? (if multiple choice, use most severe).
24. How many days in the past 30 were you detained or incarcerated?

25. How many days in the past 30 have you engaged in illegal activities for profit?

FOR QUESTIONS 26 & 27 PLEASE ASK PATIENT TO USE THE PATIENT'S RATING SCALE

26. How serious do you feel your present legal problems are? (Exclude civil problems)
27. How important to you now is counseling or referral for these legal problems?

How many times in your life have you been arrested and charged with the following criminal offenses:

CODE #

- *03 - shoplifting/vandalism
- *04 - parole/probation violations
- *05 - drug charges
- *06 - forgery
- *07 - weapons offense
- *08 - burglary, larceny, B & E
- *09 - robbery
- *10 - assault
- *11 - arson
- *12 - rape
- *13 - homicide, manslaughter
- *14 - other

INTERVIEWER SEVERITY RATING

28. How would you rate the patient's need for legal services or counseling?

CONFIDENCE RATINGS

Is the above information significantly distorted by:

29. Patient's misrepresentation?
0 - No 1 - Yes
30. Patient's inability to understand?
0 - No 1 - Yes

COMMENTS :

I.D.

1. Marital Status

1 - Married 4 - Separated
2 - Remarried 5 - Divorced
3 - Widowed 6 - Never Married

2. How long have you been in this marital status? yrs. mos.
(If never married, since age 18).

3. Are you satisfied with this situation?

0 - No
1 - Indifferent
2 - Yes

4. Usual living arrangements (past 3 yr.)

1 - With sexual partner and children
2 - With sexual partner alone
3 - With parents
4 - With family
5 - With friends
6 - Alone
7 - Controlled environment
8 - No stable arrangements

5. How long have you lived in these arrangements. yrs. mos.
(If with parents or family, since age 18).

6. Are you satisfied with these living arrangements?

0 - No
1 - Indifferent
2 - Yes

FAMILY/SOCIAL RELATIONSHIPS

7. With whom do you spend most of your free time:

1 - Family 3 - Alone
2 - Friends

8. Are you satisfied with spending your free time this way?

0 - No 2 - Yes
1 - Indifferent

9. How many close friends do you have? *Trust*

10. How many days in the past 30 have you had serious conflicts:
A. with your family?
B. with other people? (excluding family).

Have you had significant periods in which you have experienced serious problems with:

	PAST 30 DAYS	IN YOUR LIFE
*11. Mother	<input type="checkbox"/>	<input type="checkbox"/>
*12. Father	<input type="checkbox"/>	<input type="checkbox"/>
*13. Brothers/Sisters	<input type="checkbox"/>	<input type="checkbox"/>
*14. Sexual partner/spouse	<input type="checkbox"/>	<input type="checkbox"/>
*15. Children	<input type="checkbox"/>	<input type="checkbox"/>
*16. Other significant family	<input type="checkbox"/>	<input type="checkbox"/>
*17. Close friends	<input type="checkbox"/>	<input type="checkbox"/>
*18. Neighbors	<input type="checkbox"/>	<input type="checkbox"/>
*19. Co-workers	<input type="checkbox"/>	<input type="checkbox"/>

FOR QUESTIONS 20-23 PLEASE ASK PATIENT TO USE THE PATIENT'S RATING SCALE

How troubled or bothered have you been in the past 30 days by these:

20. Family problems?

21. Social problems?

How important to you now is treatment or counseling for these:

22. Family problems?

23. Social problems?

INTERVIEWER SEVERITY RATING

24. How would you rate the patient's need for family and/or social counseling?

CONFIDENCE RATINGS

Is the above information significantly distorted by:

25. Patient's misrepresentation

26. Patient's inability to understand

0 - No 1 - Yes

CARD 6 88

COMMENTS

1. How many times have you been treated for any psychological or emotional problems?
In a hospital
As an Opt. or Priv. patient

2. Do you receive a pension for a psychiatric disability?

0 - No 1 - Yes

Have you had a significant period, (that was not a direct result of drug/alcohol use), in which you have:

0 - No 1 - Yes

	PAST 30 DAYS	IN YOUR LIFE
*3. Experienced serious depression	<input type="checkbox"/>	<input type="checkbox"/>
*4. Experienced serious anxiety or tension	<input type="checkbox"/>	<input type="checkbox"/>
*5. Experienced hallucinations	<input type="checkbox"/>	<input type="checkbox"/>
*6. Experienced trouble understanding, concentrating or remembering	<input type="checkbox"/>	<input type="checkbox"/>
*7. Experienced trouble controlling violent behavior	<input type="checkbox"/>	<input type="checkbox"/>
*8. Experienced serious thoughts of suicide	<input type="checkbox"/>	<input type="checkbox"/>
*9. Attempted suicide	<input type="checkbox"/>	<input type="checkbox"/>
*10. Have you taken prescribed medication for any psychological/emotional problem	<input type="checkbox"/>	<input type="checkbox"/>

PSYCHOLOGICAL STATUS

11. How many days in the past 30 have you experienced these psychological or emotional problems?

FOR QUESTIONS 12 & 13 PLEASE ASK PATIENT TO USE THE PATIENT'S RATING SCALE

12. How much have you been troubled or bothered by these psychological or emotional problems in the past 30 days?

13. How important to you now is treatment for these psychological problems?

THE FOLLOWING ITEMS ARE TO BE COMPLETED BY THE INTERVIEWER

At the time of this interview, is patient:

0 - No 1 - Yes

14. Obviously depressed/withdrawn

15. Obviously hostile

16. Obviously anxious/nervous

17. Having trouble with reality testing, thought disorders, paranoid thinking

18. Having trouble comprehending, concentrating, remembering

19. Have suicidal thoughts

INTERVIEWER SEVERITY RATING

20. How would you rate the patient's need for psychiatric/psychological treatment?

CONFIDENCE RATINGS

Is the above information significantly distorted by:

21. Patient's misrepresentation?

0 - No 1 - Yes

22. Patient's inability to understand?

0 - No 1 - Yes

CARD 7 88

COMMENTS

APPENDIX C4
NATURAL SUPPORT SYSTEMS MATRIX

	Conjugal Dyad	Relation	Neighbor	Friend	No one	Total
Share Living Space						
Emotional Support Cheer You Up						
Free Time Companion						
Takes Care of You When Sick						
Continuous Proximity Daily Face to Face						
Financial Support						
Drug Using						
Overall Support Rating						

Estimated Level of Support (Patient Rating)

<u>Attempt to Sabotage</u>	<u>Not Supportive</u>	<u>Supportive</u>	<u>Very Supportive</u>
-2	-1	1	+2
<u>Family of Origin:</u>	<u>Education</u>	<u>Occupation</u>	<u>Income</u>
Mother	_____	_____	_____
	yrs./mos.		
Father	_____	_____	_____
	yrs./mos.		
	Interviewer: _____		
	Date: _____		

APPENDIX D1
BRIEF PSYCHIATRIC RATING SCALE

FAIR OAKS HOSPITAL

BRIEF PSYCHIATRIC RATING SCALE

Patient Name _____ Rater Name _____

Date _____ Time _____

	NOT PRESENT	VERY MILD	MILD	MODER- ATE	MODER- ATELY SEVERE	SEVERE	EXTREMELY SEVERE
1. Somatic Concern	1	2	3	4	5	6	7
2. Anxiety	1	2	3	4	5	6	7
3. Emotional Withdrawal	1	2	3	4	5	6	7
4. Conceptual Disorganization	1	2	3	4	5	6	7
5. Guilt feeling	1	2	3	4	5	6	7
6. Tension	1	2	3	4	5	6	7
7. Mannerisms & Posturing	1	2	3	4	5	6	7
8. Grandiosity	1	2	3	4	5	6	7
9. Depressive Mood	1	2	3	4	5	6	7
10. Hostility	1	2	3	4	5	6	7
11. Suspiciousness	1	2	3	4	5	6	7
12. Hallucinatory Behavior	1	2	3	4	5	6	7
13. Motor Retardation (Slowed Movement)	1	2	3	4	5	6	7
14. Uncooperativeness with I	1	2	3	4	5	6	7
15. Unusual Thought Content	1	2	3	4	5	6	7
16. Blunted Affect	1	2	3	4	5	6	7
17. Excitement	1	2	3	4	5	6	7
18. Disorientation	1	2	3	4	5	6	7

TOTAL _____

APPENDIX D2
BECK DEPRESSION INVENTORY

Name _____ Chart # _____ Date _____

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad.
1 I feel sad.
2 I am sad all the time and I can't snap out of it.
3 I am so sad or unhappy that I can't stand it.
2. 0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel that the future is hopeless and that things cannot improve.
3. 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.
- 4. 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am bored or dissatisfied with everything.
5. 0 I don't feel particularly guilty.
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.
6. 0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.
7. 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.
8. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.
10. 0 I don't cry anymore than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.
11. 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate me.
12. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.
13. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.
14. 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.
15. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
16. 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.
17. 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.
18. 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any lately.
1 I have lost more than 5 pounds.
2 I have lost more than 10 pounds. 172
3 I have lost more than 15 pounds.
I am purposely trying to lose weight by eating less. Yes ___ No ___
20. 0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or
upset stomach; or constipation.
2 I am very worried about physical problems and it's hard to think
of much else.
3 I am so worried about my physical problems, that I cannot think about
anything else.
21. 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

PATIENT'S SIGNATURE _____

SCORE _____