

National Institute on Drug Abuse

# RESEARCH

MONOGRAPH SERIES

---

## Improving Drug Abuse Treatment

---

---

---

---

---

---

---

106



# Improving Drug Abuse Treatment

Editors:

Roy W. Pickens, Ph.D.  
Carl G. Leukefeld, D.S.W.  
Charles R. Schuster, Ph.D.

Research Monograph 106  
1991

U.S. DEPARTMENT OF HEALTH AND HUMAN  
SERVICES  
Public Health Service  
Alcohol, Drug Abuse, and Mental Health Administration

National Institute on Drug Abuse  
5600 Fishers Lane  
Rockville, MD 20857

## **ACKNOWLEDGMENT**

This monograph is based on the papers and discussion from a technical review on "Improving Drug Abuse Treatment," held on August 28-30, 1989, in Bethesda, MD. The review meeting was sponsored by the National Institute on Drug Abuse.

## **COPYRIGHT STATUS**

The National Institute on Drug Abuse has obtained permission from the copyright holders to reproduce certain previously published material as noted in the text. Further reproduction of this copyrighted material is permitted only as part of a reprinting of the entire publication or chapter. For any other use, the copyright holder's permission is required. All other material in this volume except quoted passages from copyrighted sources is in the public domain and may be used or reproduced without permission from the Institute or the authors. Citation of the source is appreciated.

Opinions expressed in this volume are those of the authors and do not necessarily reflect the opinions or official policy of the National Institute on Drug Abuse or any other part of the U.S. Department of Health and Human Services.

The U.S. Government does not endorse or favor any specific commercial product or company. Trade, proprietary, or company names appearing in this publication are used only because they are considered essential in the context of the studies reported herein.

NIDA Research Monographs are indexed in the *Index Medicus*. They are selectively included in the coverage of *American Statistics Index*, *Biosciences Information Service*, *Chemical Abstracts*, *Current Contents*, *Psychological Abstracts*, and *Psychopharmacology Abstracts*.

DHHS publication number (ADM)91-1754  
Printed 1991

# Contents

	<u>Page</u>
Preface .....	vii
<i>Frederick K. Goodwin</i>	
Overview of Treatment Issues .....	1
<i>Roy W. Pickens and Bennett W. Fletcher</i>	
Drug Treatment Services: Funding and Admissions .....	20
<i>William Butynski</i>	
Do More . . . and Do It Better: Staff-Related Issues in the Drug Treatment Field That Affect the Quality and Effectiveness of Services .....	53
<i>John S. Gustafson</i>	
Outpatient Drug Abuse Treatment Services, 1988: Results of a National Survey .....	63
<i>Richard H. Price, A. Celeste Burke, Thomas A. D'Aunno, David M. Klingel, William C. McCaughrin, Jane A. Rafferty, and Thomas E. Vaughn</i>	
Treatment Outcomes for Drug Abuse Clients .....	93
<i>Frank M. Tims, Bennett W. Fletcher, and Robert L. Hubbard</i>	
Patient Treatment Matching: A Conceptual and Methodological Review With Suggestions for Future Research .....	114
<i>A. Thomas McLellan and Arthur I. Alterman</i>	

Client Issues in Drug Abuse Treatment: Addressing Multiple Drug Abuse . . . . .	136
<i>Thomas R. Kosten</i>	
Addressing Psychiatric Comorbidity . . . . .	152
<i>George E. Woody, A. Thomas McLellan, Charles P. O'Brien, and Lester Luborsky</i>	
Are There Minimum Conditions Necessary for Methadone Maintenance To Reduce Intravenous Drug Use and AIDS Risk Behaviors? . . . . .	167
<i>Anna Rose Childress, A. Thomas McLellan, George E. Woody, and Charles P. O'Brien</i>	
Reducing Illicit Drug Use Among Methadone Patients . . . . .	178
<i>Maxine L. Stitzer and Kimberly C. Kirby</i>	
Improving Client Compliance in Outpatient Treatment: Counselor-Targeted Interventions . . . . .	204
<i>Mary E. McCaul and Dace S. Svikis</i>	
Retention in Drug-Free Therapeutic Communities . . . . .	218
<i>George De Leon</i>	
Using Methadone Effectively: Achieving Goals by Application of Laboratory, Clinical, and Evaluation Research and by Development of Innovative Programs . . . . .	245
<i>Mary Jeanne Kreek</i>	
Using Psychotherapy Effectively in Drug Abuse Treatment . . . . .	267
<i>Lisa Simon Onken</i>	
Relapse Prevention . . . . .	279
<i>Sharon M. Hall, David A. Wasserman, and Barbara E. Havassy</i>	
Conditioning Factors May Help To Understand and Prevent Relapse in Patients Who Are Recovering From Drug Dependence . . . . .	293
<i>Charles P. O'Brien, Anna Rose Childress, and A. Thomas McLellan</i>	

Some Special Considerations for Treatment of Drug Abuse and Dependence in Women . . . . .	313
<i>Jack H. Mendelson, Roger Weiss, Margaret Griffin, Steven M. Mirin, Siew K. Teoh, Nancy K. Mello, and Barbara W. Lex</i>	
Opportunities for Enhancing Drug Abuse Treatment With Criminal Justice Authority . . . . .	328
<i>Carl G. Leukefeld</i>	
Contemporary Issues in Drug Abuse Treatment Linkage With Self-Help Groups.....	338
<i>David N. Nurco, Philip Stephenson, and Thomas E. Hanlon</i>	
Primary Care and Intravenous Drug Abuse Treatment . . . . .	349
<i>Richard J. Russo</i>	
Establishing a Methadone Quality Assurance System: Rationale and Objectives . . . . .	358
<i>James R. Cooper</i>	
Methadone Maintenance and Patients in Alcoholism Treatment . . . . .	365
<i>Enoch Gordis</i>	
Community Resistance to Drug Treatment Program Placement . . . . .	373
<i>Chauncey L. Veatch III</i>	
The Impact of AIDS on Drug Abuse Treatment . . . . .	385
<i>Lawrence S. Brown, Jr.</i>	
Improving Drug Abuse Treatment: Recommendations for Research and Practice . . . . .	394
<i>Carl G. Leukefeld, Roy W. Pickens, and Charles R. Schuster</i>	
List of NIDA Research Monographs . . . . .	407



# Preface

In recent years, the role of effective, research-based clinical treatment increasingly has been recognized as central to the success of the Nation's overall efforts to eliminate illicit drug use and to reduce the spread of HIV infection associated with drug use. Acknowledgment of the importance of treatment has been reinforced by accumulating information regarding the neurobiological bases of substance use and dependence and, in turn, by scientific evidence that these conditions can be ameliorated through specific medical and behavioral interventions.

Many existing treatment approaches are recognized as being clinically effective; given the vast social and health costs that stem from untreated substance abuse disorders, a strong case also can be made for the cost-effectiveness of these treatments. Yet, much room exists for improvement. Basic studies, including those employing animal models, and clinical research promise to improve and expand the array of existing interventions, while research demonstrations are uniquely capable of evaluating large-scale applications of new treatment models.

In the interest of strengthening its treatment research agenda and portfolio, the National Institute on Drug Abuse convened a conference on improving drug abuse treatment in Bethesda, Maryland, in August 1989. Leading authorities were invited to review the current status of treatment, to identify areas where improvements are needed, to recommend research strategies, and to discuss policy concerns germane to treatment improvement. Key policy questions extend from the conduct to the implementation of research: how to make optimum clinical use of existing knowledge, how to generate new information that will be useful in modifying drug use behavior, and how to develop accountability standards to ensure high-quality, research-based clinical care.

This monograph is a report of that session. It is our hope that the discussions will be useful to clinicians who wish to incorporate recent research findings into their practices, to basic and clinical researchers who wish to focus on high-priority areas, and to policymakers whose responsibilities for allocating limited social resources necessitate a clear understanding of sound strategies for improving health.

Frederick K. Goodwin, M.D.  
Administrator  
Alcohol, Drug Abuse, and Mental Health Administration

# Overview of Treatment Issues

*Roy W. Pickens and Bennett W. Fletcher*

## INTRODUCTION

The effectiveness of treatment in reducing illicit drug use is widely recognized. This has been shown repeatedly in large-scale multisite evaluation projects (Sells 1974; Hubbard et al. 1986) and in individual clinical investigations (Newman and Whitehill 1979; McLellan et al. 1982). Treatment also is associated with a reduction in crime and an improvement in social and occupational functioning (McLellan et al. 1986; Bale et al. 1980; Simpson and Sells 1982). More recently, drug abuse treatment also has been put forth as an acquired immunodeficiency syndrome (AIDS) prevention strategy, as it deals directly with risk behaviors involved with human immunodeficiency virus (HIV) transmission (Public Health Service 1986).

This chapter presents an overview of current knowledge regarding the effectiveness of drug abuse treatment. It also identifies several areas in which improvement would make treatment an even more effective drug abuse and AIDS control strategy.

## NATURE OF ADDICTION

Treatment is intended for individuals who are drug dependent. Dependence is a clinical syndrome that consists of multiple symptoms, including an inability to control drug use, impairment of normal functioning, and physiological evidence of chronic drug use (American Psychiatric Association 1987). Individuals may become dependent on a variety of drugs, but the more severe types of dependence are associated with such drugs as opiates (heroin) and cocaine and with routes of administration that include intravenous (IV) injection and smoking (Jaffe 1985).

Natural history studies have shown that drug dependence is a chronic disorder that typically begins in late adolescence or early adulthood and continues for more than 10 years (Vaillant 1966). Many addicts continue using opiates for 20 years or longer (Maddux and Desmond 1981). Over this time, periods of daily or almost daily drug use are separated by periods of voluntary and involuntary

abstinence (Nurco et al. 1981). During periods of drug use, addicts often engage in crimes such as theft, drug sales, and prostitution to support their drug dependence (Inciardi 1981; Nurco et al. 1985). Also common during periods of drug use is needle-sharing, a major vector in HIV transmission (Battjes and Pickens 1988). Among drug addicts, treatment often is associated with onset of abstinence periods (Rounsaville et al. 1987).

Although addicts are heterogeneous as a group, many addicts are socially disadvantaged and distrustful of authority, with higher than average rates of psychopathology and involvement with the criminal justice system (Rounsaville et al. 1982; Nurco et al. 1985). The death rate among addicts is several times higher than that in the general population (Maddux and Desmond 1981) and is now increasing due to AIDS and other HIV-related disorders (Selwyn et al. 1989). As an addict ages, illicit drug use tends to decline. In a 12-year followup of treated opiate addicts, Joe and colleagues (1990a) found that 75 percent of a sample had quit daily opiate use, and for these addicts, the length of time addicted to opiates averaged 9 years. Vaillant (1966) found that almost half of the treated addicts in his sample had achieved stable abstinence by age 40.

## **EARLY TREATMENT EFFORTS**

Until the mid-1920s drug abuse treatment was focused on the problem of opiate addiction. It was delivered almost entirely by private practitioners and was concerned primarily with the medical management of the opiate abstinence syndrome (Terry and Pellens 1970). After the Harrison Act of 1914, use of opiates came to be viewed as a criminal rather than a medical problem (Bates and Crowther 1974). The resulting growth in the number of opiate addicts in Federal prisons led to the opening of the Public Health Service (PHS) hospitals at Lexington, Kentucky, in 1935 and at Fort Worth, Texas, in 1938. These hospitals provided the first systematic data on treatment outcome of drug abusers. Treatment in the PHS hospitals consisted of gradually withdrawing addicts from opiates to minimize the abstinence syndrome, then providing them with a drug-free environment in which to recover (Maddux 1978). Although the facilities were established primarily to treat narcotic addicts convicted of Federal law violations, most admissions were voluntary.

Early treatment efforts at these facilities were regarded as ineffective, with many patients failing to complete treatment and high relapse rates following treatment. Approximately 70 percent of voluntary admissions left treatment against medical advice (Rasor and Maddux 1966). In addition, voluntary admissions to the Lexington PHS hospital in the 1940s through the early 1960s showed high relapse rates 6 to 12 months after discharge, ranging from 87 to 96 percent (Maddux 1988). The failure of patients to maintain abstinence after

leaving the PHS hospitals fit well with the prevailing view that opiate addiction was incurable.

## **MODERN ERA**

Two new forms of treatment that gained prominence in the 1960s called this view into question. The first new treatment was the therapeutic community (TC), exemplified by Synanon, which was founded in 1958 and evolved at least in part from the philosophy of Alcoholics Anonymous. It used nonprofessional staff, mostly recovering addicts, to resocialize clients to an abstinence-oriented lifestyle in a residential setting (Glasser 1974). While resisting objective evaluation, Synanon made remarkable claims for the successful rehabilitation of drug abusers and established itself as a viable treatment modality. It laid the groundwork for the opening of other TCs, including Daytop Village in 1964 and Phoenix House in 1968.

The second form of treatment to gain prominence in the 1960s was methadone maintenance. Dole and Nyswander (1965) reported remarkable success with a group of 22 heroin addicts who were being maintained on daily oral doses of methadone hydrochloride. Methadone prevented the psychological craving and physiological effects of the opiate abstinence syndrome and, in sufficient dosages, blocked the euphoric effects of heroin as well. Addicts who formerly engaged in crime to support their drug habits were able with methadone maintenance to engage in productive social behavior. Based on the success of the Dole-Nyswander approach, several outpatient clinics opened around the country, dispensing methadone under medical supervision and providing drug counseling to addicts.

## **PRESENT TREATMENT SYSTEM**

At present, the U.S. drug abuse treatment system consists of (1) detoxification programs, which gradually withdraw addicts from illicit drugs to minimize the abstinence syndrome; (2) drug-free programs, which have drug abstinence as the primary treatment goal and also treat the psychological/behavioral aspects of drug dependence; and (3) medication maintenance programs, which employ medications that are longer acting substitutes for illicit drugs (e.g., methadone) or block the effects of illicit drugs (e.g., naltrexone), allowing addicts to function more normally in society. Drug-free programs may be outpatient or residential. Residential programs may be long term (greater than 3 months) or short term (less than 3 months). The longer duration and more intense programs (i.e., TCs) are intended for clients with more severe dependence problems. In addition, self-help programs (e.g., Narcotics Anonymous) are an important part of the treatment system.

## **TREATMENT EVALUATION**

Evaluating treatment effectiveness has proven difficult for several reasons. Random assignment of clients to treatment or no-treatment (control) groups has not been ethically possible, although some studies have used detoxification-only as a control (Newman and Whitehill 1979). In studies that attempt to randomly assign drug abusers to different programs or modalities, clients are often unwilling to accept placement in distant programs or in nonpreferred modalities (Bale et al. 1980). Also, due to high utilization rates, treatment programs may not be able to accommodate a randomly assigned client (McLellan et al. 1983a).

For these reasons, most treatment evaluation studies focus on changes that occur between pretreatment and treatment or between pretreatment and posttreatment. Typically, at the time of admission, clients are asked to report on previous rates of such behaviors as drug use and crime. These same behaviors are assessed during and/or after treatment, and differences between the pretreatment and treatment or posttreatment rates are used to determine treatment effectiveness. Although the strategy does not control for changes in behavior that may have occurred over time in the absence of treatment, it nevertheless offers a convenient method for assessing changes in behavior that are associated with treatment.

## **DRUG ABUSE REPORTING PROGRAM (DARP)**

In 1966 Federal grants to States and localities, authorized under title IV of the Narcotic Addict Rehabilitation Act, helped to establish a community-based drug abuse treatment system, which grew rapidly from 6 programs in June 1969 to more than 200 in 1974. In 1969 the DARP project was initiated to characterize the treatment system, to identify the characteristics of clients entering treatment, and to evaluate treatment outcomes. During 1969-74, DARP obtained data on almost 44,000 clients in 52 programs (Sells 1974). Outcome was reported for methadone maintenance, residential drug-free, outpatient drug-free, and detoxification-only programs.

Although detoxification-only programs were effective in safely reducing physiological dependence, they did not show effectiveness in reducing illicit drug use in the year after treatment. However, all other modalities were effective in reducing illicit use both during and after treatment. For example, in a group of 405 male heroin addicts followed over time, daily opiate use across all modalities declined from 100 percent in the 2 months preceding treatment, to 47 percent for 1 or more months in the first year, and to 25 percent in the sixth year after DARP treatment (Simpson et al. 1986). Although 36 percent of this

sample relapsed one or more times after treatment and 1 percent used continuously throughout the 6 years, 44 percent quit daily opiate use during DARP treatment and reported no relapses to daily opiate use in the 6 years after treatment. Another 19 percent quit after leaving DARP treatment and reported no relapses at 6-year followup (Simpson and Marsh 1986). However, comparison of relative effectiveness of the different modalities was limited due to nonrandom distribution of addicts to the various modalities.

The DARP project identified several factors that influence treatment outcomes. A finding consistent across all treatment modalities and client characteristics was that the most favorable outcomes, defined as no illicit drug use and no arrests, were related to the amount of time spent in treatment. Significantly poorer outcomes resulted from treatment episodes shorter than 90 days, and the percentage with favorable outcomes improved in direct proportion to the length of time spent in treatment beyond 90 days (Simpson 1984). In addition, individuals with high social adjustment (i.e., married, older, better educated, better employed, fewer arrests, and better psychologically adjusted) had lower risk of relapse to daily opiate use (Simpson and Marsh 1986).

### **TREATMENT OUTCOME PROSPECTIVE STUDY (TOPS)**

The evolution of the Federal treatment system during the 1970s led to a second major evaluation study, TOPS, which involved followup of samples from a population of 11,750 clients admitted to drug abuse treatment in 41 programs during 1979-81. The TOPS project replicated many of the findings of previous studies, including the effectiveness of treatment in reducing drug use and criminal activity both during and after treatment and the importance of the amount of time spent in treatment on outcome (Hubbard et al. 1989). Striking changes were found in the drug use patterns of clients seeking treatment. From 1969 to 1974, most clients sought treatment for heroin addiction, but by 1980 many of those entering treatment reported patterns of multiple substance abuse, with use seemingly dictated as much by availability as by pharmacological effect (Hubbard et al. 1986).

To determine the effectiveness of compulsory treatment, the TOPS project also included agencies participating in Treatment Alternatives to Street Crime (TASC) in its sample of treatment programs. In contrast to the earlier findings of institutional treatment in PHS hospitals (Maddux 1988) and in some State facilities (Inciardi 1988) TOPS found that clients who entered community-based treatment under criminal justice referral did as well as or better than voluntary clients. Criminal justice involvement helped to retain clients in treatment, and drug use and criminal activity decreased substantially during treatment for those on probation or facing the threat of prosecution (Hubbard et al. 1989).

## **Treatment as AIDS Prevention**

IV drug abusers currently represent the second largest group at risk for acquiring and transmitting HIV. Altogether, about one-third of AIDS cases reported during 1988 were associated with IV drug abuse (Centers for Disease Control 1989). IV drug abusers acquire and transmit HIV infection by the sharing of infected needles, unprotected sexual contact with an infected individual, and perinatal transmission. In 1988 AIDS associated with IV drug abuse accounted for more than half of all AIDS cases in blacks and Hispanics (Centers for Disease Control 1989).

Evidence suggests that drug abuse treatment is an effective AIDS prevention strategy. Addicts in methadone maintenance programs have lower rates of HIV seropositivity than do addicts not in treatment. In addition, the longer addicts have been in treatment, the lower their HIV seropositivity rates (Novick et al. 1986). This is because methadone maintenance (as well as other treatment modalities) reduces IV drug use, and reductions in IV drug use are associated with reductions in the needle-sharing and promiscuous sexual behaviors that are associated with HIV transmission (Battjes et al. 1988; Ball et al. 1988). In a study by Ball and coworkers (1988) more than 70 percent of addicts in treatment no longer were using drugs intravenously, a percentage that varied greatly (from 43 to 90 percent) among six methadone programs. The importance of continued medication was emphasized by the finding that 82 percent of addicts who dropped out of methadone maintenance had relapsed to IV drug use within 10 months after leaving treatment.

## **Cost-Effectiveness**

If the costs of drug abuse treatment are compared with the alternative costs of continued drug abuse, associated criminal activity, and medical treatment of AIDS, there is no question that the societal benefits are worth the expense of drug abuse treatment. In the TOPS project, the economic consequences of drug-associated crime in the year before and the year after treatment show that treatment substantially lowered the societal cost on all economic measures, including costs to victims, the criminal justice system, and employers. The economic impact of treatment was greatest for legally involved clients. When treatment benefits were compared with the costs of providing treatment, the estimated treatment costs were recaptured during the treatment, and the posttreatment gains were an economic bonus (Hubbard et al. 1989).

In addition to crime-related costs, the recent costs of health care to HIV-infected individuals and to the sexual partners and infants of drug addicts have become a concern as well. By preventing the spread of HIV infection and by intervening

in maternal drug abuse, treatment may substantially reduce health care costs paid by both public and private reimbursers. Recently, the lifetime medical care cost of treating a person with AIDS was estimated at \$75,000 (Hellinger 1990). In contrast, the mean cost per slot for drug abuse treatment is estimated to be \$3,992, which is for both private and publicly supported drug abuse treatment programs (National Institute on Drug Abuse/National Institute on Alcohol Abuse and Alcoholism 1989).

### **Areas for Improvement**

Although treatment is widely recognized as being effective in reducing illicit drug use, deficiencies exist in the current treatment system. Most treatment professionals agree that, given the necessary resources, treatment can be made into a more effective behavior change strategy and that the result will be an enhanced savings of both money and lives. Because of the burgeoning drug abuse problem and the AIDS epidemic, it is important to do whatever is possible to improve the effectiveness of the system.

Several major areas for improvement are recognized. Although immediate improvement could result from the application of existing research knowledge, the development of new knowledge (and the transfer of this knowledge to clinicians) also will be necessary. The present treatment system has several areas needing attention.

**Too Few Drug Abusers Are Attracted to Treatment.** A recent National Institute on Drug Abuse (NIDA) survey of IV drug abusers not currently in treatment found that approximately half never have been enrolled in a treatment program (Nemeth-Coslett and colleagues, personal communication, 1990). The reasons for this are many. Some drug abusers would rather continue with their drug use than achieve abstinence. In some areas, treatment may be unavailable or accessible only to those with third-party coverage. Individual programs may vary in their services, rules for entry and discharge, tolerance of deviant behavior, and treatment philosophies. Clients also may have a preference for a particular program or type of treatment. Furthermore, treatment may bring knowledge of a drug problem to legal authorities or employers. Treatment must be made more attractive to clients, and more effective strategies for recruiting clients into treatment must be developed.

**Rates of Illicit Drug Use by Clients In Treatment Are Unacceptably High.** Recently, when a single urine specimen was obtained from clients in methadone maintenance programs and analyzed by enzyme immunoassay technique for evidence of illicit drug use, 15 percent of clients showed evidence of illicit opiate use, 26 percent cocaine use, 35 percent benzodiazepine use,

and 54 percent any type of drug use (excluding marijuana, methadone, and alcohol) (Magura and Lipton 1988). Illicit drug use prevents clients from engaging fully in the therapeutic process. It also places them at increased risk of HIV infection. Although abstinence from illicit drug use is the primary objective of treatment, the therapeutic process is often lengthy and complex. Deeply ingrained behaviors are difficult to change, and clinicians must judge whether clients are achieving progress while not demanding the impossible (Senay 1978). However, continued use of illicit drugs in treatment probably indicates a failure of the therapeutic process that may lie with the client, program, or both. Reducing illicit drug use would allow clients better contact with the therapeutic process and improve the overall effectiveness of treatment.

**Clients Are Not Clinically Matched With Treatment Programs.** In most cases, either the clients self-select their treatment program or no attempt is made by staff members to match the needs of clients to the services provided by different treatment programs. Sociodemographic and background characteristics of clients account for only minor variation in posttreatment outcome, giving no basis for treatment matching on these measures (Simpson and Savage 1981-82). Psychiatric severity has been found to be predictive of outcome (McLellan et al. 1983b, 1984), suggesting that benefits might be derived from this measure for matching clients to treatment. However, the level of psychiatric impairment is only one of many factors entering into the treatment process. Others include the availability of treatment, geographic proximity, clients preference for modality, clients ability to pay for treatment services, and judgment of program staff regarding the treatment needs of the client. In one study that attempted to match clients with inpatient or outpatient treatment, only 53 percent of clients could be matched, with assignment thwarted by lack of treatment availability (27 percent), client inability or refusal to accept the assigned treatment (13 percent), and assignment errors or staff overrides of assigned treatment (7 percent) (McLellan et al. 1983a).

**Treatment Retention Rates Are Too Low.** Twelve-month retention rates range from 34 to 85 percent for outpatient clients in methadone maintenance (O'Brien 1987; Hubbard et al. 1989) to 4 to 21 percent for clients in TCs (De Leon and Schwartz 1984; De Leon 1984). Within a few days or weeks after leaving treatment, most addicts relapse to illicit drug use (Hubbard and Marsden 1986) but many eventually return to treatment. Demographic variables do not consistently predict who will drop out of treatment. However, certain types of psychopathology are associated with early treatment dropout (Stark and Campbell 1988).

The consistent relationship between time in treatment and treatment outcomes (Simpson 1981; Hubbard et al. 1989) emphasizes the importance of keeping

clients in treatment. Various means of increasing retention have been tried. The most direct approach, civil commitment to treatment, has met with mixed results. Addicts in the California Civil Addict Program spent more time in treatment, with consequent reductions in illicit drug use and criminal behavior, than a comparison group released from treatment on procedural grounds (Anglin 1988). Other attempts at civil commitment, including Federal treatment in the PHS hospitals (Maddux 1988) and New York's Narcotic Addiction Control Commission program (Inciardi 1988) were unsuccessful. As previously mentioned, TASC program referrals appear to have increased retention in treatment (Hubbard et al. 1989).

Less coercive approaches also are needed. Increasing the quality and variety of services in treatment may encourage retention. Strategies to be investigated include increased counseling and other treatment services, improved staff training, reduced cost to clients, increased education and job training, longer methadone dispensing hours, and increased availability of methadone take-home doses.

**Relapse Rates After Treatment Are Unacceptably High.** In a DARP study of posttreatment outcome in methadone maintenance clients, 57 percent relapsed to some opiate use in the year following treatment (Savage and Simpson 1980). Of the TOPS clients admitted to methadone maintenance who used opiates at least weekly before treatment, 43 percent had relapsed to weekly or more often opiate use in the year following treatment (Hubbard et al. 1984).

Addicts are at highest risk of relapse in the first 3 months after treatment. In a DARP sample followed over 12 years, 27 percent relapsed to daily opiate use in the first 3 months following treatment; 44 percent relapsed to daily opiate use within 36 months; and 71 percent relapsed one or more times in the 12 years following treatment (Joe et al. 1990b). Hubbard and Marsden (1986) found that 51 percent of TOPS clients with an opiate or nonnarcotic pattern of use relapsed to regular use in the year following treatment. Two-thirds of TOPS clients relapsed in the first 3 months.

Given the high likelihood of relapse after termination of methadone treatment, it has been argued that the goal of methadone treatment for some clients should not be eventual detoxification, but rather long-term maintenance (Dole and Joseph 1978; Rounsaville et al. 1987; Stimmel et al. 1977). According to this argument, if continued abstinence is not an achievable goal for an addict, then greater benefit may accrue to the client and to society from a treatment philosophy that is compatible with extended methadone medication.

Although methadone maintenance clients frequently return to heroin use within several months after dropping out of treatment, relapse rates are relatively low for those who successfully complete treatment (i.e., achieve the goals of treatment and are gradually detoxified). For clients who successfully completed methadone maintenance treatment, Stimmel and coworkers (1977) found that 83 percent were narcotic free at 26-month followup, compared with only 21 percent of those who dropped out of treatment. Unfortunately, only 17 percent of those leaving treatment did so after completing the program (the remainder voluntarily discontinued treatment, violated rules, or were arrested). This suggests that outcome from methadone maintenance would be improved if clients could be retained in programs until they meet criteria for completion.

**Treatment Programs Are Not Adopting Useful Research Findings Into Clinical Practice.** Higher doses of methadone are more effective in suppressing illicit opiate use than are lower dosages of methadone (Ling et al. 1976; National Institute on Drug Abuse 1978). Yet, many treatment programs today are attempting to maintain some clients on inadequate dosages of methadone, which results in increased rates of illicit drug use and associated AIDS risk behaviors. Typical daily methadone dosage levels in 1979 were 20 to 39 mg (National Institute on Drug Abuse 1979, cited in Hargreaves 1983, p. 54). D'Amanda (1983) suggested a general downward trend in prescribed dosage levels over the previous decade. Hubbard and colleagues (1989) reported that, at admission, most TOPS clients received methadone dosages of 10 to 40 mg per day, with only 3 percent receiving dosages of more than 70 mg. At 3 months in treatment, 40 percent of TOPS clients were receiving dosages below 30 mg per day. Dosages tended to be low but were highly variable across programs. Mean daily methadone dosages in the six purposively selected programs studied by Corty and Ball (1987) and colleagues ranged from 27 to 67 mg.

Similarly, knowledge concerning the clinical usefulness of contingent take-home privileges also is not being widely applied. Often, take-home dosages of methadone are permitted to exempt clients from having to make daily trips to treatment programs. Typically, take-homes are permitted without any contingency applied. Research has shown that making take-homes contingent on drug-free urinalysis results in less illicit drug use (Stitzer et al. 1982).

The failure to adopt new research findings into clinical practice is not entirely the fault of treatment programs. Some research findings have no practical clinical usefulness. Others may be useful but cannot be implemented because of financial or staffing inadequacies. Also, to be adopted, research findings first must come to the attention of treatment personnel, and program administrators must encourage staff to adopt such findings.

**The Spirit or Morale of Staff in Treatment Programs Is Too Low.** The high demand for treatment places extraordinary demands on program personnel. Drug treatment facilities operate close to or over their budgeted capacity. Nationwide utilization rates for 1,067 private and public drug-only facilities are 91 percent (National Institute on Drug Abuse/National Institute on Alcohol Abuse and Alcoholism 1989). Overwork resulting from excessive client caseloads and associated administrative tasks may be related to increased counselor turnover, as well as to decreased counselor efficiency and therapeutic performance (Bruni et al. 1981). Others must seek employment outside of the drug abuse field because of low pay and poor working conditions.

Attitudes of staff regarding treatment may lessen the ability of the programs to recruit new patients and also may contribute to poorer outcomes. Although aware of the chronic nature of drug dependence, some staff members become discouraged after witnessing repeated relapse in treated clients or early dropout from treatment. The attitude of the staff is directly communicated to clients and is a major factor in determining the effectiveness of a treatment program.

**Services Provided in Treatment Programs Have Been Reduced.** Over the past two decades there has been a significant reduction in the quantity and quality of services being provided to clients in at least some treatment programs. Ball and colleagues (1986) have documented the variability in medical services provided across seven methadone maintenance programs. Notable differences were found in the availability of medical staff in the various programs, with the proportion of clients in each program receiving medical treatment each week varying from 14 to 53 percent. On the other hand, the need for providing additional medical services to clients in treatment programs is particularly acute now, given the high rates of psychiatric comorbidity and HIV-related diseases associated with drug abuse.

In addition to reductions in medical services, there is evidence of other services being reduced in some treatment programs. Recently, there has been discussion of proposals to provide “no-frills” methadone to clients in interim clinics. Many methadone maintenance programs have reduced the number and duration of client-counselor contacts, and similar reductions in counseling and treatment services have occurred in drug-free inpatient and outpatient programs as well. However, many treatment professionals believe that providing a range of quality services may attract more clients to treatment and may improve retention rates and outcome as well.

## IMPROVING TREATMENT

Many drug abuse experts contend that all these problems, at least in part, are caused by one factor—lack of money to support adequate services. Indeed, in the decade between 1977 and 1987, treatment funding per client slot decreased significantly (J. Kaple, personal communication, 1989). This caused a reduction in both quality and quantity of client services, with a resultant reduction in the effectiveness of the intervention. The Anti-Drug Abuse Acts of 1986 and 1988 have provided significant funding to help restore the reduced services. However, although adequate funding is important, it generally is agreed that money alone will not fully address the problems of recruitment, retention, and relapse by clients in treatment.

Some have suggested that attempts to improve treatment should focus on the less effective programs. Ball and coworkers (1986) have documented the heterogeneity in services being provided by treatment programs and also the direct relationship between quality of care in treatment programs and outcome. To some extent, raising the quality of care in the less effective treatment programs will improve the treatment system significantly. However, given the severity of drug abuse and AIDS, all aspects of the treatment system should be improved, not just the effectiveness of certain programs.

In addition to adequate funding and improvement of poorer programs, attention must be paid to changes in the treatment process that will improve the effectiveness of the system. Changing the treatment process will focus on developing improved methods for recruiting clients into treatment, retaining them in treatment, reducing illicit drug use by clients in treatment, and reducing relapse rates among clients after they leave treatment. This will involve incorporating existing research findings into actual clinical practice and developing and applying new interventions.

Finally, improving treatment will require educating the public and policymakers about the nature of drug dependence and the effectiveness of treatment to overcome community resistance to establishing new treatment programs. At present, the concept of drug dependence as a chronic relapsing disorder that requires chronic management is difficult for most people to understand. Instead, the public thinks of drug dependence as an acute problem that can be “cured” by quick and simple interventions. Some treatment strategies also are difficult for many people to understand, particularly those involving maintenance on medications such as methadone. Furthermore, many fail to recognize drug dependence as a public health problem and view it instead as a moral failing that must be controlled with criminal sanctions.

## CURRENT CHALLENGES

At the same time that increased demands are being placed on treatment by drug abuse and AIDS, there is evidence to suggest that clients coming into treatment today are more difficult to treat than they were 10 to 20 years ago. One line of evidence is suggested by the changing drug scene. From 1969 to 1971, 85 percent of DARP clients used opiates daily or weekly in the 2 months before admission (Simpson 1974). Hubbard and coworkers (1989, pp. 90-92) compared DARP admissions with 1979-81 TOPS admissions and found that TOPS clients were more likely to have patterns of multiple drug abuse. This was found to be true for every treatment modality. Among daily drug users in methadone maintenance programs, for example, 45 percent of DARP clients were principally opiate users, whereas 49 percent used nonopiates as well as opiates. This compared with 21 percent of TOPS admissions who were principally opiate users and 60 percent who used nonopiates as well as opiates (Hubbard et al. 1986). Compared with DARP admissions, TOPS daily drug users were also more likely to be female, white, and older and to have longer treatment histories.

Furthermore, over the past 10 to 20 years, drug preferences have shifted. In 1988 cocaine replaced heroin as the primary abused drug reported by clients entering treatment programs (Butynski et al. 1989). Also, over the past several years there has been the advent of new and more potent types of abused drugs. For example, "crack cocaine" use first was reported in 1985 and has since become a major epidemic in certain cities.

A second line of evidence suggesting more difficult treatment problems is changes in the clinical characteristics of the clients being admitted to treatment. Although no significant trends are evident in demographic characteristics of drug abusers between 1980 and 1987, there has been an increase in the severity of problems in clients being admitted for treatment. Between 1972 and 1978, for example, inpatients admitted to a Veterans Administration treatment program showed increased criminal involvement, social instability, employment problems, and psychiatric illness (McLellan et al. 1979). Similar changes have been reported in other treatment programs (De Leon 1984). Changes in client population may represent a "silting up" of the treatment system with clients who have a poor prognosis, as clients more capable of improvement are successfully treated and clear the treatment system.

## REFERENCES

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 3d ed., revised. Washington, DC: American Psychiatric Press, 1987.

- Anglin, M.D. The efficacy of civil commitment in treating narcotic addiction. in: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 8-34.
- Bale, R.N.; Van Stone, W.W.; Kaldau, J.M.; Engelsing, T.M.J.; Elashoff, R.M.; and Zarcone, V.P., Jr. Therapeutic communities vs. methadone maintenance. *Arch Gen Psychiatry* 37:179-193, 1980.
- Ball, J.C.; Carty, E.; Petroski, S.P.; Bond, H.; Tommasello, A.; and Graff, H. Medical services provided to 2,394 patients at methadone programs in three states. *J Subst Abuse Treat* 3:203-209, 1986.
- Ball, J.C.; Lange, W.R.; Myers, C.P.; and Friedman, S.R. Reducing the risk of AIDS through methadone maintenance treatment. *J Health Soc Behav* 29:214-226, 1988.
- Bates, W., and Crowther, B. *Towards a Typology of Opiate Users*. Chapter II. Cambridge, MA: Schenkman Publishing, 1974.
- Battjes, R.J.; Leukefeld, C.G.; Pickens, R.W.; and Haverkos, H.W. The acquired immunodeficiency syndrome and intravenous drug abuse. *Bull Narc* 40:21-34, 1988.
- Battjes, R.J., and Pickens, R. *Needle-Sharing Among Intravenous Drug Abusers: National and International Perspectives*. National Institute on Drug Abuse Research Monograph 80. DHHS Pub. No. (ADM)88-1567. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988.
- Bruni, J.R.; Hilton, T.F.; Sells, S.B.; and James, L.R. *The Psychological Climate of the Treatment Clinic: An Organizational Perspective*. IBR Technical Report 81-2. Fort Worth, TX: Texas Christian University, 1981.
- Butynski, W.; Canova, D.; and Jensen, S. *State Resources and Services Related to Alcohol and Drug Abuse Problems*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., 1989.
- Centers for Disease Control. Update: Acquired immunodeficiency syndrome associated with intravenous drug use—United States, 1988. *MMWR* 38(10):165-170, March 17, 1989.
- Carty, E., and Ball, J.C. Admissions to methadone maintenance: Comparisons between programs and implications for treatment. *J Subst Abuse Treat* 4:181-187, 1987.
- D'Amanda, C. Program policies and procedures associated with treatment outcome. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. DHHS Pub. No. (ADM)87-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 637-679.
- De Leon, G. *The Therapeutic Community: Study of Effectiveness*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS

- Pub. No. (ADM)85-1286. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984.
- De Leon, G., and Schwartz, S. Therapeutic communities: What are the retention rates? *Am J Drug Alcohol Abuse* 10:267-284, 1984.
- Dole, V.P., and Joseph, H. Long-term outcome of patients treated with methadone maintenance. *Ann N Y Acad Sci* 311:181-189, 1978.
- Dole, V.P., and Nyswander, M. A medical treatment for diacetylmorphine (heroin) addiction: A clinical trial with methadone hydrochloride. *JAMA* 193(8):646-650, 1965,
- Glasser, F.B. Some historical aspects of the drug-free therapeutic community. *Am J Drug Alcohol Abuse* 1:37-52, 1974.
- Hargreaves, W.A. Methadone dosage and duration of treatment. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. DHHS Pub. No. (ADM)87-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 19-79.
- Hellinger, F.J. Updated forecasts of the costs of medical care for persons with AIDS, 1989-93. *Public Health Rep* 105:1-12, 1990.
- Hubbard, R.L.; Bray, R.M.; Craddock, S.G.; Cavanaugh, E.R.; Schlenger, W.E.; and Rachal, J.V. Issues in the assessment of multiple drug use among drug treatment clients. In: Braude, M.C., and Ginzburg, H.M., eds. *Strategies for Research on the Interactions of Drugs of Abuse*. National Institute on Drug Abuse Research Monograph 68. DHHS Pub. No. (ADM)86-1453. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986.
- Hubbard, R.L., and Marsden, M.E. Relapse to use of heroin, cocaine, and other drugs in the first year after treatment. In: Tims, F.M., and Leukefeld, C.G., eds. *Relapse and Recovery in Drug Abuse*. National Institute on Drug Abuse Research Monograph 72. DHHS Pub. No. (ADM)86-1473. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 157-166.
- Hubbard, R.L.; Marsden, M.E.; Rachal, J.V.; Harwood, H.J.; Cavanaugh, E.R.; and Ginzburg, H.M. *Drug Abuse Treatment: A National Study of Effectiveness*. Chapel Hill, NC: University of North Carolina Press, 1989. pp. 90-92.
- Hubbard, R.L.; Rachal, J.V.; Craddock, S.G.; and Cavanaugh, E.R. Treatment Outcome Prospective Study (TOPS): Client characteristics and behaviors before, during, and after treatment. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)88-1329. Washington, DC: U.S. Govt. Print. Off., 1984. pp. 42-68.
- Inciardi, J.A. *The Drug-Crime Connection*. Beverly Hills: Sage Publications, 1981.

- Inciardi, J.A. Some considerations on the clinical efficacy of compulsory treatment: Reviewing the New York experience. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 126-138.
- Jaffe, J. Drug addiction and drug abuse. In: Gilman, A.G.; Goodman, L.S.; Rall, T.W.; and Murad, F., eds. *The Pharmacological Basis of Therapeutics*. New York: Macmillan, 1985. pp. 532-581.
- Joe, G.W.; Chastain, R.L.; Marsh, K.L.; and Simpson, D.D. Relapse. In: Simpson, D.D., and Sells, S.B., eds. *Opioid Addiction and Treatment: A 12-Year Follow-up*. Melbourne, FL: Krieger, 1990b. p. 121.
- Joe, G.W.; Chastain, R.L.; and Simpson, D.D. Length of careers. In: Simpson, D.D., and Sells, S.B., eds. *Opioid Addiction and Treatment: A 12-Year Follow-up*. Melbourne, FL: Krieger, 1990a. p. 103.
- Ling, W.; Charuvastra, V.C.; Kaim, S.C.; and Klett, C.J. Methadyl acetate and methadone as maintenance treatments for heroin addicts: A Veterans Administration cooperative study. *Arch Gen Psychiatry* 33:709-720, 1976.
- Maddux, J.F. History of the hospital treatment programs, 1935-74. In: Martin, W.R., and Isbell, H., eds. *Drug Addiction and the U.S. Public Health Service*. DHEW Pub. No. (ADM)77-434. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1978. pp. 217-250.
- Maddux, J.F. Clinical experience with civil commitment. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 35-56.
- Maddux, J.F., and Desmond, D.P. *Careers of Opioid Users*. New York: Praeger, 1981.
- Magura, S., and Lipton, D.S. The accuracy of drug use monitoring in methadone treatment. *J Drug Issues* 18:317-326, 1988.
- McLellan, A.T.; Childress, A.R.; Griffith, J.; and Woody, G.E. The psychiatrically severe drug abuse patient: Methadone maintenance or therapeutic community? *Am J Drug Alcohol Abuse* 10:77-95, 1984.
- McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Barr, H.L.; and Evans, F. Alcohol and drug abuse treatment in three different populations: Is there improvement and is it predictable? *Am J Drug Alcohol Abuse* 12:101-120, 1986.
- McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Woody, G.E.; and Druley, K.A. Is treatment for substance abuse effective? *JAMA* 247:1423-1428, 1982.

- McLellan, A.T.; Luborsky, L.; Woody, G.E.; O'Brien, C.P.; and Druley, K.A. Predicting response to alcohol and drug abuse treatments: Role of psychiatric severity. *Arch Gen Psychiatry* 40:620-625, 1983b.
- McLellan, A.T.; MacGahan, J.A.; and Druley, K.A. Changes in drug abuse clients—1972-1978: Implications for revised treatment. *Am J Drug Alcohol Abuse* 6:151-162, 1979.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; O'Brien, C.P.; and Druley, K.A. Increased effectiveness of substance abuse treatment: A prospective study of patient-treatment "matching." *J Nerv Ment Dis* 171:597-605, 1983a.
- Newman, R.G., and Whitehill, W.B. Double-blind comparison of methadone and placebo maintenance treatments of narcotic addicts in Hong Kong. *Lancet* 2(8141):485-488, 1979.
- National Institute on Drug Abuse. Methadone dosages. *National Institute on Drug Abuse Services Research Notes*. Rockville, MD: U.S. Department of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, 1978. pp. 1-4.
- National Institute on Drug Abuse/National Institute on Alcohol Abuse and Alcoholism. *National Drug and Alcoholism Treatment Unit Survey (NDATUS), 1987: Final Report*. DHHS Pub. No. (ADM)89-1626. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1989.
- Novick, D.M.; Kreek, M.J.; Des Jarlais, D.C.; Spira, T.J.; Khuri, E.T.; Rangunath, J.; Kalyanaraman, V.S.; Gelb, A.M.; and Miescher, A. Abstract of clinical research findings: Therapeutic and historical aspects. In: Harris, L.S., ed. *Problems of Drug Dependence, 1985. Proceedings of the 47th Annual Scientific Meeting. The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 67. DHHS Pub. No. (ADM)86-1448. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 318-320.
- Nurco, D.N.; Ball, J.C.; Shaffer, J.W.; and Hanlon, T.E. The criminality of narcotic addicts. *J Nerv Ment Dis* 173:94-102, 1985.
- Nurco, D.N.; Cisin, I.H.; and Balter, M.B. Addict careers. II. The first ten years. *Int J Addict* 16:1327-1356, 1981.
- O'Brien, C.P. Treatment research. In: *Drug Abuse and Drug Abuse Research, Second Triennial Report to Congress from the Secretary of HHS*. DHHS Pub. No. (ADM)87-1486. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1987. pp. 59-75.
- Public Health Service. Coolfont Report: A PHS plan for prevention and control of AIDS and the AIDS virus. *Public Health Rep* 101:341-348, 1986.
- Rasor, R.W., and Maddux, J.F. Institutional treatment of narcotic addiction by the U.S. Public Health Service. *Health Educ Welfare Indicators* March:11-24, 1966.

- Rounsaville, B.J.; Kosten, T.R.; and Kleber, H.D. The antecedents and benefits of achieving abstinence in opioid addicts: A 25-year followup study. *Am J Drug Alcohol Abuse* 13:213-229, 1987.
- Rounsaville, B.J.; Weissman, M.M.; Kleber, H.; and Wilber, C. Heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1982.
- Savage, L.J., and Simpson, D.D. Posttreatment outcomes of sex and ethnic groups treated in methadone maintenance during 1969-1972. *J Psychedelic Drugs* 12:55-64, 1980.
- Sells, S.B. *Evaluation of Treatments*. Vol. 1. Cambridge, MA: Ballinger, 1974.
- Selwyn, P.A.; Hartel, D.; Wasserman, W.; and Drucker, E. Impact of the AIDS epidemic on morbidity and mortality among intravenous drug users in a New York City methadone maintenance program. *Am J Public Health* 79:1358-1362, 1989.
- Senay, E.C. Treatment goals for substance abusers. *Am J Drug Alcohol Abuse* 5:299-305, 1978.
- Simpson, D.D. Patterns of multiple drug abuse. In: Sells, S.B., ed. *Research on Patients, Treatments, and Outcomes: Studies of the Effectiveness of Treatments for Drug Abuse*. Vol. II. Cambridge, MA: Ballinger, 1974. pp. 177-188.
- Simpson, D.D. Treatment for drug abuse: Follow-up outcomes and length of time spent. *Arch Gen Psychiatry* 38:875-880, 1981.
- Simpson, D.D. National treatment system evaluation based on the Drug Abuse Reporting Program (DARP) followup research. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)84-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 29-41.
- Simpson, D.D.; Joe, G.W.; Lehman, W.E.K.; and Sells, S.B. Addiction careers: Etiology, treatment, and 12-year follow-up outcomes. *J Drug Issues* 16:107-121, 1986.
- Simpson, D.D., and Marsh, K.L. Relapse and recovery among opioid addicts 12 years after treatment. In: Tims, F.M., and Leukefeld, C.G., eds. *Relapse and Recovery in Drug Abuse*. National Institute on Drug Abuse Research Monograph 72. DHHS Pub. No. (ADM)86-1473. Washington, DC: Supt. of Docs., US. Govt. Print. Off., 1986. pp. 86-103.
- Simpson, D.D., and Savage, L.J. Client types in different drug abuse treatments: Comparisons of follow-up outcomes. *Am J Drug Alcohol Abuse* 8:401-418, 1981-82.
- Simpson, D.D., and Sells, S.B. Effectiveness of treatment for drug abuse: An overview of the DARP research program. *Adv Alcohol Subst Abuse* 2:7-29, 1982.

- Stark, M.J., and Campbell, B.K. Personality, drug use, and early attrition from substance abuse treatment. *Am J Drug Alcohol Abuse* 14:475-485, 1988.
- Stimmel, B.; Goldberg, J.; Rotkopt, E.; and Cohen, M. Ability to remain abstinent after methadone detoxification. *JAMA* 237:1216-1220, 1977.
- Stitzer, M.; Bigelow, G.; Liebson, I.; and Hawthorne, J. Contingent reinforcement for benzodiazepine-free urines: Evaluation of a drug abuse treatment intervention. *J Appl Behav Anal* 15:493-503, 1982.
- Terry, C.E., and Pellens, M. *The Opium Problem*. Montclair, NJ: Patterson Smith, 1970.
- Vaillant, G.E. Twelve-year follow-up of New York narcotic addicts. II. The natural history of a chronic disease. *N Engl J Med* 275:1282-1288, 1966.

## **AUTHORS**

Roy W. Pickens, Ph.D.  
Acting Director  
Addiction Research Center  
National Institute on Drug Abuse  
4940 Eastern Avenue  
Baltimore, MD 21224

Bennett W. Fletcher, Ph.D.  
Research Psychologist  
Treatment Research Branch  
Division of Clinical Research  
National Institute on Drug Abuse  
5600 Fishers Lane  
Rockville, MD 21057

# Drug Treatment Services: Funding and Admissions

*William Butynski*

## INTRODUCTION

With support from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA), in 1983 the National Association of State Alcohol and Drug Abuse Directors, Inc. (NASADAD) initiated work with State alcohol and drug (A/D) agencies to design a voluntary data collection system on “State Resources and Needs Related to Alcohol and Drug Services.” This system has evolved from one that collected aggregate information on State agency “estimates” of “overall allocations” for all alcohol and other drug services (fiscal years 1983 and 1984) to one that collects data on “actual expenditures” for “only those programs which received at least some funds administered by the State Alcohol/Drug Agency” (FYs 1985, 1986, 1987, and 1988). Moreover, the data universe was narrowed to collect and provide more comparable fiscal data across all States.

In addition, beginning with FY 1983, data were collected on client “admissions” to those treatment units that received at least “some funds administered by the State Alcohol/Drug Agency during the State’s Fiscal Year.” This voluntary aggregate fiscal and client admission data collection system is called the State Alcohol and Drug Abuse Profile (SADAP).

This chapter presents data primarily from SADAP organized into the following sections:

- Funding of alcohol and other drug services (treatment cost information from SADAP)
- Client admissions to alcohol and other drug treatment services (treatment capacity information from SADAP)

- Treatment funding and admissions related to the Federal block grant
- Information on treatment cost and capacity from sources other than SADAP data collected from States
- Summary and conclusions

## **FUNDING OF ALCOHOL AND OTHER DRUG SERVICES**

In October 1988 NASADAD's president requested that by December 1988 all State A/D agencies provide data on total expenditures for alcohol and other drug services by source of funding and type of program activity for FY 1988. Forty-eight States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands responded to this request.

Before presenting and analyzing the findings, it is important to note that these data have several inherent limitations. They should not be used without an appreciation of the qualifications that apply. One major qualification is that the States were asked to report total expenditures for *"only those programs that received at least some funds administered by the State Alcohol/Drug Agency during the State's Fiscal Year (FY) 1988."* The data presented do not include information on those programs that did not receive any funding from the State A/D agency (e.g., most, if not all, private for-profit programs, some private not-for-profit programs, and some public programs). As a result, the overall fiscal estimates contained herein are conservative in nature and, to varying degrees, underestimate funding expenditures by other departments of State government, by Federal agencies such as the Department of Veterans Affairs, and by private, non-State agency-supported alcohol and other drug abuse treatment and prevention programs.

The financial and related data collected from States for FY 1988 are organized within two major subsections: financial expenditures by type of program activity and total number and percent of treatment units that received funds administered by the State A/D agency in FY 1988.

### **Financial Expenditures by Type of Program Activity**

This section provides information on the amount of monies expended during FY 1988 for different types of alcohol and other drug program activities. Data are presented on a State-by-State basis for three program activities, including treatment, prevention, and other. Total expenditures are reported for each State and for each program activity category (table 1).

**TABLE 1. Expenditures for State-supported alcohol and other drug abuse services by State and by type of program activity for fiscal year 1988**

State	Type of Program Activity			Total
	Treatment	Prevention	Other	
Alabama	8,649,781	1,285,027	64,243	9,999,051
Alaska	18,233,930	4,594,217	2,369,900	25,198,047
Arizona	21,763,260	1,495,722	622,560	23,881,542*
Arkansas	6,918,652	647,670	463,060	8,029,382
California	172,670,768	51,537,087	37,266,815	261,474,670*
Colorado	21,801,459	4,128,282	1,588,598	27,518,339
Connecticut	49,893,758	3,312,666	4,745,399	57,951,823
Delaware	3,558,282	251,653	711,504	4,521,439
District of Columbia	26,026,382	2,831,766	1,913,139	30,771,287
Florida	68,641,360	6,299,039	192,265	75,132,664
Georgia	36,541,409	1,704,415	1,074,139	39,319,963
Guam	1,412,532	124,900	701,146	2,238,578
Hawaii	4,114,328	750,375	245,080	5,109,783
Idaho	2,878,703	364,196	305,446	3,548,345
Illinois	55,587,700	6,382,500	6,086,700	68,056,900
Indiana	19,799,047	1,425,705	880,593	22,105,345
Iowa	14,261,476	3,287,113	135,690	17,684,279
Kansas	11,604,322	1,401,896	1,112,664	14,118,882
Kentucky	11,137,213	2,316,333	868,131	14,321,677
Louisiana	8,879,087	2,005,825	1,348,242	12,233,154*
Maine	6,518,824	1,824,467	974,692	9,317,983
Maryland	43,090,333	1,521,953	2,927,656	47,539,942
Massachusetts	42,873,000	3,944,000	3,703,000	50,520,000
Michigan	55,701,215	16,990,032	8,710,294	81,401,541
Minnesota	42,712,898	1,685,140	1,654,587	46,052,625
Mississippi	5,902,366	333,571	197,473	6,433,410
Missouri	15,171,486	619,520	1,156,282	16,947,288
Montana	10,352,284	1,582,358	451,959	12,386,601
Nebraska	7,406,901	912,628	336,600	8,656,129
Nevada	6,438,737	559,440	596,769	7,594,946
New Hampshire	1,948,709	683,282	435,069	3,067,060
New Jersey	34,101,018	8,108,901	3,100,651	45,311,570
New Mexico	N/A	N/A	N/A	N/A
New York	392,821,922	72,606,697	38,780,171	504,208,790*
North Carolina	29,291,600	10,475,147	398,706	40,165,453
North Dakota	2,305,174	125,426	108,260	2,538,860
Ohio	50,793,650	6,792,050	6,186,525	63,772,225
Oklahoma	7,470,813	1,219,465	819,780	9,510,058
Oregon	33,495,078	25,278,972	1,826,868	60,600,918
Pennsylvania	64,407,007	15,001,200	6,842,146	86,250,353
Puerto Rico	15,553,149	3,213,079	5,733,485	24,499,713
Rhode Island	9,431,763	1,371,981	491,588	11,295,332
South Carolina	19,770,764	8,132,908	1,564,690	29,468,452
South Dakota	3,270,592	442,697	401,620	4,114,909
Tennessee	13,879,074	4,551,668	2,613,907	21,044,649
Texas	15,606,521	5,937,483	3,240,640	24,784,644
Utah	12,531,411	3,496,631	457,551	16,485,593
Vermont	2,915,705	1,081,635	422,433	4,419,773
Virgin Islands	628,218	87,336	0	715,554
Virginia	33,035,719	3,663,720	N/A	36,699,439
Washington	34,200,963	879,369	1,483,666	36,563,998
West Virginia	6,896,026	1,288,064	324,926	8,509,016
Wisconsin	52,079,838	9,513,267	9,172,207	70,765,312
Wyoming	N/A	N/A	N/A	N/A
<b>Totals</b>	<b>1,636,976,207</b>	<b>310,071,564</b>	<b>167,809,515</b>	<b>2,114,857,286</b>
<b>Percent of Total</b>	<b>77.4%</b>	<b>14.7%</b>	<b>7.9%</b>	<b>100.0%</b>

\* Figures represent allocated funds rather than expenditures.

\* Prevention category includes primary prevention only.

N/A = Information not available

NOTE: "Other" category includes other activities beyond treatment or prevention services (e.g., training, research, and administration).

SOURCE: SADAP, FY 1988. Data are included for "only those programs which received at least some funds administered by the State Alcohol/Drug Agency during the State's Fiscal Year 1988."

The total monies expended within 48 States (data were not available for New Mexico and Wyoming), the District of Columbia, Guam, Puerto Rico, and the Virgin islands during FY 1988 in those programs that received at least some State A/D agency funds were \$2.1 billion. All these States and territories reported the breakout of the funds into the different types of alcohol and other drug program activities. Of the total, approximately \$1.6 billion (77.4 percent) was spent for other activities (e.g., training, research, and administration).

Over the past several years, many States have substantially increased their commitment to and financial expenditures for prevention programs. However, within every State A/D agency the expenditures for treatment remain much higher than those for prevention. Overall, the expenditures for treatment are more than five times as great as for prevention.

### **Total Number and Percent of Treatment Units That Received Funds Administered by the State A/D Agency**

This section provides information on the total number of treatment units that received funds administered by the State A/D agency in FY 1988. The data are presented by primary orientation of the treatment units: alcohol, drug, or combined alcohol/drug. An estimate also is provided of the percent of treatment units in the State in FY 1988 that received any funds administered by the State A/D agency.

The State agencies identified a total of 6,926 alcohol and/or other drug treatment units that received funds administered by the State A/D agency in FY 1988. With regard to the orientation of the treatment units, 1,806 (26.1 percent) were identified as alcohol units, 1,614 (23.3 percent) as other drug units, and 3,506 (50.6 percent) as combined alcohol and other drug treatment units (table 2).

An estimate of the percent of total alcohol and/or drug treatment units in the State that received any funds administered by the State A/D agency in FY 1988 was provided by 47 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands. The estimates ranged from a State low of 24 percent in Indiana, to a territorial high of 100 percent in the Virgin Islands and a State high of 96 percent in Rhode Island (table 3).

### **CLIENT ADMISSIONS TO ALCOHOL AND OTHER DRUG TREATMENT SERVICES**

Each State A/D agency was asked to provide information on client admissions to treatment units that received funds administered by the State agency during

FY 1988. All but three of the States have combined alcohol and other drug abuse treatment responsibilities within one agency. Several of these agencies have established combined (e.g., substance abuse, chemical dependency) treatment systems and/or client reporting systems and preferred to report combined alcohol and other drug client data. However, in response to a specific request from NIAAA and NIDA (each of which has a distinct congressional mandate), NASADAD asked the States to separate questions relating to alcohol and other drug abuse treatment services. This was done to obtain data that would be generally consistent with past data collection efforts and to be responsive to those States that have separate alcohol and other drug agencies.

In reviewing and interpreting client admission data, it is important to recognize that the client admissions figures are limited to those treatment units that received at least "some funds administered by the State A/D Agency during the State's Fiscal Year 1988." However, States reporting client information on those treatment units that received only partial funding from the State agency were instructed to report data on all client admissions to the program, not just data on those client admissions supported by State agency funds. The data presented do not include client admissions to treatment units that did not receive any funds administered by the State A/D agency during FY 1988.

Because this chapter concentrates on drugs other than alcohol, SADAP alcohol-related admissions data are not presented. However, to ensure that at least basic knowledge on the respective magnitudes of treatment admissions related to alcohol and other drugs is available, the following information is presented:

- Total client admissions to treatment for alcohol abuse and alcoholism problems during FY 1988 = 1,217,285.
- Total client admissions to treatment for all other drug abuse and dependency problems during FY 1988 = 518,851.

The remainder of this section includes client data in four areas: client admissions data by environment and modality; client admissions data by sex, age, and race/ethnicity; client admissions data by primary drug of abuse; and comparisons of client admissions data for FYs 1985, 1988, 1987, and 1988.

### **Client Admissions Data by Environment and Modality**

Each State drug (and combined A/D) agency was asked to provide data on the "number of DRUG client treatment admissions" in all units that received at least

“some funds administered by the State Drug Agency during the State’s fiscal Year 1988.” The information requested included client admissions data organized by environment (hospital, residential, or outpatient) and by modality (detoxification, maintenance, or drug-free) (tables 4a and 4b).

A total of 46 State agencies and those of the District of Columbia, Guam, Puerto Rico, and the Virgin Islands provided at least partial data on other drug (not alcohol) client treatment admissions by modality and environment. The total of other drug client treatment admissions during FY 1988 for these State agencies was 518,851. Of the other drug client admissions, 20,454 (3.9 percent) were to hospitals, 121,765 (23.5 percent) to residential facilities, and 358,475 (69.1 percent) to outpatient programs; 18,157 (3.5 percent) admissions were not specified as to environment.

In terms of treatment modality, 95,932 (18.5 percent) of other drug client admissions were for detoxification, 47,608 (9.2 percent) for maintenance, and 357,154 (68.8 percent) for drug-free types of treatment services; 18,157 (3.5 percent) admissions were not specified as to modality. Within two of these three types of treatment modalities, the type of environment most often used was outpatient. The outpatient environment was used for 96.6 percent of the maintenance admissions and 77.5 percent of the drug-free admissions. Residential environments, however, were used more than outpatient environments for detoxification admissions. Residential facilities accounted for 49.5 percent of the detoxification admissions, whereas outpatient services accounted for only 37.3 percent of the detoxification admissions.

In interpreting the client admissions data, it is important to note that the figures include only those programs that received some State drug agency funds. It is also important to note that some States were not able to report the information in the format requested.

### **Client Admissions Data by Sex, Age, and Race/Ethnicity**

Each State drug (and combined A/D) agency was asked to provide data on “the number of DRUG client treatment admissions during FY 1988” in all units “which received some funds administered by the State Drug Agency” in each of a number of specific sex, age, and race/ethnicity categories.

Forty-seven States, the District of Columbia, Puerto Rico, and the Virgin Islands reported other drug (not alcohol) client admissions data by sex (table 5). Overall, 66.8 percent of the other drug client admissions were male, and 32.5 percent were female; data on sex were not reported for .7 percent of the other drug client admissions.

TABLE 4a. Number of drug client treatment admissions by type of environment, type of modality, and State for fiscal year 1988\*

State	Detoxification				Maintenance			
	Hospital	Residential	Outpatient	Total	Hospital	Residential	Outpatient	Total
Alabama	0	228	0	228	0	0	500	500
Alaska	0	0	22	22	0	0	107	107
Arizona	4	133	152	289	0	0	730	730
Arkansas	0	262	0	262	0	0	0	0
California	0	1,602	26,237	27,839	0	35	6,030	6,065*
Colorado	0	0	0	0	0	0	700	700*
Connecticut	1,303	52	723	2,078	0	7	1,172	1,179
Delaware	0	884	0	884	0	0	140	140
District of Columbia	248	0	827	1,075	0	0	724	724*
Florida	0	2,292	80	2,372	0	0	902	902
Georgia	1,961	3,525	7	5,493	0	0	433	433
Guam	0	0	3	3	0	0	0	0
Hawaii	0	0	200	200	0	0	179	179
Idaho	0	230	0	230	0	0	0	0
Illinois	0	10,287	0	10,287	0	151	2,253	2,404
Indiana	0	2,071	0	2,071	0	0	199	199
Iowa	0	70	4	74	0	1	110	111
Kansas	0	989	0	989	0	0	0	0
Kentucky	382	611	0	993	0	0	108	108
Louisiana	0	780	0	780	0	621	0	621
Maine	103	318	N/A	421	N/A	N/A	N/A	N/A
Maryland	N/A	N/A	N/A	N/A	0	0	3,645	3,645*
Massachusetts	0	7,029	0	7,029	0	0	1,848	1,848
Michigan	0	2,709	100	2,809	0	0	1,183	1,183
Minnesota	0	0	0	0	0	0	40	40
Mississippi	1	1	5	7	0	0	0	0
Missouri	0	909	4	913	0	0	364	364
Montana	159	8	0	167	0	0	0	0
Nebraska	19	102	0	121	0	0	89	89
Nevada	0	197	0	197	0	0	200	200
New Hampshire	0	0	0	0	0	0	0	0
New Jersey	0	368	4,745	5,113	0	0	2,076	2,076
New Mexico	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New York	390	74	1,855	2,319	0	716	14,610	15,326*

TABLE 4a. (continued)

North Carolina	177	0	13	190	0	0	398	398
North Dakota	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ohio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oklahoma	172	0	0	172	0	0	171	171
Oregon	0	569	0	569	0	0	672	672
Pennsylvania	6,484	2,706	9	9,199	0	0	2,011	2,011
Puerto Rico	0	2,330	0	2,330	0	0	1,550	1,550 <sup>c</sup>
Rhode Island	513	0	99	612	0	0	643	643
South Carolina	0	1,408	61	1,469	0	0	17	17
South Dakota	0	305	0	305	0	0	0	0
Tennessee	0	996	0	996	0	0	169	169
Texas	100	1,851	152	2,103	0	4	650	654
Utah	0	223	0	223	0	48	159	207
Vermont	0	0	0	0	0	0	0	0
Virgin Islands	0	0	0	0	0	28	169	197
Virginia	160	1,302	N/A	1,462	N/A	N/A	750	750 <sup>d</sup>
Washington	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Virginia	0	0	0	0	0	0	0	0
Wisconsin	482	37	518	1,037	0	0	296	296
Wyoming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	12,658	47,458	35,816	95,932	0	1,611	45,997	47,608
Percent of Total	13.2%	49.5%	37.3%	100.0%	.0%	3.4%	96.6%	100.0%

\*Superscript letters apply to tables 4a and 4b.

<sup>a</sup> The "Not Reported" column includes clients in other modalities, including naltrexone programs.

<sup>b</sup> Figures represent episodes, not admissions.

<sup>c</sup> Figures are based on provisional year-end expenditure report.

<sup>d</sup> "Maintenance" category includes all methadone admissions whether detox or maintenance.

<sup>e</sup> New York's "Maintenance" category does not include 2,681 methadone admissions to nonfunded programs.

<sup>f</sup> Figures include only State agency clientele.

<sup>g</sup> Drug client admissions data are estimated.

N/A = Information not available

SOURCE: SADAP, FY 1988: Data are included for only those programs "which received some funds administered by the State Drug Agency during the State's Fiscal Year 1988."

**TABLE 4b.** *Number of drug client treatment admissions by type of environment, type of modality, and State for fiscal year 1988\**

State	Drug-Free				Totals				
	Hospital	Residential	Outpatient	Total	Hospital	Residential	Outpatient	Not Reported	Total
Alabama	0	903	2,759	3,662	0	1,131	3,259	0	4,390
Alaska	0	275	1,124	1,399	0	275	1,253	0	1,528
Arizona	0	642	4,977	5,619	4	775	5,959	0	6,638
Arkansas	0	1,135	1,519	2,654	0	1,397	1,519	0	2,916
California	0	5,516	23,838	29,354	0	7,153	56,105	1,150	64,408*
Colorado	0	375	2,957	3,332	0	375	3,657	0	4,032*
Connecticut	0	1,273	2,161	3,434	1,303	1,332	4,056	0	6,691
Delaware	0	124	628	752	0	1,008	768	0	1,776
District of Columbia	0	486	2,888	3,374	248	486	4,439	0	5,173*
Florida	117	4,123	10,628	14,868	117	6,415	11,610	0	18,142
Georgia	0	1,610	13,039	14,649	1,961	5,135	13,479	0	20,575
Guam	0	0	20	20	0	0	23	0	23
Hawaii	0	181	604	785	0	181	983	0	1,164
Idaho	0	122	1,558	1,680	0	352	1,558	0	1,910
Illinois	0	3,883	9,958	13,841	0	14,321	12,211	0	26,532
Indiana	331	1,094	2,512	3,937	331	3,165	2,711	0	6,207
Iowa	0	773	3,755	4,528	0	844	3,869	0	4,713
Kansas	0	948	1,352	2,300	0	1,937	1,352	0	3,289
Kentucky	166	790	2,673	3,629	548	1,401	2,781	0	4,730
Louisiana	0	0	3,618	3,618	0	1,401	3,618	0	5,019
Maine	104	680	1,555	2,339	207	998	1,555	0	2,760
Maryland	0	1,508	13,167	14,675	0	1,508	16,812	0	18,320*
Massachusetts	0	2,979	15,956	18,935	0	10,008	17,804	0	27,812
Michigan	0	5,058	10,284	15,342	0	7,767	11,567	0	19,334
Minnesota	2,725	2,609	2,254	7,588	2,725	2,609	2,294	0	7,628
Mississippi	665	422	1,292	2,379	666	423	1,297	0	2,386
Missouri	0	2,288	3,548	5,836	0	3,197	3,916	0	7,113
Montana	328	362	1,278	1,968	487	370	1,278	0	2,135
Nebraska	0	457	1,554	2,011	19	559	1,643	0	2,221
Nevada	0	548	668	1,216	0	745	868	0	1,613
New Hampshire	0	96	677	773	0	96	677	0	773
New Jersey	0	1,395	5,631	7,026	0	1,763	12,452	0	14,215
New Mexico	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New York	0	10,637	57,633	68,270	390	11,427	74,098	0	85,915*

TABLE 4b. (continued)

North Carolina	0	373	3,183	3,556	177	373	3,594	0	4,144
North Dakota	N/A	N/A	1,703	1,703	N/A	N/A	1,703	N/A	1,703
Ohio	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13,280	13,280
Oklahoma	0	1,200	623	823	172	1,200	794	0	2,166
Oregon	0	758	4,595	5,353	0	1,327	5,267	0	6,594
Pennsylvania	1,223	6,080	14,058	21,361	7,707	8,786	16,078	0	32,571
Puerto Rico	0	2,345	8,541	10,886	0	4,675	10,091	0	14,766 <sup>1</sup>
Rhode Island	0	160	2,019	2,179	513	160	2,761	0	3,434
South Carolina	364	136	4,375	4,875	364	1,544	4,453	0	6,361
South Dakota	0	0	2,548	2,548	0	305	2,548	0	2,853
Tennessee	5	632	2,922	4,651	1,097	1,628	3,091	0	5,816
Texas	0	3,363	6,165	9,533	105	5,218	6,967	0	12,290
Utah	0	855	955	1,810	0	1,126	1,114	0	2,240
Vermont	0	143	1,153	1,296	0	143	1,153	0	1,296
Virgin Islands	77	0	0	0	0	28	169	0	197
Virginia	N/A	690	9,555	10,322	237	1,992	10,305	0	12,534 <sup>1</sup>
Washington	342	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Virginia	252	415	1,267	2,024	342	415	1,267	0	2,024
Wisconsin	N/A	2,254	4,935	7,441	734	2,291	5,749	3,727	12,501
Wyoming	1,097	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	7,796	72,696	276,662	357,154	20,454	121,765	358,475	18,157	518,851
Percent of Total	2.2%	20.4%	77.5%	100.0%	3.9%	23.5%	69.1%	3.5%	100.0%

\*Superscript letters apply to tables 4a and 4b.

<sup>1</sup> The "Not Reported" column includes clients in other modalities, including naltrexone programs.

<sup>2</sup> Figures represent episodes, not admissions.

<sup>3</sup> Figures are based on provisional year-end expenditure report.

<sup>4</sup> "Maintenance" category includes all methadone admissions whether detox or maintenance.

<sup>5</sup> New York's "Maintenance" category does not include 2,681 methadone admissions to nonfunded programs.

<sup>6</sup> Figures include only State agency clientele.

<sup>7</sup> Drug client admissions data are estimated.

N/A = Information not available

SOURCE: SADAP, FY 1988. Data are included for only those programs which received some funds administered by the State Drug Agency during the State's Fiscal Year 1988.

TABLE 5. Number of drug client treatment admissions by sex and State for fiscal year 1988

State	Sex			Total
	Male	Female	Not Reported	
Alabama	1,625	2,765	0	4,390
Alaska	465	1,063	0	1,528
Arizona	2,588	4,050	0	6,638
Arkansas	853	2,063	0	2,916
California	25,144	39,264	0	64,408
Colorado	1,206	2,826	0	4,032 <sup>a</sup>
Connecticut	1,599	4,070	1,022	6,691
Delaware	469	1,307	0	1,776
District of Columbia	1,238	3,935	0	5,173 <sup>b</sup>
Florida	5,239	12,903	0	18,142
Georgia	6,356	14,219	0	20,575
Guam	4	19	0	23
Hawaii	477	687	0	1,164
Idaho	796	1,111	3	1,910
Illinois	6,186	20,344	0	26,532
Indiana	1,432	4,775	0	6,207
Iowa	1,492	3,231	0	4,713
Kansas	911	2,378	0	3,289
Kentucky	1,417	3,313	0	4,730
Louisiana	1,461	3,558	0	5,019
Maine	823	1,837	0	2,760
Maryland	4,250	14,061	0	18,320
Massachusetts	8,512	19,300	0	27,812
Michigan	5,717	13,617	0	19,334
Minnesota	2,210	3,416	2	7,628
Mississippi	648	1,710	28	2,386
Missouri	1,931	5,182	0	7,113
Montana	679	1,456	0	2,135
Nebraska	919	1,302	0	2,221
Nevada	549	1,064	0	1,613
New Hampshire	242	512	19	773
New Jersey	4,323	9,892	0	14,215
New Mexico	N/A	N/A	N/A	N/A
New York	35,834	50,081	0	85,915
North Carolina	1,219	2,923	2	4,144
North Dakota	520	1,183	0	1,703
Ohio	5,008	8,246	26	13,280
Oklahoma	909	1,257	0	2,166
Oregon	2,700	3,694	0	6,594
Pennsylvania	12,365	20,206	0	32,571
Puerto Rico	1,342	13,424	0	14,766 <sup>c</sup>
Rhode Island	1,216	2,218	0	3,434
South Carolina	1,864	4,497	0	6,361
South Dakota	798	2,055	0	2,853
Tennessee	2,112	3,704	0	5,816
Texas	2,791	6,830	2,569	12,290
Utah	671	1,569	0	2,240
Vermont	457	839	0	1,296
Virgin Islands	43	154	0	197
Virginia	3,709	8,825	0	12,534 <sup>d</sup>
Washington	N/A	N/A	N/A	N/A
West Virginia	568	1,456	0	2,024
Wisconsin	2,675	9,826	0	12,501
Wyoming	N/A	N/A	N/A	N/A
Totals	346,617	168,563	3,671	518,651
Percent of Total	66.6%	32.5%	.7%	100.0%

<sup>a</sup> Figures represent episodes, not admissions.

<sup>b</sup> Figures are based on provisional year-end expenditure report.

<sup>c</sup> Figures include only State agency clientele.

<sup>d</sup> Drug client admissions data are estimated.

N/A = Information not available

SOURCE: SADAP, FY 1988. Data are included for only those programs "which received some funds administered by the State Drug Agency during the State's Fiscal Year 1988."

Forty-four State agencies, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands provided at least partial information on other drug client admissions by age. The proportions of client admissions that fell within the age-range categories requested were as follows:

<u>Age</u>	<u>Percent of Admissions</u>
Younger than 18	14.5%
18 to 20	7.1%
21 to 24	14.0%
25 to 34	38.3%
35 to 44	15.0%
45 to 54	2.9%
55 to 64	.9%
65 and older	.3%
Not reported	7.0%

These percentages should be interpreted with caution because several States reported admissions by some but not all of the age categories specified.

In comparing total other drug client admissions by age with total alcohol client admissions, other drug clients tend to be much younger, whereas the alcohol clients tend to be older (e.g., 21.6 percent of other drug clients are younger than 21 compared with only 8.3 percent of alcohol clients).

With regard to other drug client treatment admissions by age and sex, 42 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands provided at least partial data according to the age categories specified. Several States encountered problems in reporting client admissions data by age and sex combined. The increased male ratio with increased age did not appear as strongly as with alcohol clients. In fact, male other drug client admissions represented 62.5 percent of those older than 65, whereas male alcohol client admissions represented 82.7 percent of alcohol admissions older than 65.

With regard to other drug client treatment admissions information by race/ethnicity, 47 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands provided at least partial data. Among the States reporting data, the percents of client admissions that fell within the race/ethnicity categories specified were as follows:

<u>Race/Ethnicity</u>	<u>Percent of Admissions</u>
White, not of Hispanic origin	52.7%
Black, not of Hispanic origin	25.3%
Hispanic	11.8%
Asian or Pacific Islander	.4%
Native American (American Indian, Alaska Native)	.9%
Other	.4%
Not Reported	8.4%

A comparison of total other drug client admissions with total alcohol client admissions in terms of race/ethnicity indicates that other drug clients include a higher proportion of blacks, Hispanics, and Asians or Pacific Islanders. The alcohol client admissions include more whites (70.7 percent compared with 52.7 percent among other drug clients) and Native Americans (3.1 percent compared with .9 percent among other drug clients).

#### **Client Admissions Data by Primary Drug of Abuse**

Each State drug (and combined A/D) agency was asked to provide information on the number of client admissions by the primary drug of abuse. Forty-one States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands provided at least partial data in response to this question (tables 6a and 6b). The totals indicate that, overall, if alcohol admissions are excluded, cocaine admissions exceeded heroin admissions as the primary drug of abuse for the highest number of treatment admissions during FY 1988 with a total of 139,663 admissions. The total of cocaine admissions increased by 49,956 in FY 1988, an increase of 59 percent compared with FY 1987. Heroin admissions numbered 116,654 in FY 1988, up 19 percent from FY 1987. The third highest number of treatment admissions during FY 1988 by primary drug of abuse was for marijuana/hashish at 60,561 admissions. The fourth, fifth, and sixth highest primary drugs of abuse related to treatment admissions were, respectively, amphetamines at 16,491 admissions, other opiates/synthetics (beyond heroin and nontreatment methadone) at 15,717 admissions, and PCP at 6,401 admissions. Although the national statistics on primary drug of abuse related to treatment admissions are as noted above, it is important to recognize that there exists tremendous variance among States as to the primary drug of abuse. For example, among the 41 States and territories that reported relevant data with regard to the specific primary drug of abuse (excluding the "Alcohol," "Other," and "Not Reported" categories) the drugs that ranked highest in each State were as follows:

**TABLE 6a.** *Number of drug client treatment admissions in State-supported facilities by primary drug of abuse and State for fiscal year 1988\**

State	Heroin	Non-treatment Methadone	Other Opiates/Synthetics	Barbiturates	Tranquilizers	Other Sedatives/Hypnotics	Amphetamines	Cocaine
Alabama	276	N/A	277	50	50	51	43	1,178*
Alaska	144	3	56	3	9	8	28	722
Arizona	1,889	20	203	49	86	57	371	1,689
Arkansas	40	2	181	33	46	67	295	1,015
California	36,689	84	758	96	204	82	5,497	12,825
Colorado	439	4	161	16	48	12	226	1,282
Connecticut	2,923	42	96	7	12	2	6	1,525*
Delaware	327	6	19	4	7	3	54	1,057
District of Columbia	1,191	206	0	52	0	0	259	1,862
Florida	925	0	551	81	92	102	96	11,753
Georgia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guam	11	0	0	0	0	0	0	2
Hawaii	397	4	3	4	7	N/A	160	177
Idaho	57	11	39	8	13	15	202	313
Illinois	N/A	N/A	4,432	N/A	N/A	280	336	12,514**
Indiana	225	N/A	352	N/A	801	N/A	703	1,043*
Iowa	378	3	115	75	76	72	374	1,034
Kansas	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kentucky	125	N/A	165	76	155	27	76	427
Louisiana	95	9	249	78	117	81	201	2,231
Maine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maryland	6,023	118	300	68	102	48	141	4,313
Massachusetts	14,146	N/A	526	N/A	493	192	108	7,785*
Michigan	2,685	65	691	50	191	48	205	10,091
Minnesota	206	0	351	0	0	450	809	2,350**
Mississippi	14	3	90	63	46	47	36	609
Missouri	721	12	317	79	129	49	451	1,799
Montana	45	N/A	84	38	81	N/A	273	411
Nebraska	117	6	82	26	63	47	136	400
Nevada	358	7	24	8	12	7	192	596
New Hampshire	43	1	10	1	16	1	13	322
New Jersey	8,014	66	240	134	96	44	382	3,846
New Mexico	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New York	18,212	375	372	170	329	128	245	17,974
North Carolina	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Dakota	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 6a. (continued)

Ohio	350	6	368	128	172	145	180	1,426
Oklahoma	94	5	102	55	91	44	375	416 <sup>a</sup>
Oregon	1,281	13	177	13	29	27	1,650	1,396
Pennsylvania	5,783	86	1,091	262	364	169	1,451	15,811 <sup>b</sup>
Puerto Rico	6,687	0	15	1,580	0	0	0	3,198 <sup>c</sup>
Rhode Island	1,214	66	114	22	101	29	31	1,277
South Carolina	498	11	174	74	147	56	102	2,920
South Dakota	7	0	21	38	28	18	0	128
Tennessee	56	14	578	74	109	169	86	1,749 <sup>d</sup>
Texas	2,185	19	233	71	57	51	1,534	3,383
Utah	419	5	141	50	48	36	205	611
Vermont	19	38	8	9	15	15	43	549
Virgin Islands	43	N/A	N/A	N/A	N/A	N/A	N/A	106
Virginia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Washington	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Virginia	15	5	138	135	216	45	53	635
Wisconsin	1,488	62	1,813	187	701	200	863	2,913
Wyoming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Totals</b>	<b>118,854</b>	<b>1,377</b>	<b>15,717</b>	<b>3,967</b>	<b>5,359</b>	<b>2,922</b>	<b>18,491</b>	<b>139,663</b>

\* Superscript letters apply to tables 6a and 6b.

<sup>a</sup> Alabama's "Other" drug category includes mixed or polydrug abuse where a single primary drug of abuse is not specified.

<sup>b</sup> Connecticut's "Other" drug category includes 595 drug treatment admissions where alcohol is the primary drug of abuse.

<sup>c</sup> Illinois' "Other Opiates/Synthetics" drug category includes all opiates and synthetics; the "Other Sedatives/Hypnotics" category includes all sedatives and hypnotics; and the "Other Hallucinogens" category includes all hallucinogens.

<sup>d</sup> Illinois' "Not Reported" category includes client admissions where there is no primary drug of abuse and client admissions where alcohol is the primary drug of abuse.

<sup>e</sup> Indiana's "Other Opiates/Synthetics" category includes non-Rx methadone and other sedatives and hypnotics; the "Tranquilizers" category includes barbiturates; and the "Other" category includes inhalants and over-the-counter drugs.

<sup>f</sup> Massachusetts' "Other Sedatives/Hypnotics" category includes barbiturates.

<sup>g</sup> Minnesota's "Other Sedatives/Hypnotics" category includes barbiturates.

<sup>h</sup> Figures are based on estimates.

<sup>i</sup> Pennsylvania's "Not Reported" category includes collaterals.

<sup>j</sup> Figures include only State agency clientele.

<sup>k</sup> Tennessee's "Other" drug category includes 497 drug treatment admissions where alcohol is the primary drug of abuse.

N/A = Information not available

SOURCE: SADAP, FY 1988. Data are included for only those programs "which received some funds administered by the State Drug Agency during the State's Fiscal Year 1988."

**TABLE 6b.** *Number of drug client treatment admissions in State-supported facilities by primary drug of abuse and State for fiscal year 1988\**

State	Marijuana/ Hashish	PCP	Other Hallucinogens	Inhalants	Over- The-Counter	Other	Not Reported	Total
Alabama	595	3	8	15	N/A	982	882	4,390*
Alaska	528	0	16	8	0	3	0	1,528
Arizona	1,659	15	61	89	13	437	0	6,638
Arkansas	1,122	12	35	33	10	25	0	2,918
California	4,775	2,900	224	52	37	140	45	84,408
Colorado	1,246	1	60	28	16	485	8	4,032
Connecticut	437	1	19	N/A	1	598	1,022	6,691*
Delaware	215	17	4	0	2	21	40	1,776
District of Columbia	0	1,500	0	0	0	0	103	5,173
Florida	4,378	4	50	37	10	63	0	18,142
Georgia	N/A	N/A	N/A	N/A	N/A	N/A	20,575	20,575
Guam	8	0	2	0	0	0	0	23
Hawaii	350	N/A	1	7	N/A	1	53	1,164
Idaho	633	0	15	19	2	581	2	1,910
Illinois	4,702	N/A	149	173	N/A	347	3,599	26,532**
Indiana	2,414	132	331	N/A	N/A	206	0	6,207*
Iowa	2,396	3	97	42	8	40	0	4,713
Kansas	N/A	N/A	N/A	N/A	N/A	N/A	3,289	3,289
Kentucky	700	261	60	14	2	N/A	2,642	4,730
Louisiana	1,771	60	39	22	9	57	0	5,019
Maine	N/A	N/A	N/A	N/A	N/A	N/A	2,760	2,760
Maryland	4,624	2,286	124	113	30	30	0	18,320
Massachusetts	3,843	N/A	148	N/A	N/A	571	0	27,812†
Michigan	4,213	31	102	21	14	300	627	19,334
Minnesota	2,967	0	259	114	0	122	0	7,628**
Mississippi	591	3	22	16	8	406	432	2,386
Missouri	3,110	239	82	56	11	58	0	7,113
Montana	1,078	12	55	27		31	0	2,135
Nebraska	885	2	53	18	4	382	0	2,221
Nevada	282	8	11	5	1	10	92	1,613
New Hampshire	309	0	13	0	3	22	19	773
New Jersey	988	85	73	9	8	230	0	14,215
New Mexico	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New York	7,049	237	234	31	56	40,309	194	85,915
North Carolina	N/A	N/A	N/A	N/A	N/A	N/A	4,144	4,144
North Dakota	N/A	N/A	N/A	N/A	N/A	N/A	1,703	1,703

TABLE 6b. (continued)

Ohio	2,876	15	63	72	40	957	6,482	13,280
Oklahoma	818	68	36	37	4	20	3	2,188 <sup>a</sup>
Oregon	1,877	8	39	28	6	50	0	6,594
Pennsylvania	3,658	173	159	60	38	172	3,294	32,571 <sup>i</sup>
Puerto Rico	2,236	0	0	0	0	1,048	2	14,786 <sup>j</sup>
Rhode Island	485	4	58	9	17	7	0	3,434
South Carolina	1,927	65	35	64	23	265	0	8,381
South Dakota	492	2	16	47	0	2,054	4	2,853
Tennessee	1,159	3	22	55	8	841	1,093	5,816 <sup>a</sup>
Texas	1,982	10	51	128	9	20	2,577	12,290
Utah	603	5	25	25	10	19	38	2,240
Vermont	396	N/A	7	8	7	63	119	1,296
Virgin Islands	45	1	N/A	N/A	N/A	N/A	2	197
Virginia	N/A	N/A	N/A	N/A	N/A	N/A	12,534	12,534
Washington	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Virginia	554	50	39	84	9	14	32	2,024
Wisconsin	3,625	187	338	62	62	N/A	0	12,501
Wyoming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Totals</b>	<b>80,581</b>	<b>8,401</b>	<b>3,235</b>	<b>1,628</b>	<b>478</b>	<b>51,787</b>	<b>68,391</b>	<b>518,851</b>

\* Superscript letters apply to tables 6a and 6b.

<sup>a</sup> Alabama's "Other" drug category includes mixed or polydrug abuse where a single primary drug of abuse is not specified.

<sup>b</sup> Connecticut's "Other" drug category includes 595 drug treatment admissions where alcohol is the primary drug of abuse.

<sup>c</sup> Illinois' "Other Opiates/Synthetics" drug category includes all opiates and synthetics; the "Other Sedatives/Hypnotics" category includes all sedatives and hypnotics; and the "Other Hallucinogens" category includes all hallucinogens.

<sup>d</sup> Illinois' "Not Reported" category includes client admissions where there is no primary drug of abuse and client admissions where alcohol is the primary drug of abuse.

<sup>e</sup> Indiana's "Other Opiates/Synthetics" category includes non-Rx methadone and other sedatives and hypnotics; the "Tranquilizers" category includes barbiturates; and the "Other" category includes inhalants and over-the-counter drugs.

<sup>f</sup> Massachusetts' "Other Sedatives/Hypnotics" category includes barbiturates.

<sup>g</sup> Minnesota's "Other Sedatives/Hypnotics" category includes barbiturates.

<sup>h</sup> Figures are based on estimates.

<sup>i</sup> Pennsylvania's "Not Reported" category includes collaterals.

<sup>j</sup> Figures include only State agency clientele.

<sup>k</sup> Tennessee's "Other" drug category includes 497 drug treatment admissions where alcohol is the primary drug of abuse.

N/A = Information not available

SOURCE: SADAP, FY 1988. Data are included for only those programs which received some funds administered by the State Drug Agency during the State's Fiscal Year 1988.\*

- Marijuana/hashish was the primary drug of abuse related to treatment admissions within 15 States.
- Cocaine was the primary drug of abuse related to treatment admissions within 18 States, the District of Columbia, and the Virgin Islands.
- Heroin was the primary drug of abuse related to treatment admissions within 8 States, Guam, and Puerto Rico.
- No other single drug of abuse was ranked first among treatment admissions in any State.

A careful review of table 6 demonstrates that different States have very different drug abuse patterns, at least as related to the primary drug of abuse for client treatment admissions.

### **Comparisons of Client Admissions Data for FYs 1985, 1986, 1987, and 1988**

Several comparisons were conducted on data provided by those State agencies that submitted information on other drug client admissions for FYs 1985, 1986, 1987, and 1988. Forty-four States, the District of Columbia, and Puerto Rico were able to provide some relevant information for all four FYs. The total other drug client admissions figures for these State agencies rose from 301,283 in FY 1985 to 370,887 in FY 1986, to 433,839 in FY 1987, and to 511,484 in FY 1988 (an increase of 210,201 admissions or more than 69.7 percent during this 3-year period). However, these data reveal considerable variability across States in terms of increases and/or decreases in other drug client admissions. The overall trend of significant increases in the number of other drug client admissions is confirmed by the fact that most of the States and territories that report comparable other drug client treatment admissions data also report an increase in admissions. However, several States have begun to use more comprehensive reporting systems. Therefore, caution should be exercised in the interpretation of these data; it is likely that the increased levels of other drug admissions reported by States may be related not only to increased numbers of actual other drug clients being admitted to treatment but also to the more complete reporting now possible through more comprehensive and complete data systems (e.g., the addition in some States of admissions data on other drug clients served through the community mental health center service system whose client admissions were not reported in earlier years).

Another comparison of other drug client treatment admissions during FYs 1985, 1986, 1987, and 1988 focused on the primary drugs of abuse. An analysis was

conducted on roughly comparable data provided by 40 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands on the top three primary drugs of abuse other than alcohol (i.e, heroin, cocaine, and marijuana/ hashish).

Number of Admissions

<u>F Y</u>	<u>Heroin</u>	<u>Cocaine</u>	<u>Marijuana/ Hashish</u>
1985	89,458	39,696	61,900
1986	84,618	55,040	70,959
1987	97,291	82,321	59,569
1988	114,920	134,734	74,583

These data exhibit considerable variation from year to year, and caution must be exercised in attempting to extract trend data from only a 3-year period. However, the increases in client treatment admissions related to cocaine as a primary drug of abuse are clear and compelling. The data demonstrate an increase of 15,344 admissions or 38.7 percent from FY 1985 to FY 1986, an increase of 27,271 admissions or 49.5 percent from FY 1986 to FY 1987, and an increase of 52,413 or 63.7 percent from FY 1987 to FY 1988. Client treatment admissions with cocaine as the primary drug of abuse from FY 1985 to FY 1988 increased by 95,038 admissions or 239.4 percent. Over that same 3-year period client admissions related to heroin increased by 28.5 percent, while admissions related to marijuana/hashish increased by 20.5 percent.

**TREATMENT FUNDING AND ADMISSIONS RELATED TO THE FEDERAL BLOCK GRANT**

The following section presents Federal funds by type of primary problem, Federal funds by number of treatment units, and Federal funds for treatment admissions by type of primary problem.

**Federal Funds by Type of Primary Problem**

This section provides information on the amount of Federal Alcohol, Drug, and Mental Health Services (ADMS) block grant and Alcohol and Drug Treatment Rehabilitation (ADTR) funds expended during FY 1988 to serve persons with primary alcohol problems, primary other drug problems, and combined alcohol and other drug problems. The total level of Federal money expended by 48 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands

during FY 1988 for alcohol and other drug treatment services was \$274,561,870 (table 7). This figure does not include Federal money expended for services other than treatment (e.g., prevention, training, research). It also does not include some Federal monies that may have been allocated or even obligated by the States in FY 1988 but expended during a later fiscal year.

Of the total of \$274,561,870 in Federal monies expended by States in FY 1988 the largest share, \$111,080,307, was expended to serve persons with primary other drug problems; \$85,662,385 was expended to serve persons with primary alcohol problems; and \$77,819,178 was expended to serve persons with primary combined alcohol and other drug problems.

### **Federal Funds by Number of Treatment Units**

This section provides information on the number of alcohol and/or other drug treatment units that received any Federal ADMS block grant or ADTR funds. A total of 45 States, the District of Columbia, Puerto Rico, and the Virgin Islands reported that 4,786 separate treatment units received some of these Federal monies during FY 1988 (table 8). More than half of these treatment units (2,537) provide services for persons with both alcohol and other drug problems. A total of 1,296 other treatment units concentrate on serving persons with primary alcohol problems, and 953 treatment units concentrate on serving persons with primary drug problems other than alcohol.

### **Federal Funds for Treatment Admissions by Type of Primary Problem**

This section provides information on the specific number of alcohol and/or other drug treatment admissions supported by Federal monies during FY 1988. The total number of these treatment admissions reported by 44 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands was 1,164,294 (table 9). Of this total, 549,081 were alcohol problem admissions; 352,958 were primary combined alcohol and other drug problem admissions; and 262,255 were primary other drug problem admissions. It should be noted that due in part to their treatment philosophy and data reporting systems, some States and programs did not report treatment admissions in all three categories. Some States divide all their admissions between primary alcohol problems and primary other drug problems, whereas other States believe that there is so much overlap between persons who are dependent on alcohol and other drugs that they reported all their admissions as combined alcohol and other drug treatment admissions.

**TABLE 7. Expenditures of Federal block grant treatment funds by State and by type of primary problem for fiscal year 1988**

Federal Funds by Type of Primary Problem				
State	Primary Alcohol	Primary Drug	Combined Alcohol/ Drug	Total
Alabama	1,639,358	1,212,318	2,099,398	4,951,074
Alaska	N/A	N/A	1,291,400	1,291,400
Arizona	2,072,206	2,707,952	N/A	4,780,158
Arkansas	433,703	482,438	1,820,906	2,737,047
California	8,965,000	24,601,000	0	33,566,000
Colorado	777,208	918,716	1,387,537	3,083,461
Connecticut	955,518	1,237,623	2,464,610	4,657,751
Delaware	563,888	434,448	188,215	1,186,551
District of Columbia	335,064	839,717	483,853	1,658,634
Florida	7,088,048	10,391,416	N/A	17,479,464
Georgia	3,927,914	1,862,593	0	5,790,507
Guam	N/A	N/A	50,000	50,000
Hawaii	78,413	61,563	595,670	735,646
Idaho	0	0	1,325,987	1,325,987
Illinois	3,572,400	4,023,300	4,143,300	11,739,000
Indiana	1,348,451	344,310	1,295,443	2,988,204
Iowa	1,554,350	1,554,350	N/A	3,108,700
Kansas	761,555	994,463	0	1,756,018
Kentucky	3,322,206	830,551	0	4,152,757
Louisiana	1,146,781	1,077,160	3,622,430	5,846,371
Maine	N/A	N/A	817,884	817,884
Maryland	1,591,854	4,470,078	N/A	6,061,932
Massachusetts	N/A	862,000	3,487,000	4,349,000
Michigan	10,029,069	3,865,479	N/A	13,894,548
Minnesota	3,748,675	1,088,325	N/A	4,837,000
Mississippi	750,534	583,748	668,476	2,002,758
Missouri	3,082,783	2,236,929	N/A	5,319,712
Montana	16,571	55,920	1,120,731	1,193,222
Nebraska	N/A	N/A	2,140,738	2,140,738
Nevada	722,334	882,853	0	1,605,187
New Hampshire	N/A	40,728	906,442	947,170*
New Jersey	957,668	4,932,764	1,130,839	7,021,271
New Mexico	N/A	N/A	N/A	N/A
New York	9,521,300	20,404,521	2,215,000	32,140,821
North Carolina	2,269,301	1,240,918	N/A	3,510,219
North Dakota	N/A	N/A	1,104,163	1,104,163
Ohio	3,439,289	7,073,363	N/A	10,512,652*
Oklahoma	N/A	N/A	2,082,426	2,082,426
Oregon	N/A	N/A	4,469,207	4,469,207*
Pennsylvania	N/A	N/A	11,172,878	11,172,878
Puerto Rico	1,413,160	2,249,160	N/A	3,662,320
Rhode Island	636,113	703,220	N/A	1,339,333
South Carolina	1,821,518	1,072,695	0	2,894,213
South Dakota	339,187	237,465	0	576,652
Tennessee	N/A	N/A	3,342,450	3,342,450
Texas	N/A	N/A	12,514,198	12,514,198
Utah	1,571,688	797,458	N/A	2,369,146
Vermont	N/A	N/A	1,397,779	1,397,779
Virgin Islands	210,079	158,580	0	368,659
Virginia	N/A	N/A	6,323,508	6,323,508
Washington	1,738,560	3,050,870	N/A	4,789,430
West Virginia	734,736	313,028	308,686	1,356,450
Wisconsin	2,525,903	1,186,287	1,848,024	5,560,214
Wyoming	N/A	N/A	N/A	N/A
<b>Totals</b>	<b>85,662,385</b>	<b>111,080,307</b>	<b>77,819,178</b>	<b>274,561,870</b>

\* All units providing treatment services are required to treat persons with all drugs of abuse, including alcohol.

\* State agency does not monitor expenditures and client data of combined alcohol and drug treatment units.

\* Funds are not split between alcohol-only treatment units, drug-only treatment units, and combined treatment units.

NA = Information not available

SOURCE: SADAP, FY 1988. Data are included for "only those programs that received at least some funds administered by the State Alcohol/Drug Agency during the State's Fiscal Year 1988."

TABLE 8. Number of alcohol and/or drug treatment units that received Federal block grant funds by State for fiscal year 1988

State	Primary Alcohol Problems	Primary Drug Problems	Combined Alcohol/ Drug Problems	Total
Alabama	22	6	67	95
Alaska	0	0	22	22
Arizona	26	18	112	156
Arkansas	4	5	16	25
California	635	282	0	917
Colorado	51	6	35	92
Connecticut	18	20	31	69
Delaware	6	3	6	15
District of Columbia	1	5	2	8
Florida	47	58	N/A	105
Georgia	N/A	N/A	N/A	N/A
Guam	N/A	N/A	N/A	N/A
Hawaii	1	1	16	18
Idaho	0	0	45	45
Illinois	166	70	34	270
Indiana	0	0	34	34
Iowa	0	0	30	30
Kansas	2	1	18	21
Kentucky	0	0	132	132
Louisiana	0	0	29	29
Maine	0	0	39	39
Maryland	10	32	N/A	42
Massachusetts	0	7	98	105
Michigan	N/A	N/A	N/A	N/A
Minnesota	0	0	203	203
Mississippi	4	0	50	54
Missouri	0	2	41	43
Montana	1	2	22	25
Nebraska	0	0	118	118
Nevada	4	2	8	14
New Hampshire	0	5	29	34
New Jersey	27	48	10	85
New Mexico	N/A	N/A	N/A	N/A
New York	60	123	27	210*
North Carolina	23	6	0	29
North Dakota	0	0	11	11
Ohio	103	151	67	321*
Oklahoma	N/A	N/A	31	31
Oregon	32	4	90	126
Pennsylvania	26	21	276	323
Puerto Rico	11	60	3	74
Rhode Island	14	9	14	37
South Carolina	0	0	37	37
South Dakota	0	0	25	25
Tennessee	0	0	48	48
Texas	0	0	101	101
Utah	0	2	60	62
Vermont	0	0	23	23
Virgin Islands	2	2	0	4
Virginia	N/A	N/A	87	87
Washington	N/A	N/A	N/A	N/A
West Virginia	0	0	70	70
Wisconsin	0	2	320	322
Wyoming	N/A	N/A	N/A	N/A
Totals	1,296	953	2,537	4,786

\* Number of treatment units that provide services for Primary Drug Problems is an estimated number of units that received Federal funds during the State Fiscal Year 1988-1989.

\* Total includes only ADMS treatment unit/client admissions; ADTR figures are not yet available.

N/A = Information not available

SOURCE: SADAP, FY 1988. Data are not included for "only those programs that received at least some funds administered by the State Alcohol/Drug Agency during the State's Fiscal Year 1988."

**TABLE 9.** Total number of client admissions to alcohol and/or drug treatment units that received Federal block grant funds by State and by type of primary problem for fiscal year 1988

State	Primary Alcohol	Primary Drug	Combined Alcohol/Drug	Total
Alabama	6,652	4,390	N/A	11,042
Alaska	5,207	689	N/A	5,896
Arizona	16,891	6,638	N/A	23,529
Arkansas	4,702	2,391	3,057	10,150
California	108,000	64,408	0	172,408
Colorado	36,237	1,580	22,060	59,877
Connecticut	2,320	2,116	4,446	8,882
Delaware	3,955	1,647	0	5,602
District of Columbia	2,992	2,836	464	6,292
Florida	59,443	24,645	N/A	84,088
Georgia	N/A	N/A	N/A	N/A
Guam	N/A	N/A	23	23
Hawaii	700	500	1,801	3,001
Idaho	0	0	6,828	6,828
Illinois	50,644	17,776	8,756	77,176
Indiana	0	0	5,397	5,397
Iowa	18,171	4,552	N/A	22,723
Kansas	4,166	3,011	0	7,177
Kentucky	15,559	5,076	0	20,635
Louisiana	0	0	11,283	11,283
Maine	N/A	N/A	19,155	19,155
Maryland	2,222	12,253	N/A	14,475
Massachusetts	0	1,811	22,561	24,372
Michigan	N/A	N/A	N/A	N/A
Minnesota	N/A	N/A	N/A	N/A
Mississippi	2,819	2,140	N/A	4,959
Missouri	7,021	3,660	N/A	10,681
Montana	180	87	8,675	8,942
Nebraska	N/A	N/A	21,784	21,784
Nevada	1,043	1,290	0	2,333
New Hampshire	0	155	4,705	4,860
New Jersey	12,241	10,433	927	23,601
New Mexico	N/A	N/A	N/A	N/A
New York	18,879	16,302	674	35,855*
North Carolina	19,164	4,144	N/A	23,308
North Dakota	N/A	N/A	2,806	2,806 <sup>b</sup>
Ohio	20,209	13,280	N/A	33,489 <sup>b</sup>
Oklahoma	N/A	N/A	4,183	4,183
Oregon	21,697	1,373	16,102	39,172 <sup>c</sup>
Pennsylvania	1,200	2,500	64,074	67,774
Puerto Rico	3,068	14,768	7	17,841
Rhode Island	7,129	3,434	N/A	10,563
South Carolina	25,550	5,987	0	31,547
South Dakota	4,076	2,853	0	6,929
Tennessee	N/A	N/A	12,387	12,387
Texas	10,650	12,290	N/A	22,940
Utah	11,450	2,240	N/A	13,690
Vermont	N/A	N/A	5,306	5,306
Virgin Islands	138	197	0	335
Virginia	N/A	N/A	61,142	61,142
Washington	N/A	N/A	N/A	N/A
West Virginia	5,528	2,024	5,468	13,020
Wisconsin	39,178	6,771	38,887	84,836
Wyoming	N/A	N/A	N/A	N/A
<b>Totals</b>	<b>549,061</b>	<b>262,255</b>	<b>352,958</b>	<b>1,164,294</b>

\* Number of client admissions with primary drug problems is an estimated number of admissions during the State fiscal year 1988-1989.

<sup>b</sup> State agency does not monitor expenditures and client data of combined alcohol and drug treatment units.

<sup>c</sup> Total includes only ADMS treatment unit/client admissions; ADTR figures are not yet available.

\* "Primary Alcohol" and "Primary Drug" categories indicate single drug abuse clients; "Combined Alcohol/Drug" category indicates multiple drug abuse clients.

N/A = Information not available

SOURCE: SADAP, FY 1988. Data are included for only those programs that received at least some funds administered by the State Alcohol/Drug Agency during the State's Fiscal Year 1988.

## **INFORMATION ON TREATMENT COST AND CAPACITY FROM SOURCES OTHER THAN SADAP DATA COLLECTED FROM STATES**

The following information on treatment cost and capacity is organized according to data source, including a meeting on drug treatment costs with selected experts on September 2, 1987, and the National Drug and Alcoholism Treatment Unit Survey (NDATUS) conducted on October 30, 1987.

### **Meeting on Drug Treatment Costs With Selected Experts on September 2, 1987**

On September 2, 1987, NASADAD, with support from NIAAA and NIDA, organized and summarized the results from a meeting of State and other experts "To Develop Reasonable Estimates on Drug Treatment Costs for Needle Drug Abusers." Participants in this meeting included representatives from States (Ms. Jeanne Brinkley, California; Mr. John S. Gustafson, New York; and Mr. Richard Russo, New Jersey), other national and local organizations (Mr. Mark Benecivengo of Philadelphia; Mr. David Mactus of Therapeutic Communities of America; and Mr. Mark Parrino of the Northeast States Methadone Conference), the Institutes (Mr. Angelo Bardine and Mr. Salvatore di Menza of NIDA and Mr. David Sanchez of NIAAA), and NASADAD staff (Dr. Bill Butynski and Dr. Diane Canova).

From the data collected by the various participants and from the discussion at the meeting it was clear that treatment costs vary considerably due to several factors, including but not limited to geographical location, modality of treatment, severity of client problem, site of treatment (e.g., hospital or nonhospital residential), type of drug dependency, type of staff, and extent of ancillary and other support services provided.

Following are the "Reasonable national estimates of annual drug abuse treatment operational costs by environment and modality of treatment for needle-drug-dependent persons" that were developed by the group on September 2, 1987:

- **OUTPATIENT METHADONE MAINTENANCE: \$3,000/PATIENT TREATMENT SLOT/YEAR.** Services include physical exam, medication, counseling, blood and urine laboratory testing, and ancillary services.
- **OUTPATIENT DRUG-FREE: \$2,300/PATIENT TREATMENT SLOT/YEAR.** Services usually include all those mentioned above except for methadone medication. Because it is usually not possible to successfully treat needle-drug-dependent persons initially on an outpatient drug-free basis, this

environment and modality of treatment should be considered primarily as followup and aftercare to residential treatment or methadone maintenance treatment.

- **NONHOSPITAL RESIDENTIAL DRUG-FREE:**

-**\$14,600/ADULT CLIENT TREATMENT SLOT/YEAR (APPROXIMATELY \$40/DAY).** Services include physical exam, intensive counseling and therapy, laboratory testing, housing, food, clothing, education, job placement, and ancillary services.

-**\$18,000/ADOLESCENT CLIENT TREATMENT SLOT/YEAR.** Services include all those noted above; the higher cost is due primarily to more intensive education support services.

The other drug treatment costs noted above appeared to be reasonable national estimates as of September 1987. However, actual costs will vary across cities and programs due to differences in salaries, cost of living, specific services components, the age and type of buildings, and related factors. The experts who developed these figures also developed estimated costs for drug detoxification, which follow. However, due to several factors, including but not limited to less reliable data and differences among drugs, the drug experts had less confidence in the validity of these detox cost estimates.

- **OUTPATIENT DETOXIFICATION: \$4,000/PATIENT TREATMENT SLOT/YEAR (APPROXIMATELY \$11/DAY)**
- **NONHOSPITAL INPATIENT RESIDENTIAL DETOXIFICATION: \$31,000/PATIENT TREATMENT SLOT/YEAR (APPROXIMATELY \$85/DAY)**

Because the costs noted above were developed as of September 2, 1987, it is likely that today, approximately 3 years later, actual costs would be 10 to 20 percent higher than those shown.

### **National Drug and Alcoholism Treatment Unit Survey (NDATUS) Conducted on October 30, 1987**

As stated in the 1987 NDATUS Final Report published in 1989, NDATUS "is a national survey which is designed to measure the location, scope, and characteristics of drug abuse and alcoholism treatment and prevention facilities, services, and activities throughout the United States, the District of Columbia, and the U.S. Territories." It includes not only public and private not-for-profit

**TABLE 10.** *Number of drug abuse and combined treatment units, drug abuse clients in treatment, budgeted capacity, and utilization rate by State: October 30, 1987*

State	Treatment Units	Clients in Treatment	Budgeted Capacity	Utilization Rate
Alabama	35	858	1,479	58.0
Alaska	20	328	1,028	31.9
Arizona	64	3,023	3,803	79.5
Arkansas	42	842	1,176	71.6
California	615	40,522	48,496	83.6
Colorado	101	2,612	3,769	69.3
Connecticut	99	4,148	4,621	89.8
Delaware	10	369	487	75.8
District of Columbia	19	2,375	2,771	85.7
Florida	212	9,379	12,022	78.0
Georgia	57	4,094	4,868	84.1
Hawaii	31	536	883	60.7
Idaho	28	690	1,118	61.7
Illinois	165	7,299	9,318	78.3
Indiana	89	2,857	4,341	65.8
Iowa	90	1,130	2,657	42.5
Kansas	74	1,935	2,915	66.4
Kentucky	110	1,769	3,164	55.9
Louisiana	77	4,264	4,930	86.5
Maine	37	643	1,822	35.3
Maryland	113	6,219	7,788	79.9
Massachusetts	127	4,866	6,855	71.0
Michigan	200	6,041	11,319	53.4
Minnesota	132	1,556	2,538	61.3
Mississippi	61	1,022	2,863	35.7
Missouri	99	3,436	5,442	63.1
Montana	13	373	424	88.0
Nebraska	103	1,530	2,301	66.5
Nevada	38	854	1,248	68.4
New Hampshire	43	1,189	1,447	82.2
New Jersey	130	10,982	11,466	95.8
New Mexico	29	1,052	1,418	74.2
New York	345	69,275	70,845	97.8
North Carolina	82	2,404	3,353	71.7
North Dakota	28	723	1,083	66.8
Ohio	228	9,190	12,405	74.1
Oklahoma	53	1,491	2,700	55.2
Oregon	81	2,334	4,695	49.7
Pennsylvania	333	13,001	19,493	66.7
Puerto Rico	44	4,449	4,069	109.3
Rhode Island	20	1,381	1,488	92.8
South Carolina	49	2,296	3,400	67.5
South Dakota	26	145	518	28.0
Tennessee	54	2,611	3,456	75.5
Texas	242	8,614	12,286	70.1
Utah	41	1,464	1,627	90.0
Vermont	16	416	531	78.3
Virginia	74	3,912	5,252	74.5
Washington	87	4,437	5,951	74.6
West Virginia	17	202	280	72.1
Wisconsin	111	2,442	3,745	65.2
Wyoming	21	571	884	64.6
<b>Totals</b>	<b>5,015</b>	<b>260,151</b>	<b>328,838</b>	<b>79.1</b>

NOTE: Excludes units that did not report budgeted capacity for drug abuse clients.

SOURCE: NIDA and NIAAA, 1987 National Drug and Alcoholism Treatment Unit Survey.

facilities (as does SADAP for those programs funded by the State agencies) but also attempts to include all non-State-funded programs such as all private for-profit programs. It was conducted as a point prevalence survey based on data collected as of October 30, 1987.

Table 10 is the NDATUS table that includes information on the “Number of Drug Abuse and Combined Treatment Units, Drug Abuse Clients in Treatment, Budgeted Capacity, and Utilization Rate by State: October 30, 1987.” The overall utilization rate shown is 79.1 percent, ranging from lows of 28.0 percent in South Dakota and 31.9 percent in Alaska to highs of 109.3 percent in Puerto Rico and 97.8 percent in New York.

Table 11 is the NDATUS table that presents information on the “Number of Drug Abuse Treatment Units, Drug Abuse Clients in Treatment, Budgeted Capacity, and Utilization Rate According to Unit Orientation and Ownership:

**TABLE 11.** *Number of drug abuse treatment units, drug abuse clients in treatment, budgeted capacity, and utilization rate according to unit orientation and ownership: October 30, 1987*

Unit Orientation	Unit Ownership				Total
	Private		Public		
	For-Profit	Nonprofit	State/Local	Federal	
Drug-Only	83	705	266	13	1,067
Units	14,372	87,843	39,202	1,846	143,263
Clients	19,629	93,426	41,844	2,286	157,185
Capacity	73.2	94.0	93.7	80.8	91.1
Utilization rate					
Combined	645	2,595	604	104	3,948
Units	14,498	71,235	24,875	6,280	116,888
Clients	27,621	105,154	30,699	8,179	171,653
Capacity	52.5	67.7	81.0	76.8	68.1
Utilization rate					
Total					
Units	728	3,300	870	117	5,015
Clients	28,870	159,078	64,077	8,126	260,151
Capacity	47,250	198,580	72,543	10,465	328,838
Utilization rate	61.1	80.1	88.3	77.6	79.1

NOTE: Excludes data from units that did not report budgeted capacity.

SOURCE: NIDA and NIAAA, 1987 National Drug and Alcoholism Treatment Unit Survey.

**TABLE 12.** *Number of drug abuse units reporting funding, total funding, average funding per unit, annual unduplicated client count, and average funding per client by source of funds: funding for fiscal year, including October 30, 1987, and clients treated in 12-month period ending with that date*

Funding Source	Units Reporting	Total Funding (\$1,000s)	Average Funding Per Unit (\$1,000s)	Annual Unduplicated Client Count	Dollars Per Client
<b>Federal</b>					
ADAMHA program support (other than block grants)	176	11,055	62.8	32,172	344
Other Federal funds	431	32,117	74.5	85,942	374
Subtotal	565	43,172	73.8	109,610	394
<b>State/Local Government</b>					
State (includes ADAMHA block grants)	2,429	345,703	142.3	473,899	729
Local (e.g., city, county)	1,517	62,607	41.3	268,135	233
Government fees for service	683	72,464	106.1	100,452	721
Subtotal	3,055	480,774	157.4	563,035	854
<b>Other Public</b>					
Public welfare (e.g., title XX, food stamps)	686	55,364	80.7	132,935	416
Public third party (e.g., CHAMPUS, Medicaid)	1,239	136,536	110.2	292,112	467
Subtotal	1,764	191,900	108.8	379,474	506
<b>Private</b>					
Donations	1,102	26,874	24.4	168,327	160
Private third party (e.g., Blue Cross/Blue Shield, HMO)	1,739	336,730	193.6	290,789	1,199
Client fees	3,065	153,153	50.0	539,119	284
Subtotal	3,442	516,757	150.1	598,649	863
<b>Other</b>	728	37,384	51.4	125,998	297
<b>Totals</b>	<b>4,227</b>	<b>1,269,987</b>	<b>300.4</b>	<b>743,982</b>	<b>1,707</b>

NOTE: Based on drug abuse data from drug-only and combined alcohol and drug abuse treatment units. Excludes data from units that did not report annual unduplicated number of clients and did not report funding. Due to rounding to thousands, funds may not sum to total. Totals and subtotals for units reporting and annual unduplicated client count may not equal the sum of the values for the component funding sources as units may report funds from multiple sources. As clients could have been treated at more than one unit, the annual unduplicated client count column may include some multiple counting of clients.

SOURCE: NIDA and NIAAA, 1987 National Drug and Alcoholism Treatment Unit Survey.

October 30, 1987." The utilization rate ranges from highs of 88.3 percent in "Public State/Local" units, 80.1 percent in "Private Nonprofit" units, and 77.6 percent in "Public Federal" units to a low of 61.1 percent in "Private For-Profit" units.

Finally, table 12 is the NDATUS table that includes information on the "Number of Drug Abuse Units Reporting Funding, Total Funding, Average Funding Per Unit, Annual Unduplicated Client Count, and Average Funding Per Client by Source of Funds: Funding for Fiscal Year, Including October 30, 1987, and Clients Treated in 12-Month Period Ending With That Date." The total average

funding per client is \$1,707. From this table it is not clear as to precisely what proportion of these clients receive hospital inpatient, residential, or outpatient services, nor is the length of stay specified. However, another NDATUS table on the "Number of Drug and Combined Units, Drug Abuse Clients in Treatment, Budgeted Capacity and Utilization Rate by Unit Location and Treatment Environment: October 30, 1987" contains the following information, which indicates that a very high proportion (85.5 percent) of the clients are served on an outpatient basis:

<u>Type of Service</u>	<u>Number of Clients</u>		<u>Utilization Rate</u>
Hospital Inpatient	10,579	(4.1%)	57.2%
Residential	27,230	(10.5%)	76.8%
Outpatient	222,342	(85.5%)	80.9%
Total	260,151		79.1%

However, the average length of stay for clients as outpatients or in other environments is not specified within the NDATUS report.

## **SUMMARY AND CONCLUSIONS**

Data from SADAP indicate that total alcohol and other drug treatment monies expended during FY 1988 in programs that receive at least some State funds were more than \$1.6 billion. Also, data from NDATUS for the fiscal year encompassing October 30, 1987, demonstrate that total monies from all sources for drug abuse treatment (excluding alcohol, but including non-State-funded programs) exceeded \$1.3 billion.

Total other drug client treatment admissions as reported in SADAP for FY 1988 were 518,851; the number of other drug abuse clients in treatment as reported in NDATUS as of October 30, 1987, was 260,151.

From a meeting of experts convened by NASADAD on September 2, 1987, the annual estimated cost of drug treatment (excluding detoxification) for needle users at that time ranged from \$2,300 for outpatient drug-free, to \$3,000 for outpatient methadone maintenance, to \$14,600 for adult nonhospital residential drug-free, to \$18,000 for adolescent nonhospital residential drug-free.

The above data and lack of data point to the need for more extensive well-designed data collection studies on the cost, capacity, and utilization of drug

treatment services. Today, significant information gaps exist. Such data are required for the administration, Congress, and States to better plan for the availability, accessibility, and support of expanded alcohol and other drug dependency treatment services for persons in need of such treatment services.

## BIBLIOGRAPHY

- Butynski, W. *Special Report on Meeting of Selected State Directors and Other Experts To Develop Reasonable Estimates on Drug Treatment Costs for Needle Drug Abusers*. National Association of State Alcohol and Drug Abuse Directors, Inc., Washington, DC, September 1987.
- Butynski, W., and Canova, D. *State Resources and Services Related to Alcohol and Drug Abuse Problems: Fiscal Year 1987. An Analysis of State Alcohol and Drug Abuse Profile (SADAP) Data*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., August 1988.
- Butynski, W.; Canova, D.; and Jensen, S. *State Resources and Services Related to Alcohol and Drug Abuse Problems: Fiscal Year 1988. An Analysis of State Alcohol and Drug Abuse Profile (SADAP) Data*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., August 1989.
- Butynski, W., and Record, N. *State Resources and Needs Related to Alcohol and Drug Services: Fiscal Year 1983*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., March 1983.
- Butynski, W.; Record, N.; Bruhn, P.; and Canova, D. *State Resources and Services Related to Alcohol and Drug Abuse Problems: Fiscal Year 1986. An Analysis of State Alcohol and Drug Abuse Profile (SADAP) Data*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., May 1987.
- Butynski, W.; Record, N.; and Yates, J. *State Resources and Services Related to Alcohol and Drug Abuse Problems. An Analysis of State Alcoholism and Drug Abuse Profile (SADAP) Data*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., April 1984.
- Butynski, W.; Record, N.; and Yates, J. *State Resources and Services for Alcohol and Drug Abuse Problems: Fiscal Year 1984. An Analysis of State Alcohol and Drug Abuse Profile (SADAP) Data*, Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., May 1985.
- Butynski, W.; Record, N.; and Yates, J. *State Resources and Services Related to Alcoholism and Drug Abuse Problems: Fiscal Year 1985. An Analysis of State Alcohol and Drug Abuse Profile (SADAP) Data*. Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., May 1986.
- National Institute on Drug Abuse and National Institute on Alcohol Abuse and Alcoholism. *National Drug and Alcoholism Treatment Unit Survey*

*(NDATUS). 1987: Final Report.* National Institute on Drug Abuse and National Institute on Alcohol Abuse and Alcoholism. DHHS Pub. No. (ADM)89-1626. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, 1989.

## **AUTHOR**

William Butynski, Ph.D.  
Executive Director  
National Association of State Alcohol and Drug Abuse Directors, Inc.  
Suite 520  
444 North Capitol Street, N.W.  
Washington, DC 20001

# **Do More. . . and Do It Better: Staff-Related Issues in the Drug Treatment Field That Affect the Quality and Effectiveness of Services**

*John S. Gustafson*

## **INTRODUCTION**

Drug treatment programs in the United States are straining to meet two equally pressing demands: Do more and do it better. The urgency of these requirements has escalated as a direct result of several dramatic societal trends, including the spread of acquired immunodeficiency syndrome (AIDS), the “crack” epidemic, and the increase in homeless persons, mentally ill chemical abusers, and substance abusers who are parents.

Although much emphasis at the Federal and State levels has been placed on the expansion of services for individuals with acute needs, there also is widespread recognition of the need to ensure the quality and effectiveness of services being provided. The compelling pressure to expand services and create new treatment slots to accommodate more people has overshadowed the need to step back and examine (1) the present-day problems faced by individual drug treatment providers, program administrators, counselors, and line staff and (2) the challenges presented to the substance abuse field by the mandate to do more and do it better.

This chapter highlights some prominent and critical staffing issues in the drug treatment field that affect the quality and effectiveness of services rendered. This examination touches on the following issues:

1. Program staff recruitment and retention problems
2. The need for credentialing of persons providing substance abuse services

3. Capital improvement needs as they relate to facility maintenance, provision of services, and staff morale
4. Dealing with persons with AIDS and human immunodeficiency virus (HIV)
5. Staff training and development

By remaining sensitive to and addressing the needs, problems, and issues faced by drug treatment program staff, Federal and State policymakers and service regulators make an important investment in the efficacy of the system.

### **PROGRAM STAFF RECRUITMENT AND RETENTION PROBLEMS**

In recent years, much concern has been expressed over difficulties in recruiting and retaining substance abuse treatment program personnel. Precise and current data on the problem at the national level are severely limited. The most "contemporary" perspective on staffing patterns in the United States is found in the 1982 National Drug and Alcohol Treatment Utilization Survey (NDATUS) carried out by the National Institute on Drug Abuse (NIDA) (1982). The survey showed that there were 3,381 paid staff separations from the reporting drug abuse treatment units for October 1980 through September 1982. When viewed against a total full-time paid staff work force of 13,130 the level of staff turnover becomes apparent. The paid staff categories experiencing the largest number of separations were counselors, administrative or support staff, and counselors who were credentialed and/or had a counseling degree. NIDA plans to include staffing data again in the 1989 NDATUS.

On this subject, it is generally acknowledged by the New York State Division of Substance Abuse Services and practitioners in the field that unless an effort is made to improve the salaries and benefits of frontline clinical staff, our treatment system will deteriorate to where it will be impossible to attract qualified personnel. Ultimately, client services will suffer. This assessment is not unlike conclusions reached by other State drug authorities and drug program personnel.

In cooperation with local service providers, the Division recently carried out a survey of all its funded treatment programs on this issue (Kott and Watkins 1989). Specifically, the survey was conducted in an effort to (1) determine the range of current staff salaries for selected critical staff positions (e.g., paraprofessional counselors, social workers, and medical doctors), (2) identify the extent of staff recruitment and retention problems and the causes thereof, (3) determine the comprehensiveness of fringe benefit packages offered by

drug treatment programs, and (4) determine the costs to the Division of raising salaries and fringe benefits to reasonable levels if necessary.

The survey revealed that across the State salaries were unacceptably low. The most serious recruitment problems experienced by Division-funded treatment programs lay in the paraprofessional counselor, vocational specialist, bachelor's degree-level counselor, and social worker positions. By far, the worst retention problem existed among the paraprofessional counselors where 70 percent of the programs reported such difficulties. Shortages of qualified candidates, although apparent for all positions, were particularly acute among the paraprofessional counselors and social workers. Of the 2,165 full-time equivalent positions reported by these treatment programs, 276 (13 percent) were vacant, 109 (5 percent) for more than 6 months.

Reasons for high turnover other than salary structure, cited by treatment programs and identified below, point out other areas of remediation that need to be addressed to attract and retain qualified staff:

1. Inadequate fringe benefit packages
2. Reluctance of program job applicants to work with drug abusing populations
3. Location of drug treatment programs in less desirable areas
4. Shortage of job candidates with relevant experience and qualifications
5. Fear of AIDS

Conclusions reached by the survey/report indicate that drug programs traditionally have been at a disadvantage when competing for qualified clinical staff. The primary factors that put drug programs low on the list of places that counselors and other clinicians want to work are the negative stereotype of drug abusers, the location of treatment programs in lower socioeconomic neighborhoods, and recently, the AIDS epidemic. Perhaps the most negative aspect of employment in drug programs is the low salaries paid to substance abuse workers. As a result, the best counselors/clinicians seek jobs elsewhere. Less qualified staff accept jobs in drug treatment programs, receive experience and training to improve their skills, and within a year or two leave for jobs in government or other social service agencies where the salaries are significantly better.

These problems are not unique to New York State but mirror a problem of national scale and significance. Given that staff turnover results in low staff morale, disruption of services, lack of client progress, untimely termination of clients, and other management and compliance problems, it is paramount that local staffing needs to be addressed and remedied.

## **NEED FOR CREDENTIALING**

The pros and cons of developing counselor credentialing systems have received considerable discussion over the years. In her review of counselor credentialing issues, Dr. Felice Schulman-Marcus notes that

On one side are those who contend that credentialing will lead to improved client care, greater professionalism, and eventually third party payments. On the other side are those who feel that while there may be some benefits, these are outweighed by the effort and financial commitment that would be required to develop and operate such a system (Schulman-Marcus 1986, p. 1).

The trend in the drug field nationally, however, has been toward the adoption of credentialing. Certification is the most commonly used method of credentialing drug counselors because this is viewed as a better method of recognizing the nontraditional learning and work experience in the field. Many States are establishing consortiums to standardize aspects of their systems and grant reciprocity. On a local level, the question of credentialing substance abuse counselors has received renewed attention with the implementation of a system for credentialing alcoholism counselors. Many in the drug prevention and treatment system advocate a comparable system so that they too can receive the recognition attached to credentialing. These factors have combined to create an added impetus to define the elements unique to the areas of substance abuse counseling and to set up a process to measure and recognize the qualifications of workers in the field.

According to Schulman-Marcus, proponents of credentialing contend there are several important benefits that support the worth of such systems. They view credentialing as an effective means to:

1. Ensure a qualified work force that can provide professional services to clients
2. Increase feelings of professionalism among substance abuse workers, leading to greater job satisfaction, improved performance, and less staff turnover

3. Upgrade the status of the substance abuse field in a society where credentials are viewed as equivalent to competency
4. Provide recognition to substance abuse workers who have acquired valuable skills through nontraditional means and work experience
5. Convince third-party payers to provide reimbursement for substance abuse treatment
6. Increase the career mobility for substance abuse workers by making it easier for them to enter other human service fields (Schulman-Marcus 1986, p. 4)

In recognition of the complexities of substance abuse and the need for expertise in the provision of substance abuse services, the Division established a credentialing advisory board, composed of service provider representatives, health and mental health professionals, and members of the general public, to review the subject of credentialing for substance abuse specialists and to provide recommendations for the development of a credentialing system. Based on the advisory board's recommendations, the Division recently published proposed standards and requirements for the credentialing of substance abuse specialists who provide direct client services, including counseling, assessment, referral, and prevention and education. Under the proposed system, individuals who meet minimum eligibility requirements (education, experience, character, and competence) would qualify to take the necessary written and oral exam for the credentialing, which would remain valid for 3 years. Renewal would be dependent on completion of a minimum number of education and/or training hours.

Importantly, our proposed credentialing system supports the delivery of services by former substance abusers and recognizes the contributions they make to the field. Program graduates are vivid proof that treatment works: through their personal experience with the perils of drug abuse, they provide a powerful message, which is demonstrated by the valuable role played by former abusers, for example, in AIDS outreach efforts to intravenous (IV) drug users, which is described in New York State's Five-Year Interagency AIDS Plan:

The subculture of IV drug users has been historically difficult to engage in education and drug treatment due to a lifestyle outside of the mainstream of society, distrust of government and fear of arrest for engaging in illegal behavior. Knowledge, Attitude and Behavior (KAB) studies involving IVDUs demonstrate the need for outreach conducted by indigenous counselors who speak the language, know the drug

culture and can blend in with street activity with minimal disruption. These ex-addict counselors interact with targeted groups to gain their trust and provide one-to-one education (New York State 1989, pp. 41-42).

## **CAPITAL IMPROVEMENT NEEDS**

The poor physical working environment of some drug programs is also a factor affecting their ability to attract and retain qualified personnel and has serious and negative consequences on the morale of program staff. It is increasingly obvious that the infrastructure of the drug treatment system needs to be shored up, if only to maintain existing services delivery. Many community-based treatment facilities are in dire need of physical plant renovation. Over the past decade, increased funding for treatment was used to create additional slots at the expense of the capital improvement needs of programs. Existing facilities in many instances are old, are in poor repair, and have large deferred maintenance needs. Without a significant capital rehabilitation effort—one that is supported and not hindered by Federal regulation such as that governing the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) block grant—the treatment system is in danger of further deterioration.

Physical plant problems pose serious challenges to the continued expansion of this Nation's treatment capacity. It is evident that additional capacity can only be built with new capital investment at present sites, together with the identification of new sites and provision of substance abuse treatment services at nontraditional locations.

## **DEALING WITH PERSONS WITH AIDS AND HIV INFECTION**

Certainly, AIDS has changed substance abuse treatment programs in very significant and basic ways. The range of services and personnel required to meet the needs of the individual in treatment demands that programs offer more linkages to primary health care, medical treatment, social services, housing, and other needs. The difficulty of talking with clients about AIDS-related issues and behavior change means that an enriched counselor-to-client ratio is needed and that intensive staff training needs to take place. The demand for qualified staff in an underpaid field where there is already a shortage of personnel further exacerbates the situation.

The Division has been engaged in several AIDS initiatives related to staff development needs and issues. This involvement, for example, has included the development of an AIDS prevention and risk reduction model for treatment programs known as the "Comprehensive AIDS Risk-Reduction Effort"

(C.A.R.E.) (Bixler et al. 1987). The model not only stresses the need for behavior change among drug treatment clients and their sexual partners who engage in high-risk drug and sexual behavior but also provides a framework for program administrators to deal with AIDS and substance abuse and its consequence on the relationship between drug counselors and clients. The model promotes an administrative policy that recognizes that clients and staff need the reassurance that, if they come down with AIDS, they will not be abandoned by their program. Staff education and training also are strong components of the overall C.A.R.E. approach.

The Division also has been involved with the funding and placement of AIDS coordinators in community-based treatment programs. Individuals in these positions are responsible for providing education and training to clients and staff, initiating AIDS support groups, providing case management services, and acting as liaisons with appropriate service agencies. The coordinators also ensure that treatment programs function as community centers for AIDS prevention and oversee the delivery of crucial risk-reduction information to affected individuals and their families.

Efforts to control the spread of AIDS and HIV infection have also led to several innovative and exciting outreach programs that target IV drug users who typically shun the traditional delivery of services and assistance. One such effort is the AIDS Prevention Training for Intravenous Drug Abusers Paroled from Prison (ARRIVE) project developed by Narcotic and Drug Research, Inc. The primary purposes of this 3-year research and demonstration project, supported by NIDA, are to develop, implement, and evaluate an AIDS prevention training program for parolees with histories of IV drug use (Wexler, personal communication, 1989). The primary goals are as follows:

1. Prevent relapse to IV drug use and associated AIDS risk behaviors
2. Help parolees become productively reintegrated into the community
3. Create a network of trained persons with appropriate life experience who will be of service to their communities in AIDS prevention

Participants in the project take part in an 8-week, 48-hour, 24-session training program. Areas covered include defining HIV, AIDS, and AIDS-related complex; AIDS transmission, prevention, and risk reduction; AIDS, condom use, and drug paraphernalia; needs of AIDS victims and those at risk; clinical symptoms of AIDS; issues involved with HIV testing and interpretation of test results; defining and creating a support group; anxiety and stress reduction methods; dealing with anger and powerlessness; recognition of and responses

to depression; approaches to drug relapse prevention; and differentiating between abstinence and recovery. The ARRIVE training program also offers participants an opportunity to be tested for HIV (on a free, confidential, and voluntary basis) as well as job readiness preparation for employment in the AIDS prevention/outreach field. This program has considerable potential for assisting a population that is a potentially dangerous AIDS vector.

## **STAFF TRAINING AND DEVELOPMENT**

When you consider the goal of meeting “treatment on demand” as recommended by the chairman of the Presidential Commission on the Human Immunodeficiency Virus Epidemic (Watkins 1988) the necessity for comprehensive staff training and development activities is evident. Among the recommendations, the chairman notes the following:

A significant increase in trained personnel will be necessary in order to implement new programs (32,000 individuals will have to be enlisted into joining the ranks of drug abuse workers). Staff training should be enhanced through developing new programs at community colleges, universities, vocational and technical schools offering internships in existing drug programs, and training of ex-addicts. Federal leadership is needed in the development of model curricula for training programs as well as establishing drug abuse prevention, treatment and research as viable and rewarding professions (Watkins 1988, p. 10).

Training has demonstrable benefit in other areas as well, such as upgrading the skills and knowledge base of existing drug treatment personnel and providing workers in allied human service agencies with an understanding of substance abuse. Training also is a common element in credentialing systems.

In New York State, the Training Institute—under contract to the Division—provides more than 36 training programs to personnel working with clients who have substance abuse problems (Narcotic and Drug Research, Inc. 1989). They address such areas as individual, group, and family counseling; different treatment populations; chemotherapy issues; general substance abuse issues; program management; staff and trainer development; and drug abuse prevention. Importantly, academic credit and/or continuing education units are available for many of the training programs offered by the Institute.

In terms of long-range plans, the Training Institute is contemplating a training delivery model based on a systems rather than a generic approach. This assessment is based on the Institute’s extensive work with AIDS and IV drug use curriculum development as well as the recognition of the multiplicity of

needs faced by distinct service provider groups. Curricula, training courses, manuals, and related items would therefore be developed and delivered for specific systems such as methadone maintenance, residential therapeutic communities, and school-based and community-based prevention programs.

## **CONCLUSION**

In 1988, \$2.1 billion from all sources was expended to provide for alcohol and other drug abuse services (Butynski et al. 1989). Of this amount, State funding accounted for nearly \$910 million, and local funding accounted for \$191 million. The Federal Government, through ADAMHA and Alcohol and Drug Abuse Treatment and Rehabilitation block grants, contributed almost \$355 million.

With the passage of the 1988 Anti-Drug Abuse Act (Public Law 100-690), Federal responsibilities have increased due to new data collection mandates, technical assistance requirements, and additional treatment outcome studies. It is hoped that, as the new provisions of the act are implemented, the Federal Government, via ADAMHA and NIDA, will again take a position of national leadership in assisting the States and local communities to expand and improve drug abuse treatment services.

Generally, new funding for drug abuse treatment is specifically identified for capacity ("slot") expansion. Programs' contractual capacities can continue to be increased, but unless staffing problems are resolved, additional clients will not be able to be served. Specific funds must be earmarked to address salary and fringe benefit increases, training programs, an internship system with colleges and universities, and maintenance and renovation of deteriorating facilities. We must "get our house in order" if we are to provide effective, quality services to those desperately in need of help. Although some States may individually assess the impact of expanding drug treatment capacity on the workload of existing program staff and the need to attract and retain additional qualified personnel, a national perspective on the problem is lacking. This void represents an excellent opportunity for ADAMHA and NIDA, in conjunction with the States, to provide the national leadership that is critically needed.

## **REFERENCES**

- Bixler, R.; Palacios-Jimenez, L.; and Springer, E. *Comprehensive AIDS Risk-Reduction Effort - AIDS Prevention for Substance Abuse Treatment Programs*. New York: Narcotic and Drug Research, Inc., 1987.
- Butynski, W.; Canova, D.; and Jensen, S. *State Resources and Services Related to Alcohol and Drug Abuse Problems: Fiscal Year 1988*. An

- Analysis of State Alcohol and Drug Abuse Profile Data.* Washington, DC: National Association of State Alcohol and Drug Abuse Directors, Inc., 1989.
- Kott, A., and Watkins, T. *Report on the DSAS Personal Services Survey.* New York: New York State Division of Substance Abuse Services, Bureau of Research and Evaluation, 1989.
- Narcotic and Drug Research, Inc. *Training Institute Program Guide 1989-1990.* New York: Narcotic and Drug Research, Inc., 1989.
- National Institute on Drug Abuse. *Main Findings for Drug Abuse Treatment Units, September 1982: Data from the National Drug and Alcoholism Treatment Utilization Survey, NDATUS.* Statistical Series, Series F, No. 10. Rockville, MD: National Institute on Drug Abuse, 1982.
- New York State. *AIDS - New York's Response - A Five-Year Interagency Plan.* Albany, NY: New York State Department of Health, 1989.
- Schulman-Marcus, F. *Counselor Credentialing - Exploration of the Issues.* New York: Narcotic and Drug Research, Inc., 1986.
- Watkins, J. *Chairman's Recommendations for Consideration by the Full Presidential Commission on the Human Immunodeficiency Virus Epidemic,* 1988.

## **AUTHOR**

John S. Gustafson, M.A.  
Deputy Director for Government and Community Relations  
New York State Division of Substance Abuse Services  
Executive Park South  
Albany, NY 12203

# Outpatient Drug Abuse Treatment Services, 1988: Results of a National Survey

*Richard H. Price, A. Celeste Burke, Thomas A. D'Aunno, David M. Klingel, William C. McCaughrin, Jane A. Rafferty, and Thomas E. Vaughn*

## INTRODUCTION

The Nation's system of outpatient treatment for drug abuse is undergoing large systemic changes that have important implications for the organization and effectiveness of outpatient drug abuse treatment. Two major changes are of particular significance: (1) the movement of outpatient drug abuse treatment services into the mental health sector and the health care system in general (Drug Abuse Policy Office 1984) and (2) the shift of drug abuse treatment from Federal to State control (Tims 1984). These changes in the environment influencing outpatient drug abuse services affect the way in which services are delivered and may ultimately shape treatment efficiency and effectiveness (Burke et al. 1983; D'Aunno and Price 1985; Price and D'Aunno 1984).

From a policy perspective, these changes have important implications for the effectiveness of drug abuse treatment (Hubbard et al. 1983, 1984; Jaffee 1984; Senay 1983, 1984). For example, a 1984 national survey of drug-free outpatient treatment addressed the question of the appropriateness of the community mental health center for the delivery of this treatment (Burke et al. 1983). Jaffee (1984) and Frances (1988) observed that a substantial portion of drug abuse patients show signs of psychopathology and depression in particular. Will drug abuse treatment delivered in the mental health system be more responsive to multiproblem patients with both drug abuse and mental health problems or will one set of problems receive undue attention at the expense of the other?

A second set of questions is raised by the passage of the Omnibus Reconciliation Act of 1981, which dramatically changed the way Federal support is provided to drug abuse treatment. The act provides that alcohol, drug abuse,

and mental health block grants be administered by individual States rather than by the National Institute on Drug Abuse (Tims 1994). In outpatient treatment programs, this shift to State authority may provide the opportunity for better coordination of outpatient drug treatment at the State level.

These changes in the drug abuse treatment system and their relationships to treatment can be understood in the context of a framework that relates the organizational environment of treatment programs, including funding sources, licensing authorities, and referral sources, to changes in the treatment organizations themselves. These organizational changes may in turn affect the relationship between clients and treatment organizations and ultimately have an impact on the effectiveness of treatment itself (D'Aunno and Price 1985; Price and D'Aunno 1994; Friedman and Fulop 1988). This current national survey of outpatient drug abuse treatment organizations provides an opportunity both to monitor changes in the treatment system and to examine differences in outpatient drug abuse treatment services that are associated with differences in organizational affiliation. These differences include (1) the context of service delivery, including services provided in hospital settings, mental health settings, and other human service settings, and (2) differences in treatment modality, particularly methadone outpatient treatment programs, compared with those in drug-free outpatient programs.

In 1987 a research team convened a major policy review meeting (Price et al. 1987) that involved experts in the outpatient drug abuse treatment sector (including authorities on service provision), representatives of the health insurance industry, and authorities on the treatment system from the public and private sectors as well as from methadone and drug-free programs. This policy group was asked to address major questions concerning current and anticipated changes in the outpatient drug abuse treatment system: changes in the composition of the client population requiring treatment, problems and needs in terms of access and availability, and several other critical questions. Among the client needs identified were increased access to care, higher quality treatment, relapse prevention, better trained personnel, and concern with the special needs associated with comorbidity due to AIDS and psychopathology.

This chapter provides an initial response to some of the questions and concerns raised by this policy group as well as the first opportunity to report the results of the National Drug Abuse Treatment System Survey (NDATSS). These initial data contrast services delivered in different organizational settings (hospitals, mental health centers and other human service organizations, and drug-free

versus methadone outpatient treatment programs) by addressing the following questions:

- *Who is receiving outpatient drug abuse treatment services, and where are clients coming from?* This information concerns not only the demographic characteristics of clients but also the nature of drug problems encountered by clients in the outpatient treatment system. This chapter examines the sources of referrals to outpatient treatment, because some referral sources may be heavily represented, whereas other potential referral sources may refer few clients to the outpatient treatment system.
- *What do outpatient treatment services look like?* These data focus on a variety of characteristics of treatment services and how they vary across major dimensions of the treatment system. This concerns the nature of staffing in the treatment system and how units vary in terms of the credentials of their staffs (e.g., professional certification and training and years of education). This chapter also describes treatment services as the client progresses through the system, that is, an examination of the client's career beginning with diagnostic services to an identification of core treatment services and the availability of special or additional services. At the end of the clients career, of course, the nature of referral patterns from outpatient drug abuse treatment to other treatment or aftercare facilities also are examined in this chapter.
- *What are the reported outcomes of treatment?* This survey is primarily descriptive in nature and cannot provide data of the sort obtained in controlled clinical trials. However, respondents were asked about a range of treatment outcomes that they believe are being achieved in their treatment programs. This chapter reports these outcomes and respondents' perceptions of the degree to which treatment goals are being met.
- *What efforts are being made to increase the effectiveness or quality of treatment?* Scientific information from clinical trials is one ingredient for improving the effectiveness of the outpatient drug abuse treatment system. However, licensing and quality assurance efforts are also under way to improve the quality of treatment in the outpatient drug abuse sector just as they are in the health sector in general. Information is reported from a national sample of treatment programs on licensing as well as quality improvement efforts and licensing requirements aimed at providing and maintaining the quality of treatment.

- *What do outpatient drug abuse treatment personnel believe about the ingredients of effective treatment?* Existing beliefs about what constitutes effective treatment, whether derived from clinical experience, scientific findings, or the ideological doctrines of various groups, may well affect clinical practice in the treatment system. For example, Friedman and Glickman (1987) found some beliefs about effective treatment that were negatively correlated to treatment effectiveness. This chapter reports respondents' beliefs about what makes clients ready for treatment, about appropriate qualifications of treatment personnel, and about the critical ingredients of effective treatment.

## **METHOD**

### **National Sample of Outpatient Drug Abuse Treatment Programs**

The Survey Research Center of the Institute for Social Research at the University of Michigan has developed the sampling frame for NDATSS. The sampling frame is a composite list of the names, addresses, and telephone numbers of approximately 8,500 drug abuse treatment programs across the United States. The frame is a large-scale, first-phase probability sample that has been compiled from available national lists and State and local directories and through contacts with local health officials. Each drug treatment program in the frame has been included with a known probability. Programs are cross-classified by public/private status, treatment modality (methadone or drug-free), and organizational affiliation—mental health center, hospital, or other human service organization.

The national frame was developed through the integration of four separate lists: (1) a national list of methadone treatment programs, (2) a national list of hospital-based drug treatment programs, (3) a comprehensive list of drug treatment programs developed for the 84 primary sampling units (PSUs) of the Survey Research Center's 1980 national sample design, and (4) a national one-in-three subsample of program listings from directories supplied to the Survey Research Center by the 50 states. The four component lists, which have been integrated to form the national sampling frame for outpatient drug treatment programs, are described briefly below.

**National List of Methadone Treatment Programs.** The source of the computerized national list of methadone treatment programs is the listing published by the 1984 National Alcohol and Drug Abuse Treatment Program Inventory (NADATPI) directory, which was supplemented with additional methadone programs identified through screening of the sample program listings from the Survey Research Center national list and the one-in-three at-

large sample of programs from the State directories. Approximately 580 methadone program listings are included.

**National List of Hospital-Based Drug Treatment Programs.** A national list of hospital-based, drug-free (nonmethadone) treatment programs was directly derived from the 1984 NADATPI directory, including approximately 1,020 program listings, each of which was included in the composite national frame with certainty.

**Comprehensive List of Drug Treatment Programs for the PSUs of the Survey Research Center's 1980 National Design.** To achieve a probability sample of the Nation's private drug treatment programs, a two-stage sample design was used. A primary-stage sample of standard metropolitan statistical areas (SMSAs) and counties was drawn, followed by a second-stage sampling of drug treatment programs within selected PSUs. For this design, the chosen PSUs are the 84 PSUs of the 1980 Survey Research Center national sample. Within each of the 84 national sample PSUs, surveyors created a complete listing of all drug treatment programs currently operating within the sample SMSA or county. All known listing sources were extracted from existing lists; yellow page listings from telephone service areas were added; and all data were collated into a single combined list with obvious duplicates removed. Furthermore, printed listings were mailed to county senior health officers for review. Cooperation on the part of county health officers and staff was excellent. At the completion of this process, this list contained approximately 5,200 listings.

**National One-In-Three Subsample From State Directory Lists.** The center contacted State officials in each of the 50 states to obtain a current statewide directory of drug treatment programs. All states but one (Georgia) provided a directory of current programs. A total of 2,100 programs are included in this list, and a one-in-three sample of program listings was selected for the national list frame.

**Integrating the Multiple Lists To Form a National Sample Frame of Drug Treatment Programs.** A two-step procedure was used to integrate the multiple lists into a single, comprehensive national frame for the sampling of outpatient drug abuse treatment programs. After merging and identifying obvious duplicates, each program listing was assigned its correct total inclusion probability based on the separate probabilities of its inclusion on one or more of the four overlapping lists.

**Telephone Screening Procedure.** Based on the sampling frame, 2,442 programs were screened by telephone to ascertain their eligibility for the study.

Units were considered eligible if (1) they defined themselves as an outpatient substance abuse treatment unit, (2) the majority of their clients were outpatient substance abuse clients, and (3) they did not exclusively serve alcohol clients. Each program was contacted to determine its public/private status, treatment modality, and organizational affiliation—mental health center, hospital, or other human service affiliation. These programs were then reassigned to strata in the sample based on the screening information provided. Based on this screening information, outpatient drug abuse treatment programs were interviewed as shown in table 1. (These data are based on all respondents in the national sample. Weighted data to better reflect national representativeness will be used in forthcoming reports.)

**TABLE 1.** *Outpatient drug abuse treatment system survey: treatment units responding by treatment modality and organizational context*

Treatment Modality	Organizational Context			Total
	Mental Health Center	Hospital	Other	
Methadone	17	34	74	125
Drug-Free	134	96	214	444
Total	151	130	238	569

**Design and Development of the National Drug Abuse Treatment System Telephone Survey**

The national telephone survey of outpatient drug abuse treatment programs involved the development and administration of two different interviews. Typically, one survey was administered to treatment unit directors and the other to clinical supervisors in the units. For the most part, the director’s survey focused on the relationship of the treatment unit to key actors and organizations in the treatment organization’s environment. The clinical supervisor’s survey covered topics that concern the actual delivery of treatment services.

The director's survey began with a brief section on unit history and mission followed by questions on unit funding, licensing and accreditation, treatment unit data collection on clients, evaluation and client monitoring, collaboration and competition with other treatment organizations, relationships between the treatment unit and any parent organization, recent programmatic changes in the unit, and questions about respondent demographics.

The clinical supervisor's survey began with questions about referral sources to the treatment unit and organizations to which the unit referred clients, followed by information about treatment unit staff and staff relations and patterns of treatment, including information about client assessment, types of services delivered, special outpatient programs or services, treatment goals, and perceived treatment outcomes. In addition, clinical supervisors were asked about client characteristics, both in terms of client demographics and patterns of substance use. Finally, respondents were asked about their own demographic characteristics.

Two pretests were used to refine these interviews before the actual field interview period. The two separate interviews in the survey averaged about 90 minutes each to complete. Respondents seemed to be highly motivated, expressed interest in the survey, and often took considerable time to calculate figures or refer to reference materials or reports to enhance the accuracy of their responses. Overall, the refusal rate was low. The result was that 82 percent of the eligible units agreed to participate. The telephone survey produced 530 completed pairs of interviews.

## **RESULTS OF THE 1999 OUTPATIENT DRUG ABUSE TREATMENT SYSTEM SURVEY**

In providing preliminary answers to the five questions introduced earlier, overall results are sometimes reported for the entire sample. The answers to survey questions, which often differ sharply depending on whether methadone or drug-free treatment is being described or whether the outpatient treatment unit is located in a mental health center, hospital, or some other setting, highlight differences in treatment practices that emerge when treatment modalities are contrasted or when treatment in different organizational contexts is compared.

For the purposes of this report, methadone units are defined as those reporting at least 50 percent of their current outpatient substance abuse treatment clients as methadone clients. The remaining units are designated as drug-free treatment units. In assessing differences in clients and treatment patterns associated with different organizational contexts, the sample is divided into units delivering services in mental health centers, hospitals, and other organizational contexts.

## Who Is Receiving Outpatient Drug Abuse Treatment Services, and Where Are Clients Coming From?

Respondents were asked to estimate the percent of outpatient clients over the past complete fiscal year with different types of substance abuse problems (table 2). For the entire sample, an average unit client caseload of approximately 715 outpatient clients was seen in the last complete fiscal year; 42 percent had alcohol problems as their primary problem, and 53 percent had drug abuse as their primary problem. Across the entire outpatient drug

TABLE 2. *Percent of outpatient substance abuse treatment unit clients reported to have various drug problems*

Organizational Context	Mental Health Center		Hospital		Other		Total Sample	
Treatment Modality	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	N <sup>c</sup>
<b>Primary Problem</b>								
Alcohol	16.8	52.8	10.9	58.3	8.0	46.5	41.6	536
Drug abuse	85.6	37.6	93.4	35.7	91.5	46.7	53.1	537
<b>Type of Drug Abuse</b>								
Heroin	73.4	7.5	73.8	5.2	78.0	8.8	23.7	530
Nonprescription methadone	7.2	1.7	10.4	1.0	6.4	1.2	2.7	522
Opiates or synthetics	27.7	9.9	24.9	6.2	18.4	8.6	11.5	522
Barbiturates	9.5	6.7	7.0	7.5	7.3	6.8	7.1	525
Other sedatives	11.5	8.1	7.1	8.9	8.6	8.7	8.6	523
Cocaine (other than crack)	40.2	20.8	35.3	27.0	32.9	26.3	27.1	526
Crack	18.7	11.4	14.4	12.5	13.7	13.9	13.2	509
Amphetamines	11.6	11.9	5.4	11.0	7.5	11.4	10.5	527
Quaaludes	4.8	2.4	1.8	2.2	2.2	2.7	2.5	516
Over-the-counter drugs	17.7	6.5	5.6	7.9	3.9	7.7	7.1	517
Inhalants	2.3	2.7	1.3	5.0	1.1	3.2	2.9	523
Tranquilizers	27.0	11.0	18.7	12.1	18.9	10.2	13.0	519
PCP	3.5	2.4	1.8	3.2	2.7	4.4	3.3	523
Marijuana or hashish	45.1	39.9	45.1	37.6	31.1	45.2	40.8	532
LSD	3.5	4.5	1.8	5.6	1.7	5.3	4.4	522
Other hallucinogens	3.3	2.8	1.8	4.1	1.0	2.5	2.5	516
Multiple drugs	69.8	49.3	55.7	53.5	50.4	57.2	54.1	526
Other	21.2	4.3	8.4	6.1	6.0	4.9	5.8	526

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

treatment system, respondents reported that 54 percent of their clients had multiple drug problems. Furthermore, 41 percent of outpatient clients were reported to have marijuana problems, 27 percent cocaine problems, 24 percent heroin problems, 13 percent crack abuse problems, and 13 percent tranquilizer abuse problems.

As might be expected, the types of drug abuse problems reported differed strikingly when comparing methadone with drug-free programs. Methadone programs tended to have markedly fewer clients with alcohol as the primary problem; more heroin problems; more problems with nonprescription methadone, cocaine, and tranquilizers; but fewer clients with amphetamine or LSD problems. More clients who tested positive or were diagnosed to have AIDS were found in hospital treatment settings, and mental health centers tended to have fewer clients whose primary problem was drug abuse.

Overall, survey data on client demographics (table 3) indicated that two-thirds of clients being served were male, 11 percent were Hispanic, and 19 percent were black; 78 percent of the sample was 39 years or younger. Clients in methadone programs tended to be older, Hispanic or black, or HIV positive or diagnosed to have AIDS. Furthermore, although 2.5 percent of all clients were estimated to test positive for HIV across the entire sample, the estimate in methadone programs was 7 percent versus 1 percent in drug-free programs.

Respondents were asked the extent to which their treatment unit received referrals from many different sources (table 4). Here again, differences according to treatment modality and organizational context were striking in some cases. For example, when comparing the referral patterns of methadone programs to those of drug-free programs, methadone programs received markedly more self-referrals or referrals from friends and received far fewer referrals from human service agencies. This finding, of course, is open to several interpretations. Either methadone clients are not initially connected to human service agencies and therefore are not referred to treatment by them or human service organizations are less likely to know where to refer clients with opiate addiction problems. This also may suggest the need for more aggressive outreach by methadone units and a need for increased treatment capacity. Clearly this is a question open to further research.

Organizational context also plays a role in referral patterns to drug treatment units. For example, hospitals reported significantly fewer referrals from a range of human service agencies, including courts, the police, schools, and departments of social services, and more referrals from physicians.

## What Outpatient Treatment Services Look Like: Staffing, Diagnosis, and Treatment

On the average, outpatient treatment units tended to be fairly small, with about 13 treatment staff members in methadone units and about 9 in drug-free units. The educational background of staff in methadone units tended to be characterized by medical backgrounds, especially registered nurses and physicians (table 5). Methadone units also tended to have fewer Ph.D.s fewer master's degree-level staff members, and fewer staff members with substance abuse treatment certification or training.

**TABLE 3.** *Percent of outpatient substance abuse treatment unit clients by gender, ethnicity, and age*

Organizational Context		Mental Health Center		Hospital		Other		Total Sample	N <sup>c</sup>
Treatment	Modality	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	
Gender									
Males		61.1	68.7	64.5	68.1	62.6	65.9	66.3	542
Females		38.9	31.3	35.5	31.9	37.4	34.1	33.7	542
Ethnicity									
American Indian or Alaska Native		1.1	4.1	0.4	2.6	0.5	3.8	2.9	530
Asian or Pacific Islander		0.9	0.6	0.3	1.2	1.1	1.3	1.0	530
Hispanic		11.6	7.6	22.7	8.8	18.4	9.3	11.0	530
Black (not of Hispanic origin)		20.8	18.5	25.3	14.7	26.8	17.8	19.3	530
White (not of Hispanic origin)		65.7	69.3	51.2	72.9	53.2	67.9	65.9	530
Age									
Younger than 20 years		3.7	16.4	4.3	15.3	1.9	19.2	14.3	531
20-29 years		22.8	34.0	34.5	31.3	31.4	34.8	33.2	531
30-39 years		41.2	29.1	42.1	28.5	43.5	26.1	30.9	531
40-49 years		22.4	12.7	12.7	14.7	16.5	12.1	13.6	531
50-64 years		6.3	5.9	5.7	7.7	5.7	5.7	6.1	531
65 or older		3.4	2.1	0.7	2.6	1.1	2.1	2.0	531

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

**TABLE 4.** *Extent to which the outpatient substance abuse treatment unit receives referrals from various sources*

Organizational Context	Mental Health Center		Hospital		Other		Total Sample	
Treatment Modality	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	N <sup>c</sup>
Referral Source								
Vocational rehabilitation centers	1.6	2.0	1.4	1.6	1.6	1.9	1.8	553
Courts	2.9	3.9	2.3	3.3	2.7	3.9	3.5	553
Hospitals	2.5	2.8	3.0	3.1	2.5	2.7	2.8	553
Private clinics	2.5	2.3	2.1	2.4	2.3	2.2	2.3	552
Physicians	2.4	2.4	2.3	2.8	2.1	2.2	2.3	553
Departments of social services	2.8	2.9	2.6	2.4	2.3	2.9	2.7	550
Mental health agencies	2.9	3.1	2.1	2.6	2.3	2.7	2.7	552
Employee assistance programs	1.7	2.4	1.7	2.8	1.9	2.5	2.4	552
Police	2.1	2.4	1.4	1.9	1.8	2.1	2.1	553
Schools	1.7	2.7	1.3	2.3	1.5	2.8	2.4	553
Churches	1.8	1.9	1.3	1.7	1.4	1.9	1.8	553
Self-referrals	4.2	3.6	4.4	3.6	4.2	3.4	3.7	552
Friends of clients	3.3	3.1	3.5	3.3	3.6	3.2	3.3	552
Family of clients	3.0	3.3	2.8	3.4	3.1	3.3	3.2	552
Other	1.8	1.8	1.7	2.1	1.4	2.0	1.9	529

KEY: 1 = no extent, 2 = little extent, 3 = some extent, 4 = great extent, 5 = very great extent

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

As expected, staffing differences can also be observed in units embedded in different organizational contexts. Mental health centers tended to have the most highly educated staff members and those with the most months of substance abuse training. Mental health centers also tended to have fewer ex-addicts as staff members. Treatment units that are either free-standing or embedded in human service organizations other than hospitals and mental health centers tended to have lower levels of educational qualifications among their staff and more part-time staff.

Diagnostic procedures and client assessment procedures also varied considerably by modality and organizational context of the unit (table 6). For

**TABLE 5.** *Description and qualifications of outpatient substance abuse treatment staff*

Organizational Context	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>C</sup>
Treatment Modality	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Employment Status</b>								
All unit's staff								
(average number per unit)								
Full-time paid staff	13.0	8.6	13.9	8.1	16.6	9.1	10.3	549
Part-time paid staff	2.8	1.7	2.4	2.4	4.1	2.6	2.5	550
Consultants and independent contractors								
	1.3	1.8	1.0	1.8	2.2	2.0	1.9	546
Volunteers	0.1	1.8	0.2	3.4	0.4	1.7	1.7	549
<b>Educational Background</b>								
Treatment staff only								
(average percent of staff)								
Ph.D. as highest degree	1.8	6.4	3.2	7.3	4.1	6.2	5.9	547
M.D. or D.O.	16.0	9.5	15.7	9.6	13.5	6.9	9.7	547
Master's degree	26.9	45.1	22.4	38.9	19.7	33.4	34.3	547
Bachelor's degree								
(excluding R.N. degree)								
R. N.	11.9	21.8	17.2	17.5	25.3	27.8	23.2	547
16.6	3.1	22.9	4.9	13.6	3.1	6.4	547	
Fewer than 4 years of college or associate degree								
(excluding R.N. degree)								
16.2	10.9	12.4	15.8	17.3	14.7	14.3	547	
10.5	3.2	6.2	6.0	6.5	7.9	6.3	547	
<b>Percent of Treatment Staff Who Are Ex-Addicts or Recovering Alcoholics</b>								
9.4	26.8	9.6	37.1	9.6	33.8	27.3	540	
<b>Training and Certification</b>								
(average percent of staff)								
Specialized training in substance abuse treatment								
65.8	77.7	56.4	74.0	55.1	71.8	70.2	541	
Special certification in substance abuse treatment								
20.9	35.6	14.7	48.7	22.7	44.6	37.7	544	

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

example, although severity of drug problems, drug abuse histories, and clients' perceptions of their problems are almost always assessed, mental health assessments using *DSM-III* occurred for only 70 percent of clients, and physical examinations and other medical tests tended to occur for only about half of all clients.

**TABLE 6.** *Percent of outpatient substance-abuse treatment unit clients receiving various types of assessment and diagnostic procedures*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample	
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	N <sup>c</sup>
Procedure								
Evaluate severity of drug problem	98.8	96.6	93.4	97.9	97.4	95.7	96.5	548
Obtain drug abuse history	100.0	99.0	98.8	97.2	99.4	99.4	98.9	550
Information on client perception of dependence	99.1	96.6	98.5	97.1	93.7	96.6	97.3	548
Test specifically for AIDS	16.6	7.1	23.0	8.5	23.6	10.9	12.1	540
Assess client support networks	90.9	92.3	83.9	94.5	87.0	93.5	91.9	549
Conduct physical examinations	88.8	22.6	98.4	48.2	95.2	30.3	46.2	549
Conduct medical tests to assess health status	83.2	24.3	92.8	45.1	90.9	29.9	44.7	545
Assess current or past mental health problems	89.1	87.1	81.7	68.8	79.5	64.1	85.0	548
Use DSM-III <sup>d</sup> diagnosis	89.7	87.6	56.2	82.3	45.4	61.3	69.6	541

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

<sup>d</sup> Diagnostic and Statistical Manual of Mental Disorders (DSM-III). New York: American Psychiatric Association, 1980

SOURCE: Price et al. 1988.

Methadone programs tended to offer a wider range of medical tests but significantly fewer mental health assessments using *DSM-III* than drug-free units. Predictably, mental health units were most likely to use *DSM-III* diagnoses, whereas hospitals tended to be oriented toward the provision of medical tests and physical examinations.

**Outpatient substance abuse treatment units** varied substantially in their treatment goals (table 7). In particular, methadone units, much more than drug-free units, tended to foster responsible use of drugs, steady employment, and positive health outcomes. Drug-free units were considerably more oriented to the goal of abstinence, development of spiritual strength, and client participation in establishing their own treatment goals.

To assess the range of services provided to outpatient clients, respondents were asked about the proportion of clients receiving each of a range of possible treatment services (table 8). Virtually every outpatient unit, regardless of organizational context or treatment modality, offered individual therapy as the major treatment modality. Group therapy was almost as universal, with the

**TABLE 7.** *Agreement that various treatment goals are important in outpatient substance abuse treatment units*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>C</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Treatment Goals</b>								
Complete abstinence from alcohol and drugs	4.6	4.8	4.9	4.9	4.7	4.8	4.8	549
Socially responsible use of alcohol or drugs	1.7	1.9	2.2	1.4	2.2	1.9	1.9	547
Steady employment	4.6	4.5	4.9	4.4	4.7	4.6	4.6	550
Stable social relationships	4.8	4.7	4.9	4.7	4.8	4.8	4.8	549
Positive physical health	4.7	4.7	4.9	4.7	4.8	4.8	4.8	550
Positive emotional well-being	4.8	4.8	4.9	4.8	4.9	4.9	4.9	549
Improved spiritual strength	4.5	4.5	4.4	4.6	4.3	4.6	4.5	549
Meeting legally mandated requirements for those with legal problems	4.4	4.6	4.8	4.5	4.7	4.8	4.7	548

KEY: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = strongly agree

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

**TABLE 8.** *Outpatient substance abuse treatment services provided*

Organizational Context	Mental Health Center		Hospital		Other		Total Sample	
Treatment Modality	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	N <sup>c</sup>
Percent of Units Providing								
Individual therapy	100.0	98.5	97.1	96.7	97.3	98.5	98.0	550
Group therapy	100.0	95.4	82.4	97.8	77.0	98.0	93.6	550
Percent of Clients Receiving								
Education regarding the addiction process	92.6	90.7	87.3	92.1	88.4	91.9	90.9	549
Medical care	66.5	28.9	94.6	44.6	73.4	34.3	44.7	549
Mental health treatment	67.3	39.0	49.0	40.5	37.8	31.1	37.7	548
Treatment for use of multiple drugs	72.2	54.0	56.8	61.2	56.4	64.7	60.2	537
Employment counseling	35.1	29.3	59.4	28.8	47.3	35.4	35.9	548
Financial counseling	36.0	23.4	48.1	17.7	42.6	30.8	29.7	546
Legal counseling	19.9	15.1	25.1	15.6	23.4	23.4	20.1	546
Driving-while-intoxicated programs	11.9	32.2	10.6	23.0	11.9	31.1	25.6	543
Antabuse	9.7	9.6	3.5	8.3	2.6	7.3	7.2	549
Naltrexone	0.9	0.6	0.4	1.4	2.1	1.4	1.2	544
Other services	22.4	16.2	19.3	20.5	34.9	23.4	22.5	544

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

exception of methadone programs in which approximately 80 percent of programs offered group therapy in nonmental health settings and hospitals.

In addition, a range of other services tended to be offered. Ninety-one percent of treatment units reported providing education regarding the addiction process. About 60 percent of outpatient clients received a special treatment for multiple drug problems, and about 40 percent received medical care. Furthermore, about a third of outpatient clients were reported to receive mental health services, employment counseling, and financial counseling services. Methadone units provided financial and employment counseling to a significantly greater number of clients than did drug-free units. Finally,

approximately one-quarter of all outpatient clients received special treatment in a program for those arrested for driving while intoxicated.

For all units, clients were expected to wait an average of 10 days, but the waiting period for methadone treatment was approximately 14 days and approximately 9 days for drug-free treatment. It also should be noted that respondents for methadone programs were significantly more likely to report client loads that were too high for available treatment capacity.

Staff activities and knowledge regarding the treatment of AIDS clients and practices aimed at the prevention of further HIV infection is a critical issue. Questions were asked about treatment and prevention practices concerning AIDS (table 9). In general, considerably more was reported being done in methadone programs by teaching staff how to work with AIDS clients. A higher level of staff readiness to work with AIDS clients existed, and a wider range of community-oriented AIDS informational activities was available in methadone programs than in drug-free programs.

As part of the treatment process, outpatient units may make referrals to other agencies for other services or treatment (table 10). Methadone programs reported significantly more referrals to hospitals, departments of social services, and other outpatient substance abuse treatment units but significantly fewer referrals to Alcoholics Anonymous (AA) or Narcotics Anonymous (NA) groups.

### **Reported Outcomes of Treatment**

Although the survey cannot provide the kind of information on treatment outcomes that would be available from controlled clinical trials, respondents were asked to estimate various outcomes for clients who had ended treatment in the past complete fiscal year (table 11). These estimates provided some sense of the functioning of the treatment system and comparative information among different modalities and/or organizational contexts of treatment. It should be noted, however, that these outcomes may be interrelated in complex ways and require different interpretations for different modalities and for clients with different characteristics.

Overall, respondents reported that 32 percent of clients who ceased treatment over the past year continued to have substance abuse problems, whereas approximately 45 percent met their treatment goals. Major reasons for discontinued treatment were that 24 percent of clients did not comply with the treatment plan and 19 percent voluntarily left treatment. Interestingly, approximately 70 percent of all clients had some sort of posttreatment plan established for them. Why aftercare plans are not a universal feature of treatment requires further investigation.

**TABLE 9.** *Extent to which outpatient substance abuse treatment units engage in various treatment and prevention practices for AIDS*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>c</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Staff Activities and Knowledge</b>								
Knowledge to inform clients about prevention	4.5	4.0	4.6	4.1	4.4	4.0	4.1	548
Special training for teaching clients about prevention	4.5	3.8	4.3	3.6	4.3	3.7	3.8	549
Special training about how to work with AIDS clients	4.1	3.3	4.2	3.4	4.0	3.2	3.5	548
Special training about risks of staff acquiring AIDS from clients	4.4	3.7	4.4	3.8	4.2	3.7	3.8	549
Staff fear of acquiring AIDS from clients	2.1	1.9	2.0	1.8	2.1	1.9	1.9	549
<b>Prevention Resources and Activities</b>								
Adequate unit funds for AIDS prevention	2.8	2.1	2.7	2.0	2.6	2.0	2.2	544
Enough staff members or hours to devote to prevention	2.8	2.2	2.7	2.4	3.0	2.3	2.4	547
Counseling of clients about risks of transmitting AIDS through sexual contact	3.9	3.5	3.9	3.5	4.0	3.5	3.6	547
Counseling of clients about preventing AIDS transmission through IV needle use	4.2	3.8	4.0	3.3	4.1	3.5	3.6	547
Counseling of clients about risks of transmitting AIDS to unborn children	3.8	3.3	4.0	3.2	3.8	3.3	3.4	546
Distribution to clients of written materials about AIDS prevention	4.2	3.4	4.1	3.0	4.0	3.4	3.5	547
Use of mass media for AIDS prevention	2.1	1.5	1.8	1.2	2.0	1.6	1.6	545
Staff members who work specifically on AIDS prevention	3.1	1.9	3.1	1.7	2.9	1.8	2.1	545

KEY: 1 = no extent, 2 = little extent, 3 = some extent, 4 = great extent, 5 = very great extent

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

**TABLE 10.** *Extent to which outpatient substance abuse treatment units refer clients to other agencies for treatment or other services*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>C</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Referral Destination</b>								
Hospitals	2.9	2.8	3.3	2.6	3.0	2.7	2.8	553
Private clinics	2.2	2.1	2.1	2.2	2.3	2.3	2.2	553
Physicians	2.7	2.4	2.3	2.5	2.5	2.5	2.5	553
<b>Vocational rehabilitation centers</b>								
Departments of social services	2.9	2.8	3.3	2.4	3.0	2.8	2.8	548
Mental health agencies	2.9	2.8	2.6	2.6	2.9	2.8	2.8	550
<b>Other outpatient substance abuse treatment units</b>								
Schools	3.1	2.4	2.8	2.3	2.8	2.3	2.4	553
Churches	1.9	1.9	2.1	1.8	2.1	2.1	2.0	550
Self-help groups such as AA or NA	1.9	1.7	1.7	1.7	1.7	1.9	1.8	552
Other groups or organizations	3.8	4.4	3.5	4.7	3.9	4.4	4.3	553
	1.9	2.3	1.9	2.2	1.8	2.3	2.2	533

KEY: 1 = no extent, 2 = little extent, 3 = some extent, 4 = great extent, 5 = very great extent

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

Outcomes were strikingly different for methadone and drug-free programs, presumably in part because of the different types of client population served by each type of program. Methadone programs had significantly more clients who ended treatment with continued use or because they failed to pay or died. Two reported important outcomes are as follows: (1) Only 26 percent of methadone clients were reported to have ended treatment because they met their treatment goals as opposed to 51 percent for drug-free programs; and (2) approximately 50 percent of methadone clients had a posttreatment plan established for them compared with 75 percent of clients in drug-free programs.

**TABLE 11.** *Percent of outpatient substance abuse clients who ended treatment with various outcomes in the past fiscal year\**

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample	
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	N <sup>c</sup>
<b>Outcomes</b>								
Continued to use drugs or alcohol	56.3	32.4	25.2	24.8	36.6	32.4	32.1	520
Were incarcerated	9.8	8.3	7.7	4.9	9.5	8.1	7.9	530
Died	2.4	1.4	2.4	0.9	2.7	1.3	1.5	536
Failed to comply with treatment plan	35.2	25.6	17.0	24.6	20.2	25.3	24.4	535
Failed to for treatment	7.9	4.0	3.7	6.0	16.6	4.4	6.2	536
Exhausted insurance coverage	4.7	1.0	1.0	6.5	0.7	1.4	2.2	523
Were free from drug or alcohol use	15.1	42.1	22.1	45.0	14.8	43.3	37.3	535
Other reasons	10.4	7.1	8.9	8.3	8.6	7.3	7.8	531
Ended treatment involuntarily	30.3	15.0	20.3	15.8	26.2	19.6	19.2	535
Met treatment goals	34.8	46.0	31.1	58.1	20.9	51.3	45.4	535
Ended treatment with individual written plans for continued care	48.9	69.0	54.4	82.4	48.2	74.8	69.1	540

\* For each unit, the timeframe for the question was that unit's most recent complete fiscal year. For 71 percent of the units, the most recent complete fiscal year ended in 1988; for 29 percent of the units, it ended in 1987.

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

### **Efforts Being Made To Increase the Effectiveness and Quality of Treatment**

Respondents were asked to describe a variety of efforts aimed at increasing treatment quality or effectiveness. They also were asked about methods for monitoring client progress (table 12), licensing arrangements (table 13), types of followup information collected on clients (table 14), and methods to ensure quality of the referral process (table 15).

**TABLE 12.** *Extent to which outpatient substance abuse client progress is monitored by various sources of information*

Organizational Treatment Modality	Context	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>c</sup>
		Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
Source of Information									
	Client case record or chart	4.3	4.6	4.4	4.6	4.5	4.5	4.5	550
	Client self-report	3.4	3.9	3.5	4.0	3.6	3.7	3.8	549
	Urinalysis	3.8	2.8	4.1	2.9	4.1	3.0	3.2	549
	Report of significant others	2.8	3.3	2.6	3.7	2.9	3.2	3.2	548
	Therapists' evaluation	3.9	4.1	3.9	4.1	3.7	4.0	4.0	548
	Report from employer	2.4	2.6	1.9	2.9	2.1	2.6	2.5	550
	Probation officer or legal records	3.3	3.2	2.5	3.0	2.7	3.2	3.1	549
	Record of appointments broken by the client	3.4	3.6	3.3	3.6	3.3	3.6	3.5	548
	Record of appointments broken by unit staff	2.5	2.8	2.6	2.6	2.7	2.7	2.7	540
	Other sources	2.1	2.0	1.5	1.9	1.7	1.8	1.8	527

KEY: 1 = no extent, 2 = little extent, 3 = some extent, 4 = great extent, 5 = very great extent

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

As expected, urinalysis was a major method of monitoring treatment in methadone programs. Methadone programs also reported significantly less monitoring by means other than urinalysis, including reports by significant others, therapist evaluations, reports from employers, and other informants. All of these forms of monitoring treatment were more prevalent in drug-free programs, and both hospitals and methadone programs tended to obtain physical health information on followup (table 12). Of course, licensing drug abuse treatment units is a major strategy to ensure the quality of treatment and, not surprisingly, methadone programs tended to be more heavily licensed, particularly a Food and Drug Administration license. They also had a significantly higher total number of licenses than drug-free programs (table 13).

**TABLE 13.** *Percent of outpatient substance abuse treatment units licensed or accredited by various organizations*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>c</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
Licensing or Accrediting Organization								
Joint Commission on the Accreditation of Health care Organizations	12.5	17.2	69.0	82.2	6.0	12.4	27.8	525
Food and Drug Administration Drug Enforcement Administration	87.5	15.7	93.1	11.2	97.0	9.0	29.3	522
State agency or office	75.0	17.4	93.1	12.4	98.5	10.5	30.3	522
City or county agency or Office	100.0	97.6	96.6	81.1	97.0	94.0	93.3	526
Other organizations	37.5	14.8	17.2	16.9	29.9	12.0	16.8	523
	6.3	8.1	17.2	11.2	3.0	8.5	8.6	525

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

### **What Outpatient Drug Abuse Treatment Personnel Believe About the Ingredients of Effective Treatment**

Whether beliefs about the ingredients of effective treatment are supported by research findings, they are frequently strongly held. Such beliefs also almost surely influence major decisions about client treatment, assessment of client motivation, and hiring decisions for treatment staff. Respondents were asked to describe the degree to which they endorsed beliefs about the characteristics of clients and treatment that are associated with more or less effective treatment (table 16). In general, respondents were much more likely to believe that client sobriety is essential for effective treatment and that court- or employer-ordered treatment is less effective. They also were more likely to endorse the belief that a client's insight into his or her own condition is important in providing effective treatment. Furthermore, drug-free treatment program personnel were much more likely to endorse the AA/NA model as effective than were methadone program staff.

**TABLE 14.** *Percent of outpatient substance abuse treatment units that collect various types of client followup information\**

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample	
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF	Mean	N <sup>c</sup>
Type of Information								
Living arrangement	75.0	76.0	78.9	70.6	70.8	68.9	71.6	370
Employment or student status	83.3	81.3	84.2	89.7	87.5	84.5	85.1	370
Health status	83.3	70.7	100.0	85.3	89.6	79.1	81.1	370
Legal probation status	91.7	81.3	73.7	70.6	79.2	75.0	76.5	370
Financial status	58.3	49.3	57.9	55.9	50.0	49.3	51.4	370
Whether client is in								
recommended treatment	100.0	82.7	89.5	89.7	95.8	90.5	89.7	370
Drug or alcohol use	91.7	97.3	94.7	94.1	97.9	97.3	96.5	370
Clients evaluation of the								
treatment experience	50.0	86.7	78.9	79.4	83.3	81.8	81.4	370
Clients evaluation of the								
agency	41.7	72.0	63.2	66.2	66.7	74.3	69.7	370
Information to get dropouts								
to return to treatment	50.0	68.0	73.7	58.8	70.8	69.6	67.0	370
Other information	16.7	18.1	5.3	23.5	6.3	12.2	14.4	367

\* Among those units (N = 370) that reported collecting any followup information

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

Questions about hiring policies and staff characteristics associated with effective treatment produced striking findings for the drug-free versus methadone comparison (table 17). Methadone programs were less likely to search for staff with previous substance abuse work experience, special training in substance abuse treatment, or a history of substance abuse and more likely to hire staff who were not certified or had less clinical experience than drug-free programs. Interestingly, methadone programs were also much less likely than drug-free programs to endorse the idea that ex-addicts can be effective treatment staff.

**TABLE 15.** *Frequency of use by outpatient substance abuse treatment units of various procedures to ensure quality of the referral process*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>c</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Procedure</b>								
Send a written summary	3.5	3.9	3.8	3.9	3.7	3.7	3.8	550
Send a complete chart	1.4	1.6	1.6	1.8	1.9	1.7	1.7	550
Case summary by telephone	3.3	3.3	2.8	3.4	2.9	3.2	3.2	552
Make appointment for client	3.2	3.2	3.4	3.2	3.2	3.1	3.2	548
Make followup call to receiving agency	3.6	3.7	3.9	3.7	3.8	3.9	3.8	551
Receive written report from receiving agency	2.5	3.2	2.8	3.0	2.9	3.3	3.1	552
Other procedures	1.6	1.7	1.2	1.7	1.6	1.6	1.6	526

KEY: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

## DISCUSSION

The results reported here should be regarded as preliminary, descriptive, and partial because additional analyses will be needed to clarify their meaning and estimate their representativeness more precisely. Nevertheless, some answers to the initially posed questions are emerging.

Who is receiving outpatient drug abuse treatment services, and where are clients coming from? Overall, treatment units report drug abuse as the primary problem; however, there are some notable exceptions. Drug-free treatment programs have at least as many clients whom they describe as having alcohol abuse as their primary problem. Furthermore, the largest category of drug abuse problems reported involves multiple drug abuse followed by marijuana, cocaine, and heroin abuse. It would be useful to compare the prevalence of various drug problems reported by treatment units with existing epidemiological data on the prevalence of various drug abuse problems in the general population. Such comparisons could provide information about which types of

**TABLE 16.** *Perceived client and treatment characteristics needed for effective outpatient substance abuse treatment*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>c</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Importance of Client Characteristics*</b>								
Maintain sobriety	4.3	4.6	4.5	4.8	4.4	4.6	4.6	546
Acknowledge self as substance abuser	4.5	4.5	4.6	4.5	4.4	4.5	4.5	546
Accept personal responsibility for recovery	4.6	4.7	4.6	4.7	4.5	4.6	4.7	546
Learn new skills for dealing with problems and stress	4.4	4.6	4.5	4.7	4.6	4.6	4.6	547
Gain insight into the role of substance abuse in their life	4.1	4.5	4.2	4.6	4.3	4.5	4.5	547
Recognize they will never be able to use particular substances again	4.4	4.4	4.4	4.5	4.4	4.4	4.4	545
"Hit bottom" or experience a crisis related to their substance abuse problem	2.9	3.1	3.4	3.3	3.1	3.3	3.2	547
<b>Effectiveness of Treatment Characteristics"</b>								
<b>Mandated by employer or legal system</b>								
The AA or NA 12-step model	3.8	4.1	3.4	4.3	3.4	4.1	4.0	547

KEY: \*1 = not at all important, 2 = little important, 3 = somewhat important, 4 = very important, 5 = extremely important

\*\*1 = no extent, 2 = little extent, 3 = some extent, 4 = great extent, 5 = very great extent

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

drug abuse problems are less likely to receive the attention of the outpatient treatment sector and, therefore, may be deserving of additional efforts to increase client access. The population in outpatient drug treatment is reported to be predominantly male and young. Black clients and older clients are

**TABLE 17.** *Agreement with statements about hiring policies and staff characteristics pertaining to effective substance abuse treatment*

Organizational Context Treatment Modality	Mental Health Center		Hospital		Other		Total Sample Mean	N <sup>c</sup>
	Meth <sup>a</sup>	DF <sup>b</sup>	Meth	DF	Meth	DF		
<b>Hiring Requirements</b>								
Professional degree	3.9	4.3	4.2	4.1	3.9	4.1	4.1	548
Work experience in a substance abuse agency	4.0	4.4	4.0	4.6	4.1	4.2	4.3	549
Specialized training in substance abuse field	4.3	4.6	3.9	4.7	3.9	4.4	4.4	548
Personal history of substance abuse problems	2.1	2.5	2.0	2.8	2.0	2.7	2.5	549
Certification as a substance abuse counselor	3.4	3.5	3.0	3.9	3.3	3.8	3.6	548
Clinical supervision experience during training	4.5	4.6	4.5	4.8	4.3	4.6	4.6	549
<b>Staff Characteristics</b>								
Ex-addicts or recovering staff are more effective with clients	2.6	3.1	2.6	3.3	2.6	3.2	3.1	549
Staff with professional degrees are more effective	3.4	3.4	3.5	3.3	3.5	3.2	3.3	547
Recovering staff deal better with client denial and resistance	2.7	3.0	2.6	2.9	2.6	2.9	2.9	548
Staff with professional degrees can be more objective	3.3	3.4	3.6	3.2	3.3	3.1	3.3	549

KEY: 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = strongly agree

<sup>a</sup> Methadone treatment unit with 50 percent or more methadone clients

<sup>b</sup> Drug-free treatment unit with less than 50 percent methadone clients

<sup>c</sup> Number of outpatient substance abuse treatment units responding to the item

SOURCE: Price et al. 1988.

overrepresented in methadone programs. Again, comparison of these data with epidemiological data could provide useful information about population groups with lower access or opportunity for treatment.

Clearly, self-referral and the courts are major avenues to treatment in the outpatient sector, but they play very different roles for methadone and drug-free programs. Our data suggest that courts are the dominant referral source in the drug-free treatment sector, whereas self-referral remains the dominant source for methadone programs. The predominance of court referrals invites questions about the comparative effectiveness of mandated versus voluntary treatment. It is interesting to note that respondents did not believe that mandated court referral was associated with more effective treatment. Similarly, the high rate of self-referrals in the methadone sector raises questions about the role of other human service agencies in referring clients for methadone treatment. Are methadone clients less well connected to the human service system? If so, then more rigorous outreach efforts by methadone programs may be indicated.

What do outpatient treatment services look like? Clearly, masters- and bachelor's-level educational backgrounds dominate in the outpatient treatment sector, particularly in drug-free programs. Although methadone programs have relatively more medical staff, drug-free programs show a very high proportion of treatment staff who are recovering persons. Because recovering addicts represent such a large proportion of outpatient treatment staff, it would be of interest to discover the degree to which these treatment staff have special training or certification for outpatient treatment and/or other special qualifications that make them especially well suited for the treatment role. Methadone programs also have substantially lower proportions of staff with special training or certification for substance abuse treatment. It is possible that methadone programs view the higher proportion of medical staff as appropriate for the type of treatment delivered in these settings and, therefore, see less need for staff with special training or certification.

How are clients assessed in outpatient drug treatment programs? Diagnostic and assessment services differ by modality, with physical exams more common in the methadone programs and mental health assessments more common in drug-free programs; the question remains whether physical needs are being adequately assessed in drug-free programs. Mental health needs may be adequately assessed in methadone programs but much less frequently result in a *DSM-III* diagnosis unless the program is in a mental health setting.

What form do treatment goals and services take in outpatient treatment? Although treatment goals in the outpatient drug treatment sector take a variety of different forms, clearly responsible use is not a widely embraced treatment goal in the outpatient treatment system. The two treatment services that are almost universally available are individual and group therapy. However, the relatively low incidence of reported availability of such special services as employment training, financial counseling, legal services, and other

“habilitation”-oriented services may be cause for concern. New needs such as services concerned with AIDS are more likely to appear in methadone treatment than in drug-free programs, but special staff and additional funds for AIDS-related services are reported to be a need in all outpatient programs.

What are the reported outcomes of treatment? It seems clear that drug-free programs report more favorable outcomes, but it is not clear whether these more favorable outcomes are due to important differences in the populations under treatment or to other factors. For example, because remaining in treatment in methadone maintenance programs is a key indicator of treatment success, those who left methadone maintenance programs and whose outcomes are estimated in the survey may be expected to have less favorable reported outcomes. In addition, it would be interesting to compare these reported outcomes with the types of outcomes reported in actual controlled treatment trials. Further analyses will be conducted to identify program characteristics associated with more favorable treatment outcomes.

What efforts are being made to increase the effectiveness or quality of treatment? The enhancement of treatment quality is an emerging concern in the outpatient treatment sector, and efforts to influence quality through licensing, for example, are widespread. Methadone programs are much more heavily involved with licensing and certification arrangements. Other efforts associated with treatment quality enhancement such as client followup are less widespread; indeed, only about two-thirds of all treatment units report any followup efforts at all. In light of the renewed emphasis on improving treatment quality and effectiveness, these findings may raise concerns about the degree to which requirements for quality assurance or client followup exist or are enforced.

What do outpatient drug abuse treatment personnel believe about the ingredients of effective treatment? Outpatient programs have their own views of which aspects of treatment are important for effectiveness. Client sobriety tops the list as a major criterion for effective treatment. Interestingly, there is considerably more skepticism about the idea that clients must “hit bottom” or must engage in mandated treatment for treatment to be effective. Beliefs about the qualifications for staff effectiveness also are fairly well defined in the outpatient treatment system, with a strong endorsement of work experience and specialized training as preferred criteria for selecting treatment staff. There is considerably more skepticism about the value of personal experience with substance abuse as a qualification for treatment staff effectiveness,

These data provide an initial and preliminary portrait of the clients, treatment practices, outcomes, and ideas about what is needed for treatment

effectiveness in the outpatient drug abuse treatment system. They raise several policy questions concerning access to the outpatient treatment system, qualifications for treatment staff effectiveness, the adequacy of client assessment and diagnosis, the availability of needed treatment services, and what might be viewed as an adequate outcome of outpatient treatment. As part of a longitudinal research effort, combined with epidemiological and treatment outcome data, these findings may help to point to new initiatives to enhance treatment effectiveness and access to treatment in the outpatient drug abuse treatment system.

## REFERENCES

- Burke, C.; D'Aunno, T.; and Price, R.H. "Outpatient Drug Abuse Treatment: Organizational Environment and Patterns of Care." Unpublished manuscript, Survey Research Center, Institute for Social Research, University of Michigan, 1983. 42 pp.
- D'Aunno, T., and Price, R.H. Organizational adaptation to changing environments: Community mental health and drug abuse services. *Am Behav Scientist* 28(5):669-693, 1985.
- Drug Abuse Policy Office, Office of Policy Development, The White House. *1984 National Strategy for Prevention of Drug Abuse and Drug Trafficking*. Washington, DC: U.S. Govt. Print. Off., 1984.
- Frances, R.J. Update on alcohol and drug disorder treatment. *J Clin Psychiatry* 49(9)[Suppl]:13-17, 1988.
- Friedman, A.S., and Glickman, N.W. Residential program characteristics for completion of treatment by adolescent drug abusers. *J Nerv Ment Dis* 175(7):419-424, 1987.
- Friedman, T.C., and Fulop, G. Disulfiram use at hospital-based and free-standing alcoholism treatment centers. *J Subst Abuse Treat* 5:139-143, 1988.
- Hubbard, R.L.; Allison, M.; Bray, R.M.; Craddock, S.G.; Rachal, J.V.; and Ginzburg, H.M. An overview of client characteristics, treatment services, and during-treatment outcomes for outpatient methadone clinics in the Treatment Outcome Prospective Study (TOPS). In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 714-751.
- Hubbard, R.L.; Rachal, J.V.; Craddock, S.G.; and Cavanaugh, E.R. Treatment Outcome Prospective Study (TOPS): Client characteristics and behaviors before, during, and after treatment. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No.

- (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 42-68.
- Jaffe, J.H. Evaluating drug abuse treatment: A comment on the state of the art. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 13-28.
- Price, R.H.; Burke, C.; D'Aunno, T.; Hooijberg, R.; and Shore, K. *Critical Issues in National Drug Abuse Treatment Policy and Organization: Results of a Consensus Development Conference*. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan, 1987, 15 pp.
- Price, R.H.; Burke, A.C.; D'Aunno, T.A.; Klingel, D.M.; McCaughrin, W.C.; Rafferty, J.A.; and Vaughn, T.E. *National Drug Abuse Treatment System Survey*. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan, 1988.
- Price, R.H., and D'Aunno, T. "Organizational Adaptation to Changing Environments: Community Mental Health and Drug Abuse Services." Paper presented at the National Institute of Mental Health conference, The Organization of Mental Health Agencies and Systems. Rockville, MD, September 17-18, 1964.
- Senay, E. Critique of treatment characteristics associated with outcome, by G.E. Woody. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)63-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1963. pp. 565-572.
- Senay, E.C. Clinical implications of drug abuse treatment outcome research. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 139-150.
- Tims, F.M. Introduction. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 9-12.

## **ACKNOWLEDGMENT**

This chapter was prepared with support from the National Institute on Drug Abuse grant DA-03272.

## **AUTHORS**

Richard H. Price, Ph.D.  
Research Scientist

A. Celeste Burke, M.S.W.  
Research Assistant

Thomas A. D'Aunno, Ph.D.  
Assistant Professor

David M. Klingel, B.A.  
Research Associate

William C. McCaughrin, M.P.H.  
Research Assistant

Jane A. Rafferty, M.A.  
Research Assistant

Thomas E. Vaughn, M.H.S.A.  
Research Associate

University of Michigan  
Institute for Social Research  
Room 2267  
P.O. Box 1248  
Ann Arbor, MI 48106-1248

# Treatment Outcomes for Drug Abuse Clients

*Frank M. Tims, Bennett W. Fletcher, and Robert L. Hubbard*

## INTRODUCTION

The available evidence from treatment outcome studies shows that drug abuse treatment works for significant numbers of clients who enter treatment. Whether treatment for drug abuse is effective is a separate question or rather a sequence of questions. It does not “work” as well as we would like; for a significant number of clients it does not work at all, and there is little information to explain why. Moreover, drug abusers currently entering treatment appear to be more problematic, especially in terms of client psychopathology (De Leon 1989). Because many addicts return to drug use after treatment, some would argue that treatment is not effective. Data published by Simpson and colleagues (1982) indicate that 21 percent of Drug Abuse Reporting Program (DARP) clients continued daily use of illicit opioids over the long term. A smaller percentage (18 percent) ceased daily opioid use but manifested other problems (e.g., chipping, heavy nonopioid use, heavy alcohol use, long-term incarceration). That such a large percentage had poor outcomes or that relapse rates are high should not be construed as an indictment of treatment but rather a reflection of the chronicity of drug dependence in conjunction with imperfect treatments. This chapter briefly but systematically explores the evolution and role of treatment outcome research in evaluating treatment.

Evaluation of treatment for biobehavioral disorders involves multiple criteria, some of which are paramount. Cessation or reduction of illicit drug use is a central criterion, and there are many studies that are encouraging in this regard. It is also important to assess the clients social functioning. The early studies of methadone maintenance by Dole and Nyswander (1976) and Gearing and associates (1975) reflected the awareness that the client had to learn to live and function in a complex world and that such variables as cessation of criminality and involvement in a socially productive lifestyle were important. Depending on the type of treatment and its implicit or explicit model of the disease or disorder, a variety of outcome measures may be of particular interest. In addition to drug use, such “core measures” of outcome as

employment and criminality frequently have been used. Also of interest are other social adjustment measures, comorbidity, and use of alcohol and marijuana (Anglin et al. 1989; Rounsaville et al. 1982; Simpson et al. 1979).

## **EARLY STUDIES**

Studies of outcomes for opioid addicts treated in the Federal facility at Lexington, Kentucky, proved disappointing because almost all usually returned to opioid use and were classified as readdicted. O'Donnell (1969) realized that such an approach did not properly take into account the episodic nature of drug abuse, in which periods of abstinence are interspersed with periods of drug use. Thus, he developed the approach of measuring outcomes in terms of "average number of days using narcotics" rather than an all-or-nothing approach in which addicts were defined as either abstinent or readdicted. O'Donnell's invaluable approach contributed greatly to the evolution of treatment outcome research methodology. It is especially evident in the work of McGlothlin and colleagues (1977) and Ball and coworkers (1983) and is reflected in the prevailing approaches to current studies.

The opioid epidemic of the 1960s occasioned the development of a national system of community-based facilities. Under the Narcotic Addict Rehabilitation Act (NARA) of 1966 (Public Law 89-793) Federal financial support was made available for treatment of drug abusers in institutional settings and in the community. During this same period, State programs such as the New York State civil commitment program (under the Narcotic Addict Control Commission) and the California Civil Addict Program were providing treatment in special institutional facilities set aside for that purpose. The Federal effort grew rapidly and, with it, the need to develop systematic information on the effectiveness of treatment. At the time this system was being established, evidence for the general effectiveness of treatment for alcohol and drug abuse and mental health disorders was lacking. Claims were made for the success of many programs, particularly therapeutic communities (TCs), but no systematic body of evaluative data on entire treatment populations existed.

During the establishment of the system of community-based facilities under Federal sponsorship, the DARP national data system was established under contract between the National Institute of Mental Health and Texas Christian University. During the years 1969-74, information was collected on 44,000 clients across 52 treatment programs at admission, during treatment, and at discharge. The DARP treatment population was sampled for the first national followup study that assessed treatment effectiveness on the basis of first-year posttreatment outcomes and provided the earliest evidence of the general effectiveness of community-based treatment (Sells et al. 1978). Additional

studies based on the DARP population were conducted over succeeding periods, up to 12 years after admission.

## **NATURALISTIC VS. CONTROLLED STUDIES**

A major methodological dilemma grows out of the inherent limitations on inference in studies in which experimental controls are impractical, inappropriate, or impossible. The evaluative study of treatment process and outcome in diverse sets of programs must necessarily make inferences regarding treatment effects and make these inferences based on the behavior of samples that normally self-select in some way. Such studies often have had to rely on comparisons with other “untreated” or “minimally treated” groups or on statistical controls to assess “treatment effects” in evaluations of existing treatment programs. The normative pressures on evaluation researchers to use approximations of true experimental designs are considerable. The well-known effort of Bale and colleagues (1980) at the Palo Alto Veterans Administration (VA) Hospital points up the basic problem of imposing a controlled trial design on studies of existing treatment programs in which more than one modality is concerned. Subjects were heroin addicts who entered a 5-day detoxification program; agreed to be randomly assigned to methadone maintenance, a short-term TC, or a long-term TC; and were barred from entering one of the other programs for 30 days if they left the treatment to which they were assigned. A large percentage of those assigned to TC treatment dropped out of those programs and either enrolled in a non-VA methadone program or waited 30 days and enrolled in a VA methadone program. This is a clear example of the difficulty of ignoring the voluntary element in treatment choice, which plays a major role in the process of seeking and obtaining treatment. A treatment assignment that frustrates the client’s treatment-seeking behavior conceivably may introduce additional, unmeasured variance into the study.

Woody and colleagues’ (1983) psychotherapy study provides an example of how a controlled study might work. In that study, randomization took place in a single modality (methadone maintenance), and subjects were not denied their treatment of choice. For most large evaluations of treatment, a more naturalistic approach has been necessary. Researchers have had to rely on comparative or quasi-experimental designs and accept the resulting inferential limitations.

## **STUDIES REVIEWED**

There are many interesting and potentially useful studies of treatment outcome available; this chapter focuses only on selected works to sketch major themes and highlight significant issues and findings. Of particular interest are selected

studies that have made unique substantive or methodological contributions to the development of knowledge regarding treatment effectiveness and a series of large-scale, multiprogram studies of treatment outcome. In addition, the Drug Abuse Treatment Outcome Study (DATOS), a major new research effort that will constitute the National Institute on Drug Abuse's (NIDA) next large-scale evaluation of current drug abuse treatment, will be described. Without intending to neglect other important studies, this chapter focuses primarily on six bodies of research, which represent major investments by NIDA and provide findings of special significance in understanding treatment effectiveness in and across major modalities. Because of the large volume of data presented in each of the completed studies, it is not possible to present all data of interest in this chapter. Many readers will wish to consult the publications cited for more detailed understanding of the research. These six studies are depicted in table 1.

The McGlothlin and De Leon studies and the DARP research by Sells and Simpson make an impressive case for effectiveness, and each also illuminates major research issues and makes important methodological contributions. The Methadone Research Project conducted by Ball and associates has provided valuable information on differential outcomes across programs and methadone dose-related outcomes and will provide a wealth of new findings as it is analyzed further. The DARP research, which has contributed major improvements in methodology, was the first national study to systematically investigate treatment effectiveness and to extend the followup period far beyond the index treatment episode. The Treatment Outcome Prospective Study (TOPS) research by Hubbard and associates (1989) built on the foundation of the DARP research, provided valuable findings regarding heterogeneous and complex drug abuse patterns and outcomes for a national sample, and further developed the methodology. DATOS will be the next national treatment outcome study, taking advantage of the sophistication in knowledge that has evolved from research, including that shown in table 1. In particular, the plans for DATOS include taking into account major currently prevailing drug abuse patterns, psychopathology, the concept of client impairment as it relates to treatment needs and potential for favorable outcomes, and change measures as they relate to the treatment process.

### **California Civil Addict Program**

One of NIDA's early studies of treatment outcome was the evaluation of the California Civil Addict Program (CAP). Under CAP, addicted felons had their sentences set aside on condition that they be civilly committed to inpatient treatment and supervised parole for a total of 7 years. This "parole with a long tail" had consequences for drug use, namely, that those found to be using narcotics faced a return to inpatient treatment in the Prison Hospital at Corona. This study used an interesting design, comparing outcomes over time for a

**TABLE 1.** *Key evaluative studies of treatment outcome*

Study	Investigator	Description	Sample	Modality
Evaluation of California Civil Addict Program (CAP)	McGlothlin and Anglin	Evaluation of civil commitments to treatment under CAP from 1962-1964	1974-76: Followup of 949 admissions to CAP from 1962-64 and 1970	Inpatient, intensive parole supervision
Evaluation of 1970-71 and 1974 admissions to Phoenix House	De Leon	Evaluation of TC admissions with status at 2 and 5 years after treatment	400 dropouts and 125 graduates from 2 cohorts	TC
Drug Abuse Reporting Program (DARP)	Sells and Simpson	Longitudinal cohort evaluation of 1969-74 admissions to publicly funded treatment, with followup interviews at 6 and 12 years	1969-73: Intake data on 43,943 admissions from 52 agencies 1975-79: 6-year followup of 4,627 clients 1982-83: 12-year followup of 490 clients	MM, TC, OPDF, DT, IO
Treatment Outcome Prospective Study (TOPS)	Hubbard et al.	Longitudinal cohort study of 1979-81 admissions to publicly funded treatment, with followup interviews at 3 months and 1, 2, and 3 to 5 years	1979-81: Intake data on 11,750 admissions from 41 agencies 1981-82: 3-month followup of 1,223 clients; 1-year followup of 2,383 clients; 2-year followup of 807 clients	MM, OPDF, TC, DT
Methadone Research Project	Ball	Longitudinal study of individuals in methadone treatment, with followup interviews 1 year after initial interview	1985-86: Interview of 633 male clients in 6 programs	MM
Drug Abuse Treatment Outcome Study (DATOS)	NIDA/RTI	Longitudinal cohort evaluation research of individuals admitted to treatment, with followup interviews 3 and 12 months after leaving treatment	Planned: 20,000 admissions in 50 programs, with 4,500 followups	MM, OPDF, CD, TC

KEY: MM = Methadone maintenance, TC = Therapeutic community, OPDF = Outpatient drug-free, DT = Detox, IO = Intake only, CD = Chemical dependency

group of addicts committed to the program in 1964 with a group of addicts committed during 1962-63 who, due to procedural errors, were released on writs of habeas corpus. The released addicts constituted an “untreated” comparison group that did not participate in CAP. Those who went through the program had substantially better outcomes on all criteria—narcotics use, employment, and criminality—during the period of supervision than did the “writ” or comparison group.

Figure 1 shows a comparison of these two groups over time on the criterion of average percentage of nonincarcerated days using narcotics. Both groups had immediate declines in narcotic use upon entering the program. This improvement persisted for the group staying in the program, whereas the writ group returned to drug use at a significantly higher rate. Beginning in 1970, when methadone maintenance became available in California, both groups showed marked improvement on the narcotics use measure, but the committed group continued to do better. The better performance of the treatment group is attributed in large part to the continued supervision with sanctions as well as to treatment.

CAP was especially important because it demonstrated the potential value of treatment with parole supervision in reducing overall narcotics use and provided an example of how historical events can be used imaginatively to develop valid comparison groups for assessing treatment. McGlothlin and Anglin were able to capitalize on events in other investigations as well, including their studies of the impact of local decisions to discontinue public methadone programs in Bakersfield and San Diego (McGlothlin and Anglin 1981; Anglin and McGlothlin 1984).

### **Phoenix House Study**

The De Leon (1984) study of admissions to Phoenix House, a TC in New York City, was important for several reasons. Research shows that most persons entering a TC do not stay to complete treatment, but it is also known from other research and anecdotal reports that many of those not staying the full course of treatment improved (Collier and Hijazi 1974). De Leon’s approach was to follow up and interview a sample of 400 dropouts and 125 graduates from Phoenix House. The followup was at 2 years postadmission for a cohort entering treatment in 1974 and 5 years for those entering in 1970-71. For the 1974 cohort, De Leon extensively tested new admissions and retested them 4 months later using a battery of personality tests and depression and anxiety scales. He noted marked improvement at retest. He also retested them at followup and found the improvement to be stable. Among De Leon’s findings were:

- In terms of a composite score based on drug use, employment, and criminality, the graduates tended to have highly favorable outcomes. The dropouts showed improvement, too, but to a lesser degree overall.

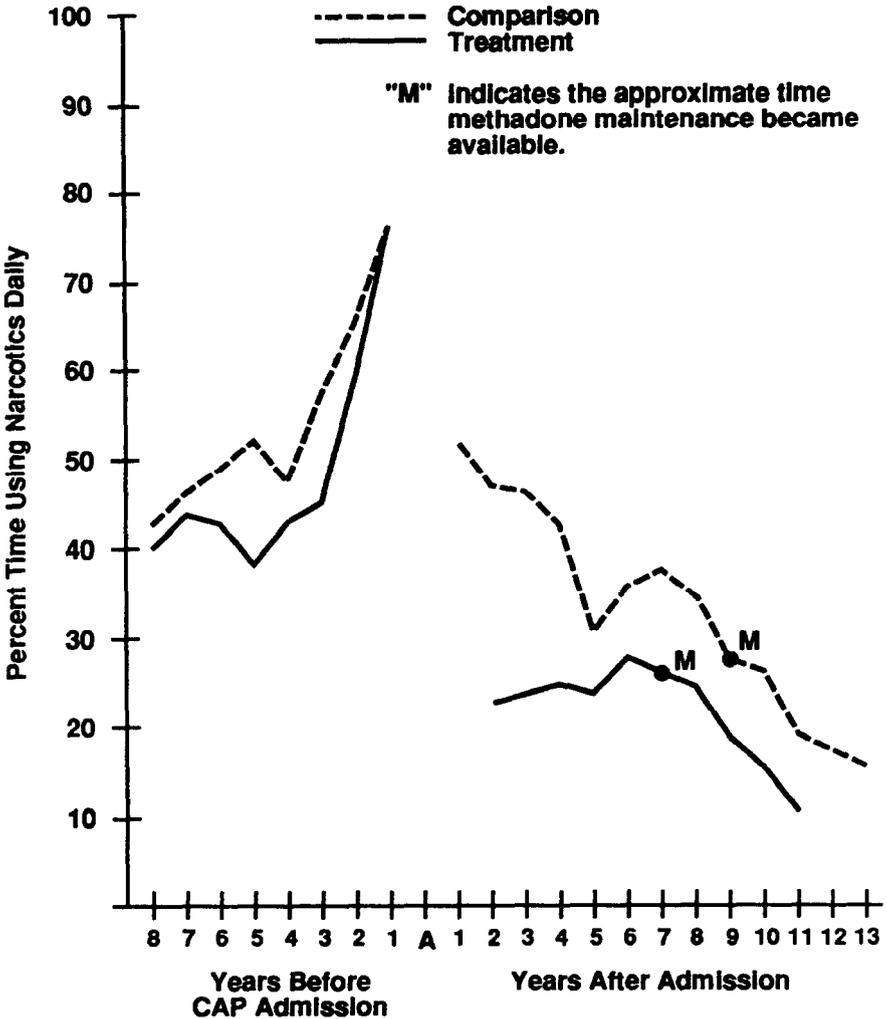


FIGURE 1. *Percent of nonincarcerated time using narcotics daily; CAP treatment and comparison samples*

- A time-in-treatment effect was observed, with better outcomes for those in longer tenure groups.
- Although outcomes on multiple criteria were found to be good, the reduction in drug use was striking. In the 1970-71 admissions cohort, any opioid use at followup had declined to 3.6 percent of the graduates and 24.8 percent of the dropouts. For the 1974 cohort, the comparable figures were 0 percent for graduates and 23 percent for dropouts.
- Among the 1974 cohort, outcomes for primary nonopioid abusers reflected improvement but were not as encouraging as those for opioid abusers. Primary alcohol abusers did worse, with 50 percent of the graduates in this group returning to daily alcohol use.

### **Drug Abuse Reporting Program**

The DARP research, which became available in the mid- to late-1970s established treatment effectiveness on the basis of followup research. The DARP research was based on a population of 44,000 clients admitted to drug abuse treatment among 52 programs during 1969-74. The clients were classified into three admission cohorts. Five DARP index treatment classifications were developed: outpatient detoxification, methadone maintenance, therapeutic community, and drug-free outpatient; a fifth group labeled "Intake Only," persons who were interviewed and scheduled for treatment but who did not subsequently show up at the program, was used as a comparison group.

The DARP samples, consisting largely of opioid addicts, were interviewed at admission and during treatment and followed up subsequently in the community to assess outcome (Simpson and Sells 1982). The DARP research, which is widely published, made an enormous contribution to knowledge about treatment outcome. Due to space limitations, it is possible to highlight only a few of them here.

- The effectiveness of treatment was established empirically. Drug use for the followup sample declined dramatically pretreatment to posttreatment and continued to diminish over years 2 and 3 posttreatment.
- Comparative effectiveness was assessed. Three major modalities—methadone maintenance, TC, and drug-free outpatient—each were found to be effective, whereas detoxification alone was considerably less effective. As figure 2 shows, using very strict criteria or more lenient criteria, the pattern holds for opioid addicts, with dramatic improvement during the first year after treatment.

- The time-in-treatment effect is another well-known finding from the DARP research. Clients who stayed in treatment less than 90 days did no better

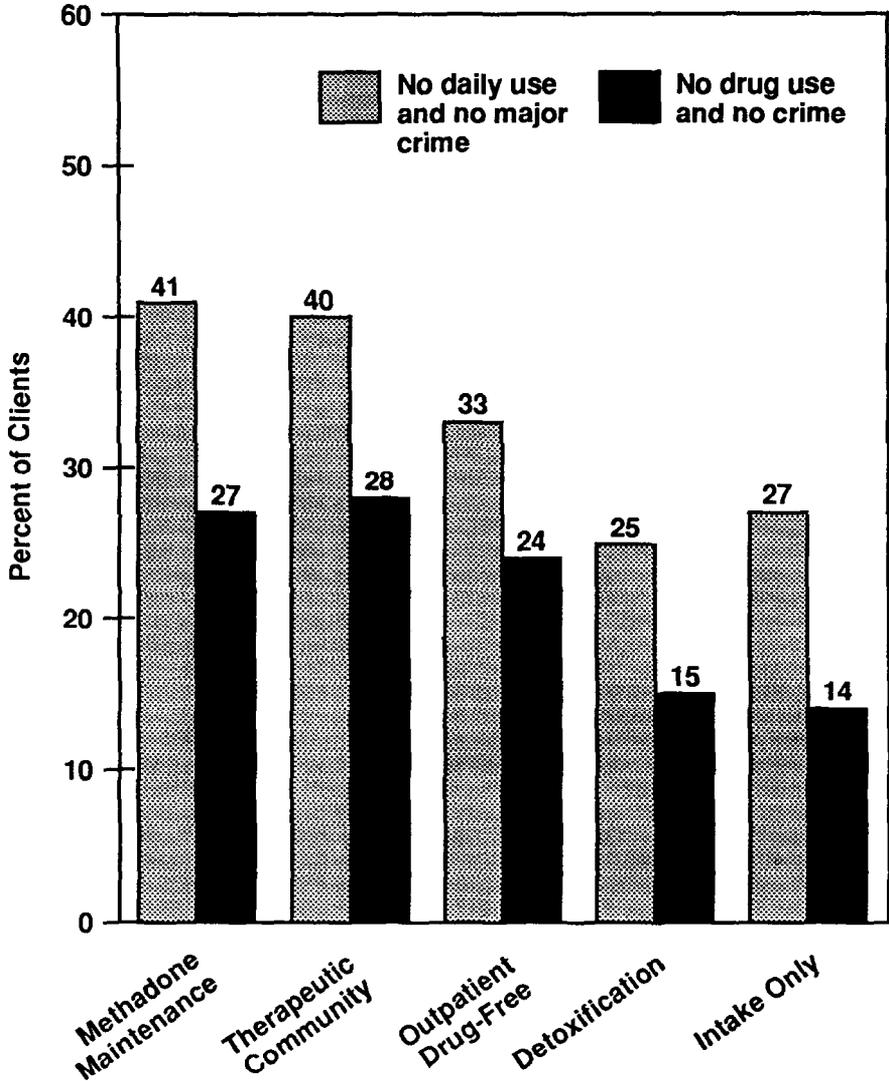
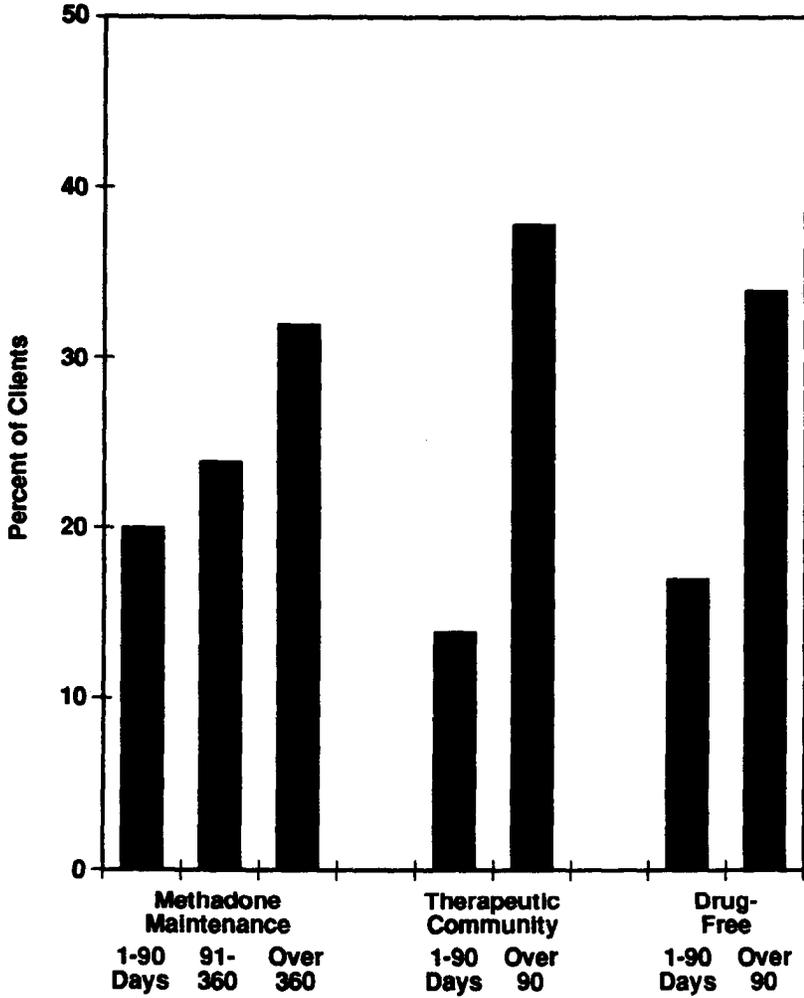


FIGURE 2. Drug use and crime in year 1 post-DARP

than detoxification clients, but for those who stayed more than 90 days, improvement was directly related to length of stay (figure 3).



**FIGURE 3.** *Outcomes by time in treatment—no drug use and no crime in year 1 post-DARP*

The DARP contribution was both substantive and methodological. As outcome was considered in the context of many outcome patterns, it became evident that first-year outcomes, although important, did not tell the full story. Several approaches were tried in classifying outcomes, and the most useful proved to be a set of longitudinal composite measures that took into account both the achievement of abstinence from illicit opioids—the primary objective of treatment—and freedom from other problems such as heavy use of alcohol, heavy nonopioid use, and long-term incarceration. The long-term pattern shown in figure 4 is a composite of several DARP samples over a 12-year

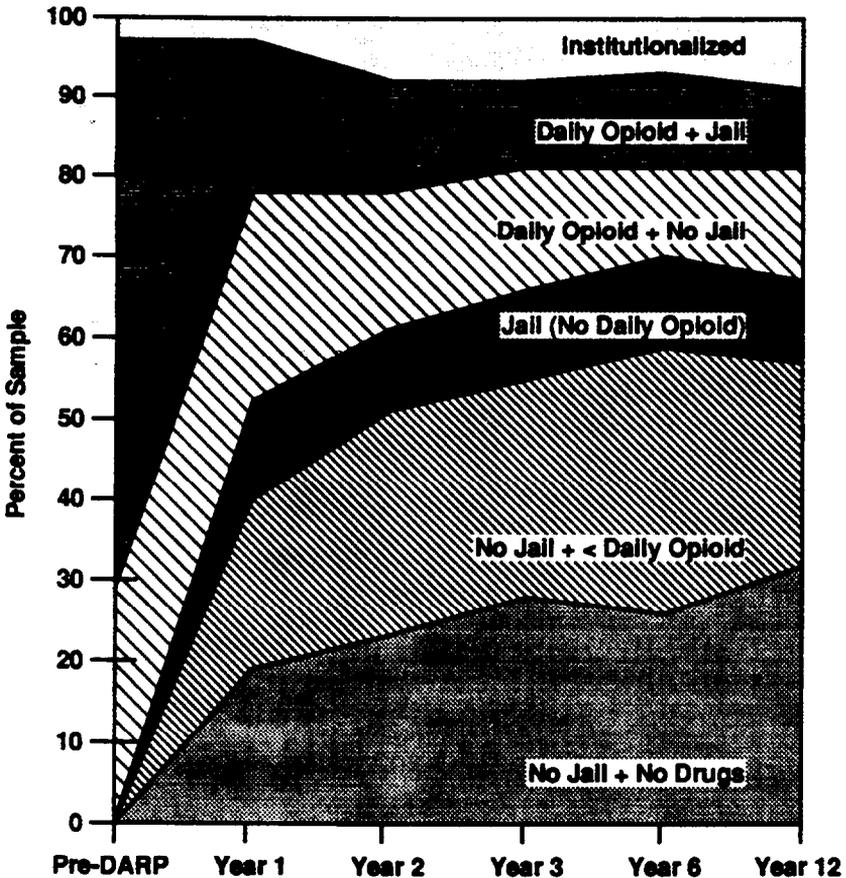


FIGURE 4. *Outcomes over time*

period. It shows the improvement previously noted in years 1 through 3 posttreatment and outcomes at year 6 postadmission; most of the clients had ceased daily opioid use. These outcomes tended to be stable. By year 10, two-thirds of the addicts had stopped daily opioid use and maintained that status through year 12.

### **Treatment Outcome Prospective Study**

TOPS differed from DARP in several important ways. It took place at a later point in the evolution of our national treatment system, and at a point where drug abuse patterns were more diverse. Like DARP, it used a design with three admission cohorts and intake samples at participating programs and attempted to capture the major modalities among those programs. Neither DARP nor TOPS has ever claimed to have samples representative of the universe of programs, nor were the resources necessary for such representativeness available.

What they did have were programs with geographic dispersion and the major modalities available for study at that time. Although DARP had fewer programs to draw from, TOPS had the luxury of sampling programs recommended as better programs by single-state agencies. This is a reasonable approach to the study of treatment, but it may well account for some of the better outcomes among the opioid addicts in TOPS.

Like DARP, the TOPS followup was constrained by the available mechanisms and resources. The DARP followup was under a series of grants and used a retrospective interview with an activities chart to reconstruct events and periods of drug use over time. TOPS followed up two cohorts (1979 and 1980 admissions) under a contract and interviewed clients at 3 months and 1 year posttreatment.

The TOPS data showed many different abuse patterns. It was not unusual for clients to report as many as four different regular drugs of abuse. Pretreatment and posttreatment comparisons showed general improvement, although the data contain some puzzles. For example, TOPS opioid clients have a much greater tendency to get arrested and incarcerated after treatment than DARP clients. Table 2 shows some comparisons between the DARP and TOPS data sets, using the same criteria for identifying those addicted to opioids at admission, that is, daily or near-daily use of opioids. Because the DARP sample is dominated by opioid addicts, their numbers are much larger; the TOPS sample had only 50 drug-free outpatient clients who met the criteria of daily opioid use at admission. Also, because the published DARP data used

**TABLE 2.** *Pretreatment and posttreatment outcome measures for opioid addicts admitted to DARP and TOPS (black and white male clients only)<sup>a</sup>*

Outcomes	DARP Admissions (1969-72)						TOPS Admissions (1979-80)					
	MM N = 895		Res DF N = 582		DF OP N = 256		MM N = 285		Res DF N = 166		DF OP N = 50	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
<b>Drug Use</b>												
% daily opioids	100	36	100	39	100	44	100	20	100	22	100	24
% any opioids	100	56	100	58	100	64	100	61	100	53	100	66
% any cocaine					57	52	50	44	49	42		
% any marijuana	46	58	56	62	52	69	76	69	72	74	71	65
% other nonopioid <sup>b</sup> use	54	41	60	40	54	45	53	42	55	45	62	54
% heavy drinking <sup>c</sup>	21	38	20	38	21	38	30	28	38	34	38	27
<b>Treatment</b>												
% reentering treatment	49	38	53	32	48	33	66	51	67	35	51	28
<b>Criminality</b>												
% any arrests	88	27	95	33	87	34	34	36	76	53	65	50
% any jail/prison	50	28	62	33	51	34	38	37	77	60	53	54
<b>Employment</b>												
% 6+ months	33	57	20	61	24	52	45	38	32	29	52	50

<sup>a</sup> In DARP, pretreatment drug use is in the 2 months before admission. In TOPS, pretreatment drug use is in the 3 months before admission. In both studies, all posttreatment measures are for the year following treatment.

<sup>b</sup> In DARP, cocaine use is included as "other nonopioid use." Cocaine use for TOPS clients is *not* included in the "other nonopioid" category.

<sup>c</sup> Heavy drinking<sup>c</sup> for DARP: Average daily consumption is equivalent to more than 4 ounces of 80-proof alcohol.

here are only for black and white males, these preliminary comparisons were limited further by excluding females from the TOPS data.

The apparently better outcomes in terms of daily opioid use are dramatic. Whereas 36 to 44 percent of DARP clients returned to daily opioid use during the first year, only 20 to 24 percent of the TOPS clients did so. The figures for any opioid use are almost identical, about 60 percent for each sample. The difference in daily use may be a function of greater diversity in drug abuse patterns or of learning to substitute alcohol and nonopioids for opioids.

DARP clients showed somewhat greater reductions than TOPS clients in use of nonopioids. The percentage of DARP clients using marijuana and drinking heavily tended to increase, a pattern opposite of that observed in TOPS. Among TOPS daily opioid clients, the reductions in percent using cocaine were small.

There are differences in other outcome measures for opioid addicts. Arrests of TOPS clients seem to be greater than DARP clients. The contrast in employment also is striking. For DARP clients employment improved dramatically across all modalities; TOPS clients, whose employment levels were generally higher than those of DARP clients at intake, either failed to improve or worsened on this measure. Economic conditions in the United States during the followup period for TOPS may explain partially the failure of TOPS clients to improve in the area of employment (Hubbard et al. 1989).

Outcomes for clients remaining in treatment at least 90 days are depicted in figure 5 for two TOPS subgroups: regular cocaine users (at least once weekly) and regular users of drugs in a category labeled "sedatives, hypnotics, and tranquilizers."

**Regular Cocaine Users.** Attempts to develop meaningful classifications by drugs of special interest other than opioids were frustrated by the drug abuse patterns present in the sample. To the extent that the sample could not be characterized as opioid addicts, it tended to comprise "former addicts" (i.e., primary opioid abusers transferring from jail or other programs) and polydrug abusers. The number of TOPS clients who were using cocaine at least once a week (but not using opioids daily at that time) during the 3-month pretreatment baseline period was relatively small, and they showed a tendency to use numerous other drugs. After treatment, there was some reduction in cocaine use, nonopioid use, and heavy drinking for TC and drug-free outpatient clients. For all three modalities, pretreatment to posttreatment employment essentially did not change.

FIGURE 5. Outcome patterns for TOPS clients in treatment 3 months or longer

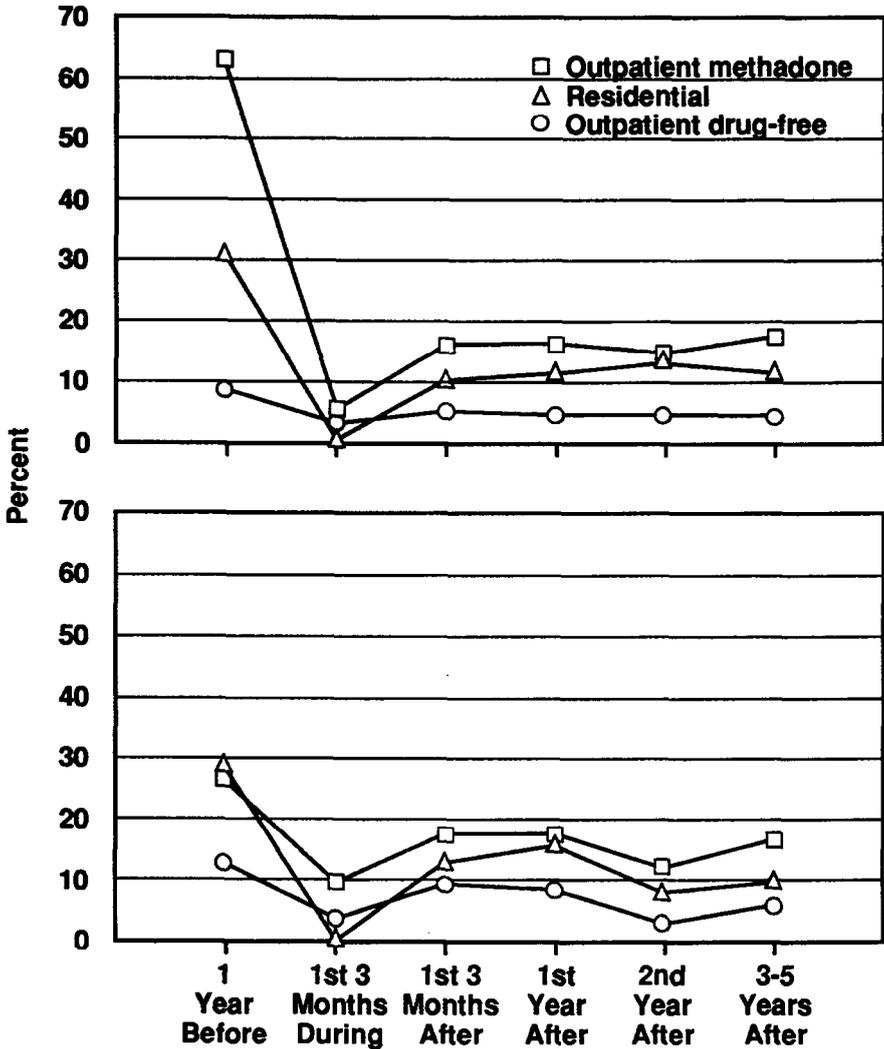


FIGURE 5a. Changes in prevalence of regular heroin use  
 FIGURE 5b. Changes in prevalence of regular cocaine use

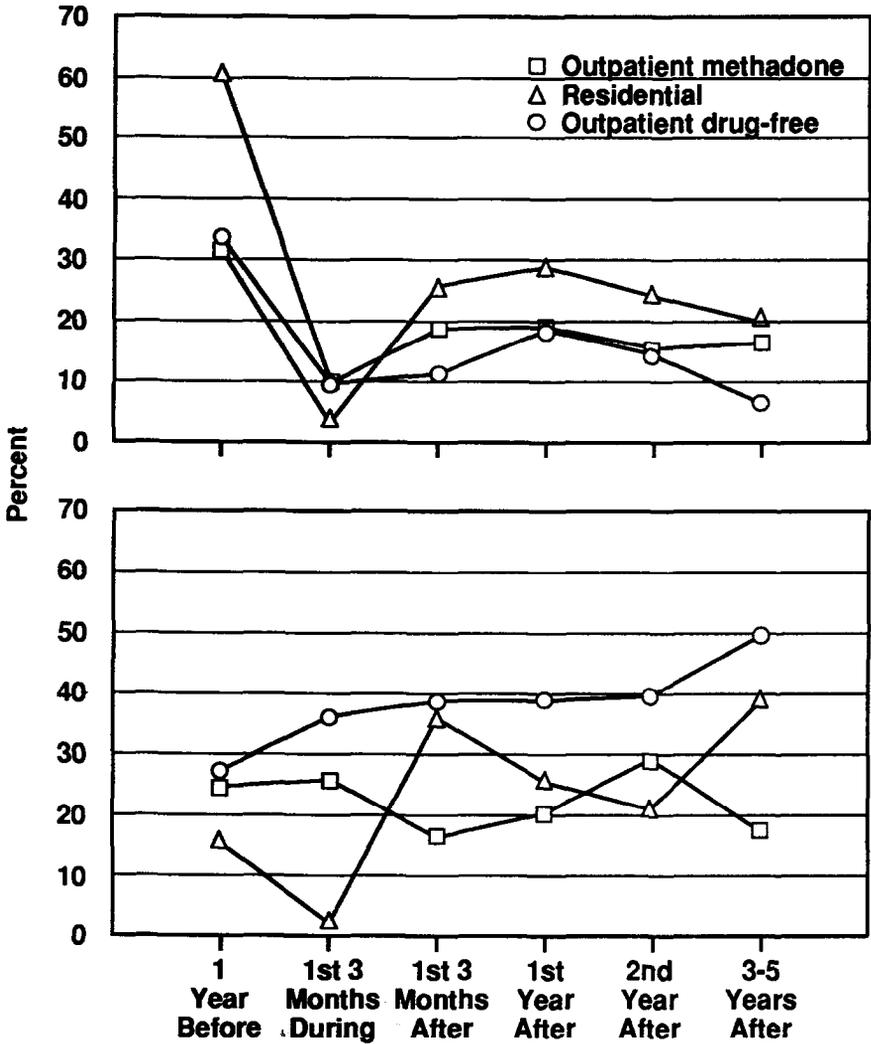


FIGURE 5c. *Changes in predatory crime*

FIGURE 5d. *Changes in full-time employment*

**Sedative, Amphetamine, and Tranquilizer Users.** A category of regular (at least weakly) “psychotherapeutic nonopioid” users (i.e., sedative-hypnotics, amphetamines, and tranquilizers but excluding hallucinogens), excluding daily opioid or cocaine users, was examined. Outcomes for this group were mixed, with decreases in some drug use and increases in others. Pretreatment and posttreatment employment for drug-free residential and drug-free outpatient programs essentially were unchanged, although more than half of the clients in these modalities were employed.

The TOPS pattern suggests that although treatment can bring about positive and significant changes in clients, there is much room for improvement. Instead of focusing on an immediate isolated problem, more attention needs to be given to overall improvement and specialized services, especially daily marijuana use, heavy drinking, criminality, and employment.

### **Northeast Methadone Research Project**

A recent noteworthy study that is not national in scope is the Methadone Research Project conducted by Ball and associates (1999) in the northeastern United States. This study focused on six methadone maintenance programs in Baltimore, Philadelphia, and New York City. Much of this database is still being analyzed, but several interesting papers have resulted.

Among the most interesting findings are the large degree of variability in outcomes among the six programs and the role of methadone dosage in reducing intravenous (IV) drug use. Ball and colleagues found that programs had IV drug use rates ranging from 10 to 57 percent. Further analysis of the data revealed that methadone dosage accounted for half of the explained variance in current IV drug use (Ball et al. 1999).

### **Drug Abuse Treatment Outcome Study**

The next major national treatment followup study will be DATOS, which is being conducted under the general direction of the authors. Among the major features of DATOS are:

- A sample of 50 programs with major modalities, including detoxification, methadone maintenance, therapeutic community, drug-free outpatient, and chemical dependency units. The sampling approach emphasizes capturing the types of programs most commonly used in treating drug abusers in the United States and includes publicly funded as well as private, for-profit clinics.

- Use of sampling frame based on a national survey of programs recently conducted by the University of Michigan's Institute for Social Research, with indepth organization and clinical information available on program selected.
- Intake sample of 20,000 and followup sample of 4,500 from two 1-year admission cohorts.
- Use of the Addiction Severity Index and a structured diagnostic interview to assess problem severity and psychopathology.
- Followup sample stratified by drug abuse (opioids, cocaine, other polydrug), modality, and impairment measures. A key feature of the study will be conceptualization and measurement of the underlying dimension of impairment, which at this time is expected to use a composite of substance dependence, psychiatric severity, and deficits in social functioning.
- Emphasis on the process of treatment and client change measures during treatment.
- Interviews at admission and at treatment intervals, treatment termination reports, and followup interviews at 3 months and 12 months posttermination.

## **CONCLUSIONS**

Although drug abuse treatment has been shown to be effective and the long-term course of recovery appears encouraging for those entering treatment, the evaluation of drug abuse treatment continues to be beset by numerous problems. With the exception of some types of psychopathology, attempts to isolate prognostic variables generally have not been successful. This may be due partially to not having asked the right questions and partially to the complexity of the presenting problems of drug abuse. Future evaluative research must attempt to capture critical client variables that have scientific, clinical, and policy relevance such as degree of impairment. Ultimately, evaluative research must address questions of client-treatment matching, which requires that the treatment process be characterized and measured in ways that allow generalizability about what takes place in treatment of drug abusers—what services are received, what processes are activated, and what changes result. This requires not only careful conceptualization and measurement of client and treatment variables but also sampling programs that represent prevailing models of treatment. Nothing is gained by proving that poorly run programs do not accomplish what is expected of well-run programs.

Outcome studies must sample treatment populations that reasonably represent contemporary drug abuse patterns. Just as the shift from opioid addiction to multiple drug abuse was seen in the DARP and TOPS research, DATOS must focus on the major drug abuse problems of 1990—cocaine, opioids, and polydrug abuse—among various socioeconomic groups and impairment levels. Generalizability must be improved by conducting studies on populations of special interest such as adolescents and women of childbearing age.

The valuable lessons learned from the growing body of treatment outcome studies will aid in the development of outcome studies that use a variety of perspectives and timeframes—what happens at intake and during treatment and posttreatment, both with respect to immediate outcomes and longer term patterns. Natural history studies of nonopioid abuse, especially cocaine abuse, are needed to understand treatment outcomes in a longer term context. Development of a systematic, well-integrated body of treatment outcome research will result in an enhanced understanding of drug abuse, its treatment, and its course with or without treatment. Such knowledge should be developed and disseminated with the express purpose of improving drug abuse treatment.

## REFERENCES

- Anglin, M.D.; Almog, I.J.; Fisher, D.G.; and Peters, K.R. Alcohol use by heroin addicts: Evidence for an inverse relationship. A study of methadone maintenance and drug-free treatment samples. *Am J Drug Alcohol Abuse* 15(2):191-207, 1989.
- Anglin, M.D., and McGlothlin, W.H. Outcome of narcotic addict treatment in California. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 106-128.
- Bale, R.M.; Van Stone, W.W.; Kuldau, J.M.; Engelsing, T.M.J.; Elashoff, R.M.; and Zarcone, V.P., Jr. Therapeutic communities vs. methadone maintenance. *Arch Gen Psychiatry* 37(2):179-193, 1980.
- Ball, J.C.; Lange, W.R.; Myers, C.P.; and Friedman, S.R. Reducing the risk of AIDS through methadone maintenance treatment. *J Health Soc Behav* 29:214-226, 1988.
- Ball, J.C.; Shaffer, J.H.W.; and Nurco, D.N. The day-to-day criminality of heroin addicts in Baltimore: A study in the continuity of offense rates. *Drug Alcohol Depend* 12:119-142, 1983.
- Collier, W.V., and Hijazi, Y.A. A follow-up study of former residents of a therapeutic community. *Int J Addict* 9:805-826, 1974.

- De Leon, G. *The Therapeutic Community: Study of Effectiveness*. Treatment Research Monograph Series. DHHS Pub. No. (ADM)84-1286. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984.
- De Leon, G. Psychopathology and substance abuse: What is being learned from research in therapeutic communities. *J Psychoactive Drugs* 21:177-188, 1989.
- Dole, V.P., and Nyswander, M.E. Methadone maintenance treatment: A ten-year perspective. *JAMA* 235:2117-2119, 1976.
- Gearing, F.R.; D'Amico, D.A.; and Thompson, F. What's good about methadone maintenance after ten years? *Drug Abuse—Modern Trends, Issues, and Perspectives*. Proceedings of the Second National Drug Abuse Conference, Inc., New Orleans, 1975. pp. 645-666.
- Hubbard, R.L.; Marsden, M.E.; Rachal, J.V.; Harwood, H.J.; Cavanaugh, E.R.; and Ginzburg, H.M. *Drug Abuse Treatment: A National Study of Effectiveness*. Chapel Hill, NC: University of North Carolina Press, 1989.
- McGlothlin, W.H., and Anglin, M.D. Shutting off methadone: Cost and benefits. *Arch Gen Psychiatry* 38:885-892, 1981.
- McGlothlin, W.H.; Anglin, M.D.; and Wilson, B.D. *Evaluation of the California Civil Addict Program*. National Institute on Drug Abuse Services Research Monograph Series. DHEW Pub. No. (ADM)78-558. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1977.
- O'Donnell, J.A. *Narcotic Addicts in Kentucky*. DHEW Pub. No. (PHS)69-1881. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1969.
- Rounsaville, B.J.; Weissman, M.M.; Kleber, H.; and Wilber, C. Heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1982.
- Sells, S.B.; Demaree, R.G.; Simpson, D.D.; and Joe, G.W. Evaluation of present treatment modalities: Research with DARP admissions, 1969-1973. *Ann N Y Acad Sci* 311:270-281, 1978.
- Simpson, D.D.; Joe, G.W.; and Bracy, S.A. Six-year follow-up of opioid addicts after admission to treatment. *Arch Gen Psychiatry* 39:1318-1323, 1982.
- Simpson, D.D.; Savage, L.J.; and Lloyd, M.R. Follow-up evaluation of treatment of drug abuse during 1969 to 1972. *Arch Gen Psychiatry* 36:772-780, 1979.
- Simpson, D.D., and Sells, S.B. Effectiveness of treatment for drug abuse: An overview of the DARP research program. *Adv Alcohol Subst Abuse* 2(1):7-29, 1982.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Blaine, J.; Herman, I.; and Hole, A. Psychotherapy for opiate addicts. *Arch Gen Psychiatry* 40:639-645, 1983.

## **AUTHORS**

Frank M. Tims, Ph.D.  
Deputy Branch Chief

Bennett W. Fletcher, Ph.D.  
Research Psychologist

Treatment Research Branch  
Division of Clinical Research  
National Institute on Drug Abuse  
Parklawn Building, Room 10A-30  
5800 Fishers Lane  
Rockville, MD 20857

Robert L. Hubbard, Ph.D.  
The Center for Social Research and Policy  
Research Triangle Institute  
P.O. Box 12194  
Research Triangle Park, NC 27709

# **Patient Treatment Matching: A Conceptual and Methodological Review With Suggestions for Future Research**

*A. Thomas McLellan and Arthur I. Alterman*

## **INTRODUCTION**

The idea of matching patients and treatments is not a new one and has become even more attractive over the past decade for several reasons. First, the number of treatment programs has increased rapidly over the past decade with the expanded availability of employee assistance programs, mandated insurance benefits for drug dependence, and the increased emergence of private treatment centers for addicted individuals. A second factor is the increasing pressure throughout the health care field to reduce the costs of treatment by limiting the length of stay in hospitals or rehabilitation facilities. This pressure has increased the variety of rehabilitation modalities available, such as outpatient and/or partial hospital programs. This is a rather big change, because in the not too distant past, the great majority of treatments in the substance abuse field relied almost exclusively on the inpatient modality. Third, the recent wave of cocaine abuse has led to increases in the number and variety of treatment approaches within the substance abuse field. Formerly alcohol-only programs now admit patients with alcohol and/or cocaine problems.

These recent developments have added political and financial pressure to the already earnest efforts of clinicians and treatment researchers to find patient-treatment or patient-program combinations that would provide optimum recovery and potential cost savings. However, it must be admitted that the idea of “matching” has been as methodologically elusive to researchers as it has been conceptually attractive to clinicians. Virtually every treatment evaluation study has concluded with the speculation that, given the “right” combination of variables, patients could be matched to the most appropriate treatments. Similarly, virtually every clinician shares the belief that certain types of

treatments are “best” for certain kinds of patients. Despite the methodological speculations and clinical impressions, there have been very few matching studies attempted (approximately 15 at this writing) and very little evidence thus far that a matching strategy can be a practical or worthwhile procedure in most clinical settings.

The discussions of matching as a desirable clinical concept seldom consider the conceptual and methodological problems associated with demonstrating the viability of such a concept. For example, it should be clear that matching is viable only in a treatment network in which each of the programs is *both different and effective*. For example, it is at least conceptually possible for there to be differential effectiveness in rehabilitation strategies that are as different as a methadone maintenance program and a drug-free therapeutic community (TC). In this case, the programs differ in terms of setting (inpatient vs. outpatient), orientation (medication vs. no medication), structure (strict patient self-government vs. hour visit to the clinic), and major therapeutic intervention (group vs. individual counseling). There are therefore many reasons to believe that these two types of programs could be differentially effective with selected segments of the patient population. However, in a comparison of two drug outpatient programs in which one of the programs has more Narcotics Anonymous (NA) or Cocaine Anonymous (CA) meetings and fewer relapse prevention meetings than the other, there is less reason to believe that the programs are conceptually or methodologically different enough to produce a differential spectrum of outcomes. It is much more likely in this case that the programs will be attractive to and effective with the same segment of the patient population. Therefore, on conceptual grounds, they should be expected not to show a matching effect.

The overall efficacy of a treatment program is also a major issue in any matching strategy. It will not be possible to demonstrate that a treatment program is differentially suited to a specific “type” of individual if the program is generally poorly administered and only minimally effective. If it cannot be specified that a treatment was delivered in the intended manner, in sufficient quantity and intensity to effect the desired changes in at least some segment of the patient population, then conclusions regarding matching hypotheses are simply not possible.

This chapter first examines conceptual and methodological considerations associated with the matching strategy and discusses the many methodological difficulties involved in performing this type of study and in actually demonstrating a matching effect. This is considered germane to the specific discussion that follows in that many of the studies that have failed to demonstrate a relationship between a patient variable and differential treatment

outcome in two or more different treatments were not designed in a way that the effect reasonably could have been expected in the first place. This part of the chapter draws heavily on the prior work and excellent methodological discussions of Annis (1987), Finney and Moos (1986), Miller and Hester (1986a), Skinner (1981), Simpson and Sells (1982), and Simpson and colleagues (1979). Finally, the chapter discusses different types of matching studies at different points during the course of rehabilitation and suggests issues and methods that are pertinent for matching studies in the future.

## **PART I—METHODOLOGICAL CONSIDERATIONS IN PERFORMING MATCHING STUDIES**

### **The Concept of Patient-Treatment Matching: What Is a Reasonable Expectation?**

Perhaps the most important consideration in a treatment matching study is a clear understanding of *what* a treatment (if it works perfectly) would be expected to accomplish and of *how* a treatment (if it works the way it is supposed to) would accomplish these effects. A comparison of two common treatments may serve to illustrate the point. The use of naltrexone (Trexan) in the treatment of opiate dependence is widespread as a blocker of drug-taking behavior. It is essentially atheoretical in its approach and makes no assumptions regarding the etiology or complexity of the drug problems under treatment.

This type of atheoretical treatment has a basic and direct set of expectations regarding the following:

1. Patient selection criteria for the treatment—it should work with any opiate addict who complies with the dosing regimen.
2. Duration and intensity of treatment necessary to produce the desired effects—it should work almost immediately; its efficacy has virtually nothing to do with intermediate changes in the patient or his or her behavior (other than compliance with the dosing).
3. Requirements for the treatment to take place—it should work in virtually any setting in which appropriate pharmacologic supervision is available.
4. Criteria for judging if the treatment has been able to do what was intended—it should reliably reduce opiate use, nothing more.
5. Range of outcome criteria that would reasonably be affected by this intervention—opiate use alone; there are (should be) no expectations that

this medication alone will provide the patient with “insight,” reduce “denial,” or assist with the social/economic/emotional adjustment of the recovering patient (although these may be subsequent effects of the extended drug-free status produced by the medication).

6. Duration of benefits—it should lose its effectiveness almost immediately following cessation of dosing, unless other behavior change-oriented interventions accompany the medication.

In contrast, some treatments in the substance abuse field that are based on theoretical assumptions about the “underlying” causes of substance dependence work indirectly to effect change and are not immediate in their effects. Good examples are found in the widely used varieties of psychotherapy (group and individual; dynamic and behavioral) for the treatment of alcohol dependence. These treatments are theory driven, assuming that a primary (if not the only) reason for the excessive drinking is an underlying emotional problem in the patient, which functions to provide motivation for the “stress reduction/affect relieving” properties of the alcohol. That is, the treatment is based on the theory that emotionally troubled individuals have learned that their problems could be ameliorated by alcohol and that this quickly became habit-forming. The expectations regarding the effects of psychotherapy on alcohol dependence are necessarily indirect. That is, *if* the patient is emotionally troubled and *if* the psychotherapy can reduce these problems, then the patient should have less motivation to drink, and this should result in lower levels of drinking following treatment.

It should be dear that this type of theory-driven treatment has fundamentally different expectations regarding the following:

1. Patient selection criteria for the treatment—it should only work with alcoholics who have emotional problems.
2. Duration and intensity of treatment necessary to produce the desired effects—it should only work with those patients (assuming again that they are “appropriate” to start with) who have had enough of the treatment to correct the target problem, that is, the underlying emotional discomfort.
3. Requirements for the treatment to take place—it should only work where appropriate facilities and trained staff have employed the prescribed amount and intensity of treatment in the manner that it is intended to be delivered; obviously, these requirements will be different but equally relevant for various types of psychotherapies.

4. Criteria for judging if the treatment has been able to do what was intended—it should reduce emotional problems but should not be expected to reduce alcohol use (this would be, at best, an indirect effect).
5. Range of outcome criteria that would reasonably be affected by this intervention—if an underlying emotional problem is the central problem that has been manifest as alcoholism, then the reduction of that problem should have positive effects on other areas, for example, family and social relations, employment opportunities, and general psychological adjustment.
6. Duration of benefits—it should continue its effectiveness following completion of treatment because it is conceived as a relatively enduring behavioral change.

Although this comparison is by design extreme for the purposes of illustration, there are many other treatment contrasts within the substance abuse field that offer similar levels of disparity with regard to the expectations associated with them. Examples include methadone maintenance and TC treatments, aversion therapies, skills-training, acupuncture, and relapse prevention.

### **At What Level is the Matching Expected?**

Many studies have examined different treatment settings or intensities (inpatient, outpatient, day-hospital, partial hospital) for evidence of differential patient outcomes. Other studies have examined different modalities of treatment (controlled drinking, drug-free abstinence, antagonist-assisted abstinence), whereas the majority of studies have looked at treatment programs (a particular combination of setting and modality) as the unit of analysis. Very few studies have examined the more subtle treatment elements or ingredients within programs (group therapy, education, social work services, etc.) that would be associated with actual patient-treatment matching.

It should be clear that different types of patient variables will be important in matching at each of these levels, and unless the level of measurement is appropriate to the level of matching desired, it can restrict the interpretation of the results. Perhaps the best example of this problem is seen in the series of studies by McLellan and colleagues (1982, 1983a, 1983b). In these studies, “treatments” were six existing treatment programs from two different treatment settings (inpatient and outpatient). The inpatient treatments were all from the TC orientation with at least nominally the same abstinence treatment philosophy and the same general staffing guidelines. Furthermore, no attempt was made to measure the extent to which the “ingredients” of treatment (such as individual counseling, group therapy, education, recreation, medications, social work

services, patient governance, etc.) were offered or received during the treatment process. Therefore, although these investigators did find very clear evidence of patient-setting matches and more modest evidence of some patient-program matches, the gross level of measurement did not permit evidence for patient-treatment matches.

The failure to measure the actual treatment ingredients provided in this study can produce at least two errors of interpretation. First, it is possible for an investigator in a matching study to conclude that a setting is “matched” to a patient when, in fact, it was the particular combination of treatment ingredients within the program that was responsible for the positive outcome. A replication study with the same setting and similar patient sample might result in poor outcomes if there were changes in the ingredients of treatment. Second, it would be possible (in fact, likely) for a patient-program matching study to find no evidence of differential outcomes across a variety of patient subtypes in two treatment programs (perhaps even within the same modality) and to conclude that there was no evidence of patient-treatment matching. If the actual treatments (the nature and duration of the ingredients delivered to the patients) were not measured, this type of conclusion would go well beyond the level of data available.

### **What Kind of Treatment Is Delivered? How Much of It? How Long and How Well?**

The problems raised above illustrate that different levels of conclusions are possible with more refined levels of measurement, particularly in the case of treatment process. It will not be possible to demonstrate that a treatment program is differentially suited to a specific type of individual if the program is poorly run and cannot effect intended changes with any segment of its population. If it cannot be specified that a treatment was delivered in the intended manner by adequately trained individuals and in sufficient quantity and intensity to effect the desired change in a majority of patients, then conclusions regarding matching hypotheses are not possible.

### **Other Methodological Problems**

There are several types of design and analysis problems that can place limitations on the value of conclusions drawn from matching studies. The major problems are discussed briefly below, but more complete and detailed discussions of design and analysis issues pertinent to the matching issue have been presented by Skinner (1981), Simpson and Sells (1982) Simpson and the TCU-DARP group (1979) and Longabough (1986).

**Adequate Sample Sizes.** Because the matching effects that have been observed account for less than 10 percent of outcome variability, it is necessary to employ sample sizes that permit enough statistical power to detect a matching effect. Many published matching studies have not had sample sizes adequate to detect a matching effect even in an appropriate design.

Closely related to this is the need for significant variability across the variables measured. It is not statistically possible to detect an important relationship between a pretreatment measure and an outcome criterion if there is only a small amount of variability within the samples on that pretreatment measure. This has been particularly important with respect to the drug use severity measure because it is often the most homogeneous of all background variables in a treatment population.

**Prospective vs. Post Hoc Analyses.** Very few studies have prospectively tested specific matching variables that were posited to be related to outcome based on prior work or on a relevant theory. Results from these prospective studies hold greater conceptual validity than those derived from a large-scale post hoc analysis of a collection of potential predictors. It should be clear that post hoc analyses, especially those in which a large number of items are examined, run the risk of simply uncovering an isolated or spurious relationship. Furthermore, simple correlations between sets of predictors and an outcome variable do not provide important information regarding the relationships among predictor variables.

**Differentiation or Prediction.** Perhaps the most common misinterpretation of results occurs in post hoc studies in which poor performance patients (based on some valid criterion) are found to be significantly different from good performance patients on pretreatment or demographic variable *x*. Results such as these often were extrapolated to the conclusion that patients with variable *x* should not be treated in the particular treatment modality. Depending on the variability in the population and the number of subjects used, it is possible for many variables to be “significantly different” among different segments of the population. However, these variables may not be meaningfully associated with the outcome criterion in a predictive sense. This may happen because variable *x* accounts for only a small part of the total variation in outcome or because variable *x* is closely related to another variable (which may or may not have been included in the analyses) that is itself predictive of outcome. Truly reliable and valid estimates of prediction or of matching require multivariate analyses that can take into consideration these complex relationships and adjust the estimates appropriately.

## **PART II—AN EXAMINATION OF MATCHING ISSUES AT SEVERAL LEVELS**

The results of this review suggest that the most potential for advancement will come from the analysis of more discrete and better defined stages of the rehabilitation process, that is, from the process of treatment selection, through the provision of specific treatment elements during rehabilitation, to the services offered in the posttreatment environment. Just as each of these stages of the rehabilitation process has a different context in which it takes place and a different set of goals for the patient, the clinical possibilities for patient-treatment matching and the potential for matching research also will be different among these stages. Therefore, the remaining portion of this chapter examines the potential for matching research in each of four areas that coincide with the typical context in which treatment is provided. In each of these parts, there is critical commentary regarding the matching research done to date, and there are suggestions for future methods to be applied and examples of specific types of studies that could be performed.

### **Matching Before the Treatment Starts: Program-Patient Matching**

Because the nature of a treatment program (including its location, cost, referral network, charter, and preferred modalities) will determine in large part the types of patients who present for treatment, the sample of patients evaluated at a specific treatment program will not even be representative of the total population of treatment-seeking individuals. This is important in that conclusions from these results often are discussed in terms of what they mean to “the treatment community” or to “the substance abuse field.”

Of course, treatment programs have recognized and used patient self-selection in their marketing strategies and their clinical attempts to “. . . develop programs tailored to the individual needs of the patient . . . .” This marketing process of solicited self-selection is sensible in that it is not likely that the effects of even conceptually identical and comparably applied treatments would be similar for both a sample of older, lower socioeconomic, chronic alcoholic males treated in a Veterans Administration hospital and a sample of adolescent, middle-class girls at a private facility who were referred to treatment early in the course of their substance abuse careers.

This means that a form of matching takes place before the initiation of treatment through the process of specialization and the selective marketing and referral for “seemingly appropriate” patients. This has spawned the development of “special programs” for “special populations” such as adolescents, Native Americans, women, abused women, adult children of alcoholics, homeless men, and many others. This is by far the most extensive and possibly the most

relevant of all the matching work done in this country, yet little more than descriptive information is available on this level of effort.

The research that has been done in this area has attempted to determine if differential outcomes are seen among these groups treated in the same program. Although this is technically a true matching design, the issue is important and clearly related to the larger matching issue. To date, the meager amount of research that has been completed has found no clear indication that these group designations are associated with different outcomes among those patients who have entered treatment. However, it is clear that members of these groups do not enter available “mainstream” treatments in proportions that are representative of the substance abuse problems within those groups. For this reason, the major efforts in this area related to program-patient matching have been in the development of tailored programs designed and operated by and for selected special population groups. The goal of this effort has been to attract more substance-abusing individuals from these groups into treatment. Although there has been a marked increase in the number of these programs available, it is not yet clear whether proportionally more members of these groups have been attracted into treatments or whether higher proportions of special populations enter special programs than enter traditional programs. Furthermore, although these programs have generally offered attractions that are specially suited to their target populations (e.g., child care for women’s programs and special access for handicapped programs), it is not clear whether or to what extent the treatments provided within these programs differ from more “mainstream” types of treatments and/or whether they are associated with differential outcomes.

**Research Opportunities at This Level.** Studies could be carried out to address the following questions for programs designed with special populations in mind:

1. Do the patients with the “right” patient profile stay longer, show more improvement, and remain improved longer than patients with the “wrong” profile?
2. Is greater demographic and socioeconomic homogeneity among patients associated with better retention in a specific treatment, that is, how much and what types of diversity can a patient population tolerate and still maintain cohesiveness? This is relevant to the increasing amount of cocaine and alcohol use found in patients presenting for treatment at traditional alcohol programs: Can these patients be treated with alcohol-only patients? Are the treatment goals and methods compatible for these two types of patients? Can women be treated as effectively in mixed male

and female settings as in specialized women's facilities? Similar questions could be asked regarding adolescent and adult substance abusers as well as other significant subgroups in the total patient population.

3. Do two conceptually and methodologically different treatments (e.g., naltrexone vs. relapse prevention) tailored to the same patient profile have differential effects?

### **Matching at the Initiation of Treatment: Patient-Setting or Patient-Intensity Matching**

There are at least four levels of treatment intensity or treatment settings that have been offered to substance-abusing patients and studied with regard to matching:

1. Advice/self-help
2. Brief interventions (usually fewer than five counselor/therapist appointments) lasting about a week
3. Outpatient or partial hospitalization
4. Inpatient care (either at a rehabilitation facility or as part of a hospital)

Table 1 describes available results from matching or prediction-of-outcome studies done to date. The questions that have been asked to date regarding these treatment levels have been principally economic in origin. What patient factors predict favorable outcomes in these treatment settings? Is one of these treatment intensities significantly better than another for randomly selected groups of patients? Not all pertinent studies are represented in the table, just those that are more carefully conceived and controlled. Blanks indicate the absence of a representative study or conclusion. Other, very useful tabular presentations of similar data include those of Longabough (1986) and Annis (1987).

Although there are several points of interest in this table, one methodologically significant point is that the patient factors that are predictive of treatment outcome at a reduced level of treatment intensity (e.g., none or brief treatment) usually continue to be predictive even at more structured or intensive levels of treatment. Thus, as can be seen, social and economic factors (i.e., social supports) have been reliably associated with posttreatment outcome in studies at *all* levels of treatment intensity. This is important in matching studies that examine two or more levels of treatment intensity (e.g., outpatient drug-free

TABLE 1. A proposed hierarchy of treatment interventions and their known outcome predictors

Treatment Intensity Level	Patient Characteristic	Treatment Characteristic	Representative Publications <sup>1</sup>
Factors suggesting improvement <i>without any</i> treatment			
	Low alcohol dependence (ADS) High social supports (married, job)	Not applicable	Vaillant 1983; Elai-Lawrence et al. 1987
Factors suggesting improvement <i>with only brief</i> treatment			
	Low ADS High social supports	Informative/instructional Controlled drinking goal Anonymous, confidential	Sanchez-Craig 1984; Miller 1985; Heather 1986; Orford et al. 1976
Factors suggesting improvement within <i>traditional outpatient</i> programs <sup>2</sup>			
	Low ADS High social supports Low psychiatric prob. severity	Length of stay Type of discharge	Armor et al. 1976; Finney et al. 1981a, 1981b; McLellan et al. 1983a, 1983b; Rounsaville et al. 1987
Factors suggesting improvement within <i>traditional inpatient</i> programs <sup>2</sup> All of the above predictors plus:			
	Mid to high ADS Mid to high social supports Low to mid psychiatric severity Not - ASP	Length of stay Type of discharge Program "climate"	Armor et al. 1976; Finney et al. 1981a; McLellan et al. 1983a, 1983b; Lyons 1982; Hesselbrock 1985; Powell et al. 1986; Woody et al. 1985
Factors suggesting <i>maintained</i> improvement <i>following</i> treatment			
	Low ADS High social supports Low to mid psychiatric severity	Attend AA Relocation Structured aftercare	Finney and Moos 1981, 1986; Azrin et al. 1982; Finney et al. 1982; McLachlan 1974; Walker et al. 1983

<sup>1</sup>Studies are referenced if they pertain to either patient or treatment characteristics.

<sup>2</sup>"Traditional" treatment programs are recognized as combinations of a variety of methods and ingredients—the active ingredients of these programs are not presumed at this time. Table 2 illustrates several commonly employed ingredients and the predictor studies pertaining to them.

counseling vs. inpatient relapse prevention). This is an interesting example of a situation in which random patient assignment might not be the best way to examine the matching issue. In a situation such as the one described, simply randomly assigning patients to each of the treatments would ensure variability (hopefully, equal variability) on the social support measure for patients assigned to both programs. Subsequent analyses almost certainly would show a pronounced effect of the social support variable and, depending on the available number of subjects, overshadow other variables. Not only would conclusions based on this design not offer useful information (Who of those among the treatment field does not already realize that those with better social supports at the time of treatment admission are likely to have better outcomes at the time of followup?), but also it would not be consistent with the “real world” in that there is usually not an equal range of variability in the social supports between inpatient and outpatient populations (i.e., outpatient samples often have better living and employment situations than inpatient samples). Because these social support variables are likely to be major influences on treatment outcome, one solution would be to equate or stratify samples on these variables during the treatment assignment process.

**Research Opportunities at This Level.** It seems that there is now enough conceptual clarity regarding the various levels of treatment structure or intensity to permit the use of more carefully staged or hierarchical designs. These staged designs tailor matching hypotheses to the treatment goals and patient populations appropriate for different levels of treatment structure (no treatment, brief treatment; outpatient, inpatient). In this way, it seems possible to build on those conclusions from the past several years that have been replicated and that make clinical sense. For example, the work of many investigators in the alcohol treatment field (Sanchez-Craig 1984; Miller and Hester 1986a) indicates that individuals with less severe and shorter periods of problem drinking, better social supports, and fewer medical and psychological problems can improve problems without intensive treatments. Therefore, such studies as the following are suggested:

1. Studies of matching between different levels of treatment intensity should attempt to select patients with approximately the same levels of treatment problems and social supports. For example, in a study of inpatient vs. outpatient treatment, it would be preferable to include only those patients who were considered (based on clinical and research data) appropriate for outpatient care. Results then might permit a better understanding of the patient factors within the “clinically appropriate” group that are associated with outcome from each level of treatment intensity.

2. Existing models of patient assignment to different levels of treatment intensity (e.g., Hoffman et al. 1987) should be evaluated in a series of controlled evaluations at various sites and with various segments of the patient population. Explicit patient assignment models have been developed based on specified theories offering face-valid ideas for appropriate levels of care and clear improvement criteria for transferring patients among these levels. These models offer promising and practical approaches to an important and expensive problem confronting patients, treatment providers, and third-party payers. These models may be face-valid enough to permit clinical adoption and, thus, a wider range of treatment programs evaluating them.

### **Matching During the Treatment Process: Patient-Treatment Matching**

There is a fairly discrete set of treatment components available to most substance-abusing patients in treatment, regardless of the modality or setting. These include the following:

1. Group therapy (usually focused on issues of treatment need and denial)
2. Individual therapy (usually personal counseling regarding relationship problems and crises)
3. Substance abuse education
4. Self-help groups such as Alcoholics Anonymous (AA), NA, CA—12 steps (either as part of the treatment or through referral)
5. Social service assistance (referral to home or work placement)

Table 2 presents a series of treatment methods and the patient and treatment component factors that this review has found to be associated with outcome. Although there has been at least a moderate amount of work looking at matching in treatment settings (inpatient vs. outpatient) and among programs, there has been little matching work done at the treatment component (medication, therapy, education, etc.) level and even less at the therapist or counselor technique level. This is potentially important in that the failure to find evidence of matching between different programs or settings may be due to the similarity of the therapeutic methods or components employed between treatment programs and settings. Again, this highlights the need for more detailed measurement of the treatment process and for examinations to assess or determine the “active ingredients” of treatment. If these active ingredients are at the process level and if they are applied comparably across treatment

**TABLE 2.** *Predictors of improvement in programs using the following components*

<b>Treatment Component</b>	<b>Patient Characteristic</b>	<b>Treatment Characteristic</b>	<b>Representative Publications<sup>1</sup></b>
Antidipsotropic medication	High social stability Married Not depressed	Compliance	Mayer and Myerson 1971; Azrin et al. 1982; Fuller et al. 1983; Keane et al. 1984
Group therapy <sup>2</sup>	Conceptual level High self-image	Therapist empathy	McLachlan 1974; Annis and Chan 1983
Individual therapy <sup>2</sup>	Not antisocial personality Depression	Therapist empathy Technique "purity"	Luborsky et al. 1984; Woody et al. 1984, 1985
Aversion therapy	?	Production of aversion response	Miller 1986; Miller and Hester 1986b
Relapse prevention	Differential environmental risk	?	Annis 1987; Marlatt and Gordon 1985; Gorski and Miller 1982
Alcoholics Anonymous	Authoritarian/religious Conforming Nondepressed	?	Ogborne and Glaser 1981; Brandsma et al. 1980; Powell et al. 1985
Alcohol education	?	?	Kinder et al. 1980
Social skills training	?	?	Botvin et al. 1984

<sup>1</sup>Studies are referenced if they pertain to either patient or treatment characteristics.

<sup>2</sup>There are many varieties of therapy, and predictors may not generalize.

settings and programs, then it should not be surprising that there would not be much evidence of patient-setting or patient-program matching other than at the grossest levels (e.g., based on levels of social supports, psychiatric severity, etc.).

**Research Opportunities at This Level.** Matching research at the program level is likely to be the area that is most easily addressed by treatment researchers because it can be done within a single program, thus eliminating the kinds of methodologic and logistic problems that confront workers who study matching among programs. Furthermore, this type of matching study may provide the most practical information to program directors and often can be completed as part of ongoing quality assurance or program evaluation duties. The following types of studies could be considered at this level:

1. Random patient assignment methods in controlled experimental trials can be most profitably used in studies *within* a treatment program to investigate the addition of a specific component to treatment as usual. Woody's study of psychotherapy as an adjunct to standard counseling (Woody et al. 1983, 1984, 1985) is an example of such an approach that can provide clear data on the worth of specific treatment components. Virtually all of the standard treatment components now used in rehabilitation programs (education, relapse prevention, group therapy, etc.) could be evaluated for their contribution to outcome against groups having all other aspects of the treatment except the target component. This type of study could be implemented across various treatment settings and patient populations.
2. Treatment methods and techniques that have been predictive of favorable outcome in less structured treatments (e.g., individual therapy, nonconfrontative approach, and patient participation in treatment goals) are typically not those used in the more structured treatments (e.g., group therapy, confrontation, and program-directed goals). There may be a very good reason for this, but there has not been much research in this area that supports the differentiation. More research is indicated here.

### **Matching Following Primary Rehabilitation: The Role of the Posttreatment Environment**

In the past the posttreatment environment of patients was a direct function of the pretreatment resources of the patient. Most programs have concentrated on "primary care" (i.e., 28 days of inpatient treatment) and have not had the resources to develop tailored posttreatment arrangements. Furthermore, the continued treatment possibilities offered to patients who completed primary care

generally have been restricted to NA, CA, or AA and possibly a weekly or monthly continuing care meeting at the primary care site.

**Research Opportunities at This Level.** Certain research (e.g., Finney et al. 1980; Moos et al. 1982; Finney and Moos 1981) has shown that the effects of the posttreatment environment can exert profound influence on the magnitude and duration of benefits shown among treated alcohol abusers. Because of this work, the ever-reducing length of reimbursed care in primary rehabilitation, and the financial push toward outpatient treatments, clinical programs have devoted more time to development of posttreatment “continuing care programs” and have attempted to bring the families of patients into the continuing treatment process. With the addition of these available services comes the opportunity for patient-treatment matching research following the period of primary rehabilitation.

1. Comparative studies of AA/NA/CA, relapse prevention, individual therapy, and/or family therapy following completion of primary rehabilitation could be initiated in a variety of treatment settings and patient populations. Do these interventions add anything to primary care alone? What types of patients can benefit differentially from each of these? Ideally, these should be parametric studies investigating the optimum duration and intensity of treatments and should include measures of cost-effectiveness.
2. Comparative studies of family treatments (independent of the patient) could evaluate the contributions of various forms of family education to the posttreatment adjustment of the patient. For example, during the course of a patient’s substance abuse rehabilitation, his or her family could be assigned to Al-Anon, family therapy, drug education, or individual counseling. This family/environment focus could help to determine if these interventions add anything to simple primary care for the affected patient and if these differentially focused approaches could be matched to specific types of families. There are studies of this within the alcohol treatment field, but this type of work has not received appropriate attention within the drug abuse treatment field.

## **CONCLUSIONS**

The work to date on patient-treatment matching has been productive and has suggested three conclusions:

1. Patient factors have been more predictive of outcome from treatment generally and of differential effectiveness of specific treatments than have treatment process factors. However, techniques for patient measurement

have shown major development in breadth, reliability, and validity over the past decade. In contrast, treatment process or methods have been almost unstudied, and there are no available instruments for reliable and valid treatment measurement. The broader range of treatments now available may reveal more potent treatment process factors *if* provided in an appropriate manner and for an adequate duration.

2. Of the patient variables studied, social, economic, and psychiatric factors have been among the most important predictors of outcome from different treatment intensities (e.g., inpatient, partial hospitalization, and outpatient). Specifically, patients with better social and economic supports and fewer psychiatric problems do well in most treatments and seem to benefit equally from inpatient or outpatient interventions. Lower socioeconomic strata patients and those having more serious psychiatric problems do less well in treatment generally, but they do particularly poorly in outpatient care. Patient factors such as severity of drug dependence, family history of substance abuse, and (especially) presence of antisocial personality disorder have been *generally* predictive of poorer outcomes from all treatments but not *differentially* predictive of response to specific treatments.
3. There have been very few studies of matching patients to different treatment components (e.g., group therapy, individual therapy, medication, and relapse prevention) within a given level of treatment intensity. There are at this time no clear predictors of differential outcomes from any of these components.

## **Recommendations**

The matching work in the coming years gives every indication of potential for significant, practical advances. To this end, the following recommendations are offered.

*As has been discussed by Annis (1987) and Longabough (1986), there is a need for more specific focusing on matching questions.* Efforts should be made to study well-specified treatments that have clear therapeutic goals in specified segments of the patient population (e.g., antidepressant medication vs. cognitive-behavioral psychotherapy for depression in patients meeting DSM-III-R criteria for opiate dependence and major depressive disorder). These types of designs offer a much greater likelihood of providing interpretable results and a better understanding of the mechanisms responsible for those results.

One type of research design (e.g., randomized controlled trials) may not always be appropriate for matching studies at every level of the rehabilitation process. For example, at the level of referral to the treatment program (primary care) and of referral to the posttreatment environment (aftercare), it might be reasonable to consider nonexperimental designs employing a cafeteria approach (Ewing 1977) or a feedback system (Glaser 1980) due to the often extremely high rates of patient dropout associated with randomized assignment to different levels of care or different treatment programs (Bale et al. 1980). At the level of assigning treatment components or treatment providers within the program (the treatment plan), experimental designs with random patient assignment generally would be preferable in evaluating the differential efficacy of components with approximately equal attractiveness and comparable intensity.

*There is a need for more innovative interventions and programs designed to address specific treatment problems in the population* (e.g., the psychiatrically ill substance abuser, the antisocial substance abuser, the cocaine- and alcohol-dependent patient, etc.). Similarly, there is a need to continue evaluation and patient-treatment matching work with recently developed treatments such as relapse prevention (Marlatt and Gordon 1985; Gorski and Miller 1982) and community reinforcement (Azrin et al. 1982). As has been discussed by Skinner (1981) and others, it is difficult to study the optimum matching of patients and treatments when there is so little variability in the philosophy, duration, or basic therapeutic components (e.g., group therapy, education, and NA/CA/12 steps) of most treatments.

There has been much research in the treatment of substance dependence over the past two decades, but only recently has any of it translated into truly innovative modifications of the basic treatment process (Miller and Hester 1986b). In some quarters, the suggestion that new treatments are needed has been considered defamation of existing methods and philosophies. There is every reason to feel heartened by the efficacy shown by existing treatments (McLellan et al. 1982; Miller and Hester 1986b). However, the results of treatment evaluations and patient-treatment matching studies to date indicate that no single treatment is effective for all patients; that many patients have been admitted to inpatient treatments when short-term, less intensive treatments could have worked; and that many other patients will not accept or benefit from any of the existing interventions.

*Perhaps the clearest need within the area of patient-treatment matching is for the development of a reliable, valid, practical, and generalizable instrument to measure the types, amounts, and duration of treatment interventions applied to a patient during the course of rehabilitation.* This is necessary for many reasons but primarily for training of therapists and evaluation of treatment

efficacy. If treatments are not applied in a manner consistent with their philosophy, then it is not reasonable to think that they will work. We rarely know if even a specific intervention (e.g., group therapy for denial), much less a multiservice treatment program, is practiced in the manner originally intended. We do not know the extent to which different individuals in a single treatment receive the same types, amounts, or durations of treatment components. The often repeated claim that patient factors account for more outcome variation than treatment factors may simply be due to the lack of measurement now available in the treatment domain. The ability to characterize a treatment intervention or program in the same way that patients are now characterized will effectively double the current ability to predict outcomes and to optimally assign (i.e., match) patients to available treatments.

## REFERENCES

- Annis, H.M. "Effective Treatment for Drug and Alcohol Problems: What Do We Know?" Invited address presented at the Annual Meeting of the Institute of Medicine, National Academy of Sciences, Washington, DC, October 21, 1987.
- Annis, H.M., and Chan, D. The differential treatment model: Empirical evidence from a personality typology of adult offenders. *Crim Justice Behav* 10:159-173, 1983.
- Armor, D.J.; Polich, J.M.; and Stambul, A.B. *Alcoholism and Treatment*. New York: John Wiley & Sons, 1976.
- Azrin, N.H.; Sisson, R.W.; Meyers, Ft.; and Godley, M. Alcoholism treatment by disulfiram and community reinforcement therapy. *J Behav Ther Exp Psychiatry* 13:105-112, 1982.
- Bale, R.; Van Stone, W.; and Kuldau, J. Therapeutic communities vs. methadone maintenance. *Arch Gen Psychiatry* 37:179-198, 1980.
- Botvin, G.J.; Baker, E.; Renick, N.L.; Filazzola, A.D.; and Botvin, E.M. A cognitive-behavioral approach to substance abuse prevention. *Addict Behav* 9:137-148, 1984.
- Brandsma, J.M.; Maultsby, M.C.; and Welsh, R.J. *The Outpatient Treatment of Alcoholism: A Review and Comparative Study*. Baltimore, MD: University Park Press, 1980.
- Elal-Lawrence, G.; Slade, P.D.; and Dewey, M.E. Treatment and follow-up variables discriminating abstainers, controlled drinkers, and relapsers. *J Stud Alcohol* 48:41-47, 1987.
- Ewing, J.A. Matching therapy and patients: The cafeteria plan. *Br J Addict* 72:13-18, 1977.
- Finney, J.W., and Moos, R.H. Characteristics and prognoses of alcoholics who become moderate drinkers and abstainers after treatment. *J Stud Alcohol* 42:994-1005, 1981.

- Finney, J.W., and Moos, R.H. Matching patients with treatments: Conceptual and methodological issues. *J Stud Alcohol* 7:122-134, 1986.
- Finney, J.W.; Moos, R.H.; and Chan, D.A. Length of stay and program component effects in the treatment of alcoholism: A comparison of two techniques for process analyses. *J Consult Clin Psychol* 49:120-131, 1981a.
- Finney, J.W.; Moos, R.H.; and Chan, D.A. The process of recovery from alcoholism: I. Comparing alcoholic patients and matched community controls. *J Stud Alcohol* 42:363-402, 1981b.
- Finney, J.W.; Moos, R.H.; and Mewborn, C.R. Post-treatment experiences and treatment outcome of alcoholic patients six months and two years after hospitalization. *J Consult Clin Psychol* 48:17-29, 1980.
- Fuller, R.K.; Roth, H.R.; and Long, S. Compliance with disulfiram treatment of alcoholism. *J Chronic Dis* 36:161-170, 1983.
- Glaser, F.B. Anybody got a match? Treatment research and the matching hypothesis. In: Edwards, G., and Grant, M., eds. *Alcoholism Treatment in Transition*. London: Crown Helm, 1980.
- Gorski, T.T., and Miller, M. *Counseling for Relapse Prevention*. Independence, MO: Herald House-Independence Press, 1982.
- Heather, N. Change without therapists: The use of self-help manuals by problem drinkers. In: Miller, W.R., and Heather, N., eds. *Treating Addictive Behaviors: Processes of Change*. New York: Plenum Press, 1986. pp. 331-359.
- Hesselbrock, V.M.; Meyer, R.E.; and Keener, J.J. Psychopathology in hospitalized alcoholics. *Arch Gen Psychiatry* 42:1050-1055, 1985.
- Hoffman, N.G.; Ninoueve, F.; Mozey, J.; and Luxemburg, M.G. Comparison of court-referred DWI arrestees with other outpatients in substance abuse treatment. *J Stud Alcohol* 48:591-594, 1987.
- Keane, T.M.; Foy, D.W.; Nunn, B.; and Rychtarik, R.G. Spouse contracting to increase Antabuse compliance in alcoholic veterans. *J Clin Psychol* 40:340-344, 1984.
- Kinder, B.N.; Pape, N.E.; and Walfish, S. Drug and alcohol education programs: A review of outcome studies. *Int J Addict* 15:1035-1054, 1980.
- Longabough, R. "The Matching Hypothesis: Theoretical and Empirical Status." Paper presented at a meeting of the American Psychological Association, New York, August 1986.
- Luborsky, L.; McLellan, A.T.; Woody, G.E.; O'Brien, C.P.; and Auerbach, A. Therapist success and its determinants. *Arch Gen Psychiatry* 81:123-130, 1984.
- Lyons, J.P.; Welte, J.; Brown, J.; Sokolow, L.; and Hynes, G. Variation in alcoholism treatment orientation: Differential impact upon specific subpopulations. *Alcoholism: Clin Exp Res* 6:333-343, 1982.
- Marlatt, G.A., and Gordon, J.R. *Relapse Prevention*. New York: Guilford Press, 1985.

- Mayer, J., and Myerson, D.J. Outpatient treatment of alcoholics: Effects of status, stability, and nature of treatment. *Q J Stud Alcohol* 32:620-627, 1971.
- McLachlan, J.F.C. Therapy strategies, personality orientation, and recovery from alcoholism. *Can Psychiatr Assoc J* 19:25-30, 1974.
- McLellan, A.T.; Luborsky, L.; Woody, G.E.; Druley, K.A.; and O'Brien, C.P. Predicting response to alcohol and drug abuse treatments: Role of psychiatric severity. *Arch Gen Psychiatry* 40:620-625, 1983a.
- McLellan, A.T.; Luborsky, L.; Woody, G.E.; O'Brien, C.P.; and Druley, K.A. Increased effectiveness of substance abuse treatment: A prospective study of patient-treatment "matching." *J Nerv Ment Dis* 171(10):597-605, 1983b.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; O'Brien, C.P.; and Druley, K.A. Is treatment for substance abuse effective? *JAMA* 247:1423-1427, 1982.
- Miller, W.R. Motivation for treatment: A review with special emphasis on alcoholism. *Psychol Bull* 98:84-107, 1985.
- Miller, W.R. Haunted by the Zeitgeist: Reflections on contrasting treatment goals and conceptions of alcoholism in Europe and the United States. In: Babor, T.F., ed. *Alcohol and Culture: Comparative Perspectives from Europe and America*. New York: New York Academy of Sciences, 1986. pp. 27-46.
- Miller, W.R., and Hester, R.K. Inpatient alcoholism treatment: Who benefits? *Am Psychol* 41:794-805, 1986a.
- Miller, W.R., and Hester, R.K. Matching problem drinkers with optimal treatments. In: Miller, W.R., and Heather, N., eds. *Treating Addictive Behaviors: Processes of Change*. New York: Plenum Press, 1986b. pp. 175-203.
- Moos, R.H.; Finney, J.W.; and Gamble, W. The process of recovery from alcoholism II: Comparing spouses of alcoholic patients and matched community controls. *J Stud Alcohol* 43:666-909, 1982.
- Ogborne, A.C., and Glaser, F.B. Characteristics of affiliates of Alcoholics Anonymous: A review of the literature. *J Stud Alcohol* 42:661-675, 1981.
- Orford, J.; Openheimer, E.; and Edwards, G. Abstinence or control: The outcome for excessive drinkers two years after consultation. *Behav Res Ther* 14:409-418, 1976.
- Powell, B.J.; Penick, E.C.; Liskow, B.I.; Rice, A.S.; and McKnelly, W. Lithium compliance in alcoholic males: A six-month follow-up study. *Addict Behav* 11:135-140, 1986.
- Powell, B.J.; Penick, E.C.; Read, MR.; and Ludwig, A.M. Comparison of three outpatient treatment interventions: A twelve-month follow-up of men alcoholics. *J Stud Alcohol* 46:309-312, 1985.
- Sanchez-Craig, M. *Therapist's Manual for Secondary Prevention of Alcohol Problems: Procedures for Teaching Moderate Drinking and Abstinence*. Toronto: Addiction Research Foundation, 1984.

- Simpson, D.D.; Savage, L.J.; and Lloyd, M.R. Followup evaluation of treatment of drug abuse during 1969 to 1972. *Arch Gen Psychiatry* 36:772-780, 1979.
- Simpson, D.D., and Sells, S.B. *Evaluation of Drug Abuse Treatment Effectiveness: Summary of the DARP Followup Research*. Medical Monograph Series. Vol. 1, No. 7. DHHS Pub. No. (ADM)82-1194. Rockville, MD: Supt. of Docs., U.S. Govt. Print. Off., 1982.
- Skinner, H.A. Different strokes for different folks. Differential treatment for alcohol abuse. In: Meyer, R.F.; Babor, T.F.; Glueck, B.C.; Jaffe, J.H.; O'Brien, J.E.; and Stabenan, J., eds. *Evaluation of the Alcoholic: Implications for Research, Theory, and Treatment*. National Institute on Alcohol Abuse and Alcoholism Research Monograph 5. DHHS Pub. No. (ADM)81-1033. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1981. pp. 349-367.
- Vaillant, G.E. *Natural History of Male Alcoholism: Causes, Patterns, and Paths to Recovery*. Cambridge: Harvard University Press, 1983.
- Walker, R.D.; Donovan, D.M.; Kivlahan, D.R.; and O'Leary, M.R. Length of stay, neuropsychological performance, and aftercare: Influences on alcohol treatment outcome. *J Consult Clin Psychol* 51:900-911, 1983.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Hole, A.; and Herman, I. Psychotherapy for opiate addiction: Does it help? *Arch Gen Psychiatry* 40:626-634, 1983.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Psychiatric severity as a predictor of benefits from psychotherapy. *Am J Psychiatry* 141(10):1171-1177, 1984.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Sociopathy and psychotherapy outcome. *Arch Gen Psychiatry* 42:1081-1086, 1985.

## **AUTHORS**

A. Thomas McLellan, Ph.D.  
Scientific Director

Arthur I. Alterman, Ph.D.  
Associate Scientific Director

Center for Studies of Addiction  
Philadelphia Veterans Affairs Medical Center  
University and Woodland Avenues  
Philadelphia, PA 19104

# Client Issues in Drug Abuse Treatment: Addressing Multiple Drug Abuse

*Thomas R. Kosten*

## **ABSTRACT**

Multiple drug abuse may involve the whole range of abused drugs, but the most critical problems exist with cocaine, alcohol, opioids, and benzodiazepines. The medical and psychosocial consequences of abusing these drugs in various combinations are often more severe than abusing each drug alone, and specific combinations of treatment options may be needed for many of these drugs. These combination treatments may include relapse prevention psychotherapies targeted toward drug-related cues that are specific to each type of drug as well as pharmacotherapies targeted toward specific drugs of abuse, such as naltrexone for opioid abuse and disulfiram for alcohol abuse. Few controlled clinical trials are available with multiple drug abusers, but successful treatments using pharmacological adjuncts such as disulfiram and amantadine have been described with cocaine-abusing or alcoholic methadone-maintained patients.

## **CONTEXT OF MULTIPLE DRUG ABUSE**

Multiple drug abuse has become an increasing problem among opioid and cocaine abusers, the two major risk groups for infection with acquired immunodeficiency syndrome (AIDS). The management of multiple drug abuse is particularly important among the abusers of these two drugs because a key means for controlling the AIDS epidemic among drug abusers is the successful treatment of intravenous (IV) drug abuse (Battjes and Pickens 1988). Among those patients who abuse both opioids and cocaine together ("speedballs"), the IV route of administration is quite common, and the direct relationship to the spread of AIDS is quite clear. The other two substances that are substantially abused by opioid and cocaine abusers are alcohol and sedatives, particularly benzodiazepines. Although alcohol and benzodiazepines are not abused intravenously in the United States, abuse of these two substances is associated with complications in the management of both opioid and cocaine abusers. These complications include difficulties in detoxification as well as in

maintenance treatments. Other drugs of abuse, such as hallucinogens, marijuana, and solvents, rarely present major complications in treating cocaine and opioid abusers. In summary, this chapter focuses on the abused substances that significantly complicate the treatment of patients at highest risk of acquiring and spreading AIDS.

## **EXTENT OF MULTIPLE DRUG USE**

For more than 15 years, surveys of opioid abusers applying for treatment have reported frequent multiple drug abuse, but not until the past few years of the cocaine abuse epidemic has multiple drug abuse become a major problem among cocaine abusers. Cocaine abusers in a recent study of 300 treatment-seeking patients reported multiple drug abuse with alcohol abuse in 70 percent and sedative abuse in 43 percent (Kosten et al. 1989). In this study, opioid abusers were specifically excluded. The alcohol abuse rate among these cocaine abusers was quite interesting in that only 20 percent of the cocaine abusers were primary alcoholics who had become alcoholic before becoming cocaine abusers. For the rest of the alcohol abusers, the alcohol was used to cope with the dysphoria that followed cocaine use (the "crash") (Gawin and Ellinwood 1988); and when they abstained from cocaine, they also did not abuse alcohol. For sedative abuse, the pattern was primarily sporadic use, with only 11 percent of cocaine abusers reporting weekly use. These findings suggest that although multiple drug abuse is quite prevalent, for many abusers treatment of cocaine abuse alone may be sufficient to control the abuse of the alcohol or sedatives. Thus, the major treatment efforts for these multidrug abusers can be focused on the relatively easier task of detoxification alone, rather than on simultaneous maintenance treatments for several abused drugs (Smith et al. 1975). Unfortunately, the situation with opioid abusers appears more complex, with concurrent abuse of nonopioid drugs occurring rather commonly both outside and within treatment programs.

Data on multiple drug abuse were collected in a national collaborative study conducted in the late 1970s (Gardner 1980). In this study, 96 percent of heroin addicts also abused alcohol at some time in their lives, and 76 percent abused alcohol within the 3 months before beginning treatment for heroin addiction. Sedative (43-percent lifetime rate) and cocaine abuse (50-percent lifetime rate) also were relatively common among heroin addicts. Current multiple drug abuse rates were somewhat lower, but among opioid addicts in this survey, current alcohol abuse was reported by 48 percent, cocaine abuse by 29 percent, and sedative abuse by 23 percent.

The reasons for cocaine and alcohol abuse by heroin addicts appear to be quite different, and this may affect the design and relative success of treatment

interventions. Even in this relatively older survey, cocaine was used by 70 percent of those heroin addicts who used cocaine to “improve” the euphoria from heroin, whereas the much more prevalent use of alcohol was not particularly associated with “improving” the euphoria. Only 16 percent of heroin addicts who abused alcohol reported using alcohol to augment the heroin “high.” These findings suggest that control of heroin abuse in many patients may directly reduce cocaine abuse, and the reduction in cocaine abuse reported by several surveys of methadone maintenance programs supports this assertion (Nurco et al. 1988; Ball et al. 1988). Alcohol abuse may not be directly reduced by effective treatment of the heroin addiction, however, because alcohol is not used to alter the effects of heroin in the majority of heroin addicts. Instead, alcohol abuse may require separate treatment not only for detoxification but also for maintenance of the abstinent state. Benzodiazepine abuse in heroin addicts appears to fall in between these two extreme patterns of abuse, with a little less than half of the heroin addicts reporting benzodiazepine use to “improve” their euphoria or “boost” their methadone.

Within treatment programs, multiple drug abuse is a problem for initial retention of patients and for rehabilitation in those programs with good retention such as those providing methadone maintenance (Kosten et al. 1987; 1988). Initial retention is reduced by the need for prolonged multiple detoxifications because patients tend to leave the hospital or drop out of outpatient detoxification programs. In programs with better outpatient retention (such as those providing methadone maintenance), multiple drug abuse undermines efforts at social rehabilitation. The cocaine-abusing or alcoholic methadone patient will be unable to have sustained employment or education, and the cocaine abuser may continue to engage in criminal activity to obtain the drug (Kosten et al. 1987; Stimmel et al. 1988; Rounsaville et al. 1982).

## **DETOXIFICATION FROM MULTIPLE DRUG ABUSE**

Detoxification from multiple drug abuse can often be a complex procedure and require inpatient treatment. Although inpatient detoxification may not be required for dependence on such drugs as cocaine or for treatments that do not require a patient to be drug free, such as initiation of methadone maintenance, the combination of sedatives, and sometimes alcohol, with opioid or cocaine dependence may require extended and carefully monitored inpatient treatment protocols. In particular, if drug-free outpatient therapies such as naltrexone are being considered for patients with multiple drug dependence on sedatives or alcohol in addition to opioids, detoxification will probably require inpatient facilities because of the potential for seizures, organic psychotic states, and death. Substantial medical interventions may be needed when an alcoholic

develops delirium tremens (DT) and other problems when clonidine is used in the detoxification of opioid addicts with covert sedative dependence. This is because clonidine will mask symptoms of sedative withdrawal but will not prevent sedative-induced withdrawal seizures (Sellers and Kallant 1976; Sellers et al. 1981; Hughes and Morse 1985).

The recommended procedure for mixed opioid/sedative dependence is to sequentially withdraw each of the drugs because withdrawal symptoms from opioids and sedatives have symptoms in common, and the clinical picture is difficult to assess if both drugs are withdrawn at the same time (Czechowicz 1980). The sequence is to gradually withdraw the sedative (such as alprazolam) first, while preventing opioid withdrawal using methadone. Current practice would suggest that a long-acting benzodiazepine such as clonazepam be substituted for the abused drug and then the clonazepam be gradually withdrawn (Patterson 1988; Browne 1978). An alternative may be to use carbamazepine to substitute for the benzodiazepine because this substitution has been quite effective for alcohol withdrawal therapy (Butler and Messiha 1986). A future development in this area may be to use a benzodiazepine antagonist to precipitate withdrawal and thereby greatly shorten the duration of the withdrawal syndrome, because it can now be quite prolonged, lasting several weeks. The key issue in using this approach will be the development of a medication that prevents withdrawal-induced seizures in the presence of the antagonist. Carbamazepine may meet this requirement but has not yet been tested. After the sedative detoxification is finished, opioid withdrawal may then be completed either by tapering the dosage of methadone or by clonidine substitution (Gold et al. 1978).

For alcohol, the safest technique in combined abuse is to substitute chlodianzepoxide for the alcohol and gradually decrease the dosage over 5 to 10 days, while maintaining the patient on methadone and then tapering the methadone. Again, the alternative use of carbamazepine should be considered (Butler and Messiha 1986). During withdrawal, the clinician must be prepared to manage "impending DT," because mortality from untreated DT may be as high as 15 percent (Sellers and Kallant 1976). The mainstays of treatment are providing sedation, maintaining fluid and electrolyte balance, preventing hypoglycemia, and using anticonvulsants, as needed. Following detoxification, use of disulfiram may be considered, although liver functioning must be assessed and followed, because alcohol is a liver toxin.

In opioid addicts, the management of combined sedative and alcohol withdrawal often requires an inpatient setting: for cocaine abusers, outpatient detoxification from these other two substances may be more feasible. Although the interruption of binges of cocaine abuse may require hospitalization for some

patients, cocaine abusers sometimes are treated as outpatients with the use of adjunctive medications to reduce cocaine-craving and to maintain abstinence (Kosten 1989). For those cocaine abusers who are also dependent on alcohol or sedatives, outpatient detoxification from either of these two nonstimulants might be considered using either carbamazepine or clonazepam given in tapering dosages over several days to treat alcohol (5 days of tapering) or other sedatives (10 to 12 days of tapering) (Butler and Messiha 1986; Patterson 1988; Browne 1978). The cocaine would be discontinued abruptly without needing detoxification. The major issue after stopping cocaine is careful observation of the patient during the cocaine crash. The risks during a crash can be substantial because a severe postcocaine depression may precipitate suicide attempts or be associated with a paranoid psychosis, but this degree of severity is unusual (Gawin and Ellinwood 1988). Thus, hospitalization may be required for management of the cocaine abuse independent of other concurrent drug dependence.

Detoxification from the combination of cocaine and opioid dependence usually is managed in the outpatient setting. Detoxification from the opioid is needed if long-term residential or outpatient naltrexone treatment is being considered, but opioid detoxification is not needed for maintenance on methadone or on the investigational medication buprenorphine. As indicated above, cocaine dependence usually does not require inpatient treatment for detoxification, and the most common treatment for these dually addicted patients is methadone maintenance. For those entering residential treatment, opioid detoxification using clonidine alone or clonidine with naltrexone precipitation of withdrawal might be considered (Gold et al. 1978; Vining et al. 1988). Among those being detoxified using clonidine, it is important that tricyclic antidepressants—a treatment for cocaine abuse—not be started until the opioid detoxification is complete, because the tricyclics may interfere with the withdrawal-suppressing effects of clonidine.

## **PSYCHOTHERAPEUTIC APPROACHES FOR MULTIPLE DRUG ABUSERS**

The psychotherapeutic approaches for multiple drug abusers are generally not substantially different from the approaches for abusers of single drugs, although different treatment models for alcohol and drug abuse have evolved that may conflict at certain points. A great deal of discussion has been generated about these conflicts in combined treatment for alcohol- and other drug-dependent patients, but overall the literature is positive about the merits of combining approaches (Carroll and Malloy 1977). The distinctions in program staffing and procedures for treating multiple drug abuse, moreover, may depend on distinctions that are not directly related to the types of drugs abused. For example, Wesson and colleagues (1975) have suggested that “streetwise” and

“non-streetwise” polydrug abusers require different types of treatment programming. In developing psychotherapies for multiple substance abusers, two issues need particular consideration: increased comorbid psychopathology and insistence on complete abstinence from drugs, including alcohol.

Several diagnostic studies have found higher rates of psychopathology among multiple drug abusers than among abusers of only a single drug. In a large survey of opioid addicts that we conducted, the alcoholic opioid addicts had significantly higher rates of affective disorders and personality disorders such as borderline and antisocial personality (Rounsaville et al. 1982). A similar analysis of cocaine-abusing opioid addicts found higher rates of depression and antisocial personality disorder than in opioid addicts who did not abuse cocaine (Kosten et al. 1986). Specific psychotherapeutic approaches have been developed for depression, and the resources to provide these professional services may be more frequently required when treating multiple drug abusers (Rounsaville et al. 1983). Smith and Wesson (1981) have suggested that these higher rates of psychopathology in polydrug abusers require more professional psychological involvement in programs treating these patients.

A second issue in the treatment of multiple drug abusers is controlled alcohol use among former alcohol abusers. Although complete abstinence from heroin, cocaine, and sedatives is generally considered the treatment goal, some serious consideration has been given to controlled drinking among “recovering” alcoholics and may be considered among alcoholic methadone-maintained patients (Gerston et al. 1977). This issue of abstinence versus controlled drinking has been examined in a study by Stimmel and colleagues (1983) in treating alcoholic methadone-maintained patients. They compared 36 control patients with 42 patients entering an abstinence-oriented Alcoholics Anonymous treatment and with 42 entering a controlled-drinking, behavior modification program. During a 6-week educational period for the two treatment groups, dropout was quite high (58 percent), making later comparisons difficult. Furthermore, after 12 additional weeks of treatment, the only significant difference was in 2-day alcohol consumption, and the abstinence-oriented group had done worse than the control group. Overall, this study showed no efficacy for additional psychotherapies aimed at alcoholism among alcoholic methadone-maintained patients.

Psychotherapeutic approaches for substance abuse may involve self-help, behavioral, cognitive, interpersonal, or family approaches. Woody and colleagues (1983) have examined both a cognitive and a psychodynamic form of therapy for methadone-maintained patients; it does not appear that any specific changes would be needed to use these therapies with methadone

patients who were abusing cocaine or alcohol. Family approaches to therapy have been described for opioid addicts who are treated in either methadone maintenance or naltrexone programs (Kosten et al. 1987; Stanton et al. 1982) as well as for cocaine abusers (O'Malley and Kosten 1988). Behavioral therapies have been described in conjunction with naltrexone treatment for opioid addicts (Callahan 1980) and can be an important part of residential treatment programs such as Daytop. Two particular forms of substance abuse psychotherapy may require some modifications or additions for multiple drugs of abuse: relapse prevention and interpersonal psychotherapy.

Relapse prevention (RP) therapy may require specific interventions for each of several drugs abused by a polydrug user because it is based on precipitants that have been identified as associated with risk of returning to abuse of each drug (Marlatt and Gordon 1980). These precipitants, which include negative emotional states, interpersonal conflict, social pressure, and specific drug-related cues, may be quite different for different drugs of abuse. For example, in a methadone-maintained patient, the precipitants for his or her using heroin or cocaine may be closely related to being with particular "friends" and then "getting high," whereas the precipitants for that same patient to get intoxicated with alcohol may be interpersonal tension with his or her spouse. Self-monitoring is used to identify risk situations for the specific drug, and then coping strategies are developed using rehearsal of coping behaviors such as anger management and social skills. RP focuses on ensuring that brief lapses to drug use or drinking do not become full relapses by reframing a lapse as a discrete isolated event that is not uncommon in recovery and does not nullify all progress. Reducing this "abstinence violation effect" by reframing uses generally the same approach for all drugs of abuse, although in multiple drug abusers sequential lapses involving each drug must be prevented by carefully emphasizing the importance of abstinence and not giving "permission" for experimenting with isolated use of the various abused drugs. Thus, RP has several areas in which management of the multiple drug abuser may require some modification and additional emphasis.

Interpersonal psychotherapy (IPT) was first developed as a treatment for depression and was adapted for opioid addicts and later for cocaine abusers by Rounsaville and colleagues (1983, 1985). This psychotherapy for substance abusers is based on the premise that drug abuse is one way in which an individual attempts to cope with problems in interpersonal functioning. An exploratory stance is used to focus on interpersonal relationships and on the impact of drug abuse on these relationships. In helping the patient stop his or her substance abuse, the important components of treatment include documenting the adverse effects of the drugs compared with their perceived

benefits, identifying the thoughts and behaviors that precede drug use, and developing strategies to deal with drug-related cues and high-risk situations. Only after attaining abstinence are interpersonal difficulties directly addressed, including the roles of drug use in these relationships.

A key strategy with IPT is to develop more productive means for achieving the desired social gratification or tension reduction for which the drug abuse substitutes. This substitution may differ markedly for various drugs that a multiple drug abuser may be using. For example, the abuser may be using cocaine to reduce social isolation and “meet exciting new people” but be abusing alcohol because the cocaine crash is reduced by the alcohol. Because only the cocaine, and not the alcohol, is directly related to the social deficit, only the cocaine abuse will directly benefit from interpersonal therapy. In general, the interpersonal impact will be somewhat different for abuse of licit drugs such as alcohol, illicit drugs such as heroin and cocaine, and “doctor-shopping” drugs such as benzodiazepines. Among heroin addicts, for example, the licit drugs (such as alcohol) are often used in response to interpersonal tension, whereas the illicit drugs (such as cocaine) lead to consequences of increased interpersonal tension, rather than being used in response to tension. In summary, interpersonal therapy must distinguish the relationship of each particular drug to the interpersonal setting as either primary association or secondary to other drug effects and as either a tension reliever or inducer.

## **MAINTENANCE PHARMACOTHERAPIES FOR MULTIPLE DRUG ABUSERS**

Maintenance pharmacotherapies have been developed for opioid dependence, and to a lesser extent, for alcohol and cocaine dependence, but no specific maintenance pharmacotherapy has been developed for sedative dependence. Maintenance pharmacotherapies have developed from somewhat different rationales for each of the abused drugs: agonists (methadone) or antagonists (naltrexone) for opioids, aversive agents (disulfiram) for alcohol, and anticraving agents (desipramine, amantadine) for cocaine. In general, the preferred approach in using pharmacotherapy for the multiple drug abuser would be to select a single medication to manage all abused drugs or at least the most problematic drug of abuse and then use nonpharmacological approaches for the other abused drugs. The various agents used to treat each abused drug can be combined for multiple drug abusers; however, this type of polypharmacy has been assessed systematically only in the combined treatment of methadone-maintained alcoholic or cocaine-abusing opiate addicts.

The simplest approach for the pharmacotherapy of multiple drug abusers is to use a single medication that would reduce the abuse of all the drugs involved. The pharmacological mechanism for such a medication might be quite different

for its effects on each of the abused drugs, but the net effect would be reduction in use of all. The closest approximation to such a medication for opioid, cocaine, and alcohol dependence is naltrexone, a long-acting opioid antagonist used primarily in the treatment of opioid addicts (Kosten and Kleber 1984). Recent data have suggested that it may also decrease relapse to alcohol abuse by preventing “slips” or relatively brief lapses into alcohol use from developing into full alcoholic relapses (Volpicelli, unpublished manuscript). The efficacy of naltrexone in reducing cocaine abuse has not been subjected to a placebo-controlled, randomized clinical trial, but preliminary data have shown significantly less cocaine abuse in naltrexone- than in methadone-maintained former opioid addicts (Kosten et al. 1989a). If compliance with naltrexone treatment can be maintained through nonpharmacological approaches, this may be a viable pharmacological treatment for some drug abusers who are involved with any of these three drugs.

Another medication that may be useful for more than one abused drug is buprenorphine (Lewis 1985). This partial opioid agonist has been shown to reduce opioid abuse in both outpatient clinical and inpatient experimental human studies (Mello and Mendelson 1980; Bickel et al. 1988a; Kosten and Kleber 1988). More recent work has suggested that it may reduce cocaine abuse among cocaine-abusing opiate addicts (Kosten et al. 1989a, 1989b), but double-blind, controlled studies comparing 6-month maintenance on buprenorphine to methadone are not yet available. Buprenorphine may have much greater potential than naltrexone because of its greater acceptability and better treatment retention, although no data suggest that buprenorphine shares naltrexone’s utility for treating alcohol dependence.

The most important maintenance treatment for opioid addicts is methadone maintenance. Within this treatment modality, several clinical trials have examined the utility of multiple pharmacotherapies for alcohol and for cocaine abusers. For alcohol abuse, disulfiram has been examined; and for cocaine abuse, desipramine and amantadine have been examined in placebo-controlled trials, although some pilot trials also have been done.

Liebson and colleagues (1973) used disulfiram in six methadone-maintained patients randomized to receive disulfiram on either a contingency or a noncontingent plan over a 3-month study period. Four of the six were in a crossover design. The contingency consisted of getting their daily dose of methadone only after ingesting the disulfiram. During the contingency alcohol abuse was significantly less—22 of 128 days drinking, or 17 percent drinking days for noncontingency, vs. 3 of 274 days, or 1 percent for contingency periods. During the noncontingency periods, patients would stop taking the

disulfiram and consume alcohol. A key point of this study was not the efficacy of disulfiram but the efficacy of the delivery system and of developing an effective strategy for compliance with disulfiram. With good compliance, disulfiram can be effectively combined with methadone maintenance for alcoholic opioid addicts. These investigators replicated this study in 25 methadone patients and found similar encouraging results (Liebson et al. 1978). A similar small study was reported recently by Bickel and coworkers (1988b). In this study, disulfiram ingestion was linked to methadone clinic privileges, and this significantly reduced drinking days and improved laboratory measures of liver function. Although these small studies do not appear to have been followed by any larger studies, a major Veterans Administration cooperative study comparing disulfiram with placebo in 605 alcoholics (not on methadone maintenance) concluded that disulfiram did lead to significantly fewer drinking days and that medication compliance was associated with patients remaining completely abstinent from alcohol (Fuller et al. 1986). The methadone maintenance field is clearly ripe for a larger study of this use of disulfiram.

The treatment of cocaine-abusing opiate addicts is becoming one of the most well-researched areas in the treatment of multiple drug abusers. Placebo-controlled trials are being conducted with desipramine, amantadine, and buprenorphine, and several other medications, including mazindol and bromocriptine, have been investigated in pilot studies. The pilot studies with all five of these agents had been quite promising, but early results from the placebo-controlled studies have not confirmed the initial hopes for these agents.

In a pilot study of desipramine among 16 methadone-maintained cocaine abusers, desipramine-treated patients over an 8-week trial had significantly less cocaine craving and abuse than did untreated patients in the same program (Kosten et al. 1987c). In a double-blind, placebo-controlled 12-week study by Arndt and colleagues (1988) and in a similar controlled study (Kosten et al. 1989), however, desipramine was not found to be superior to placebo treatment. The first 51 patients completing the Arndt study were presented recently and shown to have very high rates of cocaine-positive urines, with 78 percent of the desipramine and 74 percent of the placebo urines being positive. An even more discouraging finding was that at the 3- and 6-month followups after discontinuing medications the desipramine group's urines were 78 percent and 80 percent positive for cocaine, whereas the placebo group's urines were 46 percent and 38 percent positive for cocaine, suggesting that patients on methadone maintenance treated with desipramine may do less well in the long run. Twenty-one methadone-maintained, cocaine-abusing patients treated with desipramine and 18 treated with placebo were analyzed in a double-blind study of desipramine. Neither craving nor use of cocaine was reduced significantly

below that of placebo treatment, and abstinence was attained by 55 percent of the placebo group and only 38 percent of the desipramine group. Thus, although the initial data were quite encouraging, both controlled studies indicate the limitations of desipramine for this population of multiple drug abusers.

Similar promising pilot data have been presented for amantadine in 12 methadone-maintained patients, including 3 who remained abstinent for 2 months after treatment (Handelsman et al. 1988). We are currently conducting a double-blind, placebo-controlled 8-week trial of amantadine in methadone patients and have compared 20 amantadine-treated patients with 18 placebo patients (Kosten et al. 1989). Although amantadine reduces cocaine-craving significantly more than placebo, it does not have a significantly greater impact on cocaine use. Both amantadine and placebo have been associated with a reduction in cocaine use of more than 50 percent. A larger sample is being accumulated in this study, and subsequent analyses will examine various prognostic stratifications, such as comorbid psychopathology, to detect any subgroups of patients for whom amantadine may be particularly useful.

Pilot studies using bromocriptine and mazindol in methadone-maintained patients have demonstrated decreases in craving and use of cocaine (Berger et al. 1989; Kosten et al. 1988). Bromocriptine has had some limitations in its acceptability to patients due to side effects of headache, nausea, and vomiting; whereas mazindol has not demonstrated these problems and methadone patients have demonstrated good compliance in its use. Because mazindol has some stimulant properties and is related to amphetamines, there is concern that it might increase craving and use of cocaine. Although this has been a problem with the therapeutic use of another stimulant, methylphenidate, there was no increased craving using mazindol with 15 patients treated for up to 2 months (Gawin et al. 1985). Controlled clinical trials with this medication therefore seem indicated.

## **CLIENT ISSUES IN ADDRESSING MULTIPLE DRUG ABUSE**

The treatment of multiple drug abuse clearly depends on the specific combination of drugs being abused. Controlled studies are available for opioid and either cocaine or alcohol dependence, and these studies suggest that pharmacotherapy can be a useful adjunct to treatment. In general, monitoring of treatment compliance and illicit drug use are essential, including randomized urine monitoring. The matching of patients to specific types of treatment in this area has not been considered from a research perspective, but there is a fairly clear hierarchy in using various treatment options, starting with nonpharmacological agents and proceeding through single agents in combination with psychotherapy to multiple agent pharmacotherapy. This

multiple agent pharmacotherapy might include such combinations as methadone plus disulfiram for alcoholic opioid addicts, methadone plus amantadine for cocaine-abusing opioid addicts, or desipramine plus disulfiram for cocaine-abusing alcoholics. Much more work will need to be done on specific modifications of available, structured psychotherapies and on combination pharmacotherapies as the client population increasingly becomes multiple drug abusers.

## REFERENCES

- Adams, E.H., and Durrell, J. Cocaine: A growing public health problem. In: Grabowski, J., ed. *Cocaine: Pharmacology, Effects, and Treatment of Abuse*. National Institute on Drug Abuse Research Monograph 50. DHHS Pub. No. (ADM)87-1326. Washington, DC: Supt. of Docs., US. Govt. Print. off., 1984. pp. 9-14.
- Arndt, I.; Dorozynsky, L.; Woody, G.; McLellan, A.T.; and O'Brien, C. Desipramine treatment of cocaine abuse in methadone-maintained outpatients. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988: Proceedings of the 50th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 90. DHHS Pub. No. (ADM)89-1605. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1989. p. 347.
- Ball, J.; Lange, W.; Myers, C.; Friedman, S.; and Brown, B. The effectiveness of methadone maintenance treatment in reducing intravenous drug use and needle sharing among heroin addicts at risk for AIDS. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988: Proceedings of the 50th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 90. DHHS Pub. No. (ADM)89-1605. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. p. 336.
- Battjes, R.J., and Pickens, R. *Needle Sharing Among Intravenous Drug Abusers: National and International Perspectives*. Rockville, MD: National Institute on Drug Abuse, 1988.
- Berger, P.; Gawin, F.; and Kosten, T.R. Treatment of cocaine abuse with mazindol. *Lancet* 1:283, 1989.
- Bickel, W.K.; Knight, W.; and Pangiosonlis, P. Ethanol self-administration in alcoholic methadone patients: Analysis of drinking patterns and evaluation of behavioral pharmacological treatment. In: Harris, L.S., ed. *Problems of Drug Dependence, 1987: Proceedings of the 49th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 81. DHHS Pub. No. (ADM)88-1564. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988b. p. 302.

- Bickel, W.K.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, L.A. A clinical trial of buprenorphine: Comparison with methadone in the detoxification of heroin addicts. *Clin Pharmacol Ther* 43:72-78, 1988a.
- Browne, T.R. Drug therapy: Clonazepam. *N Engl J Med* 299:812-816, 1978.
- Butler, D., and Messiha, F. Alcohol withdrawal and carbamazepine. *Alcohol* 3:113-129, 1986.
- Callahan, E.J. The treatment of heroin addiction: Naltrexone alone with behavior therapy. *Am J Drug Alcohol Abuse* 7:795-807, 1980.
- Carroll, J.F.X., and Malloy, T.E. Combined treatment of alcohol- and drug-dependent persons: A literature review and evaluation, *Am J Drug Alcohol Abuse* 4(3):343-364, 1977.
- Chambers, C.D.; Taylor, W.J.R.; and Morrett, A.D. The incidence of cocaine abuse among methadone maintenance patients. *Int J Addict* 7:427-441, 1972.
- Charuvastra, C.U.; Panell, J.; and Hopper, M. The medical safety of the combined usage of disulfiram and methadone. *Arch Gen Psychiatry* 33:391-394, 1976.
- Czechowicz, D. *Detoxification Treatment Manual*. Rockville, MD: National Institute on Drug Abuse, 1980.
- Fuller, R.K.; Branchey, L.; Brightwell, D.R.; Derman, R.M.; Emrick, C.D.; Iber, F.L.; James, K.E.; Lacoursiere, R.B.; Lee, K.K.; Lowenstam, I.; Maany, I.; Neiderhiser, D.; Necks, J.J.; and Shaw, S. Disulfiram treatment of alcoholism: A Veterans Administration cooperative study. *JAMA* 256:1449-1455, 1986.
- Gardner, S.E., ed. *National Drug/Alcohol Collaborative Project: Issues in Multiple Substance Abuse*. Rockville, MD: National Institute on Drug Abuse, 1980.
- Gawin, F.H., and Ellinwood, E.H. Cocaine and other stimulants: Actions, abuse, and treatment. *N Engl J Med* 318:1173-1182, 1988.
- Gawin, F.H., and Kleber, H.D. Cocaine abuse treatment: An open pilot trial with lithium and desipramine. *Arch Gen Psychiatry* 41:903-909, 1984.
- Gawin, F.; Riordan, C.; and Kleber, H.D. Methylphenidate use in non-ADD cocaine abusers—a negative study. *Am J Drug Alcohol Abuse* 11:193-197, 1985.
- Gerston, A.; Cohen, M.J.; and Stimmel, B. Alcoholism, heroin dependency, and methadone maintenance: Alternatives and aids to conventional methods of therapy. *Am J Drug Alcohol Abuse* 4(4):517-531, 1977.
- Gold, M.S.; Redmond, D.E.; and Kleber, H.D. Clonidine blocks acute opiate withdrawal symptoms. *Lancet* 2:599-602, 1978.
- Handelsman, L.; Bickel, W.; Quesada, T.; and Lowinson, J. Amantadine treatment of cocaine abuse. In: Harris, L.S., ed. *Problems of Drug Dependence, 1987: Proceedings of the 49th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on

- Drug Abuse Research Monograph 81. DHHS Pub. No. (ADM)88-1564. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. p. 316.
- Hobby, G.L., and Deuschle, K.W. The use of riboflavin as an indicator of isoniazid ingestion in self-medicated patients. *Am Rev Respir Dis* 80:415-423, 1959.
- Hubbard, R.L.; Allison, M.; and Bray, R.M. An overview of client characteristics, treatment services, and during treatment outcomes for outpatient methadone clinics in the treatment outcome prospective study (TOPS). In: Cooper, J.R.; Altman, F.; and Brown, B.S., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 714-747.
- Hughes, P.L., and Morse, R.M. Use of clonidine in a mixed-drug detoxification regimen: Possibility of masking of clinical signs of sedative withdrawal. *Mayo Clin Proc* 60:47-49, 1985.
- Kaul, B., and Davidow, B. Drug abuse patterns of patients on methadone maintenance treatment in New York City. *Am J Drug Alcohol Abuse* 8:17-25, 1981.
- Kosten, T.R. Pharmacotherapeutic interventions for cocaine abuse: Matching patients to treatments. *J Nerv Ment Dis* 177:379-389, 1989.
- Kosten, T.R.; Jalali, B.; Steidl, J.H.; and Kleber, H.D. Relationship of marital structure and interactions to opiate abuse relapse. *Am J Drug Alcohol Abuse* 13(4):387-399, 1987a.
- Kosten, T.R., and Kleber, H.D. Strategies to improve compliance with narcotic antagonists. *Am J Drug Alcohol Abuse* 10(2):249-266, 1984.
- Kosten, T.R., and Kleber, H.D. Buprenorphine detoxification from opioid dependence: A pilot study. *Life Sci* 42:635-641, 1988.
- Kosten, T.R.; Kleber, H.D.; and Morgan, C.H. Role of opioid antagonists in treating intravenous cocaine abuse. *Life Sci* 44:887-892, 1989a.
- Kosten, T.R.; Kleber, H.D.; and Morgan, C.H. Treatment of cocaine abuse with buprenorphine. *Biol Psychiatry* 26:637-639, 1989b.
- Kosten, T.R.; Morgan, C.H.; and Kleber, H.D. Amantadine and desipramine in the treatment of cocaine-abusing methadone patients. *Proceedings of American College of Neuropsychopharmacology, 1989*. Hawaii, December 1989. p. 152.
- Kosten, T.R.; Rounsaville, B.J.; and Foley, S.H. Inpatient versus outpatient cocaine abuse treatments. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988: Proceedings of the 50th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 90. DHHS Pub. No. (ADM)89-1605. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988.

- Kosten, T.R.; Rounsaville, B.J.; Gawin, F.H.; and Kleber, H.D. Cocaine abuse among opioid addicts: Demographic and diagnostic characteristics. *Am J Drug Alcohol Abuse* 12:1-16, 1986.
- Kosten, T.R.; Rounsaville, B.J.; and Kleber, H.D. A 2.5-year follow-up of cocaine abuse among opioid addicts: Have our treatments helped? *Arch Gen Psychiatry* 44:281-285, 1987b.
- Kosten, T.R.; Schumann, B.; and Wright, D. Bromocriptine treatment of cocaine abuse in patients maintained on methadone. *Am J Psychiatry* 145:381-382, 1988.
- Kosten, T.R.; Schumann, B.; Wright, D.R.; Carney, M.K.; and Gawin, F.H. A pilot study using desipramine for cocaine-abusing methadone maintenance patients. *J Clin Psychiatry* 48(11):442-444, 1987c.
- Lewis, J.W. Buprenorphine. *Drug Alcohol Depend* 14:363-372, 1988.
- Liebson, I.A.; Bigelow, G.; and Flamer, R. Alcoholism among methadone patients: A specific treatment method. *Am J Psychiatry* 130(4):483-485, 1973.
- Liebson, I.A.; Tommasello, A.; and Bigelow, G.E. A behavioral treatment of alcoholic methadone patients. *Ann Intern Med* 89:342-344, 1978.
- Marlatt, G.A., and Gordon, J.R. Determinants of relapse: Implications for the maintenance of behavior change. In: Davidson, P.O., and Davidson, S.M., eds. *Behavioral Medicine: Changing Health Lifestyles*. New York: Brunner/Mazel, 1980. pp. 410-452.
- Mello, N.K., and Mendelson, J.H. Buprenorphine suppresses heroin use by heroin addicts. *Science* 207:657-659, 1980.
- Nurco, D.N.; Kinlock, T.W.; Hanlon, T.E.; and Ball, J.C. Nonnarcotic drug use over an addiction career—a study of heroin addicts in Baltimore and New York City. *Comp Psych* 29(5):450-459, 1988.
- O'Malley, S.S., and Kosten, T.R. Couples therapy with cocaine abusers. In: Kaslow, F.W., ed. *Couples Therapy in a Family Context*. Rockville, MD: Aspen Publishers, 1988. pp. 121-131.
- Patterson, J.F. Alprazolam dependency: Use of clonazepam for withdrawal. *South Med J* 81:830-836, 1988.
- Rounsaville, B.J.; Gawin, F.H.; and Kleber, H.D. Interpersonal psychotherapy (IPT) adapted for ambulatory cocaine abusers. *Am J Drug Alcohol Abuse* 11:171-191, 1986.
- Rounsaville, B.J.; Glazer, W.; Wilber, C.H.; Weissman, M.M.; and Kleber, H.D. Short-term interpersonal psychotherapy in methadone-maintained opiate addicts. *Arch Gen Psychiatry* 40:629-636, 1983.
- Rounsaville, B.J.; Weissman, M.M.; and Kleber, H.D. The significance of alcoholism in treated opiate addicts. *J Nerv Ment Dis* 170:479-488, 1982.
- Sellers, E.M., and Kallant, H. Alcohol intoxication and withdrawal. *N Engl J Med* 294:757-762, 1976.

- Sellers, E.M.; Naranjo, C.A.; and Peachey, J.E. Drugs to decrease alcohol consumption. *N Engl J Med* 305:1255-1261, 1981.
- Smith, D.E., and Wesson, D.R. Polydrug abuse: A review of treatment approaches. In: Lowinson, J.H., and Ruiz, P., eds. *Substance Abuse: Clinical Problems and Perspectives*. Baltimore: Williams & Wilkins, 1981. pp. 694-700.
- Smith, D.E.; Wesson, D.R.; and Lerner, S.E. Treatment of the polydrug abuser in San Francisco with discussion of youth and polydrug abuse. In: Ottenberg, D.J., and Carpey, E.L., eds. *Proceedings of the Seventh Annual Eagleville Conference*. Alcohol, Drug Abuse, and Mental Health Administration. DHEW Pub. No. (ADM)75-227. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1975. pp. 347-363.
- Stanton, M.D.; Todd, T.C.; and associates. *The Family Therapy of Drug Abuse and Addiction*. New York: Guilford Press, 1982.
- Stimmel, B.; Cohen, M.; Sturiano, V.; Hanbury, R.; Korts, D.; and Jackson, G. Is treatment for alcoholism effective in persons on methadone maintenance? *Am J Psychiatry* 140:862-866, 1983.
- Vining, E.; Kosten, T.R.; and Kleber, H.D. Clinical utility of rapid clonidine naltrexone detoxification for opioid abusers. *Br J Addict* 63:567-575, 1988.
- Volpicelli, J.R. "Naltrexone for Treating Alcohol Dependence, 1988."  
Unpublished manuscript.
- Wesson, D.R.; Smith, D.E.; and Lerner, S.E. Streetwise and non-streetwise polydrug typology: Myth or reality? *J Psychedelic Drugs* 7:121-143, 1975.
- Woody, G.E.; Luborsky, L.; McClellan, A.T.; O'Brien, C.P.; Beck, A.T.; Blaine, J.; Herman, I.; and Hole, A. Psychotherapy for opiate addicts: Does it help? *Arch Gen Psychiatry* 40:639-645, 1983.

## **ACKNOWLEDGMENT**

Support was provided by National Institute on Drug Abuse grants DA-04060, DA-04505, DA-05626, and DA-00112.

## **AUTHOR**

Thomas Kosten, M.D.  
Acting Director  
Substance Abuse Treatment Unit  
Psychiatry Department  
Yale University School of Medicine  
27 Sylvan Avenue  
New Haven, CT 06511

# Addressing Psychiatric Comorbidity

*George E. Woody, A. Thomas McLellan, Charles P. O'Brien, and Lester Luborsky*

## INTRODUCTION

This chapter provides an overview of responses that treatment programs may consider for patients with substance abuse dependence who have additional psychiatric disorders. These patients are commonly labeled as having dual diagnoses, often nicknamed “double trouble.” Such patients can present difficult management problems, and they usually identify themselves immediately to treatment staff by demands for attention or other extreme behaviors. Much time is spent trying to help them, often with few positive results (McLellan et al. 1963). Many clinicians believe that dual diagnosis patients are being seen more often now than in years past, and most programs struggle to find ways to manage them.

## IDENTIFYING CAUSALITY

A first step in developing an effective response is to identify the approximate cause of the psychiatric disorder(s), which can be more complicated than it appears. For example, many drugs of abuse can cause psychiatric disorders. The form and duration of these disorders is influenced by the class of drug being abused, the duration of drug use, and individual sensitivities to drug effects and whether the patient is experiencing the effects of acute drug administration or withdrawal.

### Disorders Related to Drug Administration

One of the best documented psychiatric disorders induced by drug administration is depression resulting from alcohol dependence. Mendelson and Mello (1966) and Mendelson (1964) showed that the administration of alcohol to alcoholics was perceived as improving one's mood immediately following consumption, but the long-term consequence of continued self-administration was a clearly measurable increase in depressive symptoms. Accordingly, alcoholics usually have depressive symptoms on admission to

treatment, but most symptoms disappear with abstinence during the first several weeks of treatment (Schuckit 1983). Another drug-induced psychiatric disorder is paranoia secondary to stimulant abuse. A third is aggressive behavior, hallucinations, and paranoid ideation following phencyclidine abuse. Each of these substance-induced disorders can develop rapidly, and each usually disappears within hours or days following discontinuation of drug use.

### **Disorders Related to Withdrawal**

Common psychiatric symptoms that result from drug withdrawal are anxiety and depression following discontinuation of sedatives, narcotics, or alcohol and depression following discontinuation of stimulants. As in the case of psychiatric symptoms that are caused by acute drug administration, symptoms caused by drug withdrawal usually disappear within a relatively short period.

### **Residual Drug Effects**

In some cases, drug-induced psychiatric disorders seem to remain for extended periods. Such conditions, often termed "residual drug effects," were the subject of a recent National Institute on Drug Abuse (NIDA) technical review meeting (Spencer, in press). A study by McLellan and colleagues (1979) is especially pertinent in this regard. These investigators followed a group of patients who were readmitted for substance abuse treatment to the Coatesville Veterans Affairs Medical Center at least once every 6 months for 6 years. As suggested by the history of repeated admissions, these patients were some of the most refractory and chronic substance abusers treated at that institution during the years 1972-78, when the study was conducted. All subjects had a psychiatric interview on admission and were administered the Minnesota Multiphasic Personality Inventory (MMPI) approximately 2 weeks after hospitalization. This 2-week interval was sufficient for most acute drug effects to have disappeared, thus minimizing the chances for acute effects to interfere with the MMPI scores or psychiatric assessments. The patients studied were grouped into three categories based on the class of drugs that they used: stimulants (mainly amphetamines at that time; today, cocaine would be the stimulant drug of choice); depressants (barbiturates, methaqualone, glutethamide, benzodiazepines); and narcotics (heroin, hydromorphone, methadone).

Demographic variables and MMPI scores were similar for all subjects at their first admission. Patients differed only in the drugs that they typically abused at this early stage in their drug-taking career. However, a much different picture emerged over the period of study. The stimulant group developed significant increases in schizophrenic-like symptoms, especially paranoia. The sedative abusers developed increases in depressive symptoms, cognitive impairment,

and anxiety. The narcotic addicts had elevations in depression and sociopathy on admission, but unlike the abusers of other drug classes, these symptoms remained unchanged over the 6-year period.

These psychiatric effects were minimally influenced by acute drug effects or by drug withdrawal because the evaluations were done at least 2 weeks after admission. The results were interpreted as indicating that prolonged use of stimulants can be associated with the emergence of schizophrenic-like symptoms, that prolonged use of depressants can produce depression, and that prolonged narcotic administration results in no increase in psychiatric symptoms. Thus, of these three drug classes, two seemed capable of producing residual effects. Only narcotics appeared to be free of significant "psychotoxicity."

These conclusions must be considered tentative, however, due to methodological problems. Because the patients were observed only after the drug use had started, it was impossible to be certain that the effects were due only to the drug and not to an underlying, nondrug condition that would have emerged even in the absence of drug abuse. Nevertheless, the tentative conclusions are intuitively sensible because the apparent residual disorders that emerged are consistent with psychiatric disorders that can be caused by the acute effects of each drug class, which logically might become persistent as a consequence of prolonged dependence.

Many other examples of drug-induced psychiatric disorders could be provided, and most of these are included in the section entitled "Psychoactive Substance-Induced Organic Mental Disorders" of the *Diagnostic and Statistical Manual, Third Edition, Revised* (American Psychiatric Association 1987). One of the most common of these is cognitive impairment that is associated with alcohol dependence.

### **Problems of Differential Diagnosis**

As seen in the above discussion, the etiology of symptoms that are seen in the psychiatrically ill substance abuser often presents problems of differential diagnosis, which can be summarized as acute drug effects (agonistic), drug withdrawal effects (antagonistic), persistent (residual) drug effects, or underlying (nondrug) conditions.

Of course, these conditions are not mutually exclusive. For example, a patient can demonstrate psychiatric symptoms that are either acute or result from withdrawal and, at the same time, have an underlying nondrug condition that, in turn, may be accentuated by either acute drug effects or by withdrawal.

Thus, the problems of differential diagnosis can be subtle and may require a reasonably thorough knowledge of psychopharmacology, psychiatry, and drug abuse. Accurate identification of the cause of psychiatric symptoms is important in designing a treatment plan. For example, a specific psychiatric treatment might be attempted if the therapist or program staff determines that the patient has either an underlying psychiatric disorder or a psychiatric condition that is probably a residual drug effect and is persistent and produces significant impairment. A disorder that is primarily drug-induced and is not a residual drug effect will usually disappear shortly after drugs are stopped, and patients with this disorder need no treatment except effective drug-focused therapy.

### **NIDA STUDIES ON PSYCHOPATHOLOGY AND ADDICTION**

NIDA has had a particular interest in the relationship between psychopathology and addiction (Blaine and Julius 1977) and, as a consequence, funded a series of studies on this topic during the late 1970s and early 1980s. These studies were developed before the cocaine epidemic; thus, their focus was on the types and frequencies of psychiatric disorders that are seen among opiate addicts. The patients in these studies, though addicted primarily to opiates, often were abusing other drugs as well. Most of the diagnostic interviews were done while patients were stabilized on methadone, thus reducing the chances for including psychiatric symptoms that were caused by acute drug effects or withdrawal.

Three such studies were done in different locations (New Haven, Philadelphia, and Boston), and all obtained very similar results. These have been described in a series of published reports (Khantzian and Treece 1985; Woody et al. 1988; Rounsaville et al. 1982, 1988) and are briefly summarized as follows. All found that 80 to 85 percent of the methadone patients had a range of psychiatric disorders in addition to opiate dependence, either currently or in the past. The most common (occurring in 50 to 60 percent of the patients) were depressive disorders, usually major depression. Antisocial personality was found in approximately 20 to 50 percent of each sample, depending on whether the Research Diagnostic Criteria or the *Diagnostic and Statistical Manual, Third Edition*, criteria were used. Alcohol dependence, either current or past, was found in 15 to 25 percent; anxiety disorders were found in 10 to 20 percent; and an assortment of other problems, often reflecting disorders of mood (such as labile personality or bipolar II disorder), was found in 2 to 10 percent.

The New Haven study also evaluated a group of addicts who were not in treatment and found the same types of problems as in the treated sample; however, the out-of-treatment subjects had fewer disorders (Rounsaville and Kleber 1985). One interpretation of this finding was that coexisting psychiatric

problems may have contributed to the decision to enter treatment. Thus, these studies supported the impressions of many clinicians that opiate addicts commonly have dual diagnoses and gave impetus to studies of combined treatments for psychiatric disorders and addiction.

## **OVERVIEW OF TREATMENTS AND ORDER OF APPLICATION FOR DUAL DIAGNOSIS PATIENTS**

### **Treatments**

The treatments that have been used are generally similar to those applied to psychiatric disorders in nondrug-abusing patients. They include psychotherapy, pharmacotherapy, behavior therapy, or combinations of one or more of these modalities. These treatments usually are modified according to the special needs of the drug-abusing patients. They are delivered or supervised by psychiatrically trained staff (psychiatrists, psychologists, social workers) and are combined with a drug-focused therapy that is usually administered by paraprofessionals. Although substance abuse patients who have little additional psychopathology often show rapid and significant improvement in response to counseling by paraprofessionals, the psychiatrically ill substance abuser may show exacerbated psychopathology (McLellan et al. 1994). These dual diagnosis patients usually require more sophisticated supervision and treatments (including pharmacotherapy) than can be applied by paraprofessionals alone.

### **Order Effects**

An important point pertains to the order of treatment efforts, that is, which problem should be addressed first—drug use or associated psychiatric symptoms. In general (exceptions are patients who are suicidal, homicidal, or schizophrenic), the drug problem must be stabilized first. Furthermore, it must be continuously monitored *concurrent* with any additional psychiatric care that is administered. Psychiatric care alone is often inappropriate, and sequential and separate treatments (i.e., drug only followed by psychiatric alone) increase the chances for patient relapse and dropout. It seems best to integrate both approaches into a treatment package that is delivered continuously.

## **SPECIFIC TREATMENTS**

### **Psychotherapy**

In a psychotherapy study that was done with methadone-maintained opiate addicts, it was found that additional professional psychotherapy was a useful

adjunct to paraprofessional drug counseling services for methadone-treated opiate addicts (Woody et al. 1989). In this study, methadone patients who were entering a new episode of treatment were randomly assigned to one of three treatment conditions: drug counseling (DC), counseling plus supportive-expressive psychotherapy (SE), or counseling plus cognitive-behavioral (CB) psychotherapy. Patients in all groups made gains, but those receiving the additional psychotherapies showed more positive changes than those who received DC alone. The data also showed potentially important interactions between patients and treatments, which are discussed below.

**Psychiatric Severity.** The first was that between psychiatric severity and outcome. Previous studies have shown that a global rating of psychiatric severity is the best predictor of outcome for both opiate addicts and alcoholics being treated in a range of outpatient and inpatient programs. This work showed that patients with few additional psychiatric symptoms (termed “low-severity” patients) generally did well in all programs. Patients with high symptom levels generally did poorly, and midseverity patients had intermediate outcomes that were particularly sensitive to patient/program matches (McLellan et al. 1983).

Accordingly, the data were examined, looking especially for interactions between psychiatric severity, outcome, and treatment condition. It was found that there were few differences in outcome between groups in low-severity patients among the three treatment conditions. However, high-severity patients who received psychotherapy showed gains, but little progress was made if they received drug counseling alone. Midseverity patients showed more gains with psychotherapy than with counseling alone, but patients in each treatment condition improved in several areas. The conclusion was that the addition of psychotherapy altered the traditional relationship between high psychiatric severity and poor outcome and that the extra treatment gave this group of more disturbed patients a better chance to benefit from methadone (Woody et al. 1984).

This finding pointed toward a possible cost-effective use of psychotherapy in which high-severity patients can be identified early in treatment, provided additional therapy, and, thus, given a better chance to improve. In addition to providing a better chance for these problematic patients to benefit from treatment, this plan also could reduce the strain and the time demands that these patients place on program staff (Woody et al. 1986).

**Antisocial Personality Disorder.** The second interaction examined was that between antisocial personality disorder (ASP) and outcome. Many opiate addicts have ASP, and people with this diagnosis typically do not respond well

to treatment. However, a literature review indicated that there are probably many subtypes of ASP and that some patients with this diagnosis may be “therapy responsive.” With this in mind, we examined those with ASP and found that approximately half had other Axis I diagnoses—most commonly, depression. We then examined four groups of patients who received psychotherapy: (1) those with a diagnosis of opiate dependence only; (2) those with opiate dependence and depression; (3) those with opiate dependence, depression, and ASP; and (4) those with opiate dependence and ASP only.

We found that patients in groups 1 and 2 showed gains in many areas, especially those in group 2. Patients in group 3 also showed considerable progress, but not quite as much as those in the first two groups. In contrast, patients with only opiate dependence and ASP (group 4) showed gains only in a few measures of drug use, but no significant changes in other areas (Woody et al. 1985). Thus, this analysis not only confirmed the impression that ASP is a negative predictor of outcome but also indicated that patients with depression accompanying their ASP can respond to therapy. One possible explanation is that those with depression have more capacity to relate to people and events and to experience such feelings as guilt or loss; another is that depression is a psychiatric problem that is responsive to psychotherapy and that patients with ASP and depression responded simply because they happened to have an associated condition that is amenable to treatment.

**Therapist Assignment.** The third analysis of patient/therapy interactions examined outcome according to therapist assignment. Psychotherapy studies have traditionally examined outcome according to treatment assignment. There have been attempts to examine the qualities that are associated with successful outcome, but most studies have paid little attention to examining the interaction between therapist assignment and outcome within a specific treatment modality. This study employed 5 SE and 4 CB therapists and 13 counselors, which provided the opportunity to see if therapist assignment and outcome were related. From each modality, three therapists and counselors were chosen who had treated at least seven study patients, and the overall outcomes of these patients were compared according to therapist assignment.

The data showed that there were significant differences in outcome, as judged by the average effect size produced by individual therapists. One SE therapist had a large effect, whereas another had little effect and, in some cases, may have made patients worse. Similar but less dramatic variability in outcomes was seen for CB therapists and drug counselors. Variability in outcome according to therapist assignment also was found by Luborsky and colleagues (1986) in an analysis of results from other psychotherapy studies and by

McLellan and coworkers (1988) in a study of outcome according to counselor assignment. Further analyses indicated that these differences were associated most strongly with the ability of the therapist to form a "helping relationship" with the patient and a second but weaker association was that between outcome and the application of specific techniques (Luborsky et al. 1985).

Throughout all analyses, both the SE and CB therapies generally were associated with similar amounts of improvement; thus, we found no advantage for one therapy over the other with this population. The differences in outcome among SE, CB, and DC patients who were seen at 7 months also were seen at the 12-month followup, 6 months after therapy ended (Woody et al. 1987).

In brief, our experience with this study showed that the additional therapy could provide meaningful benefits to opiate-addicted veterans being treated in the methadone program, particularly those with significant psychiatric symptoms in addition to the addiction. More detail about the techniques used and the overall results is available in two recent publications (Woody et al. 1986; Woody 1989).

It is important to emphasize that this work was a *combined* counseling/psychotherapy and pharmacotherapy study. All these ingredients were necessary to achieve the final results. The patients would not have been available for therapy without the methadone; the concrete services and drug-focused therapy provided by the counselors helped manage the addiction and many of the associated social problems; and the psychotherapists provided additional help for those with the more complicated psychiatric problems.

## **Pharmacotherapy**

This is a potentially important adjunct to drug treatment for dually diagnosed patients, but several issues must be considered if it is to be used.

First is the choice of drugs. Substance abusers often will attempt to "get high" on anything that is prescribed; thus, special care must be taken in the choice of drugs. Some psychotropic drugs that have little abuse potential in other populations have significant abuse liability in this population. The reasons for these differences are not always clear but may be attributable to drug interactions that are seen only among substance-abusing patients simply because they experiment with drugs. An example is the combined use of benzodiazepines, such as diazepam or alprazolam, with methadone. This combination appears to produce a clinically significant "high" that is not obtained when either drug is used alone (Cappell et al. 1986). Another is the use of pentazocine tripeleennamine ("Ts and Blues") or of glutethimide combined with

codeine-containing cough syrups or acetaminophen (Tylenol) with codeine ("pancakes and syrup," "combos," "sets"). In all these cases, the drug combination is abused to a much greater extent than any single drug that is part of the combination.

A second issue is that of compliance. Because substance abusers often do not follow instructions, attention must be given to compliance with the recommended dosing schedule, especially during the early stages of pharmacotherapy. One method that has been used successfully in methadone programs is to prescribe the ancillary psychotropic medication daily along with the daily dose of methadone.

One pharmacotherapy that has been tested in this population is doxepin for depressed methadone-maintained opiate addicts. As of this writing, there are four studies that show that doxepin can be a useful adjunct for these patients (Woody and O'Brien 1986). The studies do not suggest that doxepin reduces illicit drug use but rather that it reduces depression and anxiety and thus contributes to a better overall treatment result. Other pharmacotherapies that have been used but not studied are oxazepam for anxiety disorders, which, unlike diazepam, has a low abuse liability with this population (Griffiths et al. 1984); antipsychotics such as haloperidol for addicts with schizophrenia; and lithium for addicts with bipolar disorder (Kleber 1988).

An important consideration in adjusting doses of adjunctive psychotherapeutic medications is that some drugs that are abused or taken therapeutically may alter the metabolic pathways of other psychotropic agents, for example, the inhibition of metabolic pathways of certain psychotropic agents that can be produced by methadone. This has been shown recently with desipramine; blood levels were doubled when patients were maintained on methadone (Maany et al. 1989). Thus, the doses of some psychotropic agents that are necessary to produce clinical effects may be lower in methadone patients.

### **Behavioral Treatments**

Behavioral interventions are used in almost all drug programs to suppress antisocial behavior. These interventions commonly take the form of rules and regulations about standards of behavior while in treatment and include sanctions for those who break the rules. These range from loss of privileges (such as take-home doses of methadone) to outright suspension from treatment in the case of infractions that jeopardize the integrity or safety of the program. Examples are forging prescriptions with the program physician's name, selling drugs on the premises, making threats, or fighting. The specific content of the rules varies among programs, but very few have no rules. Rules are especially

important because ASP is a common diagnosis among addicts and because many have developed patterns of antisocial behavior as a consequence of their addiction. The rules usually are combined with considerable support. The message to the patient is that staff will try its hardest to help them, but that certain behaviors will not be tolerated.

## **AVAILABILITY OF RESOURCES**

Necessary components for managing the dually diagnosed substance abuser include inpatient beds and psychiatrically trained staff members who can prescribe psychotropic medications. Even under the best circumstances, these patients occasionally need inpatient treatment, which might be necessary to detoxify them from a highly dangerous form of addiction such as dependence on cocaine or sedatives, to protect them from suicidal or homicidal impulses, or to treat a psychotic episode such as stimulant-induced paranoia or acute schizophrenia. Most inpatient treatment episodes can be relatively brief (1 to 2 weeks, occasionally even less), but it is sometimes necessary to extend hospitalization for 3 to 4 weeks.

It is difficult for an outpatient program to assume the responsibility for treating dually diagnosed patients without knowing that a good inpatient service is available to support them when symptoms are extremely severe and unmanageable in an outpatient setting. Similarly, a psychiatrically staffed outpatient drug treatment program that can prescribe psychotropic medication is essential for followup after hospital discharge. In many cases, psychiatrically impaired patients can be treated entirely in the outpatient program by the combined use of counseling/psychotherapy and pharmacotherapy.

## **STAFF INPUT AND COORDINATION**

As can be seen in the above discussion, the delivery of treatments for dually diagnosed substance abusers/addicts requires meaningful input and coordination among professional staff (physicians, nurses, clinical psychologists, social workers), program management personnel, and paraprofessional drug counselors. In addition to a decrease in psychiatric symptoms, effective psychiatric treatments for dually diagnosed patients usually will produce a reduction in behavioral problems, fewer crises, and an improved ability of the overall treatment program to provide services to a wider range of patients. Drug use may also decrease, probably indirectly as a result of the patients having fewer psychiatric symptoms, which prompt attempts at self-medication. While delivering these additional treatments, it is important to remain focused on the drug problems and not be distracted into a singular

emphasis on treating the additional psychopathology. These treatments are *combined with counseling and other drug-specific therapies, and they are not meant to substitute for them*, although they may serve to further reduce drug use and produce additional gains in important areas such as employment.

## **PRACTICAL CONSIDERATIONS IN TREATING DUAL DIAGNOSIS PATIENTS**

This chapter cannot end without commenting about some of the practical issues that arise in attempting to use the interventions described above. Any attempt to treat the dually diagnosed substance-abusing patient, especially in most publicly funded treatment programs, immediately confronts a series of problems. One of these is the staffing patterns of many drug treatment programs; another is the availability of resources.

### **Staffing Patterns**

The following advertisement from the *Philadelphia Inquirer* demonstrates a potential staffing problem:

*Philadelphia Inquirer*  
Sunday April 10, 1988

**COUNSELOR** For D/A Prog.  
Full Time. No Experience  
Necessary. \$12,000 Send  
resume to: XXX XXXXX XX  
Phila. Pa.

It is obvious that programs staffed with people who have the lack of training reflected in this advertisement are poorly equipped to effectively treat the more complex dual diagnosis patients. Problems of diagnosis, appropriate treatment recommendations, and improper responses to symptomatic affects and behavior are some of the issues that will be likely to arise when minimally trained staff interacts with the psychiatrically impaired substance abuser.

An additional problem is that many programs have little physician coverage. Programs often rely on the local community mental health center to provide psychiatric services, but in many areas these services are marginal at best. Thus, even if the programmatic staff makes correct diagnoses and treatment recommendations, no one is readily available to deliver treatment, especially if it involves psychopharmacology. In some cases, programs have a “drug-free” philosophy that totally eliminates the possibility of pharmacotherapy, even if these services are available at a nearby clinic.

## **Resource Availability**

Many programs have no or very restricted access to inpatient beds that accept substance-abusing patients with accompanying psychiatric disorders. In addition, many programs are located in places that are unattractive to nurses, psychologists, physicians, and other personnel who are necessary to deliver the appropriate treatment services for dually diagnosed patients. Even if funds are available to supply the additional staffing, many programs have great difficulty in recruitment on the basis of location alone. Therefore, it is difficult to discuss management of dual diagnosis patients without including programmatic issues, which also are discussed in other chapters of this volume.

## **SUMMARY**

Research studies indicate that addressing psychiatric comorbidity can improve treatment for selected groups of substance-abusing patients. However, the chances for implementing the necessary techniques on a large scale are compromised by the absence of professional input and guidance within programs. This is especially true in public programs, which treat some of the most disadvantaged, disturbed, and socially destructive individuals in the entire mental health system.

One starting point for upgrading the level of knowledge and training of staff members who work in this large treatment system could be to develop a better and more authoritative information dissemination network. Such a system exists in medicine; physicians are expected to read appropriate journals and to guide their treatment decisions using the data contained in the journals. Standards of practice and methods for modifying current practice are within the tradition of reading new facts, studying old ones, and comparing treatment outcome under different conditions with what is actually being done. No such general system of information-gathering or -sharing exists, particularly in public treatment programs. One of the most flagrant examples of this "educational shortfall" can be found among those methadone programs that adamantly insist on prescribing no more than 30 to 35 mg/day for all patients, in spite of the overwhelming evidence that these dose levels generally are inadequate. In some cases, program directors are unaware of studies that have shown the relationship between dose and outcome. In other cases, they are aware of the studies but do not modify their practices accordingly. This example of inadequate dosing is offered as an example of one situation that could be improved by adherence to a system of authoritative and systematic information dissemination.

Many issues in substance abuse treatment do not lend themselves to information dissemination as readily as that of methadone dosing. However, the existence of a general information/education system about substance abuse treatment, combined with adherence to it among care providers, not only would provide helpful data for treatment staff but also might stimulate their curiosity and initiative. These latter qualities, along with additions to existing treatment resources, may in the long run serve as the best guarantee for improvement and maintenance of quality care.

## REFERENCES

- American Psychiatric Association. Psychoactive substance-induced organic mental disorders. In: *Diagnostic and Statistical Manual of Mental Disorders: DSM-III-R*. Washington, DC: American Psychiatric Press, 1987. pp. 123-163.
- Blaine, J.D., and Julius, D.A., eds. *Psychodynamics of Drug Dependence*. National Institute on Drug Abuse Research Monograph 12. DHEW Pub. No. 77-470. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1977.
- Cappell, H.D.; Sellers, E.M.; and Busto, U. Benzodiazepines as drugs of abuse and dependence. In: Cappell, H.D., ed. *Research Advances in Alcohol and Drug Problems*. Vol. 9. New York: Plenum Press, 1986. pp. 53-126.
- Griffiths, R.R.; McLeod, D.R.; Bigelow, G.E.; Liebson, I.A.; Roache, J.D.; and Nowowieski, P. Comparison of diazepam and oxazepam: Preference, liking, and extent of abuse. *J Pharmacol Exp Ther* 229:501-508, 1984.
- Khantzian, E.J., and Treece, C. DSM-III psychiatric diagnoses of narcotic addicts: Recent findings. *Arch Gen Psychiatry* 42:1067-1071, 1985.
- Kleber, H. Concomitant use of methadone with other psychotropic drugs in the treatment of opiate addicts with other DSM-III diagnoses. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 119-148.
- Luborsky, L.; Crits-Cristoph, P.; McLellan, A.T.; and Woody, G.E. Do psychotherapists vary in their effectiveness? The answer within four outcome studies. *Am J Orthopsychiatry* 56(4):501-512, 1986.
- Luborsky, L.; McLellan, A.T.; Woody, G.E.; O'Brien, C.P.; and Auerbach, A. Therapist success and its determinants. *Arch Gen Psychiatry* 42:602-611, 1985.
- Maany, I.; Dhopes, V.; Arndt, I.; Burke, W.; Woody, G.E.; and O'Brien, C.P. Increase in desipramine serum levels associated with methadone treatment. *Am J Psychiatry* 146:1611-1613, 1989.

- McLellan, A.T.; Griffith, J.; Childress, A.R.; and Woody, G.E. The psychiatrically severe drug abuse patient: Methadone maintenance or therapeutic community. *Am J Drug Alcohol Abuse* 10(1):77-95,1984.
- McLellan, A.T.; Luborsky, L.; Woody, G.E.; Druley, K.A.; and O'Brien, C.P. Predicting response to alcohol and drug abuse treatments: Role of psychiatric severity. *Arch Gen Psychiatry* 40:620-625, 1983.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; and O'Brien, C.P. Is the counselor an "active ingredient" in substance abuse treatment? *J Nerv Ment Dis* 176(7):423-430, 1988.
- McLellan, A.T.; Woody, G.E.; and O'Brien, C.P. Development of psychiatric disorders in drug abusers. *N Engl J Med* 301:1310-1314, 1979.
- Mendelson, J.H. Experimentally induced chronic intoxication and withdrawal in alcoholics. *Q J Stud Alcohol Suppl* 2, 1964.
- Mendelson, J.H., and Mello, N.K. Experimental analysis of drinking behavior of chronic alcoholics. *Ann N Y Acad Sci* 133:828-845, 1966.
- Rounsaville, B.J.; Glazer, W.; Wilbur, C.H.; Weissman, M.M.; and Kleber, H.D. Short-term interpersonal psychotherapy in methadone-maintained opiate addicts. *Arch Gen Psychiatry* 40:630-636, 1983.
- Rounsaville, B.J., and Kleber, H.D. Untreated opiate addicts: How do they differ from those seeking treatment? *Arch Gen Psychiatry* 42:1072-1077, 1985.
- Rounsaville, B.J.; Weissman, M.M.; Kleber, H.; and Wilber, C. The heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1982.
- Schuckit, M. Alcoholic patients with secondary depression. *Am J Psychiatry* 140:711-714, 1983.
- Spencer, J., ed. *Residual Effects of Abused Drugs*. National Institute on Drug Abuse Research Monograph. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., in press.
- Woody, G.E. Psychotherapy for opiate dependence. In: Kleber, H., ed. *American Psychiatric Association Handbook on Psychiatric Treatments*. Washington, DC: American Psychiatric Press, 1989. pp. 1417-1429.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Blaine, J.; Herman, I.; and Hole, A. Psychotherapy for opiate addicts: Does it help? *Arch Gen Psychiatry* 40:639-645, 1983.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Sociopathy and psychotherapy outcome. *Arch Gen Psychiatry* 42:1081-1086, 1985.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. 12-month follow-up of psychotherapy for opiate addiction. *Am J Psychiatry* 144(5):590-596, 1987.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Blaine, J.; Fox, S.; Herman, I.; and Beck, A.T. Psychiatric severity as a predictor of benefits from psychotherapy: The Penn-VA study. *Am J Psychiatry* 141(10):1172-1177, 1984.

Woody, G.E., and O'Brien, C.P. Update on methadone maintenance. In: Cappell, H.D., Sellers, E.M.; and Busto, U., eds. *Research Advances in Alcohol and Drug Problems*. Vol. 9. New York: Plenum Press, 1986. pp. 245-260.

Woody, G.E.; O'Brien, C.P.; McLellan, A.T.; and Luborsky, L. Psychotherapy as an adjunct to methadone treatment. In: Meyer, R., ed. *Psychiatric Aspects of Opiate Dependence*. New York: Guilford Press, 1986. pp. 169-195.

## **AUTHORS**

George E. Woody, M.D.  
Clinical Professor

A. Thomas McLellan, Ph.D.  
Clinical Professor

Charles P. O'Brien, M.D., Ph.D.  
Professor

Lester Luborsky, Ph.D.  
Clinical Professor

Drug Dependence Treatment and Research Center  
University of Pennsylvania  
Drug Dependence Treatment Unit  
Veterans Affairs Medical Center  
Building 7  
39th and Woodland Avenues  
Philadelphia, PA 19104

# **Are There Minimum Conditions Necessary for Methadone Maintenance To Reduce Intravenous Drug Use and AIDS Risk Behaviors?**

*Anna Rose Childress, A. Thomas McLellan, George E. Woody, and Charles P. O'Brien*

## **INTRODUCTION**

With the rapid spread of acquired immunodeficiency syndrome (AIDS) among intravenous (IV) drug users, particularly opiate addicts, the need for an effective and acceptable form of drug abuse treatment is even more important than in years past. Methadone maintenance has been an inexpensive and well accepted (by patients, if not society) form of treatment for opiate dependence, and many have called for a rapid expansion of methadone programs. How this expansion should occur is far from decided and is often controversial. Should rehabilitative services (counseling, medical, psychiatric, and vocational interventions) be eliminated, using the resulting funds to create more treatment slots in programs offering "methadone alone"? Or would removal of these rehabilitative services drastically reduce the effectiveness of the pharmacologic intervention, rendering it nearly useless in the battle against IV drug use and AIDS? Furthermore, can it be demonstrated that increased rehabilitative services would actually result in increased treatment effectiveness and, therefore, be more cost-effective than minimal (methadone only) treatment? The first part of this chapter reviews the background and available evidence on these questions, and the second part introduces a recently begun research study that directly investigates the minimum conditions necessary for methadone maintenance to be effective in reducing IV drug use and AIDS risk behaviors.

## **BACKGROUND**

### **Do Patients Improve in Methadone Maintenance Treatment?**

The early reports of Dole, Nyswander, Cushman, and others established the safety and pharmacological efficacy of methadone in the treatment of opiate dependence (Dole and Nyswander 1968; Gearing and Schweitzer 1974; Dole et al. 1982). Since that time, the clinical efficacy of methadone maintenance has been evaluated in more than 300 published reports (Hubbard and Marsden 1986; Sells et al. 1979). Although there has been considerable variability in the methodology and results of these studies, the weight of evidence clearly indicates that the majority of opiate addicts remain in methadone maintenance treatment for a significant period (usually a year or more) and show significant reductions in opiate use, nonopiate use, and illegal activity during their treatment (Hubbard and Marsden 1986; Sells et al. 1979). Furthermore, it is equally clear from the body of published work in this area that the majority of methadone-maintained patients have a longer and more serious history of substance abuse (as well as other problems) than patients treated in other modalities—e.g., drug-free outpatient treatment or inpatient therapeutic community treatment (Hubbard and Marsden 1986; Sells et al. 1979).

### **What Is the Most Effective Way To Expand Methadone Treatment Services?**

The recent spread of AIDS in the drug-using population has led to the call for rapid expansion of funded methadone treatment slots. There are two views about how such an expansion should occur, based largely on different concepts of the “active ingredients” in methadone maintenance treatment. The first perspective holds that methadone alone, as a pharmacologic agent that blocks opiate withdrawal and (through cross-tolerance) opiate euphoria, is the primary active ingredient in methadone maintenance treatment and the one directly responsible for patient improvements. Counseling requirements and rules and regulations currently associated with this modality are viewed as probably useful but costly, having the unwelcome “side effect” of reducing the total number of available patient slots. Proponents of this “methadone alone” view argue for the elimination of a minimum counselor-patient ratio requirement (now 1 to 50) and for further reduction in the number of urine specimens required by the treatment programs (now 1 per month). With these more liberalized criteria, it is argued, more potential clients could be given methadone, and in turn, the risks for continued drug use, crime, and spread of AIDS could be reduced. Psychiatric, medical, vocational, and other rehabilitative services (already scarce or nonexistent in most programs) are not viewed as cost-effective. Adding such services, it is argued, would cost substantially more than

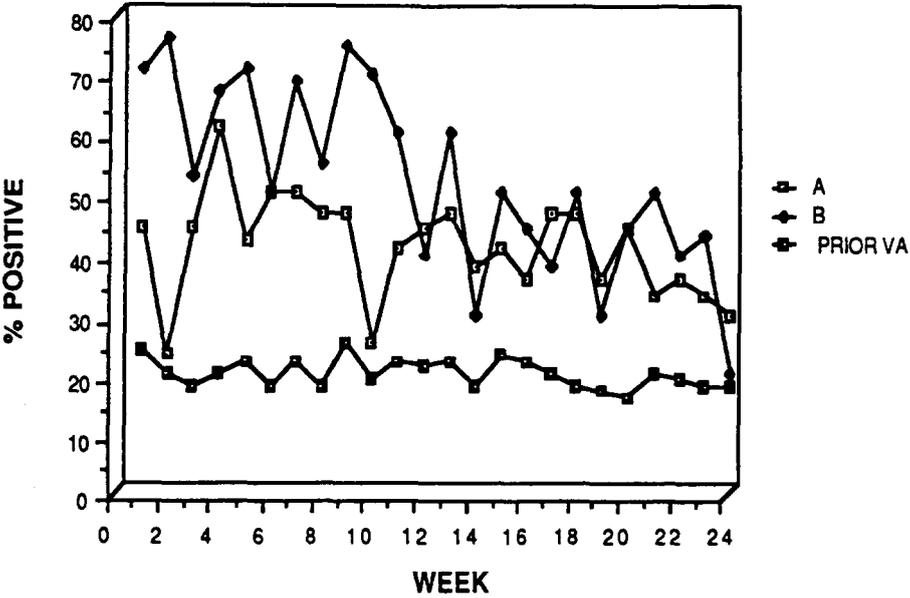
methadone alone but would not lead to measurably better performance on factors closely related to AIDS: reduced IV drug use, reduced needle-sharing, reduced AIDS risk behaviors, reduced incidence of AIDS, and reduced medical costs associated with AIDS.

The opposing view argues that methadone alone, despite its pharmacologic value, is *not* the only active ingredient in methadone maintenance treatment; without a context of adequate administrative support, counseling, urine monitoring, and rehabilitative services, methadone alone is very unlikely to lead to a reduction in drug use and AIDS-related target behaviors. From this perspective, the poor performance of many ongoing methadone maintenance programs (even under current counseling and urine guidelines) can be traced to lack of adequate staffing and administrative and rehabilitative services. Minimal service programs do not have the resources needed to reduce the proportion of patients who loiter, divert their methadone, continue use of illicit drugs, and even “deal drugs” near the program site—making the programs unwelcome in most communities (Wrangle 1988) and the treatment modality controversial (Cummings 1979; Newton 1979) even among many substance abuse professionals. Adding more methadone-only treatment slots, the argument goes, would only increase community problems and further tarnish the image of methadone as a treatment modality. Image concerns aside, a feared outcome of expanded methadone-only treatment could be a dramatic increase in all the problems outlined above, with little or no beneficial impact on IV drug use, AIDS risk behaviors, or AIDS. In this view, methadone should be administered under close counseling supervision, with urine contingencies and a full program of supportive services, for it to achieve its full value as a tool for reducing drug use and AIDS risk.

### **ARE THERE NECESSARY MINIMAL CONDITIONS FOR METHADONE TO BE EFFECTIVE?**

If methadone is the only active ingredient in reducing IV opiate use, then rates of opiate use among demographically similar patients across different programs should be similar. Several pieces of clinical evidence now emphatically suggest that this is not the case. In the course of performing an evaluation of professional psychotherapy as an adjunct to methadone maintenance (Woody et al. 1983) we observed several programs and the patients in them. Despite relatively small differences in demographics, background, or current status measures among the patient samples from these different programs, we have seen dramatic differences in such fundamental outcome measures as proportion of opiate-positive urines, number of visits to the program, and average methadone dose. An example of the size of these differences is shown in figure 1, illustrating the proportion of opiate-positive urines for patients

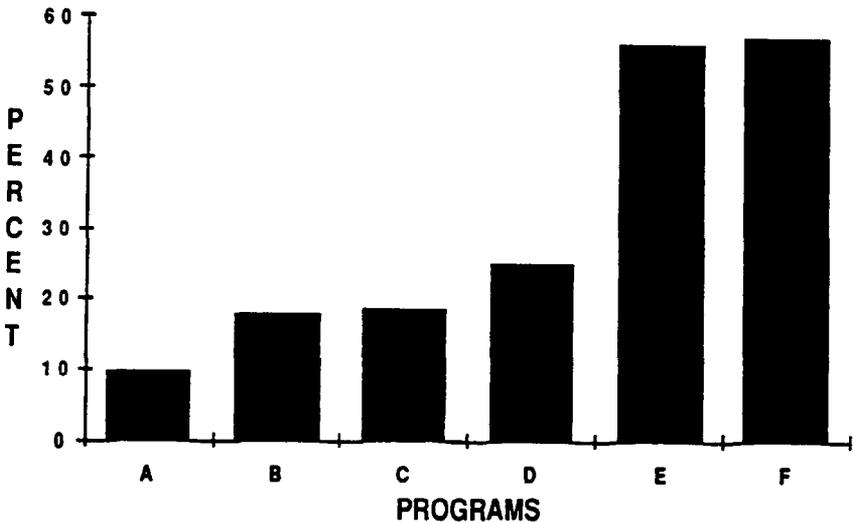
in two community programs as well as in the Veterans Affairs (VA) program. As can be seen, these differences are quite large and, because of small differences seen among the patient samples, suggest that there are basic programmatic differences that account for the observed performance differences.



**FIGURE 1.** Rates of opiate-positive urines in the Philadelphia VA methadone maintenance program and two community methadone maintenance programs over a 6-month (24-week) study period

These observations are similar to those of Ball in his 3-year evaluation of methadone treatment in six different programs from three eastern cities (Corty and Ball 1987; Ball et al. 1988). In general, the patients treated in these programs were quite similar in terms of their demographic characteristics and treatment problems at the time of admission to methadone maintenance across the different geographic sites surveyed. In contrast, the data gathered have revealed striking differences in patient performance, depending on the program. Rates of current IV drug use ranged from less than 10 percent to more than 50

percent (compare Programs A, E, and F, respectively, in figure 2), and rates of needle-sharing showed a similar pattern. Although all these programs administered methadone, the effectiveness of this treatment ranged from impressive to almost nonexistent. The programs differed widely on such important parameters as dose (one program had an average methadone dose of 20 to 25 mg, whereas other programs averaged 45 to 50 mg), medical coverage, use of ancillary psychotropic medications, uniformity of enforcement of rules, caseloads of counselors, informed psychiatric input into decisionmaking processes, quality of inservice training, and quality of the physical facilities. Importantly, several of these program variables showed a predictive relationship to treatment outcome.



**FIGURE 2.** *Rates of current IV drug use across six different methadone maintenance programs, two from each of three U.S. cities*

From Ball et al. 1988. Copyright 1988. American Sociological Association (Washington, DC).

The implications of these data are quite important with regard to the two previously described views on expanding methadone treatment. Clearly, simply

administering methadone does not by itself guarantee clinical improvements or reduced AIDS risk. On the other hand, when necessary minimum conditions are met, this treatment modality can lead to dramatic and sustained improvements, many of which (reduced IV drug use, reduced needle-sharing) are directly related to the spread of AIDS. Thus, identifying the programmatic factors and the minimal administrative conditions necessary for effective methadone treatment are crucial steps in improving methadone maintenance and in helping to contain the AIDS epidemic.

### **Determining the “Active Ingredients” in Methadone Maintenance**

We have recently begun a set of studies designed to help determine the active ingredients of methadone maintenance treatment. The full design and procedures for these studies are described elsewhere (McLellan et al., in preparation). The basic design compares three different levels of methadone services (minimum, basic, and enhanced methadone maintenance) within each of two explicitly different types of methadone programs (a hospital-based, medically oriented program at the Philadelphia VA Medical Center and a nearby community-based, social service-oriented program) for both newly admitted and in-treatment samples. Study participants in each program setting are initially stabilized on a modal dose of 40 to 45 mg methadone and then randomly assigned to one of three different levels of methadone treatment services provided and prospectively evaluated over a 6-month period.

**Minimum Methadone Maintenance (MMM).** This program setting offers blocking doses of methadone, plus emergency counseling and referral services, but no regular counseling, no privilege or service contingencies based on urine results, and no extra services such as family or employment counseling.

**Basic Methadone Maintenance (BMM).** This level of methadone services offers blocking doses of methadone, plus regular, supervised counseling and referral services using weekly urine screens as the basis for contingency management of the patient, but no extra services such as family or employment counseling. A central feature of BMM is drug counseling, shown by Woody and McLellan (Woody et al. 1987; McLellan et al. 1988) to be a particularly significant aspect of methadone maintenance treatment, with the ability to markedly enhance or detract from the other aspects of the program (e.g., methadone dose, rules and regulations, etc.).

**Enhanced Methadone Maintenance (EMM).** This program offers blocking doses of methadone, plus regular, supervised counseling and referral services using weekly urine screens as the basis for contingency management of the patient, plus regular additional services, including medical/psychiatric care,

social work assistance, family therapy, and employment counseling designed to develop job-seeking and job-holding skills. The selection of extra services, such as family therapy and employment counseling, was based on the recognition that most methadone maintenance patients have multiple problems that, if untreated, can undermine the effectiveness of the pharmacologic intervention.

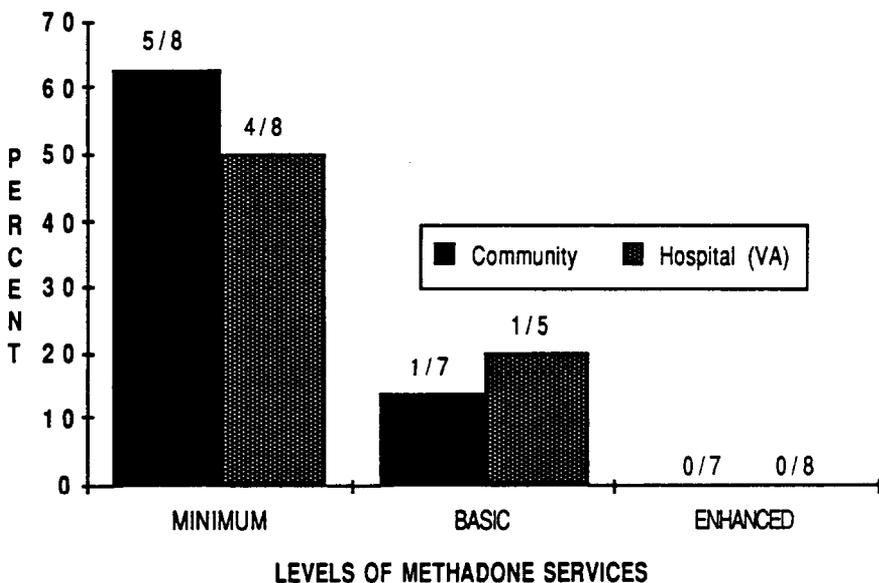
The psychiatric problems (Rounsaville et al. 1982; Khantzian and Treece 1985; Woody et al. 1983), family problems (Stanton 1979; Stanton et al. 1982), and poor job-seeking skills (Platt and Metzger 1985; Metzger and Platt, in press) of methadone maintenance patients have been well documented. Regardless of the original relation between these problems and the opiate addiction, it is clear that the presence of these additional problems significantly affects the course and overall results of treatment (Hubbard and Marsden 1986; Sells et al. 1979; McLellan et al. 1982, 1986). It is therefore possible that a more enhanced and expensive program, providing effective treatment for the medical, psychiatric, family, and employment problems of these patients, may be more cost-effective than the less expensive programs—particularly if this enhanced treatment is significantly more effective in reducing AIDS risk behaviors and more capable of effecting greater social rehabilitation and productivity with corresponding reductions in crime, welfare claims, and the utilization of expensive medical care services.

All patients are evaluated using a battery of instruments at the start of treatment, at 3 months and at 6 months during treatment, and at 6 months following their intervention (McLellan et al., in preparation). Additional during-treatment measures include attendance and dropout rates, health care utilization, and urine screening records. Major posttreatment outcome measures include drug use (particularly IV drug use), employment, crime, health care utilization, high-risk-for-AIDS behaviors, and the costs of care delivered to each patient during treatment.

Of all the outcome measures listed above, perhaps one of the most clinically significant is the number of patients in each treatment level who require “protective termination” from the project due to an unacceptable level of illicit drug use. Ethically, we did not want study patients to be at any greater risk for human immunodeficiency virus exposure than other patients receiving standard methadone treatment at our clinic. Therefore, we developed a set of “safeguards” that, if exceeded, result in the patient’s termination from the treatment project and referral to “treatment as usual” at the same site. The safeguards are as follows:

1. A total of eight opiate-positive urine reports or four opiate-positive urines in a row during the 24-week intervention.
2. A total of 12 cocaine-positive urines or 6 cocaine-positive urines in a row during the 24-week intervention. Note: Cocaine use is not always intravenous, even in these patients, and is considered somewhat less serious than opiate use—thus, the decision to allow slightly more cocaine use before requiring termination.
3. Three or more medical or psychiatric emergencies, necessitating inpatient referral or an intensity of treatment inconsistent with the assigned level of services.

Termination from the study means, essentially, that the level of methadone services received by the patient was not sufficient to reduce illicit drug use and



**FIGURE 3.** *Percent of patients requiring protective termination from three different levels of methadone services across two different methadone maintenance programs (Total Philadelphia VA and Community Program Sample [N = 53])*

to offer protection from AIDS. Although data collection is still in the very early stages, a striking pattern of results has already begun to emerge. Within both programs, the number of patients requiring “protective termination” from the study is by far greatest in the MMM group. As shown in figure 3, more than half the patients in the MMM group have already required protective termination, whereas none of the patients in the EMM group has exceeded the described safeguards. Therefore, the level of services in the MMM intervention failed to meet the minimum conditions necessary for effective methadone maintenance for more than half of the patient sample. Most of the terminated patients in the MMM group met criteria for termination within only 8 to 10 weeks of entry into the study—during which time they continued to use illicit drugs, usually opiates and cocaine. Finally, these numbers may underestimate the proportion of patients eventually requiring termination, because some patients included in these preliminary data have not yet completed 24 treatment weeks and may yet require protective termination.

## **SUMMARY**

Although methadone maintenance is a treatment modality with the demonstrated ability to reduce IV drug use and subsequent AIDS risk, methadone maintenance programs vary widely in their effectiveness: Demographically similar patient samples show profound improvements in some programs and little change in others. This suggests that programmatic factors rather than patient variables or sheer availability of methadone may be important active ingredients in effective methadone maintenance. The AIDS epidemic has led to the demand for increased availability of methadone, with suggested elimination of counseling, urine contingencies, and other rehabilitative services in an effort to fund additional “methadone-only” treatment slots. The data reviewed here, including preliminary results from a study examining the effectiveness of “minimal” methadone services, suggest that merely increasing the availability of methadone in the absence of administrative, counseling, and rehabilitative services may not adequately protect the majority of patients from continued drug use and the risk of AIDS.

## **REFERENCES**

- Ball, J.; Lange, W.R.; Myers, C.P.; and Friedman, S.R. Reducing the risk of AIDS through methadone maintenance treatment. *J Health Soc Behav* 29:214-216, 1988.
- Corty, E., and Ball, J.C. Admissions to methadone maintenance: Comparisons between programs and implications for treatment. *J Subst Abuse Treat* 4(3):181-187, 1987.

- Cummings, N. Turning bread into stones: Our modern anti-miracle. *Am Psychol* 34:276-339, 1979.
- Dole, V.P., and Nyswander, M. Successful treatment of 750 criminal addicts. *JAMA* 206:2708-2710, 1968.
- Dole, V.P.; Nyswander, M.; and Des Jarlais, D. Performance-based rating of methadone maintenance programs. *N Engl J Med* 306:169-172, 1982.
- Gearing, F.R., and Schweitzer, M.D. An epidemiological evaluation of long-term methadone maintenance. *Am J Epidemiol* 100:101-105, 1974.
- Hubbard, R.L., and Marsden, M.E. Relapse to use of heroin, cocaine, and other drugs in the first year after treatment. In: Tims, F.M., and Leukefeld, C.G., eds. *Relapse and Recovery in Drug Abuse*. National Institute on Drug Abuse Research Monograph 72. DHHS Pub. No. (ADM)88-1473. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 157-166.
- Khantzian, E.J., and Treece, K. DSM-III psychiatric diagnosis of narcotic addicts. *Arch Gen Psychiatry* 42:1067-1071, 1985.
- McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Alcohol and drug abuse in three different populations: Is there improvement and is it predictable? *Am J Drug Alcohol Abuse* 12(2):101-120, 1986.
- McLellan, A.T.; Luborsky, L.; Woody, G.E.; O'Brien, C.P.; and Druley, K.A. Is treatment for substance abuse effective? *JAMA* 247:1423-1428, 1982.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; and O'Brien, C.P. Is the counselor an "active ingredient" in substance abuse rehabilitation? An examination of treatment success among four counselors. *J Nerv Ment Dis* 176(7):423-430, 1988.
- McLellan, A.T.; Woody, G.E.; Metzger, D.; Childress, A.R.; and O'Brien, C.P. A comparison of three levels of methadone maintenance services, in preparation.
- Metzger, D.S., and Platt, J.J. Solving vocational problems for addicts in treatment. In: Platt, J.J.; Kaplan, C.D.; and McKim, P.J., eds. *Effectiveness of Drug Abuse Treatment: Dutch and American Perspectives*. Malabar, FL: Krieger Publishing Co., 1990. pp. 101-112.
- Newton, J. Methadone promise is unfulfilled. *J Drug/Alcohol Abuse*, Dec. 1, 1979. pp. 1-2.
- Platt, J.J., and Metzger, D. The role of employment in the rehabilitation of heroin addicts. In: Ashery, R.S., ed. *Progress in the Development of Cost-Effective Treatment for Drug Abusers*. National Institute on Drug Abuse Research Monograph 58. DHHS Pub. No. (ADM)88-1401. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1985. pp. 111-121.
- Rounsaville, B.J.; Weissman, M.M.; and Wilber, C.H. The heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1982.

- Sells, S.B.; Demaree, R.G.; and Hornick, C.W. *Comparative Effectiveness of Drug Abuse Treatment Modalities, NIDA Services Research Administrative Report*. Rockville, MD: National Institute on Drug Abuse, 1979.
- Stanton, M.D. The client as family member. In: Brown, B.S., ed. *Addicts and Aftercare*. New York: Sage Publications, 1979.
- Stanton, M.D.; Todd, T.; and associates. *The Family Therapy of Drug Abuse and Addiction*. New York: Guilford Press, 1982.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Hole, A.; and Herman, I. Psychotherapy for opiate addicts: Does it help? *Arch Gen Psychiatry* 40:639-645, 1983.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Psychotherapy for opiate dependence: A 12-month follow-up. *Am J Psychiatry* 145:109-114, 1987.
- Wrangle, C. Comments of Representative Charles Wrangle (D-NY). McNeil-Lehrer News Hour, Public Broadcasting System, February 9, 1988.

## **ACKNOWLEDGMENTS**

This work was supported by National Institute on Drug Abuse grants DA-05789 and DA-05186 and by Merit Review funding from the Veterans Affairs.

## **AUTHORS**

Anna Rose Childress, Ph.D.  
Clinical Associate Professor

A. Thomas McLellan, Ph.D.  
Clinical Professor

George E. Woody, M.D.  
Clinical Professor

Charles P. O'Brien, M.D., Ph.D.  
Professor

Department of Psychiatry  
University of Pennsylvania  
Veterans Affairs Research Center  
3900 Chestnut Street  
Philadelphia, PA 19104

# Reducing Illicit Drug Use Among Methadone Patients

*Maxine L. Stitzer and Kimberly C. Kirby*

## INTRODUCTION

The reduction or elimination of all illicit drug abuse and control of alcoholic drinking patterns are important secondary goals of methadone treatment. This chapter presents a brief overview of the most widespread patterns of supplemental drug use by methadone patients, including use of cocaine, benzodiazepines, opiates, and alcohol.

A variety of methods are reviewed that may influence supplemental drug use among methadone maintenance patients, and the evidence for their efficacy is discussed. The review starts with two examples of pharmacological methods: (1) increasing the methadone dose and (2) providing adjunct or alternative medications. The first intervention is designed primarily to influence continuing illicit opiate use; the second strategy refers to ancillary pharmacotherapies designed to have an impact on nonopiate drug use. Next, several nonpharmacological treatment approaches are discussed that could be implemented in the methadone clinic with the expectation of influencing polyabuse patients: (1) Incentive programs that reward abstinence constitute the most systematically researched approach to controlling polyabuse problems in the methadone clinic and are covered at some length. (2) Social environment manipulations designed to limit interactions among active polyabusers and encourage interaction with abstinent role models are discussed. (3) Improvements in counseling and psychotherapy, including provision of social skills training, constitute another area of potential impact on polyabuse problems. (4) A final section addresses the need for generalization and maintenance of therapeutic gains and suggests a behavioral approach that involves contracting with employers and family to discourage drug use and promote abstinence.

Clearly, the division of treatment methods into these designated areas is arbitrary; in clinical practice there is an overlapping and mixing of approaches. It is important, however, to understand the effectiveness of treatment elements

before systematically addressing the even more difficult tasks of selecting, combining, timing, and perhaps individualizing treatment elements to best effect. This chapter focuses on the polyabusing methadone patient who continues to supplement with both licit and illicit drugs during treatment and considers how various strategies might influence that particular type of patient. Based on the present knowledge base, we recommend incorporating the most systematically evaluated interventions—urinalysis-based incentive programs—into routine methadone maintenance treatment to improve treatment effectiveness. With regard to other intervention approaches, this chapter surveys previous research and identifies additional research needs with an emphasis on effectiveness with polyabuse patients.

## **PREVALENCE OF SUPPLEMENTAL DRUG USE**

Methadone maintenance has proven efficacy for the treatment of illicit opiate abuse (Ball et al. 1988a, 1988b; Dole et al. 1968; Gunne 1988; Gunne and Gronbladh 1984; Newman and Whitehill 1979); it promotes a rapid cessation of opiate use and related drug-seeking behavior. However, opiate abusers do not necessarily or even typically confine their self-administration to drugs from the opiate class. In a recent report from drug treatment facilities in the State of Maryland, 80 percent of all admissions reported problems with more than one type of drug (Maryland Department of Health and Mental Hygiene 1989). Ball and associates (1986) found that 60 percent of methadone treatment admissions typically used one or more illicit or prescription drugs (excluding alcohol and marijuana) in addition to opiates. Thus, the methadone treatment clinic, like all drug abuse treatment facilities today, accepts for treatment a variety of polysubstance abusers with a range of drug use and abuse patterns, including but not confined to illicit opiates. Cocaine, benzodiazepines, and alcohol, the three drugs most commonly abused by methadone patients, typically are the targets for treatment intervention; continuing illicit opiate use is also a clinically relevant problem for these patients. Use of both marijuana and tobacco is widely prevalent among methadone patients, but these drugs rarely form the target for evaluation or clinical intervention. Prevalence estimates for abuse of cocaine, benzodiazepines, opiates, and alcohol by methadone patients are discussed before considering interventions designed to reduce or eliminate these types of supplemental drug use during treatment.

### **Cocaine**

A rising prevalence of cocaine abuse has been documented recently, and among methadone treatment patients these rates have reached dramatic proportions (Black et al. 1987; Kaul and Davidow 1981; Kosten et al. 1987a; Maryland Department of Health and Mental Hygiene 1989). In a recent, large-

sample (N = 617) multiclinic survey (Ball et al. 1988a), 60 percent of methadone treatment admissions reported regular abuse of cocaine with a mean duration of 5.7 years of use. In our Baltimore clinic, we currently find urinalysis evidence of cocaine abuse in about 50 percent of maintenance patients and in 70 to 80 percent of those applying for admission to a short-stay, 180-day methadone treatment program. Thus, cocaine is our most serious and prevalent polyabuse problem.

### **Benzodiazepines**

Although cocaine is relatively new on the scene, benzodiazepines are well entrenched in the pharmacopeia of methadone patients (Bigelow et al. 1980; Kleber and Gold 1978; Stitzer et al. 1981; Wiersum 1974; Woody et al. 1975a, 1975b). In a survey of methadone clinics in New York and Philadelphia, about 40 percent of patients reported recent benzodiazepine use (Iguchi and Griffiths, personal communication). Patient self-reports suggest that benzodiazepines sometimes are used as a self-medication for anxiety but more commonly are taken in abusive dosages and patterns, often to boost methadone effects (Preston et al. 1984; Stitzer et al. 1981).

### **Opiates**

Although methadone is quite effective for the treatment of illicit opiate use, clinicians must be alert to evidence of illicit use that may continue during treatment in individual patients. Both the prevalence and frequency of illicit opiate use are generally lower than the rates cited above for cocaine and benzodiazepines. Thus, for example, Ball and colleagues (1988a) found that 23.4 percent of methadone patients in treatment for .5 to 4.5 years reported an average frequency of heroin use of 6.3 days per month. Illicit opiate use tends to be associated with programs that use lower methadone doses (Ball et al. 1988b); this implies that low-dose policies may not be optimal for suppressing illicit opiate use.

### **Alcohol**

Although alcohol is a licit drug, alcoholism among methadone patients is a serious concern because it is associated with medical problems, particularly liver disease (Force and Millar 1974; Hartman et al. 1983; Stimmel et al. 1972); with early treatment termination (Joseph and Appel 1985; Hunt et al. 1986); and with elevated mortality risk (Concool et al. 1979; Joseph and Appel 1985; Sells and Simpson 1987). Numerous studies have surveyed the prevalence of alcoholic drinking patterns among methadone patients; results vary due to differences in the definition of what constitutes alcohol abuse. In a recent

multiclinic survey of methadone treatment admissions (Ball et al. 1988a), 50.7 percent of patients reported regular use of alcohol to intoxication. One study using Research Diagnostic Criteria found 16-percent current and 36-percent lifetime rates of alcoholism among a sample of opiate addicts (Rounsaville et al. 1983). Other studies generally have estimated the prevalence of this polyabuse problem to be between 17 and 30 percent (Bickel et al. 1987).

## **PHARMACOLOGICAL INTERVENTIONS**

The methadone clinic is a convenient place to coordinate specific pharmacological treatments for a variety of abused drugs, to the extent that such treatments are available. Thus, the treatment of a given patient can be pharmacologically tailored to the pattern of substance abuse exhibited historically and/or after treatment entry. Current pharmacological interventions for the most widely abused substances are briefly reviewed below.

### **Methadone Dose Increase**

The methadone dose level would be expected to primarily reduce illicit opiate use, because methadone's pharmacological effects are specific to the opiate class. The optimal methadone dosage and even the effective dosage range for controlling illicit opiate use, however, have been hotly debated and often-studied topics during the 20-plus years that methadone treatment has been available. The preponderance of evidence suggests that higher dosage is associated with less illicit opiate drug use (Hargreaves 1983). Some of these data come from controlled trials in which patients were randomly assigned to different methadone dosage levels (Ling et al. 1976; Garbutt and Goldstein 1972), whereas some come from comparisons of patient outcomes across clinics using different average methadone doses (Ball 1988b; McGlothlin and Anglin 1981; Siassi et al. 1977). Further, if the methadone dosage is gradually lowered, the consequence almost invariably is the recurrence of illicit opiate use (Newman and Whitehill 1979; Senay et al. 1977). The general consensus from these studies is that doses of 40 mg or less may be associated with noticeably higher rates of illicit opiate use. However, the research findings concerning dosage generally pertain to aggregate data from a large number of subjects stabilized at different methadone doses and thus are less useful as a guide for determining individual doses.

What constitutes an adequate dosage for a particular individual is not entirely clear, because individuals metabolize methadone differently and may achieve very different plasma levels (Horns et al. 1975; Nilsson et al. 1982). Further, the dosage required to control illicit opiate use may change over time as a patient's drug use history becomes more remote and other factors conducive to

abstinence change. The clinical symptom that indicates inadequate dosage is detection of illicit opiates with urinalysis. In this case, raising the methadone dose is a logical and commonly employed clinical approach. However, the efficacy of individual dose changes in suppressing illicit drug use has not received much systematic evaluation. Some of the available data suggest that dose increases can be effective in suppressing illicit opiate use of individual maintenance patients but that efficacy is improved if the increase is given contingent on opiate-free urines rather than noncontingently (Higgins et al. 1986; Stitzer et al. 1985). Thus, it may be more effective to require the patient to stop using illicit drugs as a condition of receiving the dose increase rather than to supply the increase as a noncontingent pharmacological intervention.

It is possible that methadone dose increases given either contingently or noncontingently are also helpful in controlling other types of illicit drug use. For example, patients who claim they use benzodiazepines to boost methadone effects might be willing to stop their illicit use if given the chance to obtain contingent methadone dose increases; however, this idea has not been tested. Although there is no direct pharmacological interaction between methadone and cocaine, it is possible that methadone's mild sedating effects could blunt cocaine's acute cardiovascular and subjective effects or relieve in part its unpleasant side effects (e.g., nervousness, irritability). If this were the case, dose increases—at least of the noncontingent variety—might be contraindicated for cocaine abusers.

### **Adjunct or Alternative Medications**

Provision of disulfiram for methadone patients with an alcoholic drinking profile is a logical extension of a standard alcoholism treatment approach. The success of this maneuver may depend importantly on the conditions of implementation, as discussed in a later section. Benzodiazepine antagonists that have recently been developed ultimately may play a useful role in controlling benzodiazepine use among methadone patients, but these drugs are not currently available for this purpose. The development of alternative or adjunct medications for the treatment of supplemental cocaine abuse is a current, active area of research. A variety of medications have been tested for reducing cocaine withdrawal and promoting abstinence (Gawin and Ellinwood 1988; Kleber and Gawin 1986). Several of these medications have appeared very promising in open trials with primary cocaine abusers, but subsequent double-blind trials produced equivocal results so that the usefulness of these medications is not yet clear. Few studies to date have examined the effectiveness of adjunct medication specifically for methadone maintenance patients with supplemental cocaine abuse (Gawin et al. 1988; Kosten et al. 1987b). Recently, investigators have begun to examine opioid antagonists and

partial antagonists, particularly buprenorphine, as alternative medications to treat opiate addiction and simultaneously block cocaine euphoria, therefore discouraging both opiate and cocaine self-administration (Kosten et al. 1989; Mello et al. 1989). These treatments also appear promising.

## **NONPHARMACOLOGICAL METHODS**

Even if more and better pharmacological adjuncts are developed for control of additional illicit drugs, it is likely that behavioral strategies will be needed to encourage treatment retention, promote compliance with treatment regimens, and address the broader range of social, behavioral, and psychiatric problems that drug abusers bring to treatment. Indeed, nonpharmacological (cognitive and behavioral) interventions have always been an essential element in the treatment of drug abusers, forming the backbone of therapeutic practice. Because they are nondrug specific, cognitive and behavioral interventions provide a more flexible set of treatment tools that are useful in responding to a range of specific drug abuse patterns.

The methadone clinic has several specific advantages as a site for implementing and evaluating nonpharmacological interventions designed to affect polysubstance abuse. The methadone clinic provides intensive, long-term contact with many polysubstance abusers. Objective urinalysis assessment of supplemental drug use is built into clinic operations. Circumstances surrounding the delivery of methadone (e.g., timing, “take-homes”) as well as other features of clinic operation can be used in incentive programs designed to influence polysubstance abuse. A take-home privilege allows the subject to carry a methadone dose away from the clinic and self-administer it at home the following day, thus freeing the patient from the necessity of a daily clinic visit. Finally, clinic infrastructure (space and staffing) can be used to support ancillary services (e.g., educational, vocational) that may improve the chances of maintaining a drug-free lifestyle. Although there are many interventions that might have an effect on supplemental drug abuse, incentive programs implemented at the methadone clinic have received the most extensive evaluation to date.

### **Incentives at the Clinic**

The idea behind urinalysis-based incentive programs is to enhance the attractiveness of abstinence by providing some external motivation for stopping illicit drug use during treatment. In essence, choices are offered in which abstinence incentives such as receiving take-homes or remaining in treatment with methadone must compete with the very potent and immediate reinforcing effects of illicit drugs. Studies primarily have evaluated two very different types

of incentives for their ability to influence supplemental drug use: negative incentives, usually involving the threat of treatment termination, and positive incentives, usually involving methadone take-home privileges. Both approaches have been effective in influencing supplemental drug abuse behavior.

**Negative Incentives.** Treatment termination contracting, the most popular negative incentive, frequently is used by drug abuse counselors to deal with patients who persist in supplemental drug use or exhibit other uncooperative behaviors at the clinic. Typically, a contract is written that specifies cessation of the offending behavior by a specified date with gradual withdrawal of methadone treatment as the consequence of failure to meet the terms of the contract. Because the intervention is widely used, it has been the focus of some explicit evaluation efforts.

McCarthy and Borders (1985) investigated the effects of a structured treatment program for methadone patients that used continued access to treatment as an incentive to promote abstinence from illicit drugs. Sixty-nine subjects were randomly assigned to either a structured or unstructured treatment group upon admission to a California methadone program with an average maintenance dose of 40 mg. Structured treatment patients were told that they needed to be drug free—other than methadone—for 1 of every 4 months. If they had 4 consecutive “drug use months” during any point in the 1 -year study, they gradually would be withdrawn from methadone treatment. The unstructured group had no consequences attached to urine test results. Although urines were screened for opiates, barbiturates, amphetamines, and cocaine, the study pertained primarily to the control of illicit opiate abuse, because this is what study patients were primarily abusing. Considering only those who remained in treatment for 1 year, the study showed a marked contrast in rates of positive urine tests between structured and unstructured treatment patients, with about 80 percent of structured treatment patients remaining drug free compared with less than 50 percent of unstructured patients. This study demonstrated that the threat of treatment discharge could act as an incentive for improved treatment outcomes at least among patients whose primary supplemental drug of abuse was an opiate.

Another evaluation of treatment termination contracting was conducted by Dolan and colleagues (1985, 1986) at a methadone clinic in Dallas, Texas. Individualized contingency contracts were developed with 21 patients who did not respond to other treatment modalities offered by the clinic. Patients were required to give completely drug-free urines for 1 month or undergo treatment termination via methadone detoxification. About 50 percent (11) of subjects fulfilled conditions of the contract and successfully achieved abstinence. Drug

use for these patients remained suppressed during a 60-day postcontract followup period. Data published in later papers (Black et al. 1987; Dolan et al. 1986) suggest that cocaine was the primary drug of abuse among these study patients, with some benzodiazepine abuse as well. Thus, these two studies show that treatment termination contracting can be effective with methadone patients who abuse a variety of illicit drugs during treatment.

**Positive Incentives.** In positive incentive programs, clinic privileges are offered to poorly performing patients to increase the attractiveness of achieving and maintaining abstinence from supplemental drugs. A variety of positive incentives are employed, including dose adjustments (Higgins et al. 1986; Stitzer et al. 1986) monetary payments (McCaul et al. 1984; Stitzer et al. 1982), and take-home medication privileges (Iguchi et al. 1988; Magura et al. 1988; McCaul et al. 1984; Milby et al. 1978; Stitzer et al. 1979, 1982). In a survey conducted in our laboratory, subjects ranked the methadone take-home privilege as the most desirable of nine different clinic privileges (Stitzer and Bigelow 1978). This privilege has subsequently proven to be a most effective approach for reducing supplemental drug use. Although take-homes are routinely administered at methadone clinics, patients are generally eligible only under stringent rules that require lengthy periods of drug-free urines while engaging in productive activity before the awarding of take-home privileges. In the studies described below, the take-home privilege is used as an immediate reward for improved performance of patients who ordinarily would not be eligible under the typical stringent rules.

The original demonstration of utility for urinalysis-contingent take-homes offered to poorly performing patients involved 10 patients who primarily abused diazepam (Stitzer et al. 1982). The study used a within-subject design and showed a marked improvement in urine test results during the time that take-homes or money could be earned for delivering benzodiazepine-free urines. As a group, fewer than 20 percent of the study patients delivered drug-free urines both before and after the study. During the 3-month take-home incentive program, benzodiazepine-free urines increased to about 50 percent. This intermediate level of drug-free urine results reflects marked individual differences in treatment response; about half the subjects became benzodiazepine free, while the other half failed to respond to the intervention and continued using their supplemental benzodiazepine drug.

More recently, we completed a controlled, between-group study to determine whether the chance to earn take-homes for drug-free urine test results could improve treatment outcomes when a wider range of supplemental drugs was targeted and when the evaluation was continued over a more prolonged period (Stitzer and Iguchi 1989). The subjects were 54 recently admitted methadone

maintenance patients. About 33 percent used cocaine exclusively; 35 percent used benzodiazepines alone; 17 percent used both; and 15 percent used opiates or nothing. The high overall prevalence of supplemental use reflects the fact that our clinic specifically selects patients with polyabuse problems who have difficulty getting into treatment elsewhere. Patients randomly assigned to an earned take-home condition had to give 2 consecutive weeks of totally drug-free urines before the first take-home was authorized. They could ultimately receive as many as three take-homes per week after 6 consecutive weeks of drug-free urines. Also, these take-homes could be lost if evidence of relapse to supplemental drug use was detected. The number of take-homes received by subjects assigned to the chance take-home group was determined in a monthly drawing held independently for each study patient. Examination of individual subject performance revealed a clear treatment effect. Within the earned take-home group, 11 of 26 (42 percent) subjects met the criteria for improvement compared with 3 of 28 (11 percent) subjects who received take-homes on a chance basis. Thus, there was a 30-percent improvement in treatment response rate when subjects had to earn take-homes rather than being on the take-home dole. Within the group of treatment responders, the number of consecutive drug-free urines was seen as an indication of continuous abstinence time. The median abstinence time during baseline for treatment responders was less than 2 weeks, whereas during the earned take-home program this increased to about 8 weeks. Further, among the treatment responders, 6 of 11 (55 percent) were abstinent at the end of the 6-month trial: 1 was abstinent at his study termination point (incarcerated in study week 12); and 4 relapsed during the study.

The results of this study are consistent with another report by Magura and colleagues (1988), who implemented a urinalysis-based take-home earning program via contingency contracting with individual problem patients rather than by initiating a clinic-wide program. Thirty-four percent of patients receiving contracts responded by giving 1 month of totally drug-free urines. However, results were not well sustained over time when new contracts were negotiated. This suggests the need for longer term contracts to avoid the disruptive influence of contract terminations and renewals. The study also found that cocaine abusers were less likely to respond to treatment contracts than were patients abusing other types of drugs. This was not the case in our study, in which treatment responders were about equally divided between cocaine and benzodiazepine abusers.

#### **Combined Negative and Positive Incentives: Disulfiram Compliance.**

Occasionally contingency programs combine the features of positive and negative reinforcement to gain control over supplemental drug use among methadone patients. An interesting example of this approach is a disulfiram

compliance program that was implemented with alcohol-abusing methadone maintenance clients (Liebson et al. 1978). Study patients generally were treatment failures from other methadone clinics who had long histories of alcoholic drinking and associated behavior problems. Although disulfiram is an effective medication for preventing ingestion of alcohol, noncompliance with the disulfiram administration regimen is a common problem. Control subjects in this study had disulfiram prescribed for home use, and experimental subjects were required to participate in a monitored disulfiram program, ingesting disulfiram daily at the clinic before their methadone. With this arrangement, the ingestion of disulfiram was immediately followed by the presentation of the methadone dose; refusal to ingest the disulfiram would have resulted in withholding the methadone dose for that day. Thus, the positive incentive was the immediate presentation of the methadone dose, whereas the negative incentive was withholding of the dose with the implied eventual consequence of terminating methadone treatment. Experimental subjects reliably ingested their disulfiram under this arrangement, but the control subjects rarely took their medication. The experimental intervention had a marked positive effect on measures of drinking and on antisocial behavior. For example, experimental subjects spent an average of 2 percent of days drinking compared with 21 percent for control subjects. Monitored ingestion of disulfiram at the methadone clinic is now standard practice to control alcoholic drinking, with the pressure of treatment termination probably used at times to obtain cooperation with the program.

**Combined Incentives To Improve Efficacy.** It is possible that the efficacy of incentive programs could be improved by combining positive and negative incentives because a combined incentive might enhance the potency or salience of consequences attached to drug use versus abstinence. A study conducted in our laboratory (Iguchi et al. 1988) addressed this question by examining the separate and combined effects of a positive methadone take-home incentive and a negative treatment termination incentive. Two groups of patients matched on baseline polydrug abuse patterns were involved; both could earn take-home incentives during the study for giving totally drug-free urines, but a randomly assigned one-half of subjects also received methadone dose reductions leading to eventual treatment termination if they continued to give drug-positive urine samples. Interestingly, these two programs produced an identical number of successful cases, with half of the patients in each group giving drug-free urines during an 18-week evaluation period. This study failed to support the idea that a more potent incentive combining positive and negative reinforcement would yield better results. Instead, the study suggested that an incentive program incorporating only positive reinforcers may be as effective for producing behavior change in methadone patients as an incentive package incorporating both positive reinforcement and aversive control elements.

**Choice of Positive or Negative Incentives.** Although both positive and negative incentives can be effective in curtailing supplemental drug use and improving treatment effectiveness, each approach has advantages and disadvantages that should be carefully considered before implementing treatment incentive strategies. For example, the widespread use of treatment termination contracting in clinic settings may be due to an advantage that this approach has over positive incentive procedures. Unlike positive incentive procedures, treatment termination contracting allows clinic staff to remove difficult patients from their caseload—an advantage for clinic staff, not for the patient. For the patient, treatment termination contracting has a substantial and potentially deadly disadvantage: If it is not successful, the procedure results in treatment termination and almost certain return to intravenous drug use with its associated risk of exposure to HIV infection. As such, treatment termination contracting should not necessarily be advocated, especially not as the intervention of first choice.

The disadvantages associated with treatment termination contracting do not necessarily imply that all aversive procedures should be avoided. Negative incentive procedures can be very effective in producing immediate and long-lasting behavior change, provided they are implemented carefully and appropriately. In general, it is important for effective behavior suppression that the consequences are sufficiently aversive and are introduced reliably and quickly following occurrence of the undesirable behavior (e.g., the uncertainty and delay of criminal justice punishment is often cited as a reason for poor deterrence efficacy). It is possible that ethically acceptable negative incentive procedures could be devised for use with methadone patients that produce desirable effects on client outcomes. An example of an untested but potentially useful negative intervention might involve delaying receipt of the daily methadone dose (i.e., rescheduling medication time for later in the day) as a consequence of drug-positive urine tests. Further research regarding negative incentive programs is needed to develop a better understanding of the impact of these procedures and their effectiveness with particular problem areas and client types.

**Recommendation for Use of Positive Incentives.** It appears that success rates of commonly used positive and negative incentive procedures are similar, particularly when the positive incentive is the methadone take-home privilege and the negative incentive is treatment termination contracting. One other study that directly compared a positive incentive (dose increase for drug-free urines) with a negative incentive (dose decrease for drug-positive urines) also showed identical success rates for the two procedures and thus supports the conclusion of similar efficacy (Stitzer et al. 1986). In this case, we strongly advocate the use of positive incentive programs over treatment termination

contracting. Procedures that reward success have the advantage of effectiveness without the disadvantage of expelling patients into situations where they are potentially at greater risk, and positive procedures are not more costly or significantly more time consuming to implement compared with negative incentive programs. Urine testing is mandated and budgeted at all methadone clinics, so the most expensive aspect of the procedure is already in place. Studies have shown that urine monitoring alone has little therapeutic value (Goldstein et al. 1977; Havassy and Hall 1981) so the additional time required to implement a urinalysis-based incentive program is necessary. The addition of positive incentive procedures can make urine testing a more valuable activity and integrate testing into the therapeutic process. An additional benefit is that these programs ensure that counselors are at least aware of which patients are using supplemental drugs, which may prompt them to design systematic interventions beyond the urine-based incentive program.

**Limitations of Urinalysis Incentive Programs.** Urinalysis-contingent take-home incentives share two limitations with most other drug abuse treatment strategies. First, although they can be effective in reducing the supplemental drug use of one-third to one-half of patients, they are not effective for all patients. Second, even when they are effective, reductions in supplemental drug use are not always permanent. These limitations are not unique to contingent-incentive procedures and should not seriously discredit urinalysis-based incentives as a therapeutic technique; however, they should cause concern and lead to ways to improve and/or add to this technology. For example, allowing clients to specify which privilege they wish to work for might increase the number of patients who respond to incentive programs by taking into account individual differences in reinforcer preferences. Incorporating into treatment outside sources of motivation such as families, employers, or criminal justice monitors may lead to more abstinence attempts and/or longer periods of sustained abstinence. Allowing clients to occasionally choose new privileges or earn additional ones may be beneficial in improving maintenance. Other types of interventions that also may improve outcomes on supplemental drug use, either independently or in combination with incentive programs, are discussed below.

### **Social Environment Manipulations**

This section presents several strategies designed to limit the interaction among actively abusing individuals and increase interaction with nonabusers who can serve as models and encourage abstinence.

**Controlled Methadone Medication Times.** The methadone clinic at its best is a therapeutic environment that discourages supplemental drug use.

Unfortunately, it also can serve to bring together individuals with similar drug abuse problems. Observation and questioning of methadone patients can reveal groups of patients who tend to arrive for medication at similar times and carry their social interactions out of the clinic to a regular meeting place. This type of socially supportive peer group can be beneficial unless it contains one or more members who are sliding into increased supplemental use and encouraging friends to accompany them. If these groups can be identified, members who are experiencing difficulty in recovery could be separated temporarily from the group and targeted for more intensive supportive therapy. On a practical level, this generally means scheduling patients for a medication time different from that of their regular social group. Although clinics occasionally use this technique to deal with clients who have behavior problems, it is not known to have undergone systematic evaluation as a method for discouraging supplemental drug use. Nonetheless, it may be an effective procedure in some situations with potentially positive effects on the patient who is segregated and the remainder of the group. In addition, this procedure can be combined with urinalysis-based incentive procedures by requiring some criterion of drug-free urines before allowing clients to return to a preferred medication time.

**Participation in Self-Help Groups.** The inclusion of Narcotics Anonymous (NA), Cocaine Anonymous, or Alcoholics Anonymous groups within the methadone clinic may confer significant benefits related to interaction with an abstinence-oriented peer group, including access to successful abstinent role models, modeling of productive alternative activities to drug use, and social encouragement of abstinence. Some clinics that sponsor NA meetings have reported this to be a successful strategy (Fram and Marmo 1988). There traditionally had been some reluctance on the part of established 12-step groups to include methadone patients, but this prejudice recently has been changing (Gordis, this volume). Systematic evaluation of the beneficial effects of participation in a 12-step program for methadone patients would be useful.

**Residence Relocation.** Residence relocation is a more extreme example of an intervention that changes the amount of social contact with active abusers. Maddux and Desmond (1982) reported on the results of naturally occurring residence relocation of drug abusers who had previously been treated at the Public Health Service Hospital in Fort Worth, Texas. They collected information on 248 San Antonio addicts through treatment records, law enforcement and correctional agencies, personal interviews, and urine tests. During times of relocation, subjects engaged in less drug use than when they were in their hometown of San Antonio. For example, subjects who relocated (N = 171) were abstinent 54 percent of the time during residence relocation compared with 12 percent of the time when in San Antonio. Although

permanent removal from an environment that supports the patient's drug use may not always be practical, it is worth exploring as a promising strategy for some abusers. More research on residence relocation would be useful to understand the factors that determine better outcomes and to develop innovative relocation programs.

### **Improved Psychotherapeutic and Counseling Methods**

The interaction between patient and counselor is an essential component of drug abuse treatment, and there is little doubt that treatment retention and patient outcomes in a variety of domains can differ as a function of counselor characteristics and/or counseling content. Somewhat less certain are the characteristics of a counselor's background and training or the specific elements of a counselor's behavior that may be relevant to improved treatment of drug abuse patients in general and reduction of ongoing illicit drug use in particular. This section considers some of the dimensions of counseling behavior and counseling content that might be relevant. Another study (Hall 1983) also reviewed the roles of counselor training and experience as determinants of drug abuse treatment outcomes.

**Domains of Good Counseling.** The domains relevant to good counseling or psychotherapy are often described in somewhat global terms rather than in terms of concrete behaviors that counselors might be trained to perform. For example, a particularly careful study by Luborsky and colleagues (1985) identified four factors that were positively related to client outcomes during a controlled comparison of psychotherapy versus standard drug abuse counseling: (1) the therapist's personal adjustment, (2) the therapists interest in helping the patient, (3) the extent to which the therapist established a positive helping alliance with the patient, and (4) the extent to which a therapist adhered to manual-guided treatment techniques. Overall, the data from this study supported the notion that the therapist's ability to develop a positive, warm, supportive patient-therapist relationship, as well as the skill level of the therapist in implementing specific treatment techniques, may be important determinants of treatment outcome.

To improve the performance of therapists or counselors, it is advantageous to define these domains in more concrete behavioral terms. For example, Miller (1985) reviewed several studies that showed improved treatment retention rates when counselors sent letters or made telephone calls to clients who missed appointments. Such concrete behaviors are likely to be interpreted as showing concern, interest, and support on the part of the counselor. Other influential counselor behaviors may be more complex. McLellan and colleagues (1988) documented the widely held belief that individual therapists differ in

effectiveness as measured by the treatment outcomes of their clients. In this case, between-counselor differences appeared to be associated with, although not necessarily caused by, the organizational and treatment planning ability of the therapists. The differential use of effective treatment elements such as contingency contracting is another potential source of between-counselor variability in treatment outcomes.

**Caseload Size.** Another factor that may be relevant to patient outcome and that should be considered in efforts to improve counseling is the amount and/or intensity of contact between patient and therapist. In this regard, the tendency of methadone clinics to increase counselor caseloads in response to funding constraints is of concern. Caseload size has a logical if not demonstrated inverse relationship to treatment outcomes simply because less effort and attention per patient can be devoted by counselors with larger caseloads. Experimental information about the effect of caseload size on patient outcomes would be valuable for developing rational policies on this issue.

**Professional Psychotherapy.** Psychotherapy represents a specialized form of nonpharmacological intervention that differs from drug abuse counseling primarily in its focus on the broader range of psychiatric symptoms that are prominent among drug abusers. Alleviation of psychiatric symptoms may have a beneficial effect on illicit drug use. Woody and colleagues (1983, 1984) investigated the effects of psychotherapy delivered to drug abusers by highly trained professional therapists. The study showed that psychotherapy patients tended to reduce their methadone doses during the trial more than counseling control patients and receive fewer prescriptions for psychotropic medications. Psychotherapy patients also showed greater improvement on addiction severity index measures of drug use, employment, and psychiatric problems, with the best results seen in those patients who started the study with mid- to high-severity ratings on psychiatric problems. With regard to urinalysis data on illicit drug use, psychotherapy patients overall showed lower rates of opiate-positive test results during the trial than did drug counseling patients. This is notable because these patients also had lower methadone doses. Unfortunately, however, the study did not indicate whether psychotherapy could be expected to specifically benefit polydrug patients who abuse benzodiazepines, an analysis that was obscured by clinic prescription practices, or cocaine, which was apparently not in prominent use at the time the study was conducted.

**Relapse Prevention Skills Training.** Another specialized form of therapy that could be especially beneficial to drug abusers involves training drug abusers in the social skills necessary to function effectively as a nondrug abuser. Programs have been developed to train drug abusers in relapse prevention skills (Hawkins et al. 1986; McAuliffe and Ch'ien 1986; Zackon et al. 1985) and

in skills necessary for finding and obtaining employment (Hall et al. 1981 a, 1981b; Platt and Metzger 1985). These programs are generally successful in teaching the targeted skills. Relapse prevention, but not employment, programs have received some controlled evaluation concerning their impact on drug use.

Programs designed to bolster drug-free support systems and to specifically teach drug abusers how to handle problematic situations that might lead to relapse have recently received considerable attention. Evaluations have been conducted with two relapse prevention programs to determine their impact on drug abuse, although differences in the test populations preclude any meaningful comparison of the efficacy of the two programs. Hawkins and colleagues (1986, 1989) delivered relapse prevention and social network development skills training to therapeutic community patients before their reentry into the pretreatment natural environment. The program was effective in enhancing interpersonal and problemsolving skills, as assessed in posttreatment role-play tests (Hawkins et al. 1986). However, there was little evidence of treatment effects on relapse rates or on the extent or type of posttreatment drug use, including use of opiates, cocaine, and alcohol; the one exception was reported marijuana use among skills training versus control treatment subjects (Hawkins et al. 1989).

A second trial conducted by McAuliffe and colleagues (1985) evaluated an aftercare treatment package called Recovery Training and Self-Help that combined skills training with participation in self-help groups after formal treatment ended. The package was administered to opiate abusers drawn from a variety of program types (methadone, drug-free, detoxification, and residential treatment) in the United States and China. Preliminary outcome evaluation during a 1-year followup found significantly more good outcomes (abstinent or using opiates less than once a month) among experimental than among control group subjects, with a 15 to 17 percent improvement in abstinence rates. The diversity of study populations makes it difficult to draw conclusions about impact on any particular group such as methadone patients, and there is no assessment of treatment impact on nonopiate illicit drug use, including cocaine.

**Summary.** Overall, the research cited suggests that more emphasis be placed on identifying the important aspects of counselor behavior, developing methods for training therapists to incorporate them, and determining how any improvement in the counseling interaction or counseling content influences specific treatment outcomes, including supplemental drug abuse.

Psychotherapy continues to be a promising adjunctive treatment, particularly for psychiatrically disturbed patients. Relapse prevention skills training also is an appealing therapeutic approach from a conceptual point of view, although there are few convincing data to support its effectiveness in actually preventing

relapse to a variety of illicit drugs. It is possible that skills training could be useful in combination with other motivationally based treatments that enhance environmental supports for abstinence.

### **Contingency Contracting Outside the Clinic**

Researchers experienced in contingency-based procedures have long emphasized the need to actively arrange for maintenance of any treatment gains that are made during the intensive early phases of treatment intervention (Baer 1982; Kirby and Bickel 1988; Marholin and Seigel 1976; Marholin et al. 1976; Stokes and Baer 1977). One dominant theme has been the importance of ensuring that treatment gains continue to receive support in the social environment in which the patient lives during treatment or to which the patient returns after treatment. Although this approach has stimulated very little systematic investigation with respect to methadone treatment, it has received some attention in the treatment of impaired health care professionals (Crowley 1984) and more extensive evaluation in the treatment of chronic alcoholics (Azrin 1976; Azrin et al. 1982; Hunt and Azrin 1973; Miller 1985).

**Employment Contracting.** Under some circumstances, employers can be involved with treatment to monitor drug-abusing employees and deliver appropriate consequences. For example, partial loss of job privileges such as wages or vacation time might be arranged as a consequence of drug intoxication detected at the worksite. Other positive incentives such as increased vacation time, monetary bonuses, or reduced health care costs also could be offered based on improvements in work attendance (poor attendance being one of the most frequent signs of drug or alcohol abuse) or good cooperation with treatment. If the employer is unaware of the drug abuse problem and cannot be directly involved with treatment, it may be possible to use employer notification as an aversive consequence of poor treatment performance.

Such a program was developed by Crowley (1984) and coworkers to treat medical practitioners who were abusing opiates or cocaine. At the start of treatment, each patient provided the therapist with a signed letter to their licensing board or employer describing the drug abuse problem and voluntarily relinquishing the license or job because of continued drug abuse. The patient agreed via a written contract that the letter would be mailed by the therapist if drug use was detected during routine frequent urine monitoring. Thus, the license-loss contract functioned to change a likely negative consequence of long-term continued drug use to an immediate aversive consequence of drug use relapse. Outcome evaluation based on 17 patients revealed that the potential loss of a professional license did not totally prevent relapse but did

appear to greatly reduce the frequency and severity of relapse incidents and result in generally favorable outcomes among those who stayed with the program.

**Community Reinforcement.** A comprehensive community reinforcement approach was developed and implemented by Hunt and Azrin (1973) to support the abstinence of alcoholic individuals who had recently completed inpatient detoxification. The program may serve as a prototype for a comprehensive environmental contingency management program with drug-free patients. The evaluation study was conducted in a small, sparsely populated midwestern region and involved reconstructing the social environment of chronic alcoholics to ensure that the environment supported sobriety and did not support alcoholic drinking. Job placement was an important aspect of the program; job-finding activities were supported by a Job Club networking program (Azrin and Besalel 1980); and an acceptable job was found for all experimental patients before they left the hospital. Patients who were married underwent behavioral family counseling; the spouse was trained explicitly to provide reinforcement to the patient for maintaining sobriety and to withhold marital benefits (e.g., attention, shared finances, meal preparation, sexual relations) when the patient drank. For patients who were not married, surrogate families were identified (and when necessary, formed), and similar contingencies were arranged. An alcohol-free social club was developed where clients were encouraged to invite friends as guests and to participate in social interactions with other members. Access to the club was restricted whenever a patient was found to be drinking. The community reinforcement program resulted in substantial improvements in sobriety, employment, and other socially desirable behaviors compared with a matched control group who received standard hospital services. A community reinforcement approach could be applied to methadone patients who have successfully stopped supplemental drug use to explicitly arrange an environment in which the patients drug-abstinent behavior would receive continued support.

## **SUMMARY/DISCUSSION**

Polysubstance abuse among methadone patients may be amenable to several intervention approaches that might be expected to promote and maintain abstinence from supplemental drug use during methadone treatment. At this time, incentive programs at the methadone clinic are the one type of intervention that has demonstrated efficacy for reducing supplemental drug abuse. The studies reviewed suggest that urinalysis-based incentives can improve treatment outcome for individual methadone maintenance patients and thus are a clinically useful treatment tool that can be readily implemented at the methadone clinic. As such, we recommend that incentive programs be

incorporated whenever possible into individual treatment plans or clinic-wide operations. Even if effects are not always permanent, incentive programs can be instrumental in initiating periods of abstinence among chronic polydrug abusers and in increasing aggregate drug-free time in cases in which there is a poor prognosis for permanent abstinence. An interesting observation from the studies reviewed is that the particular features of the incentive program employed may be less important than that some type of structured program is implemented. In particular, both positive incentive programs involving take-homes and negative incentive programs involving the threat of treatment termination have been shown to promote abstinence among some treatment patients. To the extent that success rates are similar, the use of positive rather than negative incentive programs is advocated because these avoid the problem of poor outcomes and increased risk exposures that may be associated with treatment termination.

A variety of other interventions have also been reviewed that might be expected to affect polydrug abuse. Some are related to the social environment that supports or discourages abstinence (e.g., dissociation from drug-using friends, participation in self-help groups, contingency contracting with family and employers, contact with more effective therapists). Other interventions are specifically designed to address the multiple problems of drug abusers (i.e., vocational and skills training deficits, psychiatric comorbidity). There is general consensus within the drug treatment community that a comprehensive treatment package that includes these types of interventions would be valuable, and perhaps necessary, in obtaining long-lasting behavior changes in polydrug-abusing patients. There is less consensus on what the optimal intensity, duration, and timing of interventions should be or what criteria should be used in choosing particular interventions to match individual patient needs. Most of these more comprehensive interventions are untested at the present time with regard to their efficacy in improving treatment outcome for polysubstance abusers. Clearly, more research is needed to determine the conditions under which various behavioral and environmental interventions can be effective tools in the treatment of polysubstance-abusing methadone patients.

## REFERENCES

- Azrin, N.H. Improvements in the community-reinforcement approach to alcoholism. *Behav Res Ther* 14:339-348, 1976.
- Azrin, N.H., and Besalel, V.A. *Job Club Counselor's Manual: A Behavioral Approach to Vocational Counseling*. Baltimore, MD: University Park Press, 1980.
- Azrin, N.H.; Sisson, R.W.; Meyers, R.; and Godley, M. Alcoholism treatment by disulfiram and community-reinforcement therapy. *J Behav Ther Exp Psychiatry* 13(2):105-112, 1982.

- Baer, D.M. The role of current pragmatics in the future analysis of generalization technology. In: Stuart, R.B., ed. *Adherence, Compliance, and Generalization in Behavioral Medicine*. New York: Brunner/Mazel, 1982. pp. 192-212.
- Ball, J.C.; Carty, E.; Bond, H.; Myers, C.; and Tommasello, A. The reduction of intravenous heroin use, nonopioid abuse and crime during methadone maintenance treatment: Further findings. In: Harris, L.S., ed. *Problems of Drug Dependence, 1987. Proceedings of the 49th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 81. DHHS Pub. No. (ADM)88-1564. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988a. pp. 224-230.
- Ball, J.C.; Carty, E.; Erdlen, D.L.; and Nurco, D.N. Major patterns of polydrug abuse among heroin addicts. In: Harris, L.S., ed. *Problems of Drug Dependence, 1985. Proceedings of the 47th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 67. DHHS Pub. No. (ADM)86-1448. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 256-262.
- Ball, J.C.; Lange, W.R.; Myers, C.P.; and Friedman, S.R. Reducing the risk of AIDS through methadone maintenance treatment. *J Health Soc Behav* 29:214-226, 1988b.
- Bickel, W.K.; Marion, I.; and Lowinson, J.H. The treatment of alcoholic methadone patients: A review. *J Subst Abuse Treat* 4:15-19, 1987.
- Bigelow, G.; Stitzer, M.; Lawrence, C.; Krasnegor, N.; D'Lugoff, B.; and Hawthorne, J. Narcotics addiction treatment: Behavioral methods concurrent with methadone maintenance. *Int J Addict* 15:427-437, 1980.
- Black, J.L.; Dolan, M.P.; Penk, W.E.; Robinowitz, R.; and DeFord, H.A. The effect of increased cocaine use on drug treatment. *Addict Behav* 12:289-292, 1987.
- Concool, B.; Smith, H.; and Stimmel, B. Mortality rates of persons entering methadone maintenance: A seven-year study. *Am J Drug Alcohol Abuse* 6:345-353, 1979.
- Crowley, T.J. Contingency contracting treatment of drug-abusing physicians, nurses, and dentists. In: Grabowski, J.; Stitzer, M.L.; and Henningfield, J.E., eds. *Behavioral Intervention Techniques in Drug Abuse Treatment*. National Institute on Drug Abuse Research Monograph 46. DHHS Pub. No. (ADM)84-1282. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 68-82.
- Dolan, M.P.; Black, J.L.; Penk, W.E.; Robinowitz, R.; and DeFord, H.A. Contracting for treatment termination to reduce illicit drug use among methadone maintenance treatment failures. *J Consult Clin Psychol* 53(4):549-551, 1985.
- Dolan, M.P.; Black, J.L.; Penk, W.E.; Robinowitz, R.; and DeFord, H.A. Predicting the outcome of contingency contracting for drug abuse. *Behav Ther* 17:470-474, 1986.

- Dole, V.P.; Nyswander, M.E.; and Warner, A. Successful treatment of 750 criminal addicts. *JAMA* 206(12):2708-2711, 1968.
- Force, E.E., and Millar, J.W. Liver diseases in fatal narcotism: Role of chronic disease and alcohol consumption. *Arch Pathol* 97:166-169, 1974.
- Fram, D., and Marmo, J. "Integration of Traditional Drug Treatment and 12-Step Approaches to Recovery." Paper presented at the Fifth Annual Northeast Regional Methadone Conference, New York, 1988.
- Garbutt, G.D., and Goldstein, A. Blind comparison of three methadone maintenance dosages in 180 patients. In: National Association for the Prevention of Addiction to Narcotics. *Proceedings of the Fourth National Conference on Methadone Treatment*. New York: National Association for the Prevention of Addiction to Narcotics, 1972. pp. 411-414.
- Gawin, F.H., and Ellinwood, E.H., Jr. Cocaine and other stimulants: Actions, abuse, and treatment. *N Engl J Med* 318(18):1173-1182, 1988.
- Gawin, F.H.; Kosten, T.R.; Schumann, B.; Wright, D.; and Berger, P. "An Open Trial of Mazindol to Treat Cocaine Craving in a Methadone Maintenance Clinic." Paper presented at the Society of Neuroscience, Toronto, 1988.
- Goldstein, A.; Horns, W.H.; and Hansteen, R.W. Is onsite urine testing of therapeutic value in a methadone treatment program? *Int J Addict* 12(6):717-728, 1977.
- Gunne, L.M. The case of the Swedish methadone maintenance treatment programme. *Drug Alcohol Depend* 11:99-103, 1983.
- Gunne, L.M., and Gronbladh, L. The Swedish methadone maintenance program. In: Serban, G., ed. *The Social and Medical Aspects of Drug Abuse*. New York: Spectrum Publishers, Inc., 1984. pp. 205-213.
- Hall, S.M. Methadone treatment: A review of the research findings. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983. pp. 575-632.
- Hall, S.M.; Loeb, P.; Coyne, K.; and Cooper, J. Increasing employment in ex-heroin addicts I: Criminal justice sample. *Behav Ther* 12:443-452, 1981a.
- Hall, S.M.; Loeb, P.; LeVois, M.; and Cooper, J. Increasing employment in ex-heroin addicts II: Methadone maintenance sample. *Behav Ther* 12:453-460, 1981b.
- Hargreaves, W.A. Methadone dosage and duration for maintenance treatment. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research on the Treatment of Narcotic Addiction: State of the Art*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. off., 1983. pp. 19-79.

- Hartman, N.; Kreek, M.J.; Ross, A.; Khuri, E.; Millman, R.B.; and Rodriguez, R. Alcohol use in youthful methadone-maintained former heroin addicts: Liver impairment and treatment outcome. *Alcoholism* 7(3):316-320, 1983.
- Havassy, B., and Hall, S. Efficacy of urine monitoring in methadone maintenance: A treatment trial. *Am J Psychiatry* 138:1497-1500, 1981.
- Hawkins, J.D.; Catalano, R.F.; Gillmore, M.R.; and Wells, E.A. Skills training for drug abusers: Generalization, maintenance, and effects on drug use. *J Consult Clin Psychol* 57(4):559-563, 1989.
- Hawkins, J.D.; Catalano, R.F.; and Wells, E.A. Measuring effects of a skills training intervention for drug abusers. *J Consult Clin Psychol* 54(5):661-664, 1986.
- Higgins, S.T.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A. Contingent methadone delivery: Effects of illicit opiate use. *Drug Alcohol Depend* 17:311-322, 1986.
- Horns, W.H.; Rado, M.; and Goldstein, A. Plasma levels and symptom complaints in patients maintained on daily dosage of methadone hydrochloride. *Clin Pharmacol Ther* 17(6):636-649, 1975.
- Hunt, D.E.; Strug, D.L.; Goldsmith, D.S.; Lipton, D.S.; Robertson, K.; and Truitt, L. Alcohol use and abuse: Heavy drinking among methadone clients. *Am J Drug Alcohol Abuse* 12(1,2):147-164, 1986.
- Hunt, G.M., and Azrin, N.H. A community reinforcement approach to alcoholism. *Behav Res Ther* 11:91-104, 1973.
- Iguchi, M.Y.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A. Contingency management in methadone maintenance: Effects of reinforcing and aversive consequences on illicit polydrug use. *Drug Alcohol Depend* 22:1-7, 1988.
- Joseph, H., and Appel, P. Alcoholism and methadone treatment: Consequences for the patient and program. *Am J Drug Alcohol Abuse* 11(1,2):37-53, 1985.
- Kaul, B., and Davidow, B. Drug abuse patterns of patients on methadone treatment in New York City. *Am J Drug Alcohol Abuse* 8(1):17-25, 1981.
- Kirby, K.C., and Bickel, W.K. Toward an explicit analysis of generalization: A stimulus-control interpretation. *Behav Anal* 11(2):115-129, 1988.
- Kleber, H., and Gawin, F. Psychopharmacological trials in cocaine abuse treatment. *Am J Drug Alcohol Abuse* 12(3):235-246, 1986.
- Kleber, H.D., and Gold, M.S. Use of psychotropic drugs in treatment of methadone-maintained narcotic addicts. In: Kissin, B.; Lowinson, J.H.; and Millman, R.B., eds. *Recent Developments in Chemotherapy of Narcotic Addiction*. New York: New York Academy of Sciences, 1978. pp. 81-98.
- Kosten, T.R.; Kleber, H.D.; and Morgan, C. Role of opioid antagonists in treating intravenous cocaine abuse. *Life Sci* 44:687-892, 1989.
- Kosten, T.R.; Rounsaville, B.J.; and Kleber, H.D. A 2.5-year followup of cocaine use among treated opioid addicts. *Arch Gen Psychiatry* 44:281-284, 1987a.

- Kosten, T.R.; Schumann, B.; Wright, D.; Carney, M.K.; and Gawin, F.H. A preliminary study of desipramine in the treatment of cocaine abuse in methadone maintenance patients. *J Clin Psychiatry* 48(11):442-444, 1987b.
- Liebson, I.A.; Tommasello, A.; and Bigelow, G.E. A behavioral treatment of alcoholic methadone patients. *Ann Intern Med* 89:342-344, 1978.
- Ling, W.; Charuvastra, V.C.; Kaim, S.C.; and Klett, C.J. Methadyl acetate and methadone as maintenance treatments for heroin addicts: A Veterans Administration cooperative study. *Arch Gen Psychiatry* 33(6):709-720, 1976.
- Luborsky, L.; McLellan, A.T.; Woody, G.E.; O'Brien, C.P.; and Auerbach, A. Therapist success and its determinants. *Arch Gen Psychiatry* 42:602-611, 1985.
- Maddux, J.F., and Desmond, D.P. Residence relocation inhibits opioid dependence. *Arch Gen Psychiatry* 39:1313-1317, 1982.
- Magura, S.; Casriel, C.; Goldsmith, D.S.; Strug, D.L.; and Lipton, D.S. Contingency contracting with polydrug-abusing methadone patients. *Addict Behav* 13(1):113-118, 1988.
- Marholin, D. II, and Seigel, L.J. Beyond the law of effect: Programming for the maintenance of behavior change. In: Marholin, D. II, ed. *Child Behavior Therapy*. New York: Gardner Press, 1976. pp. 397-415.
- Marholin, D. II; Seigel, L.J.; and Phillips, D. Treatment and transfer: A search for empirical procedures. In: Hersen, M.; Eisler, R.M.; and Miller, P.M., eds. *Progress in Behavior Modification*. Vol. 3. New York: Academic Press, 1976. pp. 293-341.
- Maryland Department of Health and Mental Hygiene, Alcohol and Drug Abuse Administration. *Trends and Patterns in Alcohol and Drug Abuse in Maryland: fiscal Year 1988*. Substance Abuse Management and Information Services. Baltimore, MD, June 1989.
- McAuliffe, W.E., and Ch'ien, J.M.N. Recovery training and self-help: A relapse-prevention program for treated opiate addicts. *J Subst Abuse Treat* 3:9-20, 1986.
- McAuliffe, W.E.; Ch'ien, J.M.N.; Launer, E.; Friedman, R.; and Feldman, B. The Harvard group aftercare program: Preliminary evaluation results and implementation issues. In: Ashery, R.S., ed. *Progress in the Development of Cost-Effective Treatment for Drug Abusers*. National Institute on Drug Abuse Research Monograph 58. DHHS Pub. No. (ADM)88-1401. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1985. pp. 147-155.
- McCarthy, J.J., and Borders, O.T. Limit setting on drug abuse in methadone maintenance patients. *Am J Psychiatry* 142(12):1419-1423, 1985.
- McCaul, M.E.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A. Contingency management interventions: Effects on treatment outcome during methadone detoxification. *J Appl Behav Anal* 17(1):35-43, 1984.

- McGlothlin, W.H., and Anglin, M.D. Long-term followup of clients of high- and low-dose methadone programs. *Arch Gen Psychiatry* 38:1055-1063, 1981.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; and Goehl, L. Is the counselor an "active ingredient" in substance abuse rehabilitation? An examination of treatment success among four counselors, *J Nerv Ment Dis* 176(7):423-430, 1988.
- Mello, N.K.; Mendelson, J.H.; Bree, M.P.; and Lukas, S.E. Buprenorphine suppresses cocaine self-administration by rhesus monkeys. *Science* 245:859-862, 1989.
- Milby, J.B.; Garrett, C.; English, C.; Fritschi, O.; and Clarke, C. Take-home methadone: Contingency effects on drug-seeking and productivity of narcotic addicts. *Addict Behav* 3:215-220, 1978.
- Miller, W.R. Motivation for treatment: A review with special emphasis on alcoholism. *Psychol Bull* 98(1):84-107, 1985.
- Newman, R.G., and Whitehill, W.B. Double-blind comparison of methadone and placebo maintenance treatments of narcotic addicts in Hong Kong. *Lancet* 11:485-488, 1979.
- Nilsson, M.I.; Anggard, E.; Holmstrand, J.; and Gunne, L.M. Pharmacokinetics of methadone during maintenance treatment: Adaptive changes during the induction phase. *Eur J Clin Pharmacol* 22:343-349, 1982.
- Platt, J.J., and Metzger, D. The role of employment in the rehabilitation of heroin addicts. In: Ashery, R.S., ed. *Progress in the Development of Cost-Effective Treatment for Drug Abusers*. National Institute on Drug Abuse Research Monograph 58. DHHS Pub. No. (ADM)88-1401. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 111-145.
- Preston, K.L.; Griffiths, R.R.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A. Diazepam and methadone interactions in methadone maintenance. *Clin Pharmacol Ther* 36(4):534-541, 1964.
- Rounsaville, B.J.; Weissman, M.M.; Wilber, C.; and Kleber, H.D. Identifying alcoholism in treated opiate addicts. *Am J Psychiatry* 140(6):764-766, 1983.
- Sells, S.B., and Simpson, D.D. Role of alcohol use by narcotic addicts as revealed in the DARP research on evaluation of treatment for drug abuse. *Alcoholism* 11(5):437-439, 1987.
- Senay, E.C.; Dorus, W.; Goldberg, F.; and Thornton, W. Withdrawal from methadone maintenance. *Arch Gen Psychiatry* 34:361-367, 1977.
- Siassi, I.; Angle, B.P.; and Alston, D.C. Maintenance dosage as a critical factor in methadone maintenance treatment. *Br J Addict* 72:261-268, 1977.
- Stimmel, B.; Vernace, S.; and Tobias, H. Hepatic dysfunction in heroin addicts: The role of alcohol. *JAMA* 222:811-812, 1972.
- Stitzer, M.L.; Bickel, W.K.; Bigelow, G.E.; and Liebson, I.A. Effect of methadone dose contingencies on urinalysis test results of polydrug-abusing methadone-maintenance patients. *Drug Alcohol Depend* 18:341-348, 1986.

- Stitzer, M.L., and Bigelow, G.E. Contingency management in a methadone maintenance program: Availability of reinforcers. *Int J Addict* 13(5):737-746, 1978.
- Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A. Reducing benzodiazepine self-administration with contingent reinforcement. *Addict Behav* 4:245-252, 1979.
- Stitzer, M.L.; Bigelow, G.E.; Liebson, I.A.; and Hawthorne, J.W. Contingent reinforcement for benzodiazepine-free urines: Evaluation of a drug abuse treatment intervention. *J Appl Behav Anal* 15(4):493-503, 1982.
- Stitzer, M.L.; Bigelow, G.E.; and McCaul, M.E. Behavior therapy in drug abuse treatment: Review and evaluation. In: Ashery, R.S., ed. *Progress in the Development of Cost-Effective Treatment for Drug Abusers*. National Institute on Drug Abuse Research Monograph 58. DHHS Pub. No. (ADM)88-1401. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1985. pp. 31-50.
- Stitzer, M.L.; Griffiths, R.R.; McLellan, A.T.; Grabowski, J.; and Hawthorne, J.W. Diazepam use among methadone maintenance patients: Patterns and dosages. *Drug Alcohol Depend* 8:189-199, 1981.
- Stitzer, M.L., and Iguchi, M. "Contingent Versus Noncontingent Methadone Take-Home Privileges: Effects on Treatment Outcome." Paper presented at the Committee on Problems of Drug Dependence, Keystone, CO, 1989.
- Stokes, T.F., and Baer, D.M. An implicit technology of generalization. *J Appl Behav Anal* 10:349-367, 1977.
- Wiersum, J. Psychotropic drugs in addiction. *JAMA* 227:79, 1974.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Blaine, J.; Herman, I.; and Hole, A. Psychotherapy for opiate addicts: Does it help? *Arch Gen Psychiatry* 40:639-645, 1983.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Blaine, J.; Fox, S.; Herman, I.; Beck, A.T. Severity of psychiatric symptoms as a predictor of benefits from psychotherapy: The Veterans Administration-Penn study. *Am J Psychiatry* 141(10):1172-1177, 1984.
- Woody, G.E.; Mintz, J.; O'Hare, K.; O'Brien, C.P.; Greenstein, R.A.; and Hargrove, E. Diazepam use by patients in a methadone program-how serious a problem? *J Psychedelic Drugs* 7:373-379, 1975a.
- Woody, G.E.; O'Brien, C.P.; and Greenstein, R. Misuse and abuse of diazepam: An increasingly common medical problem. *Int J Addict* 10:843-848, 1975b.
- Zackon, F.; McAuliffe, W.E.; and Ch'ien, J.M.N. *Addict Aftercare: Recovery Training and Self-Help*. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)85-1341. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1985.

## **ACKNOWLEDGMENTS**

This chapter was prepared with support from Public Health Service research grant DA-04104 and the National Institute on Drug Abuse research training grant T32 DA-07209.

## **AUTHORS**

Maxine L. Stitzer, Ph.D.  
Associate Professor of Behavioral Biology

Kimberly C. Kirby, Ph.D.  
Postdoctoral Research Associate

Johns Hopkins University School of Medicine  
Francis Scott Key Medical Center  
Psychiatry Department, D-5-West  
4940 Eastern Avenue  
Baltimore, MD 21224

# Improving Client Compliance in Outpatient Treatment: Counselor-Targeted Interventions

*Mary E. McCaul and Dace S. Svikis*

## INTRODUCTION

Although abstinence-oriented outpatient treatment programs account for the majority of treatment slots (U.S. Department of Health and Human Services 1987, 1989) treatment participation and associated outcome in these programs traditionally have been problematic, with the majority of patients dropping out of treatment before completion (Hubbard et al. 1964; Polich et al. 1979; Simpson and Sells 1982). This chapter (1) highlights the need for more effective strategies to enhance client compliance in abstinence-oriented outpatient treatment programs, (2) briefly reviews some variables that have been previously studied in efforts to enhance client participation and retention, and (3) explores the feasibility and effectiveness of interventions that target the counselor rather than the client for improving client outcome.

## PATIENT PARTICIPATION AND RETENTION: THE PROBLEM

There has been increasing recognition of the prevalence and therapeutic importance of other drug use by clients in treatment programs that have traditionally served a primarily alcohol-dependent population (Senay 1984). Estimates of other drug use by these clients have ranged from one-fifth to nearly two-thirds of program admissions (Hawkins et al. 1985; Morrissey 1981; Sokolow et al. 1981). In a study comparing pretreatment and posttreatment drug use, Sokolow and colleagues (1981) characterized self-reported drug use by 1,340 patients enrolled in 17 publicly funded alcoholism programs in New York. In the 30 days preadmission, 46 percent of clients reported use of at least one drug in addition to alcohol, with 20 percent reporting use of two or more substances. Although reported drug use decreased postdischarge, approximately 30 percent of clients still reported use of at least one drug (not alcohol) in a 30-day period several months posttreatment, and 10 percent reported use of two or more substances. In a more recent study, 48 percent of

alcoholic soldiers in Army treatment facilities reported regular use of other drugs, and 17 percent reported daily drug use (Hawkins et al. 1985). Schuckit and Bogard (1986) characterized the drug use status of consecutive admissions into a Veterans Administration alcohol treatment program and found that 9 percent met diagnostic criteria for primary drug abuse and an additional 8 percent used drugs intravenously but did not meet diagnostic criteria for drug abuse. Finally, admission patterns at Hazelden, a large abstinence-oriented treatment program in Minnesota, have shown an increasing prevalence of other drug dependency in its treatment population. Specifically, rates of drug dependency, either alone or in combination with alcohol, increased from 44 percent to 66 percent of admissions from 1976 to 1985 (Novalany 1988; Patton 1979).

In our own large, publicly funded drug-free treatment program in Baltimore, current admission data demonstrate even higher rates of drug abuse. From July 1988 to June 1989, data were collected on 310 program admissions using family history research diagnostic criteria for alcohol and drug abuse (Andreasen et al. 1977). Based on client self-report, 21 percent of clients were diagnosed as alcohol abuse only; 35 percent were diagnosed as drug abuse only; and 44 percent were diagnosed as alcohol and drug abuse. Opiate and cocaine abuse each accounted for approximately 40 percent of the combined cases in the drug only and alcohol and drug abuse groups. These and earlier data clearly indicate that multiple substance use is a widespread clinical phenomenon in drug-free treatment settings.

These drug-abusing clients often report greater severity on a variety of psychosocial variables at admission (McLellan et al. 1986; Schuckit and Bogard 1986), suggesting the need for more intensive treatment interventions to promote program participation and retention. Yet despite these changing clinical profiles of program clients, drug-free services have remained largely unchanged in their treatment service components. Such programs largely consist of individual counseling, group education and therapy, provision of ancillary support services, and a 12-step model of recovery (Price, this volume). These programs generally do not use medications as a primary treatment method and indeed often oppose the use of adjunct medications in the treatment of substance abuse. Because the effectiveness of pharmacotherapy has been well established only in the treatment of opiate dependence (Dole and Joseph 1978), drug-free treatment is currently the only therapeutic alternative for the majority of drug-dependent persons.

To date, methadone maintenance has been the only pharmacotherapy to receive widespread client acceptance and to have demonstrated therapeutic efficacy in drug abuse treatment. Research comparing patient participation and

retention in drug-free treatment vs. methadone maintenance has suggested that it may be more difficult to retain clients in drug-free treatment settings. For example, in a double-blind study Newman and Whitehill (1979) compared opiate addicts randomly assigned to methadone vs. placebo maintenance in combination with a range of supportive services. They found a dramatic between-group difference in retention rates at 32 weeks postadmission, with 76 percent of those receiving methadone still in treatment compared with only 10 percent of controls. The controls also evidenced higher rates of opiate use and criminal activities. Similarly, Bale and colleagues (1980) compared opiate-addicted male veterans randomly assigned to therapeutic community vs. methadone maintenance treatment. They found significant between-group differences in retention rates, with 75 percent of methadone patients compared with 5 percent of therapeutic community patients still in treatment at 12 months postadmission. Thus, patient dropout is clearly elevated in drug-free compared with methadone maintenance programs.

Earlier research across a variety of treatment modalities has demonstrated a positive correlation between treatment participation and retention and posttreatment abstinence rates for both alcohol- and opiate-dependent clients (Edwards and Guthrie 1967; Polich et al. 1979; Simpson and Sells 1982). Thus, strategies that improve treatment participation and retention can be expected to improve posttreatment client outcome.

This brief overview highlights the importance of developing new and improving existing strategies to increase treatment participation and retention in abstinence-oriented programs. To enhance posttreatment outcome for addictive disorders, within-treatment performance first must be improved. This task is particularly challenging in treatment settings where pharmacological incentives are not available.

## **CLIENT PARTICIPATION AND RETENTION: CURRENT INTERVENTION STRATEGIES**

There is a widely held belief that motivation is an intrinsic trait of treatment patients and that this patient trait is a significant determinant of treatment participation and retention. However, it is clearly more productive in developing treatment intervention strategies to recognize that there are a variety of factors that may contribute to motivation and thereby influence treatment participation and retention and that these factors differ in both their accessibility and malleability. One conceptual framework for treatment motivation variables has been described by Miller (1985). This mode consists of four major components and some specific variables that have been examined in each of these components:

- Client Characteristics
  - psychiatric severity
  - cognitive functioning
  - self-esteem
- Motivational Interventions
  - goal-setting and feedback
  - continuity of care
  - contingency management
  - modification of behavior attractiveness
- Environmental Variables
  - involvement of spouse, parole and probation, and employer
  - clinic availability
- Therapist Characteristics
  - directive/nondirective style
  - professional/peer status
  - empathy/supportiveness
  - client outcome expectancy (Miller 1985)

For comprehensive reviews of this model, see Annis (1988) and Miller (1985). A more detailed explication of many of these factors and their role in substance abuse treatment has been provided elsewhere (see De Leon, McLellan, and Stitzer, this volume).

Although client and therapist characteristics have been shown to play a role in determining treatment participation and outcome (Gerstley et al. 1989; Lafferty et al. 1989; McLellan et al. 1983; Nurco et al. 1987, 1988a, 1988b; Patterson and Forgatch 1985) many of these variables represent relatively static characteristics of the individuals being studied (e.g., psychiatric diagnoses, demographics) and are not readily amenable to change through treatment interventions. Other treatment motivation factors are more malleable and can be successfully manipulated to improve treatment outcome (e.g., involvement of family, clinic accessibility). To date, such intervention strategies have focused predominantly on client-targeted interventions, with less attention to the role of treatment program variables as determinants of client outcome.

However, just as behavioral interventions with clients have been shown to improve their participation and retention (client-targeted interventions), it should be possible to develop interventions for increasing counselor behaviors that have a positive impact on client participation and retention (counselor-targeted interventions). Development of these strategies is based on the premise that the counselor is an important agent of change on the client's behavior and, for better or worse, can influence the length and frequency of client participation in treatment (McLellan et al. 1988).

**CLIENT PARTICIPATION AND RETENTION: AN ALTERNATIVE STRATEGY**

Several studies have demonstrated that within a given treatment program there can be considerable variability across addiction counselors in their ability to retain patients in treatment (Rosenburg et al. 1976; Valle 1981). More recently, McLellan and colleagues (1988) also have reported variability across counselors for within-treatment client measures such as methadone dose, employment status, and utilization of supportive medical services in a methadone maintenance setting. Within our drug-free outpatient treatment clinic, there is considerable variability across counselors in maintaining patient participation as measured by treatment duration and discharge status. As shown in table 1, successful discharge rates across counselors varied from 17 percent to 54 percent of caseload over a 1 -year period (July 1988-June 1989). Similarly, rapid dropout rates (less than 3 months in treatment) ranged from 14 percent to 61 percent of counselor caseload. This naturally occurring variability

**TABLE 1.** *Variability in client discharge status as a function of counselor assignment*

Discharge Status (Percent)	Counselor							Range
	A	B	C	D	E	F	G	
Successful	18	32	33	54	25	30	17	17-54%
Dropouts								
< 3 months	50	32	37	14	43	35	61	14-61%
3-6 months	29	32	23	18	14	22	22	14-32%
> 6 months	3	5	7	14	14	13	0	0-14%

in client outcomes based on counselor assignment clearly suggests that the counselor plays an important role in determining client outcome and, therefore, can be strategically targeted to improve client compliance.

There are several compelling reasons for considering counselor-targeted interventions as alternatives and/or adjuncts to client-targeted interventions. First, the effectiveness of behavioral interventions with substance abuse treatment clients has been clearly demonstrated (Stitzer and Kirby, this volume); however, these studies often have been restricted to specialized research settings with limited numbers of patients. Given the large number and diversity of clients enrolled in most treatment programs, the ability to effectively implement and monitor such interventions on a program-wide basis may be limited (Bigelow et al. 1984). In contrast, there are dramatically fewer counselors, and they remain readily accessible for extended periods, making them more practical targets for intervention. Second, there is often resistance from addiction counselors to the implementation of structured, specific behavioral interventions, particularly if these interventions are perceived as aversive (Bigelow et al. 1984). Client-targeted interventions are perceived as increasing workload and compromising the counselor's control over the clients clinical course. In contrast, counselor-targeted interventions are less dependent on counselor acceptance for their implementation. More importantly, they can maintain the counselor's flexibility in how clinical services are delivered because the intervention specifies the expected patient outcome and not the method for achieving this result. Third, the menu of incentives for counselors is broader, more readily available, and less costly than the menu of patient incentives in drug-free treatment programs where pharmacological reinforcers are not available (Bigelow et al. 1984). For example, there are a variety of potential counselor incentives already dispensed in a noncontingent fashion in most programs, including salary, outside educational training, comp time, access to clerical services, funds to purchase educational materials, and ability to flex work hours.

Interventions that target the counselors may operate through several mechanisms. Given the high rate of counselor burnout in substance abuse treatment, such interventions may serve to sustain or increase effective therapeutic behaviors that are already in the counselors repertoire. This may be particularly critical in dealing with difficult clients, who often are perceived as treatment failures from the time of admission and, as a consequence, may not be provided the same type and intensity of treatment services as those clients perceived to be "motivated" for treatment (Miller 1995). Another mechanism may be to expand counselor skills by encouraging staff to develop and implement a variety of new strategies for improving client treatment participation. Finally, these structured behavioral interventions eventually may

affect underlying therapist characteristics, particularly outcome expectancy and empathy. That is, when counselors achieve increased success with clients who were initially perceived as unlikely to succeed in treatment, this process may positively influence outcome expectancy and empathy with future patients.

The ultimate goal of a counselor-targeted intervention is the same as the goal of a client-targeted intervention, that is, improved patient participation and retention in treatment. The success of either intervention is measured in the short term by the length of time clients are retained in treatment, the number of individual and group sessions attended, the number and frequency of negative urinalysis results, and the number of treatment goals achieved. In the long term, the efficacy of these approaches is measured by posttreatment abstinence or moderation in drug use and improvement in psychosocial stability such as family, employment, and legal status.

## **CLIENT PARTICIPATION AND RETENTION: TYPES OF COUNSELOR-TARGETED INTERVENTIONS**

Many of the same types of interventions that have been found effective with clients also may serve as interventions targeted to the counseling staff. For example, feedback, continuity of care, and behavioral contingencies are all potentially useful strategies for effecting change in counselor performance.

### **Feedback and Goal-Setting**

We are currently investigating the impact of goal-setting and regular supervisory feedback to individual counseling staff members on client participation and retention in treatment. As part of routine program quality assurance, standards were established for minimally acceptable levels of routine clinic participation, including individual counseling sessions, group counseling sessions, and breathalyzer monitoring visits (i.e., brief program contacts to determine current blood alcohol level via breath sample). We informed counselors of these standards and then monitored each counselor's success in meeting these goals with clients on their caseload. Following a 4-month baseline period, we implemented a supervisory feedback system. Data are based on the six counselors who were employed during both the preintervention and postintervention periods.

Each counselor was provided with monthly written feedback on the performance of each client on his or her caseload relative to the standards and to the prior month's participation levels. The results of this goal-setting and supervisory feedback are shown in table 2. Overall, there was improvement in client participation for each of the three program service components, although there

was variability across the goals in the magnitude of change. This increase was significant for the mean number of individual and group counseling sessions (Mann-Whitney U test,  $p < 0.05$ ). This overall increase in the mean number of client sessions per month also resulted in more clients meeting the minimum standards postintervention compared with preintervention. For example, before supervisory feedback, only 35 percent of clients met the minimum requirement of participation in one group session per month. The percentage of clients in compliance with the program standard increased to 58 percent postintervention.

**TABLE 2.** *Effects of supervisory feedback to counselors on mean levels of client outpatient participation per month*

Condition	Program Component		
	Individual Counseling	Group Counseling	Breathalyzer Visits
Prefeedback	1.6	0.7	6.0
Postfeedback	2.3	1.4	6.6

As shown in table 3, we also analyzed these data as the percentage of counselors who met each standard based on mean participation levels for their overall caseload. This was an important analysis to examine whether the improvement had occurred across all counselors as opposed to having been isolated in only one or two counseling staff members. As found for client visits, there was an increase for all three standards in the percentage of counselors whose clients were in compliance from preintervention to postintervention. The magnitude of the preintervention to postintervention increase was statistically significant for group sessions ( $p < .01$ ) and breathalyzer visits ( $p < .05$ ), with a marginal effect for individual sessions ( $p < .10$ ).

These preliminary findings suggest that counselor-targeted interventions can be an effective strategy for improving client treatment participation. It is of particular interest that the intervention was effective not only in increasing the average number of monthly visits but also in improving the overall percentage of treatment patients in compliance with program standards. These findings suggest that the intervention should affect program dropout rates, although these were not a direct target of the feedback. Furthermore, the success of this program is striking given the minimal nature of the goal-setting and feedback intervention.

**TABLE 3.** *Percentage of counselors whose clients are in compliance with program standards prefeedback and postfeedback*

Condition	Program Component		
	Individual Counseling	Group Counseling	Breathalyzer Visits
Prefeedback	26%	32%	51%
Postfeedback	52%	80%	80%

### **Manipulation of Counselor Continuity**

Another study in our treatment program examined the impact of counselor continuity on client participation and retention. A variety of earlier studies examined client-targeted interventions such as letters, phone calls, and appointment calendars that were designed to promote continuity of care (Koumans and Muller 1965; Koumans et al. 1967; Nirenberg et al. 1980; Panepinto and Higgins 1969). In addition, it may be possible to directly manipulate counselor availability from a program policy basis and thereby affect client participation. For example, in an earlier study, clients assigned to twice-weekly counseling contacts were more than twice as likely to be active in treatment and continuously abstinent over the course of an 8-week intervention compared with patients assigned to once-weekly counseling (Gerrein et al. 1973).

In an earlier study we examined counselor continuity from residential to outpatient treatment as an important contributor to outpatient treatment participation and retention. Clients were randomly assigned to either the same or a different counselor for the residential and subsequent outpatient treatment periods. All persons admitted to the residential facility over a 2-year period were eligible for this study. Clients were excluded from the study if they failed to sign an outpatient treatment contract during their residential stay or were transferred to another facility for subsequent care. On average, subjects (N = 250) were males in their mid- to late-thirties; single, divorced or separated; and unemployed and reported approximately 14 years of regular alcohol use. There were no significant differences between experimental and control groups for any demographic variables. All subjects participated in the same residential and outpatient treatment program regardless of group assignment.

**TABLE 4.** *Effects of counselor continuity on outpatient treatment participation*

	Counselor Condition		p-value
	Same	Different	
Time in Treatment (weeks) (SD)*	18.6 (22.6)	10.3 (12.0)	<.05
Number of Visits for: Abstinence Monitoring (SD)	27.3 (36.9)	15.8 (23.1)	<.05
Individual Counseling (SD)	6.4 (8.8)	2.9 (4.4)	<.01
Group Counseling (SD)	6.2 (8.1)	4.3 (7.9)	**

\*Standard Deviation

\*\*No significant difference

As shown in table 4, clients in the “same” counselor condition remained in outpatient treatment significantly longer than clients in the “different” counselor condition. Further, clients with the same counselor participated in significantly more brief breathalyzer monitoring visits and individual counseling sessions than clients with different counselors. “Group counseling” participation was not significantly different in the two study groups. These findings suggest that the ongoing relationship with the primary counselor affects those aspects of treatment that specifically involve the primary counselor and not on more general treatment requirements such as group therapy that involve diverse program staff. Counselor contact generally is assumed to be a positive reinforcer for patients; thus, interventions that manipulate counselor availability should affect client treatment compliance positively.

### **Other Counselor-Targeted Interventions**

It will be of interest in future research to examine potentially more potent counselor-targeted interventions such as use of contingent incentives, including comp time, continuing education, and financial incentives. An interesting recent study with therapists in a child behavior management clinic explored the effects

of making new case assignments to therapists contingent on patient participation in counseling visits (Handen et al. 1986). The four therapists who conducted the most counseling sessions during each 2-week period were exempted from assignment of new cases, with new admissions equally divided among the other six therapists. The mean number of patients seen per day by each therapist doubled during the contingent case assignment period, primarily as a result of an increase in the number of appointments that therapists scheduled. These findings demonstrate that routine aspects of program administration such as assignment of new cases can be used in a contingent fashion to influence counselor behavior.

## SUMMARY

Earlier research has demonstrated the need for more effective strategies to increase treatment compliance, particularly in drug-free treatment programs. This need is particularly acute given the increased admissions of patients who use multiple drugs. Most efforts in this area have utilized client-targeted interventions to increase participation levels and length of retention. Thus, based on the studies cited in this chapter, counselor-targeted interventions may offer a cost-effective and potent alternative or adjunct to client-targeted interventions that should be the focus of future research.

## REFERENCES

- Andreasen, N.; Endicott, J.; Spitzer, R.; and Winokur, G. The family history method using diagnostic criteria. *Arch Gen Psychiatry* 34:1229-1235, 1977.
- Annis, H. Patient-treatment matching in the management of alcoholism. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988. Proceedings of the 50th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 90. DHHS Pub. No. (ADM)89-1605. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 152-161.
- Bale, R.N.; Vanstone, W.W.; Kuldau, J.M.; Engelsing, T.M.J.; Elashoff, R.M.; and Zarcone, V.P. Therapeutic communities versus methadone maintenance: A prospective controlled study of narcotic addiction treatment. *Arch Gen Psychiatry* 37:179-193, 1980.
- Bigelow, G.E.; Stitzer, M.L.; and Liebson, I.A. The role of behavioral contingency management in drug abuse treatment. In: Grabowski, J.; Stitzer, M.L.; and Henningfield, J.E., eds. *Behavioral Intervention Techniques in Drug Abuse Treatment.* National Institute on Drug Abuse Research Monograph 46. DHHS Pub. No. (ADM)84-1282. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 36-52.

- Dole, V.P., and Joseph, H. Long-term outcome of patients treated with methadone maintenance. *Ann N Y Acad Sci* 311:181-189, 1978.
- Edwards, G., and Guthrie, S. A controlled trial of inpatient and outpatient treatment of alcohol dependency. *Lancet* 1(489):555-559, 1967.
- Gerrein, J.R.; Rosenberg, C.M.; and Manohar, V. Disulfiram maintenance in outpatient treatment of alcoholism. *Arch Gen Psychiatry* 28:798-802, 1973.
- Gerstley, L.; McLellan, A.T.; Alterman, A.I.; Woody, G.E.; Luborsky, L.; and Prout, M. Ability to form an alliance with the therapist: A possible marker of prognosis for patients with antisocial personality disorder. *Am J Psychiatry* 146:508-512, 1989.
- Handen, B.L.; Parrish, J.M.; and Riley, A.W. "Enhancing Staff Performance via Contingent Case Assignment." Paper presented at the annual meeting of American Psychological Association, Washington, DC, August 1986.
- Hawkins, M.R.; Kruzich, D.J.; and Smith, J.D. Prevalence of polydrug use among alcoholic soldiers. *Am J Alcohol Drug Abuse* 11:27-35, 1985.
- Hubbard, R.L.; Rachal, J.V.; Craddock, S.G.; and Cavanaugh, E.R. Treatment Outcome Prospective Study (TOPS): Client characteristics and behaviors before, during, and after treatment. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 42-68.
- Koumans, A.J.R., and Muller, J.J. Use of letters to increase motivation in alcoholics. *Psychol Rep* 16:1152, 1965.
- Koumans, A.J.R.; Muller, J.J.; and Miller, C.F. Use of telephone calls to increase motivation for treatment in alcoholics. *Psychol Rep* 21:327-328, 1967.
- Lafferty, P.; Beutler, L.E.; and Crago, M. Differences between more and less effective psychotherapists: A study of select therapist variables. *J Consult Clin Psychol* 57:76-80, 1989.
- McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Barr, H.L.; and Evans, F. Alcohol and drug abuse treatment in three different populations: Is there improvement and is it predictable? *Am J Drug Alcohol Abuse* 12:101-120, 1986.
- McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Woody, G.E.; and Druley, K.A. Predicting to alcohol and drug abuse treatments: Role of psychiatric symptoms. *Arch Gen Psychiatry* 40:620-625, 1983.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; and Goehl, L. Is the counselor an "active ingredient" in substance abuse rehabilitation? An examination of treatment success among four counselors. *J Nerv Ment Dis* 176:423-430, 1988.
- Miller, W.R. Motivation for treatment: A review with special emphasis on alcoholism. *Psychol Bull* 98:84-107, 1985.

- Morrissey, E. The measurement of multiple drug use and its relationship to the patterning of alcohol intake. *Am J Drug Alcohol Abuse* 8:311-328, 1981.
- Newman, R.G., and Whitehill, W.B. Double-blind comparison of methadone and placebo maintenance treatments of narcotic addicts in Hong Kong. *Lancet* 2(8141):485-488, 1979.
- Nirenberg, T.D.; Sobell, L.C.; and Sobell, M.B. Effective and inexpensive procedures for decreasing client attrition in an outpatient alcohol treatment program. *Am J Drug Alcohol Abuse* 7:73-82, 1980.
- Novalany, C. *Hazelden Primary 1985 Patient Profile*. Minneapolis, MN: Hazelden Press, 1986.
- Nurco, D.N.; Hanlon, T.E.; Shaffer, J.W.; Kinlock, T.W.; Duszynski, K.R.; and Stephenson, P. Differences among treatment clinic types in attitudes toward narcotic addiction. *J Nerv Ment Dis* 176:714-718, 1988b.
- Nurco, D.N.; Shaffer, J.W.; Hanlon, T.E.; Kinlock, T.W.; Duszynski, K.R.; and Stephenson, P. Attitudes towards narcotic addiction. *J Nerv Ment Dis* 175:653-660, 1987.
- Nurco, D.N.; Shaffer, J.W.; Hanlon, T.E.; Kinlock, T.W.; Duszynski, K.R.; and Stephenson, P. Relationships between clients/counselor congruence and treatment outcome among narcotic addicts. *Compr Psychiatry* 29:48-54, 1988a.
- Panepinto, W.C., and Higgins, M.J. Keeping alcoholics in treatment: Effective follow-through procedures. *Q J Stud Alcohol* 30:414-419, 1969.
- Patterson, G.R., and Forgatch, M.S. Therapist behavior as a determinant for client noncompliance: A paradox for the behavior modifier. *J Consult Clin Psychol* 53:846-851, 1985.
- Patton, M.Q. *The Outcomes of Treatment: A Study of Patients Admitted to Haze/den in 1979*. Minneapolis, MN: Hazelden Press, 1979.
- Polich, J.M.; Armor, D.J.; and Braiker, H.B. *The Course of Alcoholism: Four Years After Treatment*. Santa Monica, CA: The Rand Corporation, 1979.
- Rosenburg, C.N.; Gerrein, J.R.; Mandhar, V.; and Leetick, J. Evaluation of training of alcoholism counselors. *J Stud Alcohol* 37:1236-1246, 1976.
- Schuckit, M.A., and Bogard, B. intravenous drug use in alcoholics. *J Clin Psychiatry* 47:551-554, 1986.
- Senay, E.C. Clinical implications of drug abuse treatment outcome research. In: Tims, F.M., and Ludford, J.P., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)86-1329. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 139-150.
- Simpson, D.D., and Sells, S.B. Effectiveness of treatment for drug abuse: An overview of the DARP research program. *Adv Alcohol Subst Abuse* 2:7-29, 1982.
- Sokolow, L.; Welte, J.; Hynes, G.; and Lyons, J. Multiple substance use by alcoholics. *Br J Addict* 76:147-158, 1981.

- U.S. Department of Health and Human Services. *Sixth Special Report to the U.S. Congress on Alcohol and Health*. DHHS Pub. No. (ADM)87-1519. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1987.
- U.S. Department of Health and Human Services. *The National Drug and Alcoholism Treatment Unit Survey (NDATUS), 1987*. DHHS Pub. No. (ADM)89-1626. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1989.
- Valle, S.K. Interpersonal functioning of alcoholism counselors and treatment outcome. *J Stud Alcohol* 42:783-790, 1981.

## **AUTHORS**

Mary E. McCaul, Ph.D.  
Assistant Professor

Dace S. Svikis, Ph.D.  
Instructor

Department of Psychiatry and Behavioral Sciences  
Johns Hopkins University School of Medicine  
Francis Scott Key Medical Center  
4940 Eastern Avenue  
Baltimore, MD 21224

# Retention in Drug-Free Therapeutic Communities

*George De Leon*

## INTRODUCTION

The effectiveness of drug abuse treatment is highly correlated with retention. Almost all studies of treatment outcomes report that posttreatment success and/or improvement rates are directly related to length of stay in treatment. Figures 1 and 2, for example, show the relationship between retention and posttreatment outcomes for the three major modalities.

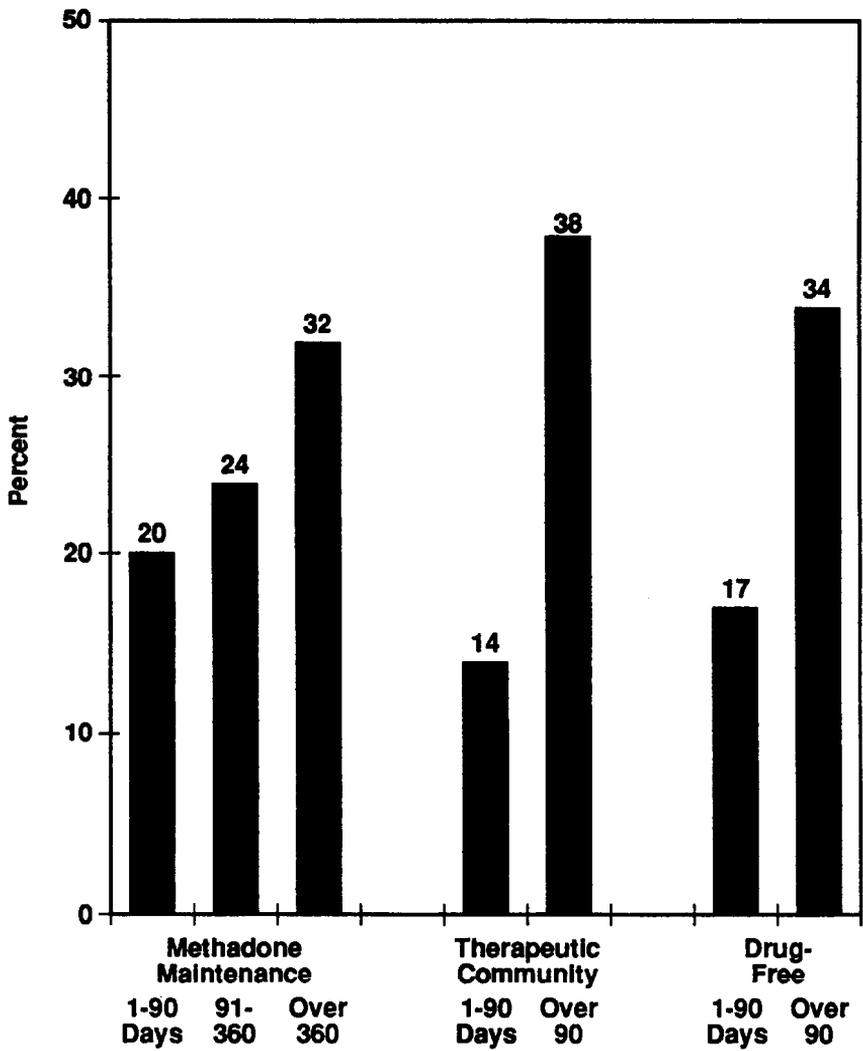
However, dropout is the rule across all drug treatment modalities. Although absolute levels of retention are higher for methadone maintenance and lower for drug-free outpatient and residential treatment, too many clients leave treatment before maximal benefits are presumed to occur.

Despite the obvious importance of retention, research in this area is a relatively recent development. This chapter provides an overview of the research and the issues of retention in drug-free residential therapeutic communities (TCs). Although the material presented is drawn from TC studies, generalizations to other treatment modalities are evident.

The initial section provides an overview of the main research findings and conclusions on retention. The following section summarizes a recently completed experimental attempt to reduce early dropout from TC treatment. The final section offers a perspective and paradigm for the study of retention and implications for treatment and research.

## OVERVIEW OF MAIN FINDINGS AND CONCLUSIONS

This is not an exhaustive survey nor a critical review of the TC research on retention. Full reviews and bibliographies of retention that include TCs are in the drug abuse literature (Allison and Hubbard 1985; Collins and Allison 1983; Siddiqui 1989; Siddall and Conway 1988; De Leon 1985; De Leon and Schwartz 1984). Only the material from technical reports and published studies



**FIGURE 1.** *One-year posttreatment outcomes by length of stay in treatment in three modalities*

SOURCE: Simpson and Sells 1982.

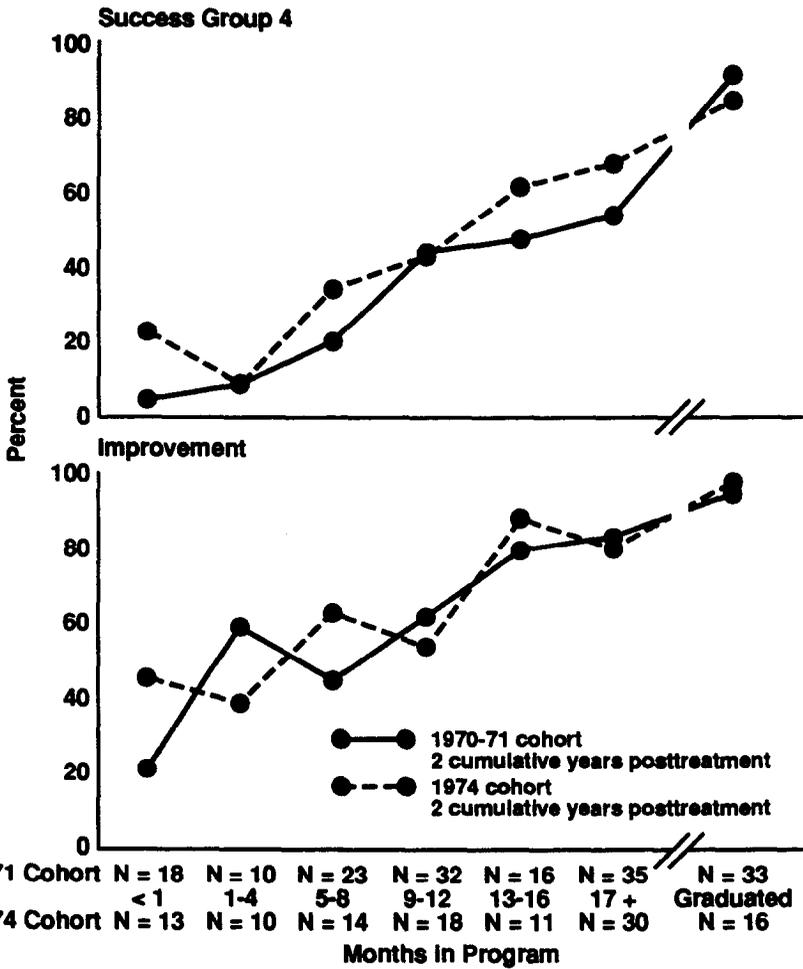


FIGURE 2. Comparisons between the 1970-1971 and 1974 cohort through 2 years of followup for male opioid abusers—success and improvement rates by time in program

SOURCE: De Leon 1984.

in drug-free TCs is surveyed, although some recent unpublished results are cited.

Most retention studies were completed in programs that adhere to the traditional TC model (De Leon and Rosenthal 1989; De Leon 1986a). However, an unknown percentage of programs in the Client-Oriented Data Acquisition Program (CODAP) and Treatment Outcome Prospective Study data sets were shorter term, nontraditional TCs.

There are a fair number of retention studies on drug-free residential alcohol programs (Baekland and Lundwall 1975) that are not included because application of the TC model in these settings is absent or unclear. Finally, the TC literature outside of the United States is excluded except where noted. Despite these limitations, the material reviewed provides a reasonably accurate picture of the current status of retention research in U.S. TCs.

The research on retention can be organized around four major questions concerning retention rates, client characteristics or predictors of dropout, client-stated reasons for dropout, and attempts to enhance retention. Relatively few studies address the latter two issues, although a fairly substantial literature reports on the first two. The main findings and conclusions each are summarized below.

### **What Are the Retention Characteristics for TCs?**

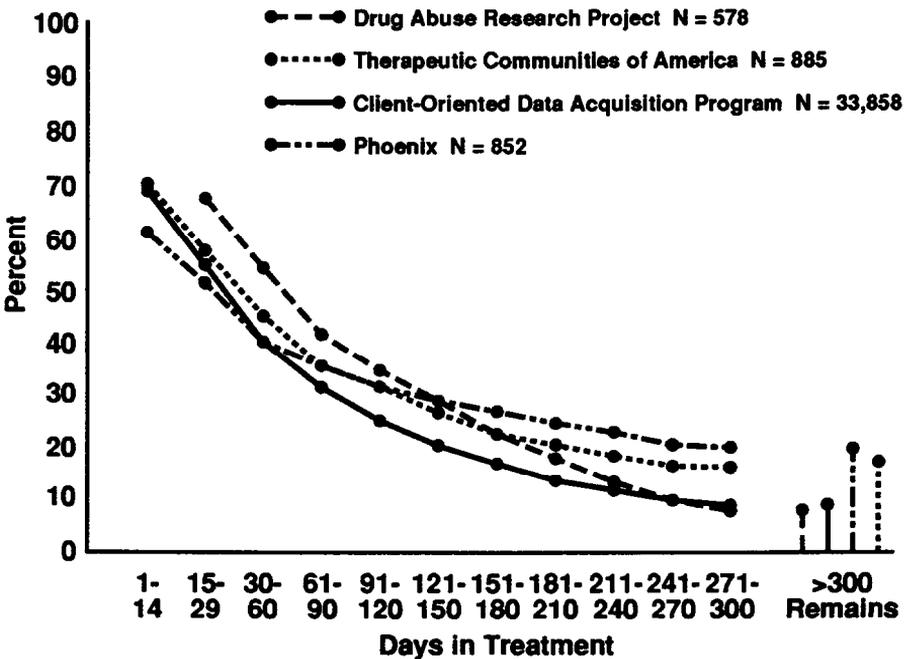
The term “TC” is a generic term applied to a range of drug-free residential settings, only about a quarter of which are the traditional long-term variety. Thus, interpretation of dropout and completion rates must consider these program differences (discussed below in “Why Do Clients Drop Out of TCs?”).

**Temporal Pattern of Dropout Is Lawful.** Figures 3 and 4 show the characteristic curve for dropout in several data systems and across several admission years. Dropout is maximal in the first 30 days, elevates through 90 days, and decreases sharply thereafter. Figure 5 shows the Therapeutic Communities of America (TCA) retention data corrected for admissions who have already left treatment (i.e., survivor rates). Continued retention in treatment increases with length of stay; that is, the likelihood of dropout decreases with time spent in treatment.

**Dropout Rates.** Across the data systems the 10-month retention rates are 7 to 15 percent (figure 3). Programs in TCA vary, yielding 10-month rates as high as 25 percent (figure 4). Actual completion (graduation) rates from 2-year programs are not formally reported in these data sets, but TCA program records

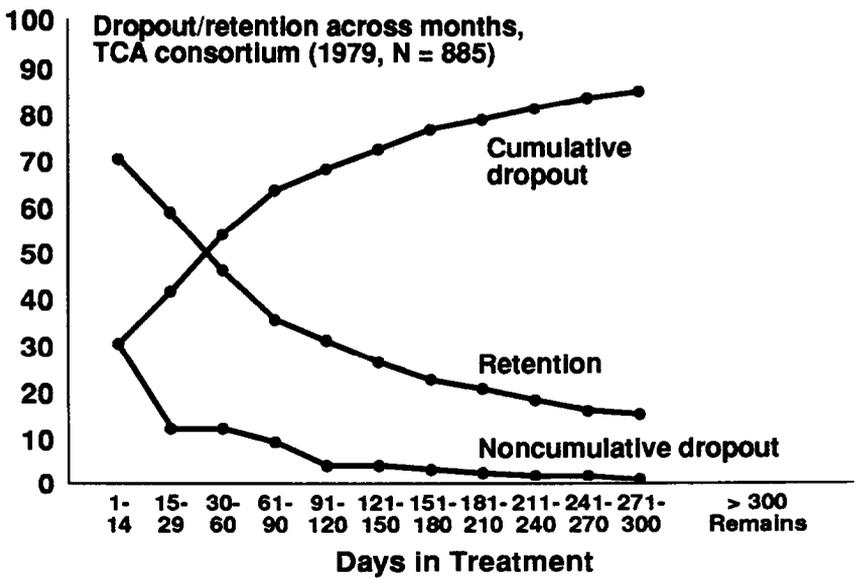
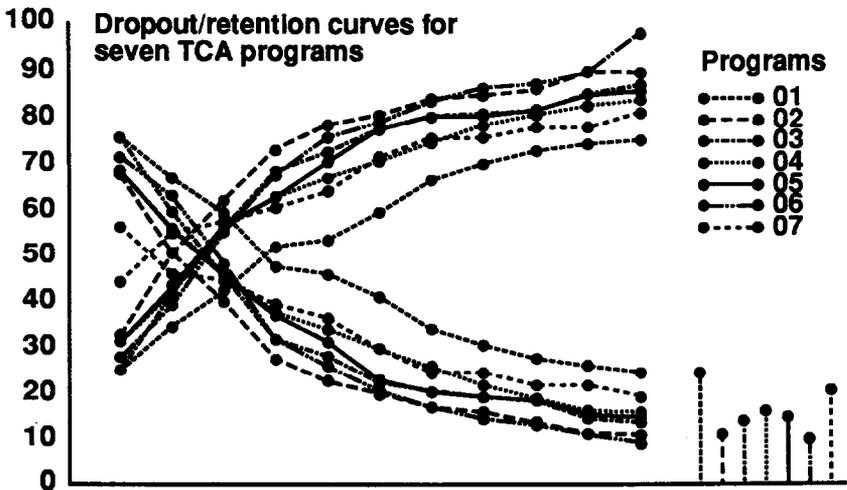
indicate a range of 10 to 15 percent. It should be stressed that the low graduation rate underestimates the impact of treatment. In long-term TCs posttreatment success rates are highly correlated with graduation or completion and also with post-12-month retention (figure 2).

There is some evidence for increased retention in recent admissions to TCs. Data from 1985 and 1986 entries to a large northeastern TC show that 1-year retention exceeds 29 percent compared with less than 20 percent in 1979. A steady rise in retention through the 1980s is confirmed in a recent survey of 1988 admissions to 15 other TCs, showing an average 30-day retention rate of 75 percent compared with the 60-percent average for 1979 admissions shown in figure 4. Revised graduation rates are needed, but these correlate highly with 1-year retention and should show a corresponding increase.



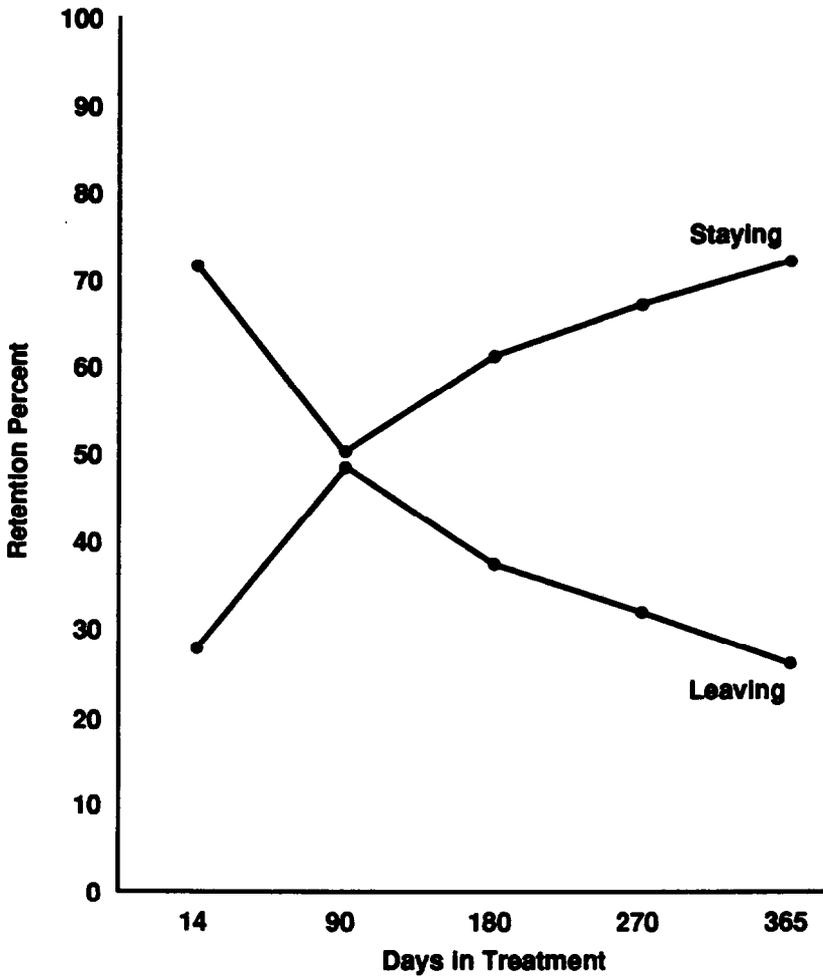
**FIGURE 3.** Retention curves for drug-free residential programs in several data systems

SOURCE: De Leon 1985.



**FIGURE 4.** Pattern of dropout in seven traditional TC programs of TCA

SOURCE: De Leon 1985.



**FIGURE 5.** *Likelihood of retention in the TCA consortium based on successive 3-month survivor rates. More than 70 percent of admissions stay 14 days. Of these, half remain 90 days, and of those that remain 90 days, 62 percent continue to 180 days. Approximately 68 percent of the 6-month survivors continue an additional 3 months, and 75 percent of the 9-month survivors stay through 12 months.*

SOURCE: De Leon 1985.

Although modest, these recent TC retention data are important. They suggest greater “holding” power in TCs that are now serving admissions who are predominantly cocaine/crack abusers compared with the early opiate admissions. This retention trend augurs favorably for the efficacy of the TC for cocaine abusers given the high correlation between time in program and success rates.

Why retention shows an increasing trend is less understood. However, informal surveys of TC program administrators and clinicians cite such factors as aging opiate addicts who appear to be accepting the necessity of remaining in treatment, the fear of relapse among cocaine/crack abusers, and improved managerial and administrative capability in TCs. A frequently reported interpretation underscores improved treatment based on clinical training and a broader staffing pattern that integrates traditional mental health with TC experience. These interpretations and impressions provide hypotheses for empirical investigation.

**Key Conclusion.** Overall retention in TCs is low but has been increasing in recent years. The period of highest dropout is the first 3 months of residential treatment, particularly the first 30 days. Thereafter, the longer clients remain in treatment the greater the likelihood of treatment completion. This pattern of retention is the same in other treatment modalities, although absolute levels of retention differ (e.g., higher for methadone maintenance).

The quantitative temporal pattern of retention findings agrees with clinical observations concerning critical transition points in treatment and has significant implications for research efforts to minimize early dropout. In particular, the “probability of staying” function highlights the importance of facilitating a clients adjustment through the early period of high vulnerability to dropout to significantly enhance an overall treatment impact.

### **Who Drops Out of Treatment?**

**Issues of Client Self-Selection and Matching.** Those who enter TCs may differ from those who do not, and those who remain in treatment may differ from those who leave prematurely. Thus, the relationship between successful outcome and retention could reflect client self-selection factors rather than treatment effects.

A related issue is client-treatment matching. Presumably, identification of client differences, with respect to appropriate treatments (or interventions), would reduce premature dropout and increase favorable outcomes. Both these issues have been investigated through prediction studies, which attempt to isolate the client correlates of outcome and retention.

**Predicting Treatment Outcomes.** The magnitude of predictive effects varies across studies and modalities. However, the main domains of client preadmission factors that have been studied contribute relatively little to posttreatment outcomes (Simpson and Sells 1982; De Leon 1985, 1986b). These consist of demography, baseline and lifetime drug and alcohol use variables, and family and juvenile histories. Severe criminality and psychiatric history are consistent but small contributors of poorer outcomes in TCs and in other modalities.

**Predicting Retention.** The collective set of client variables contribute little to the variance in TC treatment retention. Client retention correlates have been weak and sporadic, depending on the study. Again, however, severe criminality and psychopathology predict shorter retention (e.g., De Leon 1985, 1986b; De Leon et al. 1973; Foureman et al. 1981; Zuckerman et al. 1975).

Recent efforts have addressed the specific question of predicting early (30-day) retention because it has the highest dropout period. Little of the retention variance was explained in regression analyses. However, small but consistent predictors of early dropout were client perception factors, that is, their readiness and suitability for TC treatment (De Leon and Jainchill 1986). Notably, clients' initial estimates of how long they needed treatment were significantly correlated with their actual length of stay (De Leon 1988a; Siddiqui 1989).

**Other Predictors of Retention,** Legal referral or legal involvement (e.g., court cases pending) is the most consistent nonclient, nontreatment predictor of retention. (A fuller review of legal pressure factors in TCs is contained in De Leon 1988b.) Clients referred to TCs average significantly more days in treatment than do "voluntary admissions" (Aron and Daly 1976; Condelli 1986; De Leon 1988b; Hubbard et al. 1988; Sirotnik and Roffe 1977; Pompei and Resnick 1987; Samsome 1980; Siddiqui 1989).

Retention may be influenced by differences in program quality (e.g., staff composition and experience, program resources, administrative and management expertise). This is suggested in the TCA consortium studies indicating program differences in absolute level of retention. However, this hypothesis has not been tested directly in traditional TCs.

**Key Conclusion.** Overall, typical client profiles in relation to retention (or outcome) have not been delineated. Although some variables have consistently correlated with length of stay, their predictive power has not been large or corroborated in replicational designs. Nonclient correlates of TC retention are not apparent (with the exception of legal pressure), and program contributors to dropout are suggested but have not been specifically identified.

The research reviewed suggests that there are inherent statistical as well as substantive limits in prediction studies and in the variables that have been surveyed. Psychological, motivational, perceptual, and other “dynamic” variables appear more relevant to retention than do “fixed” variables such as demography, drug use patterns, and family background.

### **Why Do Clients Drop Out of TCs?**

This question refers to client-stated reasons for leaving treatment prematurely. Studies that directly survey reasons for dropout are few and understandably are of limited retrospective designs. These studies have included face-to-face interviews of dropouts 2 to 6 years after treatment (Wexler and De Leon 1983) and, more recently, telephone interviews with dropouts within 7 days of leaving treatment prematurely (i.e., “hot splits”) (De Leon et al. 1987).

**Results.** Various results have emerged from these studies. (1) Client reasons for dropout can be reliably classified into two overall categories: personal (e.g., want to get high, family, work pressures, do not need treatment, etc.) and program (cannot tolerate the regimen, do not like staff, need treatment for nondrug problems, etc). A smaller category consists of both personal and program reasons. (2) Overall, program and personal reasons are equally divided, but categories are significantly correlated with time in the program. For example, later dropouts more often state program reasons for leaving than do earlier dropouts. (3) Dropout is not necessarily precipitated by negative incidents. (4) Early dropouts (less than 30 days) more often view their drug problem as less serious than do later dropouts.

**Other Reasons for Dropout.** Related but indirect investigations of reasons for dropout have examined client satisfaction with treatment and their perceptions of the TC treatment environment (Bell 1983; Simpson 1986; Wexler and De Leon 1983; Siddall and Conway 1988). The findings from these indicate that (1) most dropouts and graduates attribute their reductions in drug use to treatment; (2) most indicate satisfaction with the treatment they received, although satisfaction levels directly increase with length of stay; and (3) perception of the TC treatment environment—Community-Oriented Programs Environmental Scales—changes with length of stay. Earlier dropout correlates with poorer program perception.

**Key Conclusion.** The few findings in this area must be viewed as preliminary, requiring replication in other TCs. Nevertheless, they agree with studies indicating the importance of client motivation, readiness, and suitability for treatment in understanding dropout. Moreover, client reasons for dropout offer considerations for how programs can improve retention.

## **How Can Dropout Be Reduced?**

Despite its importance, especially in light of the need to keep high-risk addicts in treatment, this question has been essentially unaddressed. There is some evidence that provides inferences about reducing dropout. For example, in methadone maintenance, higher retention has been related to client-specific maintenance dose (i.e., flexible dose policy), to clinics with generally better quality of services and staffing (Brown et al. 1983; Ball and Corty 1988), and to mandated family involvement (Sorenson et al. 1985).

One published study cites that family involvement in treatment in TCs correlates with retention (Siddall and Conway 1988), and an unpublished report states that residential services for female addicts with their children are related to longer stay in treatment (N. Arbiter, personal communication, 1989). Overall, however, there is virtually no research literature on experimental attempts to reduce dropout from drug treatment in general or in drug-free TCs in particular.

## **STUDY: REDUCING EARLY DROPOUT FROM TCs**

The above conclusion provided the general rationale for a large-scale investigation to enhance treatment retention. A recently completed National Institute on Drug Abuse-funded study examined the effects of three interventions on modifying early dropout from a TC with a rigorous experimental design (De Leon 1988a). Two experimental trials were conducted on successive yearly cohorts, although the report emphasizes the results of the initial trial.

### **Method**

**Study Cohort.** The study cohort consisted of all first-time admissions to residential treatment from January 1, 1985, to January 31, 1985 ( $N \pm 810$ ). They were primarily male (78.8 percent), black (55.1 percent), and older than 20 years of age (67.1 percent). Most (81.0 percent) had entered treatment voluntarily (not legally referred, on probation or parole, or otherwise legally involved). The cohort reflects a spectrum of drug abusers with pluralities among those claiming their primary drug to be cocaine (46.3 percent), heroin (25.6 percent), and marijuana (15.6 percent).<sup>1</sup>

In addition to substance abuse, psychological profiles revealed a considerable degree of depression, anxiety, prominence of personality disorder, and poor self-esteem. These profiles were essentially similar for the experimental and control groups within the cohort. Overall, the demographic and psychological

profiles of treatment admissions during the project period appear to be characteristic of drug abusers in general and of admissions to TCs in particular.

**Experimental Interventions.** Three different interventions were implemented separately for different monthly cohorts. The general objective of all three was to facilitate client adjustment to the TC in the early days of treatment. Although briefly summarized here, a fuller description of the specific rationale, goals, and protocol for each is contained in the full project report (De Leon 1988a).

**Senior professor (SP).** Four 1-1/2-hour seminars per week were provided by different senior staff persons through a 2-month experimental period. Seminars addressed TC philosophy and expectations and problems of staying in treatment. The experience of these senior staff members addressed the range of concerns and questions expressed by new admissions. The main objective of the SP was to facilitate role induction into the TC.

**Significant others (SO).** Two 2-hour sessions were provided to new admissions in the first 2 weeks to groups of significant others. In addition, SOs had one 30-minute session with the staff counselor at the treatment facility. Orientation for the family was provided by a research associate. The main objective of the SO was to strengthen the alliance between family and treatment.

**Individual counseling (IC).** Six 30- to 40-minute sessions were provided during the first 14 days of treatment with three additional sessions during days 14-28. Counseling was conducted by a trained research assistant and focused on issues of client advocacy (resolving “outside” problems—family, legal, health, children, etc.), adjustment problems (e.g., difficulties with peers, staff, the daily regimen, loneliness, etc.), and role conditioning (specific instructions to facilitate the clients understanding and acceptance of the TC). The main objective of IC was to reduce anxiety about treatment and strengthen commitment to change through individualized attention to client differences and needs.

**Design and Data Collection.** Data were collected on all consecutive treatment admissions through the 31 months of the project period. In-depth social and psychological client descriptions were obtained during the first week of admission through a face-to-face interview and a standard psychological test battery.

An experimental design was employed in which each intervention was sequentially implemented for a 2-month period (i.e., “on” months), preceded and followed by a 2-month period during which the interventions were not

implemented (i.e., “off months). Thus, the experimental group consisted of all admissions who received the interventions within the usual TC 30-day induction process, and the control group consisted of all treatment admissions who underwent the usual TC induction process only.

## **Main Findings**

Dropout rates for the experimental group were compared with those of the control group. Focus was on enhancing 30-day retention, because that is the period of highest dropout. However, the longer term retention effects (180, 365 days) of each intervention also were assessed.

**Early Dropout.** The 30-day retention rates for the total “on” experimental group (i.e., pooled interventions) were significantly higher than for the total “off control group (70.2 percent vs. 63.4 percent,  $p < .05$ ). The differential effects of each intervention at 30 days are not significant, except that retention under the SP condition was significantly higher than the control and the other intervention groups.

**Shifts In Retention.** Figure 6 presents data that further clarify the separate effects of the interventions. Thirty-day retention is plotted for successive 2-month segments across the cohort 1 experimental phase (January 1, 1985-January 31, 1986). A distinct change in retention occurs when interventions are introduced or removed, although two reversals are seen in the “off periods (following counseling and in the 2 months before the family intervention). Nevertheless, the consistent on/off changes in figure 6 display the effect of the interventions, particularly those of SO and SP.

**Longer Term Retention Effects.** These are less consistent. Each of the interventions shows higher retention than the controls, but only the pooled experimental and SP effects are statistically significant at 6 and 12 months. It appears that the brevity of the interventions, offered in the first 30 days only, resulted in a delayed dropout after 30 days. This reduced the impact at 6 and 12 months of the SO and IC interventions, although the SP effects remained significant throughout the year.

**Participation and Intervention Effects.** Within each intervention condition there is a positive association between short-term retention and attendance level (figures 7 and 8). In the SC condition clients with participant families showed significantly higher 30-day retention than the controls or the clients with nonparticipant families. In the IC and SP conditions, the number of sessions attended is significantly associated with higher short- and long-term retention.<sup>2</sup>

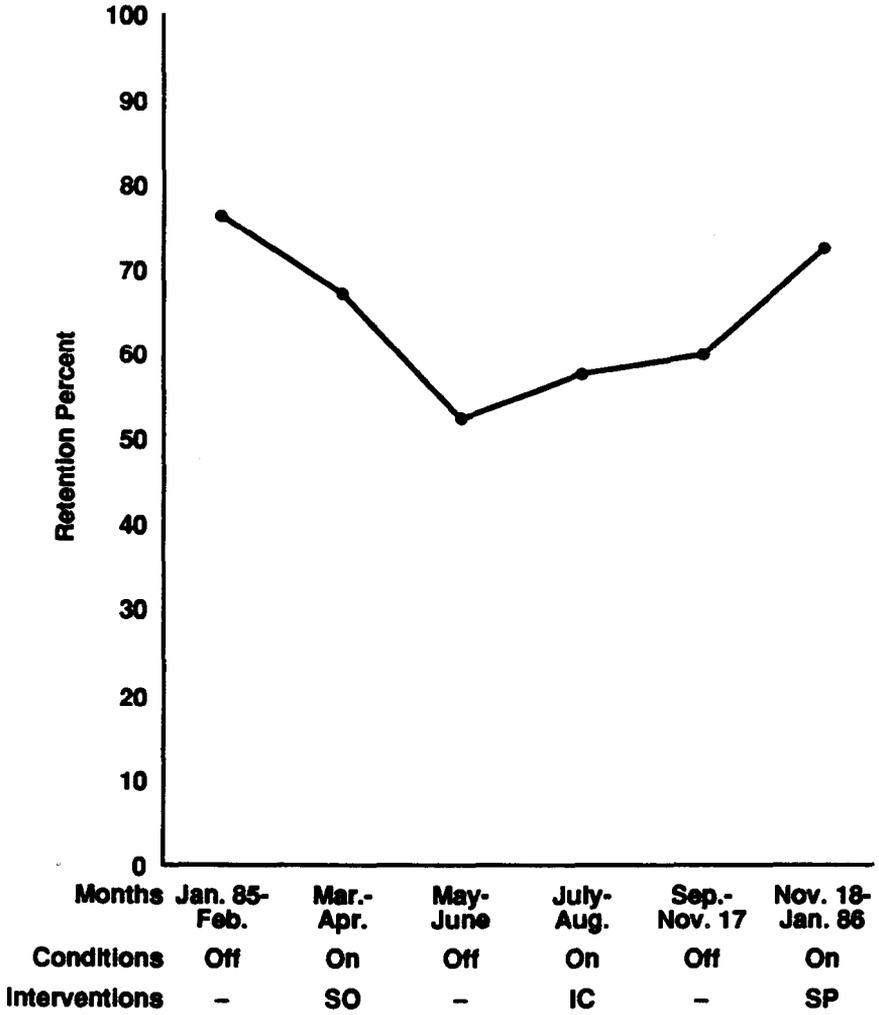


FIGURE 6. *Thirty-day retention in the experimental and control months of cohort 1*

SOURCE: De Leon 1988b.

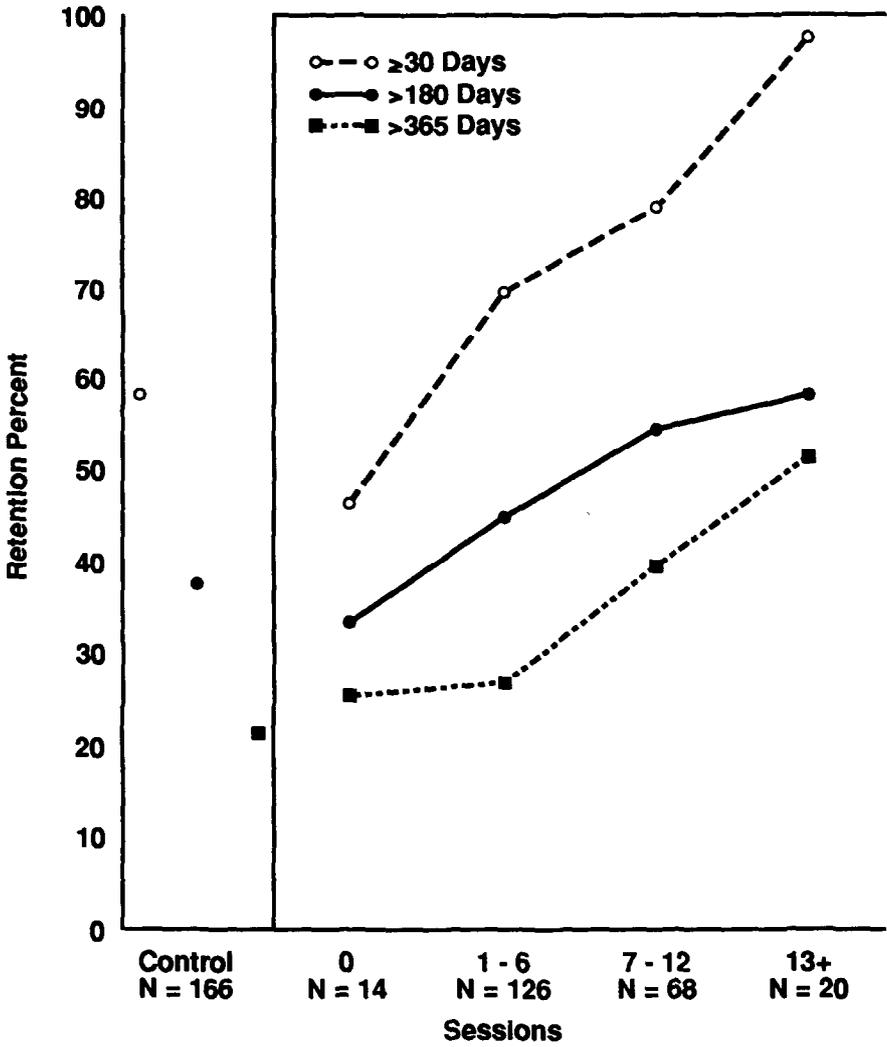


FIGURE 7. Retention by participation in the SP condition in cohort 1

SOURCE: De Leon 1988b.

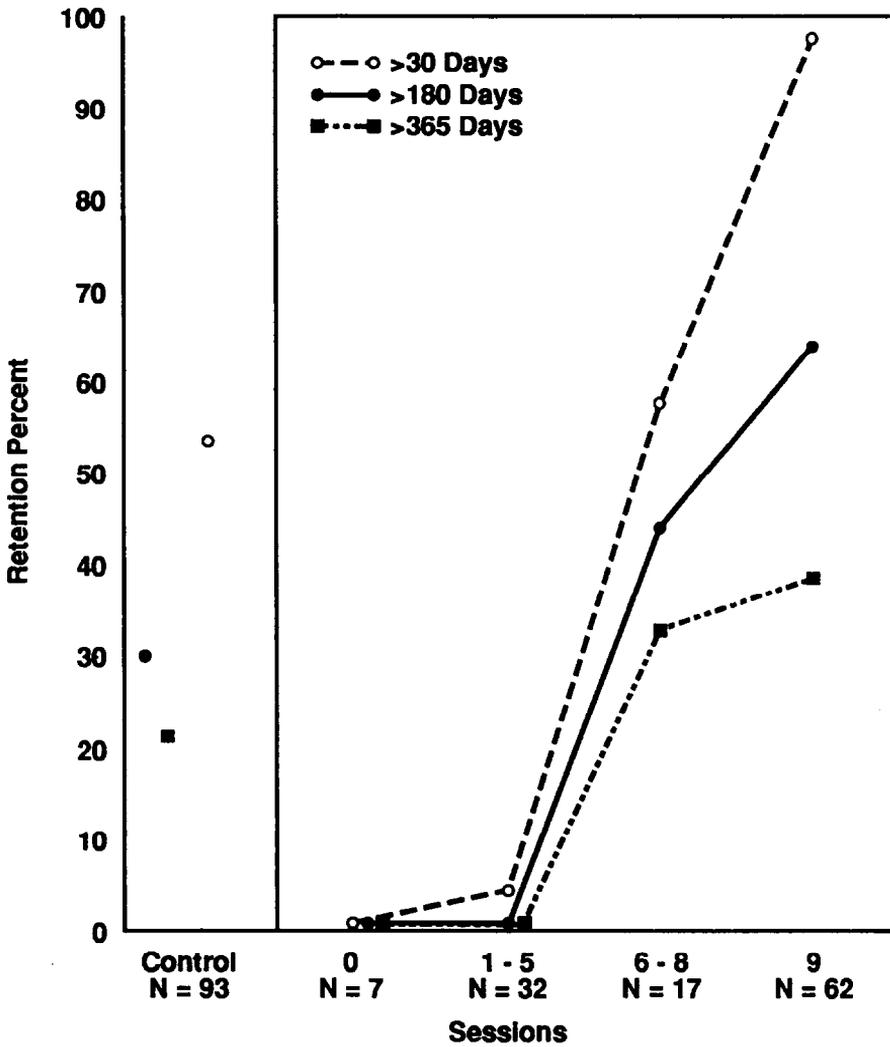


FIGURE 8. Retention by participation in the IC condition in cohort 1

SOURCE: De Leon 1988b.

**Predicting Dropout.** A second aim of the study was to ascertain whether the interventions differentially influenced certain clients to remain longer in treatment. Regression analyses examined the relationship between client factors and short- and long-term retention rates under each intervention.

In general, the regression equations were significant, but the variance accounted for by the model was small. There were no large client predictors of 30-day retention in the experimental or control conditions, and there were no large client predictors specific to each separate intervention. This pattern of regression findings was similar for predicting longer term retention. However, the magnitude of the multiple correlations were smaller than for 30-day retention.

Notably, client perception factors remained small but significant predictors of short- and long-term retention. These consisted of client self-reported scaled items of readiness and suitability for TC treatment and their time estimates of needed length of stay. Nevertheless, with all client contributors removed, the interventions remained a significant predictor set of 30-day, 6-month, and 1-year retention, particularly the SP condition.

**Replication.** A second experimental trial was carried out on 1986 admissions. The cohort 2 admission profile contained significantly more females, blacks, younger clients, cocaine abusers, and first-time and voluntary admissions. Some profile differences between the cohort 2 experimentals and controls were also evident, although discussion of these is beyond the purview of this chapter. The shifts in 30-day effects were striking (figure 9). The largest effect was obtained with IC, which yielded significantly higher 30-day retention rates compared with controls and the other two interventions. The longer term effects in cohort 2 were more unstable than in the initial trial. At 180 and 365 days, for example, retention rates between experimentals and controls were not significantly different.

Finally, the cohort 2 regression findings for 30-day retention also replicated those of cohort 1, although the variance explained for retention was less than that for cohort 1. The interventions were not consistent predictors of 6-month and 1-year retention.

## **Study Conclusions**

The interventions significantly reduced early dropout. The experimental effects were largest at 30 days and persisted through 365 days in the SP condition. Increased retention was positively associated with number of sessions in the IC

and SP conditions. The stability of the 30-day retention effects was replicated in a second trial of the experiment on a new admission cohort.

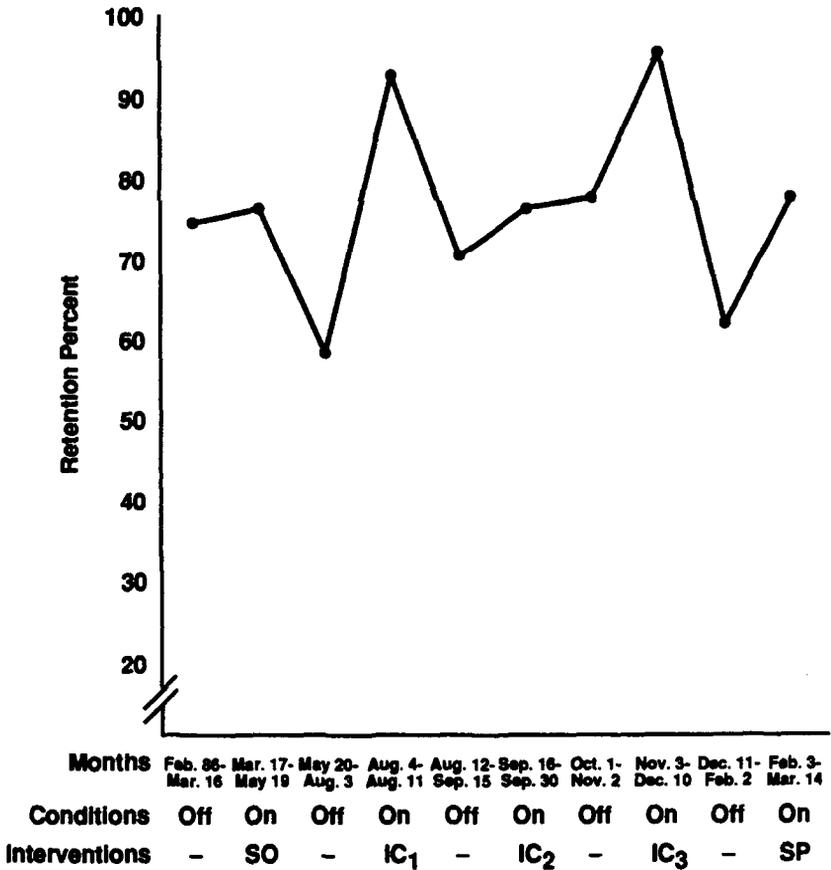


FIGURE 9. *Thirty-day retention in the experimental and control months of cohort 2*

SOURCE: De Leon 1988b.

That longer term retention effects were less consistent is not unexpected given the focus on brief interventions to modify early dropout. Nevertheless, the significant increase in 1-year retention for the SP group remains an impressive finding. In particular, the 30-day findings underscore the need for flexible program practices *after* the initial phase of treatment to offset delayed dropout and extend long-term retention.

Consistent with the TC literature, there was no typical client profile of dropout in any condition. Although modest, the regression results did emphasize the importance of client perceptions as correlates of retention. These variables must be considered in prediction and client-matching efforts, a conclusion further elaborated in the last section of this chapter.

## **RETENTION: BROADER IMPLICATIONS FOR IMPROVING DRUG ABUSE TREATMENT**

Though still developing, the existing knowledge base on retention in drug-free residential settings can guide efforts to improve treatment quality. This last section briefly outlines several broad implications for retention research and treatment planning: a perspective on retention, experimental considerations, methodological clarifications, and quality assurance.

### **Perspective on Retention**

A paradigm for the study of retention (and outcome) is more fully outlined in other writings (De Leon 1985, 1988a; De Leon and Jainchill 1986). Retention can be understood as a continuing interaction between client diversity and treatment (program) factors. Thus, a constant proportion of dropout is the rule when homogeneous program procedures are applied to a heterogeneous population of clients.<sup>3</sup> Client diversity, however, is more evident in dynamic variables (e.g., changing factors such as psychological improvement, motivation, perceptions of treatment need) rather than fixed variables (e.g., background drug use, criminality, demography).

The recovery process reflects dynamic client variables continually interacting with the treatment experience. For example, initially “low” motivation may result in a positive treatment “moment,” which in turn increases motivation to remain in treatment. Thus, the cumulative effects of client-treatment interaction result in a continually changing status of the client and a changing probability of dropout, which have practical implications for treatment and research.

**Assessment.** Spaced, periodic assessments of client change are needed to surface individual differences with respect to client suitability for treatment. In

the first month of treatment, for example, daily evaluations of client adjustment are needed to detect signs of early dropout. Thereafter, the frequency of assessment can be guided by the characteristic temporal pattern of retention.

**Prediction and Intervention Strategies.** The dynamic properties of the recovery process ensure that long-term prediction of retention (or outcome) may not be a logical or reasonable expectation. Not surprisingly, the prediction of program completion or posttreatment success is poor because these outcomes are points in the recovery process that generally depend on long-term treatment retention.

Thus, prediction strategies should be short term, based on client change measures rather than variables at a fixed point such as at admission. Intervention strategies should focus on identifying efforts that facilitate retention to the next stage in the recovery or treatment process.

### **Enhancing Retention In Treatment: Experimental Considerations**

Retention and treatment quality are interrelated. Improving treatment quality can extend retention, which in turn leads to better outcomes. Conversely, efforts to extend retention can directly affect treatment process and, thus, affect treatment quality. Clearly, more experimental study is needed to assess methods for enhancing treatment retention. However, the successful modification of early dropout reported offers general suggestions for retention research.

**Interventions Within TC Treatment.** Although effective in reducing early dropout, refinement of the interventions could produce even more impressive results. In particular, they may be adapted for use throughout primary treatment to facilitate the client's transition through various stages of the recovery process in TCs.

**Applications.** Although requiring replication in other TCs, the experimental findings are consonant with related studies in other modalities, highlighting the effects of psychotherapy and family participation on outcomes. Of special note, however, are the effects of the SP and IC interventions, which clearly have applicability to drug-free outpatient and methadone maintenance settings.

**Design.** The experimental design employed a successive cohort procedure (on/off). While adhering to strict experimental control requirements, this approach avoids the matching and random assignment problems that often have impeded treatment research. Thus, the design holds promise for retention research in particular and for studies of treatment process in general. It is

illumination of the latter that, in the last analysis, is necessary for improving drug treatment.

### **Some Methodological Clarifications for Retention Research**

There are several basic definitions and analytic strategies that could enhance the efficiency of retention research as well as improve assessments of treatment delivery. Some of these have been employed in TC retention investigations but have relevance for all modalities.

**Planned Duration of Stay (PDS).** Interpretation of dropout rates, or reciprocal retention, is seriously affected by program and modality differences in PDS. This parameter refers to the duration of treatment considered as optimal in producing treatment goals (e.g., successful outcomes). In long-term traditional TCs, for example, the PDS is 15 to 24 months, most of which is in residence.

Drug-free outpatient centers are less uniform or explicit concerning their recommended optimal stay. Methadone maintenance clinics generally view 1 to 2 years as the minimum required participation to stabilize treatment effects (e.g., elimination of illicit drug use). For most methadone clients, continued tenure in treatment is recommended to minimize relapse and maintain prosocial behavior.

The importance of the PDS is underscored further by the proliferation of shorter treatment strategies in both residential and outpatient settings. Many TCs, for example, have implemented short-term residential components to address special client populations (e.g., employed addicts, adolescents, and relapsed readmissions). Increasing numbers of outpatient clinics in both the public and private sectors have appeared in response to the cocaine/crack epidemic. Some include an outpatient modality with varying or vague recommended PDS.

Assessments of program quality or comparative effectiveness and cost-benefit evaluations across programs or modalities as measured through retention must consider the PDS. For example, 30-percent dropout rates from a 6-month outpatient program and an 18-month, long-term TC are as dissimilar as completion rates from 28-day programs and 90-day residential settings. Without factoring in the PDS, these retention comparisons are invidious.

**Retention Ratio (RR).** This measure attempts to quantitatively adjust for differences in the planned duration of treatment to facilitate direct and easy comparison of programs and modalities with respect to their retention capacity. The RR is a ratio of the actual average days in treatment (for a given admission cohort) to the PDS. The RR can vary from 0 to 1.00 providing a quick and

easy-to-interpret comparative value (e.g., across years or programs). For example, in all first quarter 1981 admissions to a large northeastern long-term TC, the mean days in treatment was 172.4 days, and the PDS was 720 days, yielding an RR of 0.24 multiplied by 100; this RR is 24 percent. For all 1979 admissions to a consortium of seven TCs, the RR was 0.15, or 15 percent. Estimates of the RR for drug-free outpatient and methadone maintenance centers, as well as short-term programs, would rigorously clarify the retention differences in these modalities.

**Retention Potential.** A commonly reported RR is based on the entry rates during the year of study. For example, in the CODAP statistical reports RRs reflected the percent of all 1979 admissions still in treatment at the end of 1979. This gross measure overestimates retention because it ignores the shorter period of risk for dropout among admissions to treatment during the later months of the year studied. An analogous problem is evident in followup studies, which often do not adjust for client differences in time out of program or period at risk.

The retention potential is a term that represents the explicit period of observation during which an admission cohort is at risk to drop out of treatment. For example, to determine the correct 10-month retention rates for the 1979 admission cohort shown in figures 3 and 4, the cutoff date of observation had to be 10 months after the last entry in 1979. Thus, 6-month or 1-year RRs which are comparable across studies, requires a fixed minimum period for all admissions during which they are at equal time risk to drop out (e.g., 6 months or 12 months after each individual admission date).

**Survivor Rates.** This term has been used mainly to reflect the number or proportion of *all* admissions who remain in treatment for specific periods. More precise estimates of when dropouts leave are obtained if rates are calculated on a base that excludes those who have already left treatment. These yield RRs for individuals who are still in treatment and therefore available to drop out. As shown in figure 5 this corrected survivor rate provides a quantitative measure of the likelihood or probability of remaining in treatment.

**Wayside Rate (WR).** Although not strictly a retention measure, this statistic has been calculated in recently completed TC research. It is the percentage of those accepted for treatment who actually fail to enter treatment (i.e., those who get lost along the way to treatment). Estimated at 25 percent of all accepted admissions, the WR is of obvious importance in determining program service activity. Considerable front-end costs are involved with admission evaluations, which are often not reimbursed to programs if clients fail to enter treatment.

The WR also may reflect client selection factors because it highlights possible differences in those who accept and actually enter treatment.

Currently, the WR is of considerable relevance to the issue of waiting lists and barriers to treatment. Reduction in the WR would clearly reflect improvement in program quality. Although factors influencing the WR remain to be empirically clarified, it is reasonable to assume that shorter delays in the treatment entry process could lower the WR.

### **Quality Assurance and Retention**

Quality assurance implies efforts to both monitor and improve drug treatment. Two key elements that underscore the relationship between retention and quality assurance are program validity and training.

**Program Validity Effectiveness and Retention.** Treatment programs are valid when they deliver the services that they promise to deliver, and a program is effective if it achieves treatment objectives. Although not necessarily causally related, program process effectiveness and validity are highly correlated because valid programs are more likely to initiate effective treatment. To a considerable extent, retention reflects the fidelity with which treatment programs implement their services and interventions. Therefore, retention is highly related to program validity and quality assurance. Valid programs are accountable, and accountability (to assess quality assurance) methods can detect the program, staffing, and client factors that influence retention.

**Training and Retention.** Training is essential to ensure proper implementation of program protocol. For TCs in particular, staffing factors are fundamental to program validity and therefore indirectly influence retention in treatment. Although not sufficiently documented by research, these factors include unity, morale, dedication, and (as suggested in the SP findings) experience and credibility. Thus, ongoing training is necessary for upgrading skills and sustaining staff motivation.

Moreover, current TC staff composition is changing, which results in a broader mix of traditional mental health and human services professionals and nontraditional recovered professionals. Integration of these staff differences is crucial to maintain consistency in clinical and management practice, which are factors that contribute to improving retention. This requires an intensive training to orient all personnel to the perspective, model, and method.

## NOTES

1. The study focused on first-time admissions data (i.e., first-time entries to the program during the project period). Approximately 16 percent of all admissions were multiple entries during the project period. Readmissions data were excluded from the main analyses to minimize the variance arising from previous treatment in intervention and nonintervention periods. However, for the first-time admissions, the contribution of previous treatment before the project period in the study program or any drug treatment modality is assessed in the regression analyses reported in later Papers.
2. A caveat in the participation analysis is that the number of sessions attended in the SP and IC conditions was confounded with days in treatment. Nevertheless, with time dependency controlled (i.e., the 6-month and 12-month RRs based on 30-day survivors only), a positive correlation between attendance and 12-month retention approaches significance in the IC and SP conditions.
3. Nontreatment factors may be relevant to retention (e.g., legal, economic, and family pressures; the community climate of acceptance of drug use). However, the effect of these on treatment entry and retention also depends on client perceptions.

## REFERENCES

- Allison, M., and Hubbard, R.L. Drug abuse treatment process: A review of the literature. *Int J Addict* 20:1321-1345, 1985.
- Aron, W.S., and Daily, D.W. Graduates and splitees from therapeutic treatment programs: A comparison. *Int J Addict* 11:1-18, 1976.
- Baekland, F., and Lundwall, L. Dropping out of treatment: A critical review. *Psychol Bull* 82:738-783, 1975.
- Ball, J., and Corty, E. Basic issues pertaining to the effectiveness of methadone maintenance treatment. In: Leukefeld, C.G., and Tims F.M., eds. *Compulsory Treatment of Drug Abuse*. National Institute for Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)89-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988.
- Bell, M. The perceived social environment of a therapeutic community for drug abusers. *Int Ther Communities* 4(4):262-270, 1983.
- Brown, B.; Watters, J.K.; Iglehart, A.S.; and Aikins, C. Methadone maintenance dosage levels and program retention. *Am J Alcohol Drug Abuse* 9(2):129-139, 1983.

- Collins, J.J., and Allison, M. Legal coercion and treatment for drug abuse. *Hosp Community Psychiatry* 34:1145-1149, 1983.
- Condelli, W. Client evaluations of therapeutic communities and retention. In: De Leon, G., and Ziegenfuss, J., eds. *Therapeutic Communities for Addictions: Readings in Theory, Research, and Practice*. Springfield, IL: Charles C. Thomas, 1966. pp. 131-140.
- De Leon, G. The therapeutic community: Status and evolution. *Int J Addict* 20(6,7):823-844, 1985.
- De Leon, G. The therapeutic community for substance abuse: Perspective and approach. In: De Leon, G., and Ziegenfuss, J., eds. *Therapeutic Communities for Addictions: Readings in Theory, Research, and Practice*. Springfield, IL: Charles C. Thomas, 1986a. pp. 5-18.
- De Leon, G. "Socio-Demographic Predictors of Outcomes in Drug Abuse Treatment: Implications for Client-Treatment Matching." Paper presented to the National Institute on Drug Abuse Technical Review Meeting, Rockville, MD, 1986b.
- De Leon, G. *The Therapeutic Community: Enhancing Retention in Treatment. Final Report of Project Activities*. National Institute on Drug Abuse grant number R01-DAO-3617, 1988a.
- De Leon, G. Legal pressure in therapeutic communities. In: Leukefeld, C.G., and Tims, P.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)89-1578. Rockville, MD: Supt. of Docs., U.S. Govt. Print. Off., 1988b.
- De Leon, G., and Jainchill, N. Circumstances, motivation, readiness, and suitability (CMRS) as correlates of treatment tenure. *J Psychoactive Drugs* 8(3):203-208, 1986.
- De Leon, G.; Ortiz, A.; and Jainchill, N. *The Therapeutic Community: Enhancing Retention and Treatment. Report of Year-One Activities*. National Institute on Drug Abuse grant number R01-DA-03617, 1987.
- De Leon, G., and Rosenthal, M.S. Treatment in residential communities. In: Karasu, T.B., ed. *Treatments of Psychiatric Disorders*. Vol. II. Washington, DC: American Psychiatric Press, 1989.
- De Leon, G., and Schwartz S. The therapeutic community: What are the retention rates? *Am J Drug Alcohol Abuse* 10(2):267-284, 1964.
- De Leon, G.; Skodol, A.; and Rosenthal, M.S. The Phoenix Therapeutic Community for drug addicts: Changes in psychopathological signs. *Arch Gen Psychiatry* 28:131-135, 1973.
- De Leon, G.; Wexler, H.K.; Schwartz, S.; and Jainchill, J. "Therapeutic Communities for Drug Abusers: Studies of the Treatment Environment." Paper presented to the American Psychological Association, Toronto, Canada, 1980.

- Foureman, L.P.; Parks, R.; and Gardin, H. The MMPI as a predictor of retention in a therapeutic community for heroin addicts. *Int J Addict* 16:893-903, 1981.
- Hubbard, R.L.; Collins, J.J.; Rachal, J.V.; and Cavanaugh, E.R. The criminal justice client in drug abuse treatment. In: Leukefeld, C.G., and Tims F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)89-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988.
- Hubbard, R.L.; Rachal, J.V.; Craddock, S.G.; and Cavanaugh, E.R. Treatment Outcome Prospective Study (TOPS): Client characteristics and behaviors before, during, and after treatment. In: Ludford, J.P., and Tims, F.M., eds. *Drug Abuse Treatment Evaluation: Strategies, Progress, and Prospects*. National Institute on Drug Abuse Research Monograph 51. DHHS Pub. No. (ADM)84-1329. Rockville, MD: Supt. of Docs., U.S. Govt. Print. Off., 1984.
- Pompi, K.S., and Resnick, J. Retention in a therapeutic community for court-referred adolescents and young adults. *Am J Drug Alcohol Abuse* 13(3):309-325, 1987.
- Rounsaville, B.J., and Kleber, H.D. Psychotherapy for opiate addicts: Strategies for use in different treatment settings. *Int J Addict* 20(6,7):869-896, 1985.
- Samsome, J. Retention patterns in a therapeutic community for the treatment of drug abuse. *Int J Addict* 15:711-736, 1980.
- Sheffet, A.M.; Quinones, M.A.; Doyle, K.M.; Lavenhar, M.A.; El Nakah, A.; and Louria, D.B. Assessments of treatment outcomes in a drug abuse rehabilitation network: Newark, NJ. *Am J Drug Alcohol Abuse* 7(2):141-177, 1980.
- Siddall, J.W., and Conway, G.L. Interactional variables associated with retention and success in residential drug treatment. *Int J Addict* 23(12):1241-1254.1988.
- Siddiqui, Q. "The Relative Effects of Extrinsic and Intrinsic Pressure on Retention in Treatment." Unpublished Ph.D. dissertation, City University of New York, New York, 1989.
- Simpson, D.D. 12-year followup: Outcomes of opioid addicts treated in therapeutic communities. In: De Leon, G., and Ziegenfuss, J., eds. *Therapeutic Communities for Addictions: Readings in Theory, Research, and Practice*. Springfield, IL: Charles C. Thomas, 1986. pp. 109-120.
- Simpson, D.D., and Sells, S.B. Effectiveness of treatment for drug abuse: An overview of the DARP research program. *Adv Alcohol Subst Abuse* 2(1):7-29, 1982.
- Sirotnik, K., and Roffe, M. An investigation of the feasibility of prediction outcome indices in the treatment of heroin addiction. *Int J Addict* 12:755-775, 1977.

- Sorenson, J.L.; Gibson, D.; Bernal, G.; and Deitch, D. Methadone applicant dropouts: Impact of requiring involvement of friends and family in treatment. *Int J Addict* 20(1):1273-1280, 1965.
- TCA Rapid Feedback Series*. Therapeutic Communities of America, Division of Research and Training 1, No. 1, New York, 1988.
- Wexler, H.K., and De Leon, G. "Perceived Quality of Adjustment 5 Years After Therapeutic Community Treatment." Paper presented to American Psychological Association, Anaheim, CA, 1983.
- Zuckerman, M.; Sola, S.; Masterson, J.; and Angelone, J.V. MMPI patterns in drug abusers before and after treatment in therapeutic communities. *J Consult Clin Psychol* 43(3):286-296, 1975.

## **ACKNOWLEDGMENT**

Preparation of this chapter was supported by the National Institute on Drug Abuse grant R01-DA0-3617.

## **AUTHOR**

George De Leon, Ph.D.  
Director  
Research and Training  
Therapeutic Communities of America  
1010 Fifth Avenue  
New York, NY 10028

# **Using Methadone Effectively: Achieving Goals by Application of Laboratory, Clinical, and Evaluation Research and by Development of Innovative Programs**

*Mary Jeanne Kreek*

Since the initial studies performed at The Rockefeller University in 1964 and the early extension of these studies to actual treatment procedures, methadone maintenance treatment for chronic heroin addiction has been used to manage more than 150,000 "hard-core" heroin addicts (defined as heroin abusers with more than 1 year of multiple, daily, self-administered doses of illicit heroin, with the development of tolerance, physical dependence, and drug-seeking behavior or addiction) (Dole et al. 1966; Kreek 1973a, 1973b, 1987a; Cooper et al. 1983; Novick et al. 1986; Gunne and Gronbladh 1984; Blix 1988; Corty and Ball 1987; Ball and Corty 1988; Ball et al. 1988a, 1988b).

Methadone maintenance treatment has been documented by prospective studies initiated in 1964 and by numerous other prospective and retrospective studies to be medically safe and very effective in achieving its targeted primary treatment goal, that is, significant reduction or cessation of illicit narcotic (opiate, usually heroin) use. As a result of the effectiveness of methadone maintenance treatment in significantly reducing or eliminating illicit and regular use of heroin and other short-acting narcotics and thus reducing or eliminating the regular use of potentially contaminated needles and other equipment used in the self-administration of drugs, such treatment also has been successful in significantly reducing the medical problems and antisocial behaviors associated with the procurement and self-administration of illicit drugs. Effective methadone maintenance treatment has resulted in the reduced incidence of new cases of infectious diseases transmitted by use of contaminated needles, such as hepatitis B, hepatitis delta, and human immunodeficiency virus (HIV) infection (Dole et al. 1966; Kreek 1973a, 1973b, 1987a; Cooper et al. 1983; Novick et al.

1986; Gunne and Gronbladh 1984; Blix 1988; Corty and Ball 1987; Ball and Corty 1988; Ball et al. 1988a, 1988b).

Effective methadone maintenance treatment, delivered by good programs that usually have a broad-based, knowledgeable, and caring staff, has resulted in fewer criminal acts by those in treatment and therefore in significant reductions in numbers of arrests and imprisonments. Effective treatment also has resulted in an increase of social adjustment and productivity of patients (e.g., employment, education, and homemaking).

Methadone is an orally effective synthetic opioid that is long acting in humans, with a plasma half-life of more than 24 hours for the racemic compound used in therapeutics and a half-life of approximately 48 hours for the active 1 (R) enantiomer. Thus, methadone may be administered once a day to prevent opiate withdrawal symptoms as well as "drug hunger" for 24 to 36 hours, and when administered to tolerant patients, it causes no euphoria or sedation (Kreek 1973c; Dole and Kreek 1973; Kreek et al. 1976a, 1979, 1980, 1983; Hachey et al. 1977; Nakamura et al. 1982; Pond et al. 1985). This is in contrast to heroin, which is a short-acting narcotic with a plasma half-life in humans of 1 to 2 hours and a plasma half-life for its major metabolite morphine of 4 to 6 hours. Thus, heroin must be self-administered several times each day, either to produce the desired euphoric "high" effects or to prevent narcotic withdrawal symptoms. Whereas methadone is orally effective, heroin is not; thus, heroin must be administered parenterally, usually using needles and other injection equipment that may be contaminated because of needle-sharing.

Recent studies have shown that the long-acting properties of methadone in humans, with the resultant steady-state plasma levels achieved during regular use once each day and steady-state perfusion of opiate receptors (the binding sites of opiate drugs as well as the endogenous opioids, or so-called endorphins, which then results in opiate-like actions), result in normalization of many functions of human physiology that may be profoundly altered by acute or chronic use of short-acting narcotics such as heroin. This includes normalization of the neuroendocrine function, including the timing of hormone release and the levels of hormones of the hypothalamic-pituitary-adrenal axis and the hypothalamic-pituitary-gonadal axis, which are important in the normal responses to stress and reproductive behavior, respectively, and also normalization of many indices of immunological function and normalization of behaviors (Kreek 1973a, 1973b, 1978, 1987a, 1987b, 1988; Kreek et al. 1972, 1981, 1984; Kosten et al. 1987; Novick et al. 1989).

Long-term methadone maintenance treatment is accepted voluntarily by a high proportion of "street" heroin addicts, with an estimated 40 to 60 percent of

addicts accepting methadone treatment. Voluntary retention rates in methadone maintenance of 2 years or more range from 45 to 85 percent in different clinics (Dole et al. 1966; Kreek 1987a; Blix 1988; Corty and Ball 1987; Ball and Corty 1988; Ball et al. 1988a, 1988b). However, long waiting lists, ranging from 1 month to 1 year, now exist for entry into some methadone maintenance treatment programs, especially those in crowded urban settings and those in remote areas. Because of social, behavioral, and medical problems and polydrug abuse problems (including alcohol and cocaine abuse, which frequently accompany heroin addiction at this time), methadone maintenance treatment programs that have an enlightened, knowledgeable, expert, and caring staff that can offer counseling, behavioral, and rehabilitative services and primary medical care and that have a staff that includes one or more ex-addicts successfully in treatment are the most effective in achieving both the primary goal of methadone maintenance treatment (figure 1). The primary goal is (1) the cessation of illicit narcotic use, and the secondary goals of treatment include (2) reduction or elimination of other drug or alcohol abuse, (3) decreased exposure to diseases spread by use of unsterile equipment, (4) a decrease in antisocial behaviors and criminality of all types, and (5) an increase in socialization and productivity and improvement in general health status (figure 1). As stated by Drs. Vincent P. Dole and Marie E. Nyswander in 1967, 3 years after the initiation at The Rockefeller University of research on the use of methadone in chronic treatment of heroin addiction, "A pharmacological cure is no more than a beginning. To become a productive and responsible member of society, the ex-addict needs help from someone who understands the nature of his struggle" (Dole and Nyswander 1967). (See also Blix 1988; Corty and Ball 1987; Ball et al. 1988a, 1988b; Nyswander 1967; Dole and Joseph 1978; Dole and Nyswander 1976; Dole et al. 1982.)

### **Primary Goal**

- 1a. Significant reduction or cessation of illicit narcotic (opiate; heroin) use (specific pharmacological effect of methadone).
- 1 b. Related goal of voluntary retention in treatment for 1 year, 2 years, or more.

### **Secondary Goals**

2. Significant reduction or cessation of cocaine, alcohol, and polydrug abuse (nonspecific treatment program effect).

3. Significant reduction of exposure to and infection with diseases transmitted by use of unsterile injection equipment used in parenteral drug abuse, such as hepatitis B, hepatitis delta, and HIV infections.
4. Significant reduction in criminality and in antisocial behaviors and, therefore, reduction in arrests and imprisonments.
5. Significant improvement in socialization and productivity, including employment, resumption of education, and homemaking.

**FIGURE 1.** *Goals of methadone maintenance treatment*

In the early years of methadone maintenance treatment for heroin addiction and related treatment research, the treatment goals envisioned by many treatment programs, their staffs the patients, and policymakers was the ultimate “detoxification” or dose reduction and elimination of the pharmacological treatment with methadone. However, several different long-term prospective and retrospective studies have shown that a high percentage of former methadone-maintained patients will demonstrate recidivism or relapse to illicit narcotic (opiate, usually heroin) drug use after a relatively short opioid-free interval (Cooper et al. 1983; Stimmel and Kreek 1975; Rounsaville et al. 1987; Cushman and Dole 1973; Stimmel and Rabin 1974; Stimmel et al. 1974; Dole and Joseph 1977; Des Jarlais et al. 1983; Des Jarlais and Joseph 1981; Senay 1985). Between 70 and 80 percent of former methadone-maintained patients return to illicit narcotic use within 1 to 2 years after leaving methadone maintenance treatment, according to several studies. This relapse may be preceded or accompanied by increased abuse of alcohol as well as other drugs. Thus, clinical experts in the area of treatment of chemical dependency, especially those involved specifically in the treatment of opiate addiction, along with scientists and epidemiologists working in this area, are arriving at a consensus that the most effective treatment for chronic heroin addiction is long-term methadone maintenance treatment for an indefinite period, which may be essential for the majority, though certainly not all, of such patients. Also, there is considerable research evidence that increasing the total length of time in treatment, including from later time points ranging from 1 year to more than 5 years, results in progressive improvement in all primary and secondary goals of treatment of narcotic addiction (Blix 1988; Corty and Ball 1987; Ball and Corty 1988; Ball et al. 1988a, 1988b; Dole and Nyswander 1967).

However, it is also the consensus that until and unless similarly effective (and similarly specific) pharmacological treatment approaches become available for other types of chemical dependencies—such as alcoholism and cocaine abuse,

which affect up to 40 to 50 percent and 70 to 90 percent, respectively, of all street heroin addicts at this time, and thus, all new entrants into methadone maintenance treatment—drug-free, behavioral, 12-step-oriented, and/or psychosocial approaches to the management of these additional problems must be combined with the effective chemotherapy of methadone maintenance for narcotic addiction in patients with these dual or multiple chemical dependency problems (Dole 1988). Inpatient or residential treatment may be essential for the most severely dually addicted alcohol-abusing or cocaine-abusing active or former heroin addicts, first to be able to completely detoxify them from alcohol or cocaine and then to initiate abstinence-based treatment for the second addiction along with methadone treatment for the heroin addiction. This should occur in a setting removed from the stresses of everyday life of each addict and away from specific drug cues, both of which may aggravate, increase, or cause a recrudescence of drug-craving for alcohol or cocaine. Also, it is increasingly appreciated that medical and psychological as well as social and rehabilitative efforts must be combined with chemotherapy and that such combined treatment must be individualized—that is, treatment must be delivered on an individual patient basis—if the secondary goals of treatment are to be achieved by effectively addressing problems related to heroin addiction.

Former heroin addicts in chronic methadone maintenance treatment who have achieved success in the primary and secondary goals of treatment and who therefore no longer require or further benefit from counseling, rehabilitation, and psychosocial services have been shown to benefit from continued chemotherapy in a conventional general medical setting such as that used for the treatment of any chronic disease. This setting combines general medical care with pharmacological treatment of using methadone addictive disease (Novick et al. 1988a. 1988b). Such a “medical maintenance approach” in the future could provide additional and needed treatment resources for new patients entering methadone maintenance treatment for illicit heroin addiction and for patients who have continuing general or specific needs.

The efficacy of chronic treatment for heroin addiction using methadone, including the most common available form at this time, “chronic methadone maintenance treatment,” which does not imply or guarantee uniform quality or spectrum of services, must be judged in terms of the goals that are realistic for methadone treatment. There is a single primary goal for methadone maintenance treatment—the cessation of illicit narcotic use; however, significant retention in treatment is essential if this primary goal is to be achieved. Therefore, a related essential goal is to retain patients in treatment for periods sufficient to achieve the primary goal. This is best measured as voluntary retention in treatment minimally for 1 year or preferably for 2 years or more. Secondary goals of methadone maintenance treatment include the reduction or

cessation of cocaine, alcohol, and polydrug abuse during methadone maintenance treatment; reduction of exposure to and infection with diseases transmitted by use of unsterile injection equipment during parenteral drug abuse and by exposures related to increased risk behaviors during drug abuse in general; reduction in antisocial behaviors and criminality and, therefore, reduction in arrests and imprisonments; and increase in socialization and productivity (figures 1 and 2).

### **Primary Goal**

- 1a. Significant reduction or cessation of illicit narcotic (opiate; heroin) use (specific pharmacological effect of methadone). “Best” programs: Continued any heroin use  $\leq$  15 percent.
- 1b. Related goal of voluntary retention in treatment for 1 year, 2 years, or more. “Best” programs: Voluntary retention  $\geq$  2 years > 65 percent.

### **Secondary Goals**

2. Significant reduction or cessation of cocaine, alcohol, and polydrug abuse (nonspecific treatment program effect). “Best” programs: e.g., *cocaine*—30 to 40 percent reduction in numbers of chronic abusers—and *alcohol*—20 to 30 percent reduction in numbers of chronic abusers.
3. Significant reduction of exposure to and infection with diseases transmitted by use of unsterile injection equipment used in parenteral drug abuse, such as hepatitis B, hepatitis delta, and HIV infections. “Best” programs: e.g., HIV < 10 percent anti-HIV-1 positive *if* entered in programs before HIV epidemic as compared with  $\geq$  50 percent of those using drugs parenterally during epidemic.
4. Significant reduction in criminality and in antisocial behaviors and, therefore, reduction in arrests and imprisonments. “Best” programs: > 70 percent reduction in criminal acts and in arrests.
5. Significant improvement in socialization and productivity, including employment, resumption of education, and homemaking. “Best” programs: > 60 percent improvement in productivity.

**FIGURE 2.** *Maximum levels of achievement of goals of methadone maintenance treatment*

The effectiveness of methadone in achieving these goals has been studied in numerous different prospective and retrospective research efforts carried out over the past 25 years and in many less elaborate evaluation procedures (figure 2). However, continued consideration of these goals will be essential in the context of remodeling or altering the structure of existing programs or in the development of innovative programs. Also, similar or parallel well-defined goals should form the basis of evaluations carried out to determine the extent of achievement of these goals when any other drug, such as cocaine or alcohol, is the primary drug abused and when treatment is focused on this problem. Defined goals should be considered, and accountability with respect to achievement or failure to achieve these goals should be ensured by mandatory evaluation of all drug treatment programs, including all types of pharmacological programs using methadone or any other pharmacological agent (e.g., LAAM, buprenorphine, the opiate antagonist naltrexone, or any of the pharmacological agents currently under study for possible use in treating cocaine dependency). Similarly, the same articulated goals, as well as accountability, assessed by ongoing mandatory evaluation should apply to all drug-free residential or outpatient programs, 12-step-based programs, and any other programs for which any type of private, Federal, State, or municipal funding is required or for which any scientific, clinical, or sociological impact claim is to be publicly made.

As a corollary to this, it is essential that all mandatory evaluation efforts use similar tools in such followup assessments. Of greatest importance in this context is the need for equivalent application of the use of urine monitoring as part of the short-term and long-term evaluation of drug abuse treatment of all types, including all pharmacological and nonpharmacological treatments. Although some clinicians will correctly argue that careful history-taking can reveal any changes in patterns of drug abuse or a lapse in the goal to remain abstinent from illicit use of drugs, nevertheless, it is important both for that clinician and other members of the clinic staff, as well as especially for the patient and for society, to document such abstinence. Therefore, a similar mandatory schedule for urine monitoring at different stages of treatment should apply equally to all pharmacological and nonpharmacological drug abuse treatment programs. Otherwise, accountability is lacking and data remain incomplete, a major problem that pertains today in assessments of all types of drug abuse treatment programs other than those using methadone. Unless such equivalent evaluations of diverse treatment are mandated, the potential for providing the optimal care for each patient and for understanding the potential needs for groups of patients with different clinical, social, and economical characteristics will remain unknown. The cost of the failure to evaluate all drug abuse treatment programs, for each individual patient and for society, will remain unacceptable.

Finally, in a serious consideration of improving the effectiveness of methadone maintenance treatment, it is important to consider how effective chronic methadone maintenance treatment has been shown already to be in those "good" or "best" programs, with knowledgeable and caring staff members and where general comprehensive and a broad spectrum of services are available (usually including counseling and social work efforts) but with or without any onsite or direct access to comprehensive medical and psychiatric care and with or without any significant in-depth onsite rehabilitation programs.

In looking at the primary goal of methadone maintenance treatment, for instance, it has been shown in several studies that less than 15 percent (and in other studies less than 10 percent) of heroin addicts stabilized on methadone maintenance treatment continue to use heroin (figure 2). It should be underscored, however, that three separate factors have been shown to positively correlate with such success of methadone maintenance treatment. First, such good results are seen in programs where there is a staff that is knowledgeable and caring and that can offer a broad spectrum of services. Second, such good outcomes have been noted in those programs where there is a continuity of leadership, either by the medical director or by an administrator of the clinic, thus allowing staff stability and continuity of individual patient care. Third, and possibly most important, there has been such a good outcome in achieving the primary goal when adequate doses of methadone have been used. When the doses of methadone used in stabilized chronic treatment have been between 60 and 100 mg a day, a recent study has shown that less than 15 percent of patients will continue to use heroin. Other studies have shown that an even lower percentage of methadone-maintained patients will continue to use heroin in that setting.

Conversely, the same recent study found that when less than 35 mg of methadone per day is used, a high percentage of up to 50 percent or more of patients may use heroin on an illicit basis (Blix 1988; Carty and Ball 1987; Ball and Carty 1988; Ball et al. 1988a, 1988b; Tong et al. 1981). Also of great importance is that many research studies have shown that the methadone dose must be held stable during chronic treatment and not be used in any type of "contingency contracting" or otherwise purposely or capriciously increased or decreased. Dose changes should be made after careful clinical consideration using medical and scientific information and not be used to "reward" or "punish." A stabilized dose, which results in stabilized plasma levels and receptor levels of methadone, appears to be crucial for the normalization of the heroin-induced disruption of many physiological functions. Any disruption in such stabilized plasma levels, which can provide steady-state profusion at receptor sites of action, can lead to a return of drug hunger and drug-seeking behavior (Kreek 1973c; Dole and Kreek 1973; Kreek et al. 1976a, 1976b, 1979, 1980, 1983a; Hachey et al. 1977; Nakamura et al. 1982).

With respect to the secondary goals, which cannot be considered to be directly responsive to methadone as a pharmacological agent but which may be achieved by the therapeutic milieu of a well-established effective methadone maintenance treatment program of one type or another, varying results have been obtained. An extremely important secondary goal, that is, reducing alcohol abuse, cocaine abuse, and polydrug abuse, has been addressed in many studies with many different results forthcoming to date. With respect to alcohol abuse, early studies showed that from 25 to 50 percent of heroin addicts entering methadone maintenance treatment programs were alcohol abusers (figure 3). These studies also showed that there was only a modest improvement in alcohol abuse during methadone maintenance treatment, as measured by the number of persons who decreased or stopped alcohol abuse during chronic methadone treatment (figure 2). At the same time, these studies also have shown clearly that there was no significant increase in the number of persons who initiated alcohol abuse in the setting of methadone maintenance treatment. However, with the exception of those programs that rigorously addressed alcohol abuse problems, continuing alcohol abuse was shown to occur (Beverly et al. 1980; Hartman et al. 1983). This is one of the areas singled out in 1979 and now again in 1989 where special treatment programs might be effective in further reducing the alcohol abuse problems (Beverly et al. 1980; Hartman et al. 1983). Similarly, there have been variable reports as to the reduction or lack thereof of polydrug abuse during methadone maintenance treatment.

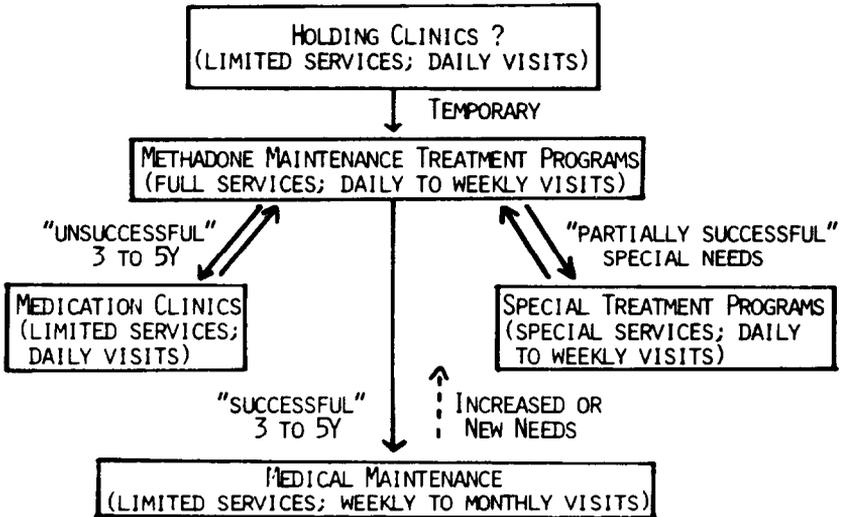
Of special importance at this time is a consideration of the negative impact on the effectiveness of methadone maintenance treatment of the cocaine abuse problem, which has been increasing dramatically since about 1978 when a reduction in price and increased availability of cocaine occurred. Cocaine often is used by the intravenous (IV) route by active or former heroin addicts. Sometimes cocaine is used to reduce the symptoms of narcotic withdrawal, and at other times it is used concomitantly with heroin by the IV route as a "speedball" to achieve the effects of heroin and of cocaine, with a reduction of the anxiety-producing facets of cocaine and a reduction of the somnolence-producing capacity effects of heroin (figure 3). About 1985, a less expensive freebase form of cocaine, "crack," was introduced that could be "smoked" by inhaling cocaine vapor. In the 1980s, large numbers of primary cocaine abusers were already turning to heroin use in an attempt to self-medicate the so-called "crash" following bouts of heavy cocaine use and are now seeking treatment for heroin addiction (figure 3). Many additional cocaine addicts many go on to become heroin addicts, requiring treatment for that second addiction. Most recently, a new combined freebase form of cocaine plus heroin, so-called "crank," has appeared, which also is "smoked" and inhaled and may in time lead to many new cases of dual addiction (figure 3).

<u>Combination</u>	<u>Desired Effect</u>
1. Heroin plus alcohol	Enhance heroin "high" or euphoria
2. Heroin followed by alcohol	Self-medicate narcotic withdrawal symptoms
3. Heroin followed by cocaine	Self-medicate narcotic withdrawal symptoms
4. Cocaine plus alcohol	Enhance cocaine "high" or euphoria
5. Cocaine followed by alcohol	Self-medicate anxiety, nervousness, and overstimulation ("crash") followed by cocaine use
6. Cocaine plus heroin	Enhance and alter cocaine "high" or euphoria
7. Cocaine followed by heroin	Self-medicate anxiety, nervousness, and overstimulation ("crash") followed by cocaine use

**FIGURE 3.** *Patterns of heroin, cocaine, and alcohol use in combination*

In a recent published study, it was found in San Francisco that whereas 24 percent of methadone-maintained patients increased or initiated cocaine abuse during methadone treatment, more than 60 percent decreased or stopped cocaine abuse during methadone maintenance treatment (Chaisson et al. 1989). Similarly, in our experience in New York, where most recently the prevalence of cocaine abuse has climbed to almost 90 percent in street heroin addicts, we have found that a significant reduction of cocaine abuse occurs during stabilized methadone maintenance treatment in effective programs. However, even in the most effective programs, it has been found that 15 to 20 percent of patients continue to use cocaine regularly and often by the IV route and that another 10 to 20 percent continue to use cocaine or crack by other routes of administration. Thus, 25 to 40 percent of patients in well-staffed, broad-service programs continue to use significant amounts of cocaine during what would otherwise be called "effective methadone maintenance treatment" (figure 4). This clearly is a second very important problem that needs to be addressed. Continuing drug abuse, as well as special medical problems

imposed by HIV and acquired immunodeficiency syndrome (AIDS), may require the development of specialized treatment programs (figures 4 and 5).



**FIGURE 4.** *Early (1980) modeling of needed methadone maintenance programs*

Early in the 1970s a significant reduction in numbers of new cases of hepatitis B infection was also documented in methadone-maintained patients, although it is more difficult to demonstrate such a reduction at this point in time when over 80 percent of all heroin addicts in most studies in the United States already have markers of hepatitis B infection. It may be possible to use an examination of the prevalence of hepatitis delta markers to assist in determining the reduction of ongoing parenteral drug abuse (figure 2).

In addition, HIV infection may be used as a marker to determine changes in patterns of parenteral drug abuse (Novick et al. 1986; Blix 1988). In some areas, including most of Europe and in the New York City area, more than 50 percent of street parenteral drug abusers, primarily heroin addicts, are already anti-HIV-1 seropositive. However, any dramatic increase in these numbers would suggest an increase in parenteral drug abuse. Similarly, in those areas

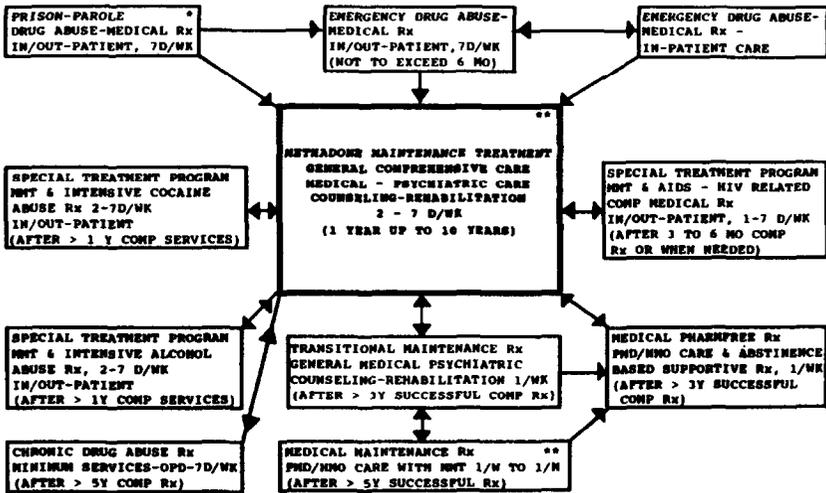


FIGURE 5. Recent (1989) modeling of needed methadone maintenance programs

\*Research with rigorous evaluation in progress

\*\*Research with rigorous evaluation completed

where the HIV infection rates are much lower, any change in prevalence rates of anti-HIV-1 seropositivity certainly can be used as a marker of parenteral drug abuse. From studies carried out with respect to initial infection and the spread of HIV, it is quite clear that methadone maintenance is highly effective in reducing exposure to this virus (Novick et al. 1986; Blix 1988). In a study carried out in New York in 1984-85, it was shown that less than 10 percent of those heroin addicts who had entered effective methadone maintenance treatment programs prior to the AIDS epidemic hitting New York City in 1978 were anti-HIV-1 positive, as contrasted to more than 50 percent of those entering treatment after 1982 or on the streets in 1984-85 (Novick et al. 1986). In a similar study in Sweden in 1987-88, it was shown that less than 5 percent of those patients who had entered effective methadone maintenance treatment prior to 1983 were anti-HIV-1 positive, whereas more than 50 percent of those who had entered after 1986 were anti-HIV-1 positive (Blix 1988). Therefore, significant reductions of exposure to diseases transmitted in the setting of parenteral drug abuse, such as hepatitis B virus, hepatitis delta agent, and HIV,

can be stated to have been amply documented in effective methadone maintenance treatment programs (figure 2).

Most studies that have evaluated methadone maintenance treatment have shown more than an 80-percent reduction in criminality as judged by reduced numbers of criminal behavior acts, arrests, and incarcerations after stabilization on methadone maintenance treatment (figure 2) (Corty and Ball 1987; Ball and Corty 1988; Ball et al. 1988a, 1988b).

With respect to the secondary goal of achieving increased socialization and productivity, the data in the 1960s and early 1970s were very clear in showing that more than 80 percent of methadone-maintained patients became productive as defined by working, running a household, or attending educational classes on a regular basis. However, with decreased job opportunities, increased costs of education, and less emphasis on this facet of secondary success of methadone maintenance treatment in more recent studies, no specific statement can be made with respect to the productivity of methadone-maintained patients in the 1980s.

More information is now available about the biological basis of some of the addictive diseases, and the greatest amount of information now available provides insights into the biological basis of alcoholism. However, increasing information is now available concerning the possible biological basis of narcotic (opiate) addiction. For instance, from our work, which now has been extended and corroborated by others, it is appreciated that endocrine and neuroendocrine function, which is profoundly disrupted during periods of heroin addiction, becomes normalized during periods of methadone maintenance treatment. There is preliminary information from our research efforts that, following cessation of pharmacological treatment, abnormalities in neuroendocrine function reappear, especially that of the hypothalamic-pituitary-adrenal axis as related to the response to stress. These abnormalities are different from those that pertain during cycles of heroin addiction and are similar to those that occur during periods of acute narcotic withdrawal. These abnormalities may persist for long periods following cessation of methadone treatment (or of heroin use) and may contribute to drug hunger and drug-seeking behavior and, thus, to the addictive disease (Kreek 1973a, 1973b 1987a, 1987b; Kreek et al. 1984; Kosten et al. 1987; Dole and Nyswander 1968). Similarly, studies of neuroendocrine function have shown that abnormalities are present during chronic naltrexone maintenance treatment that are similar to those seen during mild narcotic withdrawal. These abnormalities may explain in part the very low acceptance rate for naltrexone treatment (less than 20 percent of unselected heroin addicts will accept voluntarily and stay in treatment for 6 months or more), the high dropout rates from this mode of treatment, and the types of

symptoms complained of by those in treatment next with naltrexone (Kosten et al. 1986a, 1986b).

Ongoing studies from many laboratories have provided evidence that cocaine may affect many biological systems, including three or more neurotransmitter systems (Kreek 1987a). Also, based on recent work from our laboratory, the endogenous opioid system may be altered significantly during cocaine abuse (Kreek 1987a). Clearly, more research is needed, both of a laboratory and basic clinical research type and in treatment research and evaluation research, to improve not only the effectiveness of methadone maintenance treatment but also the treatment of other addictive diseases that may confound narcotic addiction or that may occur as the primary addictive disease.

The very recent findings that normalization may occur during long-term uncomplicated methadone maintenance of many of the specific indices of immune function, which are profoundly deranged during heroin addiction and which are of potential importance with respect to the vulnerability of the heroin addict to being at risk for becoming infected with certain viruses, also may be of importance with respect to the possible role of immune disruption in altering the rate of progression of HIV to AIDS and the possible beneficial effects of methadone maintenance treatment in this regard. Again, research has played an important role in achieving a better understanding of these various problems that arise during heroin addiction and that may be ameliorated significantly during chronic methadone treatment.

It is now clear that there is a medical emergency with respect to the linkage between heroin and other parenteral drug abuse (as well as other types of drug abuse that may predispose abusers to risk behaviors) and infection with HIV and AIDS. Therefore, it is essential at this time to determine the best mechanism for providing emergency drug abuse treatment, coupled with emergency medical care and risk behavior reduction counseling, while heroin addicts are awaiting entry into full-service, broad-spectrum, comprehensive methadone maintenance programs, drug-free treatment programs, or special inpatient residential resources using pharmacological and/or nonpharmacological approaches for treatment of parenteral drug abuse. It is not easy to determine what could be the optimal feasible settings and mechanisms for providing such emergency care. However, full consideration should be given to the development of emergency treatment programs within established academic and teaching hospitals as well as all other nonprofit hospitals and within municipal- or Federal-supported community-based primary health care stations.

Because of the lack of adequate numbers of physicians, nurses, paramedics, social workers, and counseling staff needed to fully conduct such emergency needs (as well as for all comprehensive treatment programs), consideration should be given to officially allowing “moonlighting” by hospital staff in each of the categories of workers needed to perform additional work in return for additional pay in emergency drug abuse treatment programs. Also, it should be mandated that such moonlighting treatment services be performed by staff within their own hospital and/or clinic to ensure accountability and excellence of work performed, with oversight by the heads of the appropriate departments. Existing clinics within hospitals generally are not utilized between 5 p.m. and 8 a.m. These geographic resources, coupled with staff working extra time, should be able to provide emergency care as needed.

Similarly, emergency care for drug abuse should be made mandatory in all Federal- and/or State-supported AIDS treatment centers, and close linkages for long-term drug abuse treatment also should be provided within the spectrum of activities of these centers. Because, by definition, emergency treatment cannot be expected to provide all the resources needed and provided (hopefully) in a comprehensive or special drug abuse treatment program, the time of caring for any individual patient in such emergency sources should be limited to the minimum time essential to secure entry for that individual into a full-service program and should not be allowed to exceed 6 months. Provision of each of these types of services could be made cost-effective by reducing expensive, less effective health care costs. For instance, in such clinics, AZT for symptomatic or asymptomatic anti-HIV seropositive patients with low absolute numbers of  $T_4$  cells (less than 500 cells) could be administered along with methadone, while other needed services also would be provided there—a major combined need at this time. In 1979 and again in 1981, before the identification of AIDS as a specific disease or the isolation and identification of HIV and also before the current cocaine/crack epidemic during an earlier period of critical need to expand treatment for narcotic (opioid) addiction (especially as compounded by polydrug abuse and alcohol abuse), a proposal for a spectrum of different treatment programs for heroin addicts using methadone as an important and probably essential pharmacological component was presented at both the State and Federal levels (figure 4). At that time, there were already unrealistically low and consistently contracting fiscal resources for treatment of drug abuse as well as decreasing numbers of available geographic sites for such treatment because of increasing community resistance—problems that still pertain today.

In 1989 a spectrum of programs utilizing methadone maintenance was proposed again but now modified to recognize the negative impact of the AIDS epidemic and the cocaine/crack epidemic on the previously demonstrated

effectiveness of existing methadone maintenance treatment programs (figure 3). This modified scheme of a proposed spectrum of programs is planned with the goal of using methadone more effectively than in the past or at present by increasing access to treatment and by expanding the types of programs available for patients to meet their specific needs. However, because of the diverse types, the quality of existing programs and the even greater diversity of proposed programs (despite overall improved quality) and of emotional resistance of the general public, policymakers, and potential patients, there is a need to develop specific and novel terms to apply to each of these proposed programs and not to simply use the words "methadone maintenance treatment" as now done to refer to all programs. Consideration also should be given to identifying a new name for the generic agent methadone when it is to be used on a chronic basis in treatment to decrease the negative and emotional connotations with this word. Possible use of initials from its chemical name would be considered, such as "DM DPH" or more simply, "MPH" or "DPH."

In the past there has been an increasing trend to detach methadone maintenance treatment and related types of treatment programs using methadone from the health care system and health care establishment in general. This detachment frequently is recommended or mandated under the proclamation of a public health need or in the setting of declaring increasing fiscal crises with respect to providing both drug abuse treatment and health care. It is mandatory at this time that this "public health approach" to drug abuse treatment be reconsidered, especially in light of the multiple medical ramifications of not only heroin use but also the abuse of many other drugs and especially with the increasing AIDS epidemic as well as the recrudescence and increase of epidemics of hepatitis B and hepatitis and the rise in prevalence of hepatitis delta.

The development of such a spectrum of emergency, comprehensive care, and specialized treatment programs, each utilizing methadone as currently the only long-acting opioid that is effective for chronic treatment, but with the possibility of utilizing the long-acting opioid agonist LAAM or the partial agonist buprenorphine, should be accompanied by a coupling of such programs with a computerized network of centralized intake systems to screen and evaluate persons entering drug abuse treatment. This would better utilize existing openings for treatment in existing programs and more appropriately match new patients who have specific needs or problems to programs that potentially will best meet those needs. Such a network of centralized intake resources coupled with clinics and other sites where addicts may seek or be referred to treatment could markedly increase both access to and effectiveness of methadone as used in treatment of narcotic addiction.

Many types of treatment recommended in this spectrum of programs have already been studied rigorously in various research efforts and have been proven to be effective when carried out as originally designed and studied. Other programs may have been tried on a sporadic basis but have not been fully evaluated. Some special programs suggested here are innovative programs that therefore would need to be carried out with close evaluation and, possibly, initially carried out on a research basis (figure 5).

All primary and secondary goals of methadone treatment and the realistic estimates of the extent to which they may be achieved should be taken into account in evaluation programs. These evaluation programs should be carried out on a uniform basis for all pharmacological- and nonpharmacological-based treatment programs for heroin addiction and for all other treatment programs for other drug addictions and drug dependencies. In 1982 Dole and colleagues proposed a performance-based evaluation rating for methadone maintenance treatment programs. An evaluation program of the type that Dole presented, modified to include current special needs as well as modified to the extent needed to reflect realistic levels of achievement of these primary and secondary goals, would provide a semiquantitative, uniform, general assessment for all treatment programs. The application of such a uniform evaluation would be extremely valuable at this time when a variety of different treatment programs—those with full services and, possibly, those with spare services—may be developed with the emergency of the cocaine epidemic and the HIV epidemic and AIDS. However, it is imperative to act on the findings of such evaluation research and to close inadequate programs as well as to modify borderline programs so that (1) the patients can benefit maximally; (2) medical and paramedical and all other staff members can take pride in the work they perform and the accomplishments they achieve; and (3) society will see that it is served in a humanitarian and cost-effective fashion and will be encouraged therefore to continue support of such broad-spectrum programs. Finally, such evaluation that could ensure good programs also would ensure an appreciation and continuing support for basic laboratory and clinical research as well as applied clinical research and would ensure early application of the findings from such research to human needs.

## REFERENCES

- Ball, J.C., and Corty, E. Basic issues pertaining to the effectiveness of methadone maintenance treatment. In: Leukefeld, C.G., and Tims, F.M. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)89-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 178-191.

- Ball, J.C.; Corty, E.; Bond, H.; Tommasello, A.; and Myers, C.P. The reduction of intravenous heroin use, non-opiate abuse, and crime during methadone maintenance treatment. In: Harris, L.S., ed. *Problems of Drug Dependence, 1987: Proceedings of the 49th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Monograph 81. DHHS Pub. No. (ADM)88-1564. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988a. pp. 224-230.
- Ball, J.C.; Lange, W.R.; Myers, C.P.; and Friedman, S. Reducing the risk of AIDS through methadone maintenance treatment. *J Health Soc Behav* 28:214-226, 1988b.
- Beverly, C.L.; Kreek, M.J.; Wells, A.O.; and Curtis, J.L. Effects of alcohol abuse on progression of liver disease in methadone-maintained patients. In: Harris, L.S., ed. *Problems of Drug Dependence, 1979: Proceedings of the 41st Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 27. DHHS Pub. No. (ADM)80-901. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1980. pp. 399-401.
- Blix, O. AIDS and IV heroin addicts: The preventive effect of methadone maintenance in Sweden. Proceedings of the 4th International Conference on AIDS, Stockholm, 1988.
- Chaisson, R.E.; Bacchetti, P.; Osmond, D.; Brodie, B.; Sande, M.A.; and Moss, A.R. Cocaine use and HIV infection in intravenous drug users in San Francisco. *JAMA* 261:561-565, 1989.
- Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D. *Research on the Treatment of Narcotic Addiction: State of the Art.* National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983.
- Corty, E., and Ball, J.C. Admissions to methadone maintenance: Comparisons between programs and implications for treatment. *J Subst Abuse Treat* 4:181-187, 1987.
- Cushman, P., and Dole, V.P. Detoxification of rehabilitated methadone-maintained patients. *JAMA* 226(7):747-752, 1973.
- Des Jarlais, D.C., and Joseph, H. Long-term outcomes after termination from methadone maintenance treatment. *Ann N Y Acad Sci* 362:231-238, 1981.
- Des Jarlais, D.C.; Joseph, H.; Dole, V.P.; and Schmeidler, J. Predicting post-treatment narcotic use among patients terminating from methadone maintenance. *Adv Alcohol Subst Abuse* 2:57-68, 1983.
- Dole, V.P. Implications of methadone maintenance for theories of narcotic addiction. *JAMA* 260:3025-3029, 1988.
- Dole, V.P., and Joseph, H. Methadone maintenance: Outcome after termination. *N Y State J Med* 77:1409-1411, 1977.
- Dole, V.P., and Joseph, H. Long-term outcome of patients treated with methadone maintenance. *Ann N Y Acad Sci* 311:181-189, 1978.

- Dole, V.P., and Kreek, M.J. Methadone plasma level: Sustained by a reservoir of drug in tissue. *Proc Natl Acad Sci* 70:10, 1973.
- Dole, V.P., and Nyswander, M.E. Rehabilitation of the street addict. *Arch Environ Health* 14:477-480, 1967.
- Dole, V.P., and Nyswander, M.E. The use of methadone for narcotic blockade. *Br J Addict* 63:55-57, 1968.
- Dole, V.P., and Nyswander, M.E. Methadone maintenance treatment: A ten-year perspective. *JAMA* 235:2117-2119, 1976.
- Dole, V.P.; Nyswander, M.E.; Des Jarlais, D.C.; and Joseph, H. Sounding board: Performance-based rating of methadone maintenance programs. *N Engl J Med* 306:169-172, 1982.
- Dole, V.P.; Nyswander, M.E.; and Kreek, M.J. Narcotic blockade: A medical technique for stopping heroin use by addicts. *Trans Assoc Am Physicians* 70:122-136, 1966.
- Gunne, L.M., and Gronbladh, L. The Swedish methadone maintenance program. In: Serban, G., ed. *Social and Medical Aspects of Drug Abuse*. New York: Spectrum Publications, Inc., 1984. pp. 205-213.
- Hachey, D.L.; Kreek, M.J.; and Mattson, D.H. Quantitative analysis of methadone in biological fluids using deuterium-labeled methadone and GLC-chemical-ionization mass spectrometry. *J Pharm Sci* 66:1579-1582, 1977.
- Hartman, N.; Kreek, M.J.; Ross, A.; Khuri, E.; Millman, R.B.; and Rodriguez, R. Alcohol use in youthful methadone-maintained former heroin addicts: Liver impairment and treatment outcome. *Alcoholism Clin Exp Res* 7:316-320, 1983.
- Kosten, T.R.; Kreek, M.J.; Raganath, J.; and Kleber, H.D. Cortisol levels during chronic naltrexone maintenance treatment in ex-opiate addicts. *Biol Psychiatry* 21:217-220, 1986a.
- Kosten, T.R.; Kreek, M.J.; Raganath, J.; and Kleber, H.D. A preliminary study of beta-endorphin during chronic naltrexone maintenance treatment in ex-opiate addicts. *Life Sci* 39:55-59, 1986b.
- Kosten, T.R.; Kreek, M.J.; Swift, C.; Carney, M.K.; and Ferdinands, L. Beta-endorphin levels in CSF during methadone maintenance. *Life Sci* 41:1071-1076, 1987.
- Kreek, M.J. Physiological implications of methadone treatment. In: *Methadone Treatment Manual*. National Institute of Law Enforcement and Criminal Justice. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1973a.
- Kreek, M.J. Medical safety and side effects of methadone in tolerant individuals. *JAMA* 223:665-668, 1973b.
- Kreek, M.J. Plasma and urine levels of methadone. *N Y State J Med* 73:2773-2777, 1973c.
- Kreek, M.J. Medical complications in methadone patients. *Ann N Y Acad Sci* 311:110-134, 1978.

- Kreek, M.J. Multiple drug abuse patterns and medical consequences. In: Meltzer, H.Y., ed. *Psychopharmacology: The Third Generation of Progress*. New York: Raven Press, 1987a. pp. 1597-1604.
- Kreek, M.J. Tolerance and dependence: Implications for the pharmacological treatment of addiction. In: Harris, L.S., ed. *Problems of Drug Dependence, 1986: Proceedings of the 48th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 76. DHHS Pub. No. (ADM)87-1508. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1987b. pp. 53-61.
- Kreek, M.J. Immunological approaches to clinical issues in drug abuse. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988: Proceedings of the 50th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 90. DHHS Pub. No. (ADM)89-1605. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 77-86.
- Kreek, M.J.; Bencsath, F.A.; Fanizza, A.; and Field, F.H. Effects of liver disease on fecal excretion of methadone and its unconjugated metabolites in maintenance patients: Quantitation by direct probe chemical ionization mass spectrometry. *Biomed Mass Spectrom* 10:544-549, 1983.
- Kreek, M.J.; Bencsath, F.A.; and Field, F.H. Effects of liver disease on urinary excretion of methadone and metabolites in maintenance patients: Quantitation by direct probe chemical ionization mass spectrometry. *Biomed Mass Spectrom* 7:385-395, 1980.
- Kreek, M.J.; Dodes, L.; Kane, S.; Knobler, J.; and Martin, R. Long-term methadone maintenance therapy: Effects on liver function. *Ann Intern Med* 77:598-602, 1972.
- Kreek, M.J.; Garfield, J.W.; Gutjahr, C.L.; and Giusti, L.M. Rifampin-induced methadone withdrawal. *N Engl J Med* 294:1104-1106, 1976b.
- Kreek, M.J.; Gutjahr, C.L.; Garfield, J.W.; Bowen, D.V.; and Field, F.H. Drug interactions with methadone. *Ann N Y Acad Sci* 281:350-370, 1976a.
- Kreek, M.J.; Hachey, D.L.; and Klein, P.D. Stereoselective disposition of methadone in man. *Life Sci* 24:925-932, 1979.
- Kreek, M.J.; Raganath, J.; Plevy, S.; Hamer, D.; Schneider, B.; and Hartman, N. ACTH, cortisol and beta-endorphin response to metyrapone testing during chronic methadone maintenance treatment in humans. *Neuropeptides* 5:277-278, 1984.
- Kreek, M.J.; Wardlaw, S.L.; Friedman, J.; Schneider, B.; and Frantz, A.G. Effects of chronic exogenous opioid administration on levels of one endogenous opioid (beta-endorphin) in man. In: Simon, E., and Takagi, H., eds. *Advances in Endogenous and Exogenous Opioids*. Tokyo: Kodansha Ltd. Publishers, 1981. pp. 364-366.

- Nakamura, K.; Hachey, D.L.; Kreek, M.J.; Irving, C.S.; and Klein, P.D. Quantitation of methadone enantiomers in humans using stable isotope-labeled  $^2\text{H}_3$ ,  $^2\text{H}_5$ ,  $^2\text{H}_8$ , methadone. *J Pharm Sci* 71:39-43,1982.
- Novick, D.; Joseph, H.; Richman, B.; Salsitz, E.; Pascarelli, E.; Des Jarlais, D.; Dole, V.; and Nyswander, M. Medical maintenance: A new model for continuing treatment of socially rehabilitated methadone maintenance patients. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988: Proceedings of the 50th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 90. DHHS Pub. No. (ADM)89-1605. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988a. pp. 168-176.
- Novick, D.M.; Khan, I.; and Kreek, M.J. Acquired immunodeficiency syndrome and infection with hepatitis viruses in individuals abusing drugs by injection. *Bull Narc* 38:15-25, 1986.
- Novick, D.M.; Ochshorn, M.; Ghali, V.; Croxson, T.S.; Mercer, W.D.; Chiorazzi, N.; and Kreek, M.J. Natural killer cell activity and lymphocyte subsets in parenteral heroin abusers and long-term methadone maintenance patients. *J Pharm Exp Ther* 250:1-5, 1989.
- Novick, D.M.; Pascarelli, E.F.; Joseph, H.; Salsitz, E.A.; Richman, B.L.; Des Jarlais, D.C.; Anderson, M.; Dole, V.P.; and Nyswander, M.E. Methadone maintenance patients in general medical practice. *JAMA* 259:3299-3302, 1988b.
- Nyswander, M.E. The methadone treatment of heroin addiction. *Hosp Pract* 2:27-33, 1967.
- Pond, S.M.; Kreek, M.J.; Tong, T.G.; Rangunath, J.; and Benowitz, N.L. Altered methadone pharmacokinetics in methadone-maintained pregnant women. *J Pharmacol Exp Ther* 233:1-6, 1985.
- Rounsaville, B.J.; Kosten, T.R.; and Kleber, H.D. The antecedents and benefits of achieving abstinence in opioid addicts: A 2.5-year follow-up study. *Am J Drug Alcohol Abuse* 13:214-229, 1987.
- Senay, E.C. Methadone maintenance treatment. *Int J Addict* 20:803-821, 1985.
- Stimmel, B.; Goldberg, J.; Rotkopf, E.; and Cohen, M. Ability to remain abstinent after methadone detoxification: A six-year study. *JAMA* 237:1216-1220, 1974.
- Stimmel, B., and Kreek, M.J. Dependence, tolerance, and withdrawal. In: Stimmel, B., ed. *Heroin Dependency: Medical, Economic, and Social Aspects*. New York: Stratton Intercontinental Medical Book Corp., 1975. pp. 88-97.
- Stimmel, B., and Rabin, J. The ability to remain abstinent upon leaving methadone maintenance: A prospective study. *Am J Drug Alcohol Abuse* 1(3):379-391, 1974.

Tong, T.G.; Pond, S.M.; Kreek, M.J.; Jaffery, N.F.; and Benowitz, N.L.  
Phenytoin-induced methadone withdrawal. *Ann Intern Med* 94:349-351,  
1981.

**AUTHOR**

Mary Jeanne Kreek, M.D.  
Associate Professor and Physician  
The Rockefeller University  
1230 York Avenue  
New York, NY 10021-6399

# Using Psychotherapy Effectively in Drug Abuse Treatment

*Lisa Simon Onken*

## INTRODUCTION

Although there have been numerous clinical opinions expressed about how to use psychotherapy effectively with drug abusers, very little research exists on the topic. The purpose of this chapter is to review and discuss the major research findings in this area, highlight some areas where more research is needed, and address some of the problems and pitfalls inherent in this research.

Effective psychotherapy involves the right person using the right therapy at the right time with the right client. Therefore, any discussion on this topic must address therapist, therapy, and patient characteristics.

## THERAPY CHARACTERISTICS

Only a few well-designed investigations on the relative efficacy of different types of psychotherapy with drug abusers have been carried out at this point. This effort at determining the “best” psychotherapeutic strategy has paralleled an effort in the broader nondrug abuse psychotherapy research arena. In the drug abuse field, psychodynamic, supportive, and behavioral strategies all have been the subject of investigation.

As part of the well-known Veterans Administration-University of Pennsylvania (VA-Penn) Psychotherapy Project, Woody and his coworkers (1933) compared the relative efficacy of drug counseling alone with two types of therapy offered in conjunction with drug abuse counseling. In this controlled study, opiate-dependent methadone-maintained patients were randomly assigned to one of three treatment conditions: (1) drug counseling alone, (2) “supportive-expressive” (SE) therapy plus drug counseling, or (3) cognitive-behavioral (CB) therapy plus drug counseling. SE therapy is a psychoanalytically based, focal therapy, and CB therapy emphasizes correcting maladaptive and typically

exaggerated and unrealistic thoughts. Although all treatment groups showed significant improvement, the two psychotherapy groups experienced greater improvement than the drug counseling alone group, and they also required less medication. There was no difference in efficacy between the two psychotherapy groups. The differences in improvement between the psychotherapy groups and the drug counseling alone group held up at the 7- and 12-month followups (Woody et al. 1987).

The value of interpersonal psychotherapy (IPT) in the treatment of opiate-dependent methadone-maintained clients was the focus of a study published by a group of researchers at Yale (Rounsaville 1986). As the name suggests, IPT emphasizes dealing with the interpersonal conflicts of the client that appear to be related to the commencement or continuation of drug abuse. It is a brief, focused, exploratory, and supportive type of therapy. Patients were randomly assigned to an IPT condition or a "low-contact" condition. Subjects in the IPT condition received one 60-minute session of IPT each week with a doctoral-level psychologist or psychiatrist, additional meetings with "significant others" if the psychotherapist believed it to be necessary, and a weekly group psychotherapy meeting. Subjects in the low-contact condition received the weekly group psychotherapy meeting and one 20-minute session with a psychiatrist who avoided advice-giving and interpretations. Results indicated little difference between these two groups, except in attrition patterns. Sixty-two percent of the subjects in the IPT group and 46 percent in the low-contact treatment group dropped out of the study. Of the remaining subjects, both groups showed some clinical improvement. The authors stress the fact that, because the low-contact condition already provided fairly intensive weekly group psychotherapy, this was not a test of the efficacy of IPT. Rather, it was a test of the effect of adding a psychotherapy (IPT) to a psychotherapy (group therapy). In addition, the authors cite methodological factors that may have produced a "bias" against the demonstration of an IPT effect. Hence, the effectiveness of IPT with opiate-dependent individuals is inconclusive from this study.

Paula Kleinman, in a recent NIDA-sponsored technical review meeting, described a study comparing the efficacy of individual "low-intensity" SE psychotherapy, structural strategic family therapy, and treatment as usual (paraprofessionally run group therapy) in the treatment of cocaine abusers (Kleinman et al. 1989). Preliminary analyses indicated that the type of therapy to which a subject was assigned was unrelated to whether he or she stayed in treatment, although there was a trend toward extended retention in the individual therapy and family therapy conditions (compared with treatment as usual). However, neither of these two therapies (e.g., individual or family therapy) was a sufficient treatment for these patients. Kleinman and colleagues

stress that more frequent contact than that offered in their study may be required for effective treatment.

In another more recent comparative trial, Carroll and colleagues (submitted for publication) studied the efficacy of two “purely psychotherapeutic treatments,” IPT and relapse prevention (RP), in a population of ambulatory cocaine abusers. RP is a cognitive-behavioral strategy that has been adapted to deal with those problems specific to relapse to drug abuse; in this case, it was adapted further to deal with cocaine abusers. Half of the patients were randomly assigned to the RP group, with the remainder receiving IPT. Subjects in both conditions demonstrated significant (statistical as well as clinical) improvement from their baseline scores on most outcome measures. There was a trend toward better retention in the RP group throughout the study, with 67 percent of the subjects in the RP condition completing treatment, compared with only 38 percent of the subjects in the IPT condition. In addition, although not statistically significant, the RP group consistently did better on most measures of outcome (e.g., ability to attain 3 consecutive weeks of abstinence—classification as “recovered” at the end of treatment). The authors conclude that purely psychotherapeutic approaches can be effective in the treatment of cocaine abuse. No statistically significant differences between the RP and IPT groups were found. Nonetheless, because of the consistent superiority of the RP condition across outcome measures, the authors believe there was a clinically significant difference between the RP and IPT groups. One might tentatively hypothesize from these results that RP might hold more promise than IPT as an effective treatment.

Research in the broader, nondrug abuse field has generally supported the notion that patients receiving psychotherapy do better than those in placebo groups or those in no treatment control groups. However, it has not been consistently demonstrated that one type of psychotherapy is more effective than another (Luborsky et al. 1975; Smith and Glass 1977; Lambert et al. 1986; Stiles et al. 1986). Nor has anything conclusive been determined in the drug abuse field regarding the superiority of one psychotherapy over another. Clinicians appear to agree that psychodynamic therapy is contraindicated early in the treatment of the drug abuser and should not be attempted until after abstinence is achieved (Washton 1988; Kaufman 1989). To date, researchers have little to say about which type of psychotherapy is the treatment of choice following abstinence, Individual behavioral, supportive, psychodynamic, and family approaches all have been demonstrated to be effective in their own right or useful as adjuncts to other forms of treatment (Kaufman and Kaufman 1979; Stanton et al. 1982; Woody et al. 1983; Rounsaville et al. 1983; Rogalski 1984; Carroll et al., submitted for publication), but none has been demonstrated consistently to be more effective than another.

## THERAPIST CHARACTERISTICS

Psychotherapy research was originally focused on the types of psychotherapy or characteristics thereof that promote positive outcome. The attributes of the therapist have been, until recently, relatively ignored. However, the qualities of the therapist have been recognized, of late, as an important determinant of effective psychotherapy (Luborsky et al. 1985, 1986; Crits-Christoph et al. 1989).

As part of the VA-Penn Psychotherapy Project (Woody et al. 1983) described earlier, determinants of therapist success were examined (Luborsky et al. 1985) in nine therapists (three performing CB therapy, three performing SE therapy, and three performing drug abuse counseling) who worked with a population of methadone-maintained opiate addicts. They found striking differences among the success rates of the nine therapists and looked at different variables that might account for these differences. No differences were found in therapists' patient caseloads on a number of factors (e.g., drug use, psychiatric diagnosis, etc.) that could account for these effects. The investigators also examined the relationship between the therapists' personal qualities (e.g., adjustment, interest in helping clients) and successful outcome and found modest, insignificant positive correlations. A measure of the quality of the early therapist-patient relationship, the Helping Alliance Questionnaire (Alexander and Luborsky 1984) was found to be highly related to outcome. In addition, it was found that the greater the degree of adherence to the CB or SE psychotherapy treatment manuals, that is, the greater the "purity" of the sessions, the better the outcome. This was not true for adherence to the drug counseling manual.

As McCaul (this volume) has beautifully illustrated, "therapist effects" are not exclusive to psychotherapists—they also have been found among drug counselors. A unique opportunity arose for the study of counselor effects for the VA-Penn group when two staff counselors unexpectedly resigned (McLellan et al. 1988). It was necessary that the patients of these counselors be reassigned to new drug abuse counselors in a virtually random manner. That is, due to time constraints, it was not possible to "match" the patients of these counselors to new counselors in the usual manner. After 6 months of treatment with four new counselors, patient status was examined. There were sizable and consistent differences in patient status between counselors. No clue about why certain drug abuse counselors performed better than others was evident. The fact that the more successful counselors also seemed to have more complete records than the less successful counselors could not explain the observed differences.

Kleinman and colleagues (1989) reported preliminary data that suggested tremendous variability in retention rate among therapists but not among therapies. In a comparative study of SE individual psychotherapy, structural-strategic family therapy, and treatment as usual with a population of cocaine abusers, Kleinman and coworkers found that the particular therapist to which a patient was assigned was the most potent predictor of subject attrition. One therapist retained as few as 14 percent of the patients for four or more sessions, whereas another therapist retained more than 80 percent. Other outcome data from this study are not yet available. Preliminary data reported by Woody and colleagues (1989) in a community-based psychotherapy outcome study with methadone-maintained opiate addicts also suggest that there are differences between therapists in the ability to retain a patient in treatment.

Luborsky and colleagues (1986) have reported that not only do therapist effects exist but also that they also may “overshadow” treatment effects. In an analysis of four separate comparative studies of psychotherapies (including the VA-Penn Psychotherapy Project), Luborsky and coworkers found that differences among therapists were stronger than differences between CB and SE therapies as performed with drug abusers. In populations not defined as drug abuse populations, therapist effects outweighed differences among a variety of types of individual, group, and conjoint therapies.

At the recent National Institute on Drug Abuse technical review meeting mentioned above, Paul Crits-Christoph elegantly portrayed how therapist effects, when ignored or improperly analyzed, can affect conclusions about the efficacy of one psychotherapy as opposed to another in psychotherapy outcome research (Crits-Christoph et al. 1989). He pointed out that in some cases, even when statistical tests are done that show that differences among therapists are not significant ( $p < .05$ ), results can be significantly affected such that differences are found among therapies when they do not exist (Martindale 1978). In an analysis of eight psychotherapy outcome studies, great diversity in therapist effects were found among studies, ranging from no effect to 29 percent of the variance accounted for due to therapist. Crits-Christoph recommends that therapist effects never be assumed to be nonexistent. Rather, he emphasizes the importance of treating the therapist as another variable in psychotherapy outcome research.

The study by Carroll and colleagues (submitted for publication), discussed earlier, is an example. One might tentatively hypothesize that RP strategies will be more effective in the treatment of cocaine abuse than IPT in future comparative studies of the two therapies, based on the consistent “clinical” superiority of RP. With more careful inspection of the methods used in this study, however, it is apparent that even a tentative conclusion about the relative

efficacy of the two therapies would be premature. Only three therapists administered the two therapies: One therapist performed RP exclusively; another performed IPT exclusively; and the third did both RP and IPT (K. Carroll, personal communication, 1989). With so few therapists, this study may really have been a test of whether or not RP, as practiced by one particular therapist, is more effective in the treatment of cocaine abusers than IPT, as practiced by another particular therapist. Conclusions cannot be drawn about the relative efficacy of the two therapies.

Not only do therapist effects exist, but they also may create errors in the conclusions drawn about the relative efficacy of various psychotherapies if overlooked or inappropriately analyzed. There is very little knowledge currently available, however, about which characteristics of therapists are most related to outcome. The ability of the therapist to establish an early, positive therapeutic alliance, the consistent adherence to a particular method, and the documentation of relatively complete treatment plans and records all have been shown to be related to positive outcome in various studies. It is not clear, however, how or why these characteristics are related to successful treatment, nor is it clear what other therapist characteristics are important determinants of outcome.

## **PATIENT CHARACTERISTICS**

Providing psychotherapy to a patient who will not benefit from it is a waste of time, money, and effort. Not providing psychotherapy to someone who needs it also can be a waste of time and resources; but more importantly, it can prolong the suffering and contribute to the relapse of the drug-dependent individual. The problem is determining who will benefit from psychotherapy and who will not.

Psychotherapy was developed for the treatment of mental disorders, not for the treatment of drug dependence. It is reasonable to expect that those drug abusers with coexisting mental disorders will benefit more from psychotherapy than those without them. The occurrence of a "dual diagnosis" in a substance abuse patient is not a rarity. In a study of cocaine abusers, Weiss and Mirin (1986) found a concurrent DSM-III diagnosis for affective disorder in 53 percent of their population. Axis II diagnoses were even more common, with 90 percent of the subjects receiving a diagnosis of personality disorder (predominantly narcissistic and borderline). Only one of their 30 subjects met the criteria for antisocial personality (ASP) disorder. Kleinman and coworkers (1989) however, found a higher (18 percent) ASP disorder rate than was found in the Weiss and Mirin (1986) study, which may be related to the lower social class of Kleinman's population. Opiate addicts also have been found to have a high

frequency of mental disorder. Rounsaville and colleagues have found high rates for affective disorder (Rounsaville et al. 1982a) and have reported the ASP disorder rate to be elevated (Rounsaville et al. 1982b). In one study on opiate addicts, the frequency of a current Research Diagnosis Criteria diagnosis for major depressive disorder was found to be 23.8 percent, and the DSM-III ASP rate was 54.7 percent (Kosten and Rounsaville 1986).

There has been an increasing recognition that substance abusers with concurrent mental disorders tend not to be adequately treated in either traditional programs for the chemically dependent or traditional mental health facilities (Wallen and Weiner 1989; Carey and Carey, submitted for publication). It is no surprise that the prognosis for dual-diagnosis patients is poorer than for those with a diagnosis of substance abuse alone (Hall et al. 1977; McLellan et al. 1983, 1986; Rounsaville et al. 1986, 1987). Researchers are beginning to help us better understand how to treat substance abusers with coexisting mental disorders.

In the study described earlier (Woody et al. 1983), the VA-Penn group looked at the relationship between "psychiatric severity" and psychotherapy in substance abusers. Rather than a measure of any particular diagnosis or set of diagnoses, psychiatric severity is a global measure of the number and degree of psychiatric problems in an individual. Patients who were classified as low in psychiatric severity did just as well with paraprofessional drug counseling as with additional professional psychotherapy (CB or SE). Mid-severity patients made notable gains with drug abuse counseling but made even more gains with the added psychotherapy. High-severity patients did not improve much with the drug counseling alone but improved significantly with the additional psychotherapy (Woody et al. 1984). Preliminary findings from a community-based study done by the VA-Penn group were consistent with these findings (Woody et al. 1989). In this study involving only mid-to-high psychiatric severity patients, methadone-maintained opiate addicts were assigned to either an SE psychotherapy plus drug counseling group (SE group) or drug counseling plus drug counseling group (DC group). Preliminary analyses suggested that patients in the SE group were progressing better than those in the DC group.

In another study, the VA-Penn group reported findings regarding differential psychotherapy (SE and CB) outcome in four groups of methadone-maintained opiate addicts: addicts without a coexisting DSM-III diagnosis, those with a diagnosis of depression, those with diagnoses of both depression and ASP disorder, and those with ASP disorder alone (Woody et al. 1985). The opiate dependence alone and opiate dependence with depression groups both showed considerable improvement on several outcome measures. The group that had a diagnosis of ASP but no diagnosis of depression did not make any

gains with psychotherapy, except in the area of drug use and on a legal factor. In spite of the fact that the presence of ASP is commonly believed to preclude a positive response to psychotherapy (Shamsie 1981; Woody et al. 1985) and did so in this study, the group that had diagnoses for both depression and ASP showed substantial improvement.

Rounsaville and coworkers (1983) found no differential efficacy for IPT and low-contact treatment in depressed as opposed to nondepressed methadone-maintained opiate addicts. Once again, however, it must be stressed that all subjects in both conditions (IPT and low-contact) received group psychotherapy each week. Conclusions, therefore, cannot be drawn about the efficacy of either therapy alone in the treatment of depressed versus nondepressed individuals.

In a recent study comparing the efficacy of two forms of "aftercare group treatment," Kadden and coinvestigators (in press) examined the relationship of psychiatric severity and sociopathy to treatment outcome. Alcoholic patients were randomly assigned to receive either a coping skills training therapy or an interactional therapy. Overall, there was no difference in efficacy between the two treatments during aftercare, and there were no consistent differences in the efficacy of the two treatments for subjects low in psychiatric severity. However, contrary to the findings of Woody and colleagues (1984), who did not find differential efficacy of therapies for patients high in psychiatric severity, high psychiatric severity patients in the Kadden study did better with the coping skills treatment than with the interactional treatment. Kadden and coworkers also found that alcoholics high in sociopathy benefited more from a CB-based coping skills treatment than from an interactional therapy. Patients low in sociopathy, however, did better with the interactional therapy. This sociopathy/psychotherapy interaction existed only when sociopathy was measured with the California Personality Inventory Socialization Scale and not when measured according to DSM-III criteria. This highlights the need for the unambiguous definition of constructs and the valid and reliable measurement of these constructs.

In summary, patient variables are an important determinant of successful psychotherapy. There is evidence that patients with moderate-to-high levels of psychiatric severity benefit from psychotherapy, but those with low levels can benefit just as much with drug counseling alone. ASP disorder without another nonsubstance abuse psychiatric diagnosis appears to be an indicator for a poor response to psychotherapy. However, there is some evidence that patients with this characteristic may be better helped with a skills training-oriented therapy than with an interactional therapy. Other patient characteristics that may be linked to successful psychotherapy outcome have yet to be explored.

## CONCLUSION AND COMMENTS

In a review of the literature on the characteristics of patients, therapists, and therapies related to successful psychotherapy, some conclusions have emerged. First of all, no one type of psychotherapy has been consistently demonstrated to be more effective than another in the treatment of drug abusers. Second, there are a variety of therapist and patient variables that seem to be important determinants of successful therapy. But this is not the whole picture. Psychotherapy does not occur in isolation. Rather, in substance abuse treatment, it is best administered as part of a comprehensive drug abuse treatment program, which can play a major role in treatment outcome (Corty and Ball 1987; Woody et al. 1989). Pharmacological interventions, drug education and counseling, contingency management, and self-help groups may all be available to the drug abuser as part of the comprehensive drug abuse treatment package (Spitz and Rosecan 1987; Millman 1988; Washton 1988).

Research is needed not only in the areas of the best therapies, the most efficacious components of therapies, the most effective therapists, and the most suitable patients for psychotherapy but also in the area of how psychotherapy affects and is affected by the context in which it occurs. We are beginning to understand the conditions under which successful psychotherapy with substance abusers can occur. Future research not only must address the specifics of how to do effective psychotherapy but also must address the questions of when and how additional interventions potentiate the effectiveness of psychotherapy with substance abusers and vice versa.

## REFERENCES

- Alexander, L.B., and Luborsky, L. The Penn Helping Alliance Scales. In: Greenberg, L., and Pinsof, W., eds. *The Psychotherapeutic Process: A Research Handbook*. New York: Guilford Press, 1986. pp. 325-366.
- Carey, K.B., and Carey, M.P. "Social Problem-Solving in Dual Diagnosis Patients." Submitted for publication.
- Carroll, K.; Rounsaville, B.; and Gawin, F. "A Comparative Trial of Psychotherapies for Ambulatory Cocaine Abusers: Relapse Prevention and Interpersonal Psychotherapy." Submitted for publication.
- Corty, E., and Ball, J.C. Admissions to methadone maintenance: Comparisons between programs and implications for treatment. *J Subst Abuse Treat* 4:181-187, 1987.
- Crits-Christoph, P.; Beebe, K.; and Connolly, M.B. "Therapist Effects in the Treatment of Drug Dependence: Implications for Conducting Comparative Treatment Studies." Paper presented at the National Institute on Drug Abuse

- Technical Review Meeting on Psychotherapy and Counseling in the Treatment of Drug Abuse, Bethesda, MD, May 18-19, 1989.
- Hall, R.C.W.; Popkin, M.K.; DeVaul, R.; and Stickney, S.K. The effect of unrecognized drug abuse on diagnosis and therapeutic outcome. *Am J Drug Alcohol Abuse* 4:455-465, 1977.
- Kadden, R.M.; Cooney, N.L.; Getter, H.; and Litt, M.D. Matching alcoholics to coping skills or interactional therapies: Posttreatment results. *J Consult Clin Psychol*, in press.
- Kaufman, E. The psychotherapy of dually diagnosed patients. *J Subst Abuse Treat* 6:9-18, 1989.
- Kaufman, E., and Kaufman, P. *Family Therapy of Drug and Alcohol Abuse*. New York: Ardner Press, 1979.
- Kleinman, P.H.; Woody, G.E.; Todd, T.; Millman, R.B.; Kang, S.; Kemp, J.; and Lipton, D.S. "Crack and Cocaine Abusers in Outpatient Psychotherapy." Paper presented at the National Institute on Drug Abuse Technical Review Meeting on Psychotherapy and Counseling in the Treatment of Drug Abuse, Bethesda, MD, May 18-19, 1989.
- Kosten, T.R., and Rounsaville, B.J. Psychopathology in opioid addicts. *Psychiatr Clin North Am* 9(3):515-532, 1986.
- Lambert, M.J.; Shapiro, D.A.; and Bergin, A.E. The effectiveness of psychotherapy. In: Garfield, S.L., and Bergin, A.E., eds. *Handbook of Psychotherapy and Behavior Change*. New York: Wiley, 1986. pp. 157-211.
- Luborsky, L.; Crits-Christoph, P.; McLellan, A.T.; Woody, G.; Piper, W.; Liberman, B.; Imber, S.; and Pilkonis, P. Do therapists vary much in their success? Findings from four outcome studies. *Am J Orthopsychiatry* 56(4):501-512, 1986.
- Luborsky, L.; McLellan, A.T.; Woody, G.E.; O'Brien, C.P.; and Auerbach, A. Therapist success and its determinants. *Arch Gen Psychiatry* 42:602-611, 1985.
- Luborsky, L.; Singer, B.; and Luborsky, L. Comparative studies of psychotherapies: Is it true that "everyone has won and all must have prizes?" *Arch Gen Psychiatry* 32:995-1007, 1975.
- Martindale, C. The therapist-as-fixed-effect fallacy in psychotherapy research. *J Consult Clin Psychol* 46(6):1526-1530, 1978.
- McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Alcohol and drug abuse treatment in three different populations: Is there improvement and is it predictable? *Am J Drug Alcohol Abuse* 12(1 and 2): 101-120, 1986.
- McLellan, A.T.; Luborsky, L.; Woody, G.E.; O'Brien, C.P.; and Druley, K.A. Predicting response to alcohol and drug abuse treatments: Role of psychiatric severity. *Arch Gen Psychiatry* 40:620-625, 1983.
- McLellan, A.T.; Woody, G.E.; Luborsky, L.; and Goehl, L. Is the counselor an "active ingredient" in substance abuse rehabilitation? An examination of

- treatment success among four counselors. *J Nerv Ment Dis* 176:423-430, 1988.
- Millman, R.B. Evaluation and clinical management of cocaine abusers. *J Clin Psychiatry* 49(2) [Suppl]:27-33, 1988.
- Rogalski, C.J. Professional psychotherapy and its relationship to compliance in treatment. *Int J Addict* 19(5):521-539, 1984.
- Rounsaville, B.J.; Dolinsky, A.S.; Babor, T.F.; and Meyer, R.E. Psychopathology as a predictor of treatment outcome in alcoholics. *Arch Gen Psychiatry* 44:505-513, 1987.
- Rounsaville, B.J.; Glazer, W.; Wilber, C.H.; Weissman, M.M.; and Kleber, H.D. Short-term interpersonal psychotherapy in methadone-maintained opiate addicts. *Arch Gen Psychiatry* 40:629-636, 1983.
- Rounsaville, B.J.; Kosten, T.R.; Weissman, M.W.; and Kleber, H.D. Prognostic significance of psychopathology in untreated opiate addicts. *Arch Gen Psychiatry* 43:739-745, 1986.
- Rounsaville, B.J.; Weissman, M.W.; Crits-Christoph, K.; Wilbur, C.; and Kleber, H. Diagnosis and symptoms of depression in opiate addicts. *Arch Gen Psychiatry* 39:151-156, 1982b.
- Rounsaville, B.J.; Weissman, M.M.; Kleber, H.D.; and Wilbur, C.H. Heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1982a.
- Shamsie, S.J. Antisocial adolescents: Our treatments do not work: Where do we go from here? *Can J Psychiatry* 26:357-364, 1981.
- Smith, M.L., and Glass, G.V. Meta-analysis of psychotherapy outcome studies. *Am Psychol* 32:752-760, 1977.
- Spitz, H.I., and Rosecan, J.S. Overview of cocaine abuse treatment. In: Spitz, H.I., and Rosecan, J.S., eds. *Cocaine Abuse: New Directions in Treatment and Research*. New York: Brunner/Mazel, Inc., 1987. pp. 97-118.
- Stanton, M.D.; Todd, T.C.; and associates. *The Family Therapy of Drug Abuse and Addiction*. New York: Guilford Press, 1982.
- Stiles, W.B.; Shapiro, D.A.; and Elliott, R. Are all psychotherapies equivalent? *Am Psychol* 41:165-180, 1986.
- Wallen, M.C., and Weiner, H.D. Impediments to effective treatment of the dually diagnosed patient. *J Psychoactive Drugs* 21(2):161-168, 1989.
- Washon, A.M. Preventing relapse to cocaine. *J Clin Psychiatry* 49(2)[Suppl]:34-38, 1988.
- Weiss, R.D., and Mirin, S.M. Subtypes of cocaine abusers. *Psychiatr Clin North Am* 9(3):491-501, 1986.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; and O'Brien, C.P. "Psychotherapy for Methadone-Maintained Opiate Addicts." Paper presented at the National Institute on Drug Abuse Technical Review Meeting on Psychotherapy and Counseling in the Treatment of Drug Abuse, Bethesda, MD, May 18-19,

Counseling in the Treatment of Drug Abuse, Bethesda, MD, May 18-19, 1989.

Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Sociopathy and psychotherapy outcome. *Arch Gen Psychiatry* 42:1081-1086, 1985.

Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Twelve-month follow-up of psychotherapy for opiate dependence. *Am J Psychiatry* 144:590-596, 1987.

Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Blaine, J.; Herman, I.; and Hole, A. Psychotherapy for opiate addicts—does it help? *Arch Gen Psychiatry* 40:639-645, 1983.

Woody, G.E.; McLellan, A.T.; Luborsky, L.; O'Brien, C.P.; Blaine, J.; Fox, S.; Herman, I.; and Beck, A.T. Severity of psychiatric symptoms as a predictor of benefits from psychotherapy: The Veterans Administration-Penn Study. *Am J Psychiatry* 141:1172-1177, 1984.

## **AUTHOR**

Lisa Simon Onken, Ph.D.  
Research Psychologist  
Treatment Research Branch  
Division of Clinical Research  
National Institute on Drug Abuse  
Room 10A-30  
5600 Fishers Lane  
Rockville, MD 20857

# Relapse Prevention

*Sharon M. Hall, David A. Wasserman, and Barbara E. Havassy*

## INTRODUCTION

Preventing relapse is a challenging enterprise. Usually, relapse takes place after patients have left our treatment units and laboratories. Thus, the crucial events leading up to a relapse, and the episode itself, remain outside our arena of observation and influence. Nevertheless, answers to basic questions about relapse are crucial if we are to prevent it. Although we have knowledge about some of the variables that predict and control relapse, many puzzles remain.

What is relapse? Few would disagree with Rounsaville (1986) that relapse is a "resumption of substance abuse following a period of abstinence . . ." (p. 172). Yet the extent of drug use that constitutes full-blown relapse is a matter of debate. To adherents of a strict abstinence model, a single self-administration of *any* abusable drug (usually excluding nicotine) would qualify as relapse. A return to baseline use of one's problem drug(s) is another common criterion. At a recent National Heart, Lung, and Blood Institute conference on smoking (Ossip-Klein et al. 1986) the cutoff adopted for relapse was 7 consecutive days of use. This definition, however, may be more appropriate to nicotine than to drugs with highly variable use patterns, for example, cocaine. (There is also no consensus regarding the length of time an individual must be drug-free before he or she can be said to have "relapsed." Forty-eight hours appears to be an acceptable criterion.)

Whatever level of resumed use is agreed to constitute relapse, three stages in the relapse process are usually of interest: (1) the first lapse, or "slip," after a quit episode; (2) relapse itself, defined as some level of continuing use; and (3) the transition between the two. Seemingly few individuals, having slipped, avoid returning to pretreatment levels of drug use, at least temporarily. For example, in a recent study (Hall et al., in press), we found that 90 percent of a sample of treated opiate addicts who slipped returned to using at least 4 days a week by the end of 12 weeks. Similarly, in a study by Brandon and colleagues (1986), more than 90 percent of ex-smokers who smoked one cigarette returned to at least 3 consecutive days of smoking during a 2-year followup.

Fortunately, these setbacks are not necessarily permanent. A study by Gossop and colleagues (1987) in England indicated that, although 72 percent of a sample of treated opiate addicts had lapsed within 6 weeks after treatment termination, 47 percent were abstinent at 6 months.

Many characteristics of the relapse process have been insufficiently studied. Whether the same or different variables control the first lapse and relapse is unknown and should be clarified. If the two outcomes are controlled by different variables, this may explain inconsistent research findings. Changes in risk factors across time should also be investigated. The variables that cause relapse should differ as a function of time abstinent. Yet we know little about which variables are important at which time. Another issue is change over time in an individual's level of risk. Clinically, it appears that the risk of drug use for successful ex-drug users eventually reaches a plateau, becoming similar to the risk faced by those who have never used drugs. We know little about the intermediate phases of abstinence, the length of time individuals spend in various phases, or whether these phenomena differ by drug of abuse.

## **MODELS OF RELAPSE**

Despite lack of an agreed-on marker for relapse and inadequate data on the relapse process, there are two classes of models for explaining how relapse occurs: cognitive-behavioral and conditioning models.

### **Cognitive-Behavioral Models**

The cognitive-behavioral model that has received the most attention is that of Marlatt and Gordon (1986). The model focuses on situations in which there is a high risk of relapse and on the ex-drug user's responses to them. Marlatt and Gordon suggest that the relapse process begins when the ex-drug user confronts a high-risk situation for which he or she has no effective coping response. According to the model, high-risk situations can occur for many reasons, including social pressure to use drugs, negative emotions, and, less frequently, withdrawal symptoms and positive emotions. The lack of a coping response, combined with positive expectancies for the initial effects of the drug in the situation, greatly heighten the risk of a slip.

According to Marlatt and Gordon (1986), a first slip may lead to a full-blown relapse via the abstinence violation effect (AVE), a core construct in the model. The AVE is said to occur in individuals who are committed to absolute abstinence. It has two components: (1) a causal attribution of responsibility for the slip emphasizing internal, stable, global, and uncontrollable factors and (2) a negative affective reaction to the attribution. This affective reaction is said to be

similar to cognitive dissonance: The individual believes that drug use is unacceptable, yet he or she has just used a drug. This conflict state is aversive, and individuals may attempt to reduce it as they have customarily dealt with negative states in the past, that is, by continuing to use the drug. Alternatively, they may resolve the conflict by redefining themselves as helpless addicts. This may lead to the cessation of all efforts to control drug use.

### **Conditioning Models**

Conditioning models emphasize craving. In the classical conditioning model proposed by Wikler (e.g., Wikler 1948) drug-craving is assumed to reflect the conditioning of withdrawal symptoms and drug effects to both environmental and interoceptive stimuli. A variant is the opponent-process or compensatory response model (Solomon 1977; Solomon and Corbit 1974; Siegel 1979). In this model, responses opposite to the drug effects are conditioned to drug cues via a homeostatic process. These opposing responses presumably compensate for the 'impending pharmacological assault' (Niaura et al. 1988, p. 134) of the drug. For example, a cocaine user might initially use the drug to increase his or her energy level in social situations. Over time, the presence of these social stimuli would elicit a compensatory response of decreased arousal. This withdrawal-like state would be experienced as aversive and interpreted as craving.

### **STATUS OF KEY VARIABLES**

Models of relapse suggest a plethora of variables that may be important in relapse prevention. Although only a few have been well explored in empirical studies, the literature on these does offer some direction for improving relapse prevention treatment.

### **Commitment and Motivation**

The importance of a strong initial and long-term commitment to abstinence has been emphasized repeatedly in the addiction literature (e.g., Brownell et al. 1986; Miller 1986). Several dimensions of commitment to abstinence may be important for preventing relapse. A central one is abstinence goal, the degree to which one's aim is total and permanent abstinence versus a less restrictive goal, for example, periods of abstinence with occasional slips. In our own work (Hall et al., in press), we found that a goal of absolute abstinence at end of treatment predicted better short-term outcomes in opiate addicts, smokers, and alcoholics than did less stringent goals. However, all our subjects were drawn from programs that endorsed strict abstinence. It is unknown whether our

findings would be replicated with subjects exposed to other treatment philosophies and instructed in how to respond to occasional slips.

As with any resolution, enthusiasm for abstinence may decay over time (Saunders and Allsop 1987). Early in treatment, drug users may be highly motivated to abstain because of real or threatened aversive consequences of continued use (e.g., job loss, marital dissolution, or imprisonment). But as potential negative consequences are averted or forgotten, the positively reinforcing aspects of drug use may become more salient (e.g., the “euphoric recall” of heroin and cocaine users). A decision to slip or relapse may be the ultimate result. This shift in the perceived costs and benefits of habit change (Hall 1980) suggests that postcessation motivation for abstinence should be continually monitored and bolstered. A setback may be likely if the perceived costs of change begin to outweigh the perceived benefits.

Many investigators have studied methods for maintaining motivation during treatment. One such intervention is contingency management. If motivation is conceptualized as the arrangement of environmental contingencies for the purpose of staying drug free, then contingency management studies have much to contribute to relapse prevention. Contingency management using positive or negative reinforcement has been demonstrated in many drug-using populations. Positive reinforcement may involve the provision of monetary payments or other incentives, including methadone dose changes and take-home doses. Negative contingencies include loss of deposits, forced contributions to disfavored organizations, and other penalties of special relevance to the client. Anker and Crowley (1982) used contingency contracts successfully with cocaine patients. Outcomes were strikingly positive, but subjects were self-selected and may have been strongly motivated from the outset. Stitzer and her group (e.g., Stitzer et al. 1982) repeatedly have obtained positive results from imposing contingencies on illicit drug use in methadone maintenance and detoxification patients. Our group has reported similar outcomes with these populations (Hall et al. 1979).

A criticism of contingency contracting has been that it promotes abstinence only as long as the contingencies are in force. Once they are removed, motivation wanes. This is not a problem of the interventions *per se*. Return of responses to baseline levels when contingencies are stopped is predictable from the model on which the intervention is based. Given that extinction occurs, however, longer term interventions using clinic-provided contingencies may be necessary. Another important direction may be the development of strategies that transfer contingency management indefinitely to community institutions, including families and workplaces.

## **Coping Skills**

Coping skills training for negotiation of high-risk situations has been highly touted, but the results have been mixed. Skills training has been effective sometimes with alcoholics (e.g., Chaney et al. 1978; Eriksen et al. 1986) and, less consistently, with smokers (Hall et al. 1984a, 1985, 1987). Comparable research with opiate and other illicit drug users is scanty and, so far, not encouraging (e.g., Hawkins et al. 1989). There are several possible reasons for the equivocal results of skills training. The skills needed for relapse prevention may be so elementary that skills training is superfluous. If so, more emphasis may be needed on a patient's motivation to use the skills that he or she has. Also, the discrete situations in which the drug is available (e.g., being offered a drug) may be insufficient causes of relapse. The complex, chronic life problems that predispose ex-users to be in these situations may be more important. Examples are chronic unemployment and failure to develop drug-free networks, both of which predict relapse. Skills training oriented toward more complex targets, like job-seeking, has been shown to be effective (Hall et al. 1984b). Other relevant skill areas may include *job-holding* skills, parenting skills, and general social skills for developing nondrug-using networks. Research is needed to explicate the role of enhancing these skills in preventing relapse.

## **Social Support**

Social support has been demonstrated to be related to health outcomes and to mortality. Two major dimensions of social support have been identified (Cohen and Wills 1985). *Structural* support concerns the existence of relationships with others, for example, marital status and group memberships. *Functional* support is the degree to which these relationships provide emotional, informational, and material resources. Recently there has been increased attention to social support variables in drug treatment research, with general social support being distinguished from support specific to abstinence.

Across addictions, intriguing correlations have been found between levels of support (primarily structural) and drug treatment outcomes (e.g., Havassy et al. 1989; Hawkins and Fraser 1987; Mermelstein et al. 1983). Nevertheless, formal interventions to increase levels of support usually have been ineffective in preventing relapse (Lichtenstein et al. 1986). One exception to this is the work of Stanton and colleagues (1979) on family therapy with opiate abusers. Encouraging results also have been obtained using marital therapy with alcoholics (O'Farrell 1989). It appears that successful treatment interventions (compared with those that have failed) have been distinguished by intensive intimate engagement with the primary social system, compared with less intensive methods, such as spouse training (e.g., McIntyre-Kingsolver et al.

1986), or involvement of less intimate systems such as work groups (e.g., Malott et al. 1984).

Clinical lore indicates that involvement in nonfamilial social support programs that emphasize abstinence also helps prevent relapse. Although 12-step self-help recovery organizations, such as Narcotics Anonymous, can address this need, they may not be palatable to substance abusers who find the spiritual orientation or the meeting content offensive. Development and evaluation of support programs offering alternative philosophies are crucial. A promising alternative is Recovery Training and Self Help (McAuliffe and Ch'ien 1986), created for treated opiate addicts.

Research on social support points to gender differences, and not surprisingly, correlational evidence primarily from the alcoholism literature suggests that social support may be particularly important for drug-abusing women. Investigators have found that alcoholic women have less social support than nonalcoholic women (McCormack 1985); familial support is important in successful treatment for women (Billings and Moos 1982); and the number of supportive relationships predicts treatment outcome (MacDonald 1987). Some clinical reports indicate that women not only fail to receive active support for abstinence but also actually may encounter opposition to entering treatment from family and friends (Amaro and Beckman 1984). Reasons for this include the shifting of child care responsibilities to other family members and the spouses' reliance on the women for meeting their day-to-day needs. The importance of providing adequate child care to remove this major treatment barrier has been emphasized (e.g., Blume 1982).

### **Negative Affect**

Drug abusers have high rates of current and historical major depression (Rounsaville et al. 1982). In treatment research, both negative moods and a history of depression predict poorer initial treatment outcomes and higher relapse rates (e.g., Hatsukami and Pickens 1982). Thus, depressed patients in treatment systems should be identified. For some patients, especially those with current major depressions, psychoactive medications have been shown to be useful (e.g., Woody et al. 1982). Many patients who do not have diagnosable mood disorders may still be dysphoric much of the time, and psychological interventions to modify and prevent such dysphoria are promising tools for preventing relapse. The work of Woody and his colleagues (1983, 1987) on psychotherapy lends support to this idea. Our current work with smokers offers a promising new direction. In collaboration with Ricardo Muñoz, we have incorporated cognitive-behavioral interventions for depression into our smoking treatment protocol. Muñoz's "depression prevention" intervention has

been shown to decrease negative moods up to 1 year after treatment in persons at high risk for depression (Muñoz et al. 1989). We expect that these interventions will be readily adaptable to other drug treatment populations.

### **Cue Reactivity**

Conditioning models suggest that internal responses conditioned to environmental cues can lead to relapse. Exposure techniques for reducing cue responsiveness may therefore prolong abstinence. Relevant strategies have included practicing drug-avoidance in selected real-life situations (e.g., Blakey and Baker 1980) and administration of priming doses followed by response prevention (e.g., Hodgson and Rankin 1976). Early findings in this area were difficult to interpret because of small sample sizes, overreliance on self-reports, and lack of followup. Recently, conditioned responses to drug-related stimuli (paraphernalia, audiotapes, and videotapes) have been systematically studied by Childress and her colleagues (e.g., Childress et al. 1988; McLellan et al. 1986; O'Brien et al. 1988). Although these laboratory procedures have been shown effective in reducing conditioned responses, it is still unknown whether better long-term outcomes will result. It is plausible that, although the treatment model is a good one, successful clinical implementation will require modifications such as booster sessions and structured implementation in the natural environment.

The role of other drugs as conditioned cues deserves special mention. For example, many clinicians believe that alcohol consumption is an important precursor to cocaine relapse. Also, clinical lore suggests that, for individuals whose use of a specific drug has been linked to other drugs, total abstinence from all drugs may be necessary. There is intriguing laboratory research about the effects of one drug on another (e.g., Roache and Griffiths 1987). Yet we know little about why, how, or even whether use of one drug causes use of another in the natural environment. We can improve drug treatment by obtaining such knowledge.

In addition to the key variables already discussed, two others seem intuitively important: "stress" and the abstinence violation effect. In contrast to the previous areas, however, there are as yet insufficient data to suggest potential interventions.

### **"Stress"**

Stress has long been implicated in drug abuse. The term "stress" has been applied to objective situations, such as major life events, as well as to chronic minor irritants ("hassles"). Relevant research has been largely retrospective, as

in studies in which users are asked to describe the events leading to a recent lapse. Whether the stress-relapse link is real or artifactual is unclear. A critical question is, To what extent does postlapse retrospection color the perception of antecedent events? For example, if one has lapsed and seeks to understand or interpret the lapse, a previously neutral-seeming situation preceding the lapse may be reinterpreted as stressful. A second issue is the extent to which observed correlations are illusory. Addicts tend to experience a high level of stressful events. One of these events may precede a lapse yet still not be causative. Actual causative variables may be subtle and not easily verbalized. In our own work with opiate users, alcoholics, and smokers (Hall et al., in press), retrospective analyses showed stress to be linked significantly to relapse. Prospective examination of the same data showed no relationship. Thus, our findings support the belief that the “true” relationship between stress and relapse may not be strong.

A better understanding of the role of stress in relapse is needed. Additional prospective research employing a fine-grained approach (i.e., assessing stress on a day-to-day basis) should help illuminate the stress-relapse relationship. Without additional knowledge, it is difficult to suggest answers to relevant treatment questions such as whether stress-reduction training is advisable.

### **Abstinence Violation Effect**

As appealing as Marlatt and Gordon’s (1985) formulation of the AVE is, empirical evidence of its role in relapse is thus far limited to a study of cigarette smokers (Curry et al. 1987). The phenomenon and its consequences still await demonstration across drug-using populations. Still, the AVE remains intriguing. It would seem worthwhile investing in studies establishing the importance of the AVE in relapse and then seeking ways to address it in drug treatment.

### **SUMMARY**

Although knowledge about relapse prevention is still at an early stage, the extant data highlight the importance of several constructs.

1. Motivation for abstinence remains central. The construct itself is often clouded because of its association with mystical notions such as willpower and self-control. We know that manipulation of environmental events can increase motivation. These interventions are effective, however, only as long as the contingencies are in effect. We need to develop and evaluate strategies for transferring contingency management to the natural environment, that is, to institutions and groups that can perpetuate them for the long term. Also, clarification of the kinds of abstinence goals needed to prevent relapse is important.

2. Coping skills have been studied by several investigators, but research on these, except for job-finding skills, is not encouraging. The skills usually taught may be too basic. Skills training oriented to complex targets, such as building nondrug-using networks, may be useful and should be further explored.
3. Social support is clearly important, yet we do not know how best to use it to promote abstinence. The little research available suggests that both familial and nonfamilial systems should be mobilized. We need to define abstinence-promoting supportive behaviors, identify and engage important support systems in treatment, and help patients expand their nondrug-using contacts.
4. Negative affect may be causally related to relapse. We need to continue efforts to identify dysphoric patients and develop interventions to ameliorate dysphoria *concurrent* with drug abuse treatment (cf. Zweben and Smith 1989).
5. Drug cue reactivity and extinction to drug cues have been demonstrated in the laboratory. What is needed in this promising line of research are (1) investigation of cues and cue-reactivity phenomena in the natural environment or in conditions closely mimicking that environment and (2) extinction methods that transfer from the treatment setting to the outside world.

Other phenomena are not well understood but seem intuitively important. Maladaptive ways of responding to lapses, such as the AVE, are included here. Another is stress, which our patients and our clinical intuition tell us must play a role in relapse. Its exact role is far from clear.

## REFERENCES

- Amaro, H., and Beckman, L.J. Patterns of women's use of alcohol treatment agencies. *Bull Soc Psychol Addict Behav* 3:145-154, 1984.
- Anker, A.L., and Crowley, T.J. Use of contingency in specialty clinics for cocaine abuse. In: Harris, L.S., ed. *Problems of Drug Dependence, 1981: Proceedings of the 43rd Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 41. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1982. pp. 452-459.
- Billings, A.G., and Moos, R.H. Social support and functioning among community and clinical groups: A panel model. *J Behav Med* 5:295-311, 1982.

- Blakey, R., and Baker, R. An exposure approach to alcohol abuse. *Behav Res Ther* 18:319-325, 1980.
- Blume, S.B. Alcohol problems in women. *N Y State J Med* 82:1222-1224, 1982.
- Brandon, T.H.; Tiffany, S.T.; and Baker, T.B. The process of smoking relapse. In: Tims, F.M., and Leukefeld, C.G., eds. *Relapse and Recovery in Drug Abuse*. National Institute on Drug Abuse Research Monograph 72. DHHS Pub. No. (ADM)86-1473. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 104-117.
- Brownell, K.D.; Marlatt, G.A.; Lichtenstein, E.; and Wilson, G.T. Understanding and preventing relapse. *Am Psychol* 141:765-782, 1986.
- Chaney, E.F.; O'Leary, M.R.; and Marlatt, G.A. Skill training with alcoholics. *J Consult Clin Psychol* 46:1092-1104, 1978.
- Childress, A.R.; McLellan, A.T.; Ehrman, R.; and O'Brien, C.P. Classically conditioned responses in opioid and cocaine dependence: A role in relapse? In: Ray, B.A., ed. *Learning Factors in Substance Abuse*. National Institute on Drug Abuse Research Monograph 84. DHHS Pub. No. (ADM)88-1576. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 25-43.
- Cohen, S., and Wills, T.A. Stress, social support, and the buffering hypothesis. *Psychol Bull* 98:310-357, 1985.
- Curry, S.; Marlatt, G.A.; and Gordon, J.R. Abstinence violation effect: Validation of an attributional construct with smoking cessation. *J Consult Clin Psychol* 55:145-149, 1987.
- Eriksen, L.; Bjornstad, S.; and Gotestam, K.G. Social skills training in groups for alcoholics: One-year treatment outcome for groups and individuals. *Addict Behav* 11:309-329, 1986.
- Gossop, M.; Green, L.; Phillips, G.; and Bradley, B. What happens to opiate addicts immediately after treatment: A prospective follow-up study. *Br Med J* 294:1377-1380, 1987.
- Hall, S.M. Self-management and therapeutic maintenance: Theory and research. In: Karoly, P., and Steffen, J., eds. *Improving the Long-Term Effects of Psychotherapy*. New York: Gardner, 1980. pp. 263-300.
- Hall, S.M.; Bass, A.; Hargreaves, W.A.; and Loeb, P. Contingency management and information feedback in outpatient heroin detoxification. *Behav Ther* 10:443-451, 1979.
- Hall, S.M.; Havassy, B.E.; and Wasserman, D.A. Commitment to abstinence and acute stress in relapse to alcohol, opiates, and nicotine. *J Consult Clin Psychol*, in press.
- Hall, S.M.; Loeb, P.C.; and Allen, T. The Job Seekers' Workshop: A skill training program for drug treatment clients. In: Grabowski, J.; Stitzer, M.L.; and Henningfield, J.E., eds. *Behavioral Intervention Techniques in Drug Abuse Treatment*. National Institute on Drug Abuse Research Monograph

46. DHHS Pub. No. (ADM)84-1282. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984b. pp. 115-130.
- Hall, S.M.; Rugg, D.; Tunstall, C.; and Jones, R.T. Preventing relapse to cigarette smoking by behavioral skill training. *J Consult Clin Psychol* 52:372-382, 1984a.
- Hall, S.M.; Tunstall, C.D.; Ginsberg, D.; Benowitz, N.L.; and Jones, R.T. Nicotine gum and behavioral treatment: A placebo controlled trial. *J Consult Clin Psychol* 55:603-605, 1987.
- Hall, S.M.; Tunstall, C.; Rugg, D.; Jones, R.T.; and Benowitz, N. Nicotine gum and behavioral treatment in smoking cessation. *J Consult Clin Psychol* 53:256-258, 1985.
- Hatsukami, D., and Pickens, R.W. Posttreatment depression in an alcohol and drug abuse population. *Am J Psychiatry* 139:1563-1566, 1982.
- Havassy, B.E.; Hall, S.M.; and Wasserman, D.A. The role of social support in relapse to tobacco, alcohol, and opiate use: Commonalities across drug groups, submitted for publication.
- Hawkins, J.D.; Catalano, R.F.; Gillmore, M.R.; and Wells, E.A. Skills training for drug abusers: Generalization, maintenance, and effects on drug use. *J Consult Clin Psychol* 57:559-563, 1989.
- Hawkins, J.D., and Fraser, M.W. The social networks of drug abusers before and after treatment. *Int J Addict* 22:343-355, 1987.
- Hodgson, R.J., and Rankin, H.J. Modification of excessive drinking by cue exposure. *Behav Res Ther* 14:305-307, 1976.
- Lichtenstein, E.; Glasgow, R.E.; and Abrams, D.B. Social support in smoking cessation: in search of effective interventions. *Behav Ther* 17:607-619, 1986.
- MacDonald, J.G. Prediction of treatment outcomes for alcoholic women. *Int J Addict* 22:235-248, 1987.
- Malott, J.M.; Glasgow, R.E.; O'Neill, H.K.; and Klesges, R.C. Coworker social support in a worksite smoking control program. *J Appl Behav Anal* 17:485-495, 1984.
- Marlatt, G.A., and Gordon, J.R. *Relapse Prevention*. New York: Guilford Press, 1985.
- McAuliffe, W.E., and Ch'ien, J.M.N. Recovery training and self-help: A relapse-prevention program for treated opiate addicts. *J Subst Abuse Treat* 3:9-20, 1986.
- McCormack, A. Risk for alcohol-related accidents in divorced and separated women. *J Stud Alcohol* 46:240-243, 1985.
- McIntyre-Kingsolver, K.; Lichtenstein, E.; and Mermelstein, R.J. Spouse training in a multicomponent smoking cessation program. *Behav Ther* 17:67-74, 1986.
- McLellan, A.T.; Childress, A.R.; Ehrman, R.; and O'Brien, C.P. Extinguishing conditioned responses during opiate dependence treatment: Turning

- laboratory findings into clinical procedures. *J Subst Abuse Treat* 3:33-40, 1986.
- Mermelstein, R.; Lichtenstein, E.; and McIntyre, K. Partner support and relapse in smoking cessation programs. *J Consult Clin Psychol* 151:465-466, 1983.
- Miller, W.R. Motivation for treatment: A review with special emphasis on alcoholism. *Psychol Bull* 98:84-107, 1985.
- Muñoz, R.S.; Ying, Y.W.; Bernal, G.; Perez-Stable, E.J.; Sorensen, J.; Hargreaves, W.A.; and Miranda, J. Prevention of depression: A randomized control trial with medical outpatients, submitted for publication.
- Niaura, R.S.; Rohsenow, D.J.; Binkoff, J.A.; Monti, P.M.; Pedraza, M.; and Abrams, D.B. Relevance of cue reactivity to understanding alcohol and smoking relapse. *J Abnorm Psychol* 97:133-152, 1988.
- O'Brien, C.P.; Childress, A.R.; Arndt, I.O.; McLellan, A.T.; Woody, G.E.; and Maany, I. Pharmacological and behavioral treatments of cocaine dependence: Controlled studies. *J Clin Psychiatry* 49(2)[Suppl]:17-22, 1988.
- O'Farrell, T.J. Marital and family therapy in alcoholism treatment. *J Subst Abuse Treat* 6:23-29, 1989.
- Ossip-Klein, D.J.; Bigelow, G.; Parker, R.; Curry, S.; Hall, S.; and Kirkland, S. Task force 1: Classification and assessment of smoking behavior. *Health Psychol* 5[Suppl]:3-11, 1986.
- Roache, J.D., and Griffiths, R.R. interactions of diazepam and caffeine: Behavioral and subjective dose effects in humans. *Pharmacol Biochem Behav* 26:801-812, 1987.
- Rounsaville, B.J. Clinical implications of relapse research. In: Tims, F.M., and Leukefeld, C.G., eds. *Relapse and Recovery in Drug Abuse*. National Institute on Drug Abuse Research Monograph 72. DHHS Pub. No. (ADM)86-1473. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 172-184.
- Rounsaville, B.J.; Weissman, M.M.; Crits-Christoph, K.; Wilber, C.; and Kleber, H. Diagnosis and symptoms of depression in opiate addicts. *Arch Gen Psychiatry* 39:151-156, 1982.
- Saunders, B., and Allsop, A. Relapse: A psychological perspective. *Br J Addict* 82:417-429, 1987.
- Siegel, S. The role of conditioning in drug tolerance and addiction. in: Keehn, J.D., ed. *Psychopathology in Animals: Research and Treatment Implications*. New York: Academic Press, 1979. pp. 143-168.
- Solomon, R.L. An opponent-process theory of acquired motivation: IV. The affective dynamics of addiction. in: Maser, J., and Seligman, M.E.P., eds. *Psychopathology: Experimental Models*. San Francisco: W.H. Freeman, 1977.
- Solomon, R.L., and Corbit, J.D. An opponent-process theory of motivation: I. Temporal dynamics of affect. *Psychol Rev* 81:119-145, 1974.

- Stanton, M.D.; Todd, T.C.; Steier, F.; Van Duesen, J.M.; Marder, L.R.; Rosoff, R.J.; Seaman, S.F.; and Skibinski, E. *Family Characteristics and Family Therapy of Heroin Addicts: Final Report, 1974-1978*. Report No. R01 DA-01119 submitted to the National Institute on Drug Abuse, Rockville, MD, 1979.
- Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A. Comparison of three outpatient methadone detoxification procedures. in: Harris, L.S., ed. *Problems of Drug Dependence, 1981. Proceedings of the 43rd Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 41. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1982. pp. 239-245.
- Wikler, A. Recent progress in research on the neurophysiological basis of morphine addiction. *Am J Psychiatry* 105:329-338, 1948.
- Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; Beck, A.T.; Blaine, J.; Herman, I.; and Hole, A. Psychotherapy for opiate addicts. *Arch Gen Psychiatry* 40:639-645, 1983.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Twelve-month follow-up of psychotherapy for opiate dependence. *Am J Psychiatry* 144:590-596, 1987.
- Woody, G.E.; O'Brien, C.P.; McLellan, A.T.; Marcovici, M.; and Evans, B.D. The use of antidepressants with methadone in depressed maintenance patients. *Ann N Y Acad Sci* 398:120-127, 1982.
- Zweben, J.E., and Smith, D.E. Considerations in using psychotropic medication with dual diagnosis patients in recovery. *J Psychoactive Drugs* 21:221-228, 1989.

## **ACKNOWLEDGMENTS**

Preparation of this article was supported in part by National Institute on Drug Abuse grants DA-00065, DA-02538, DA-03082, and DA-05582; BRSG grant S07-RR0575; and a Veterans Administration Merit Review grant to the first author.

## **AUTHORS**

Sharon M. Hall, Ph.D.  
Professor  
University of California-San Francisco  
Psychiatry Service (116A)  
San Francisco Veterans Administration Medical Center  
4150 Clement Street  
San Francisco, CA 94121

David A. Wasserman, Ph.D.  
Assistant Professor  
University of California-San Francisco  
Center for Social and Behavioral Sciences  
1350 Seventh Avenue, Room 207  
San Francisco, CA 94122

Barbara E. Havassy, Ph.D.  
Assistant Professor  
University of California-San Francisco  
Department of Psychiatry  
San Francisco General Hospital  
1001 Potrero Avenue, Suite 7M  
San Francisco, CA 94110

# Conditioning Factors May Help To Understand and Prevent Relapse in Patients Who Are Recovering From Drug Dependence

*Charles P. O'Brien, Anna Rose Childress, and A. Thomas McLellan*

## INTRODUCTION

There is general agreement that drug dependence is a chronic relapsing disorder, but there are many aspects of relapse that remain unexplained. In some cases the treated, drug-free former addict reports an occasional, sudden compulsion to obtain the drug. In these instances the relapse may appear paradoxical. For example, the patient has been through a rehabilitation program; he has returned to his job; he is reunited with his family; and he can present an apparently genuine and logical argument that he never intends to touch the drug again. And then, as one patient said recently, "I bumped into a guy that I used to do "coke" with, and my heart started pounding and I started shaking. Then I went on automatic pilot." Although it is possible that some of these patients are trying to evade responsibility for the relapse, they appear sincere, and there is a consistency to their stories. It appears that there are many involuntary aspects to relapse and that the mechanisms of relapse demand further study.

One of the first people to study relapse was Abraham Wikler in the 1940s. He noted the similarity of certain relapse phenomena to conditioned responses. Wikler observed withdrawal-like signs in opiate addicts who were participating in group therapy sessions in the Public Health Service Hospital in Lexington, Kentucky. These patients had not taken opiates for at least several months; they had been completely detoxified; and, thus, they should have had no signs of opiate withdrawal. However, when they started talking about drugs in group therapy, they would suddenly start yawning or tearing and appear as though they were experiencing an opiate abstinence syndrome. Wikler was aware of some of the studies from Pavlov's lab in the 1920s showing that the effects of

morphine could be conditioned. Wikler suggested that some of the withdrawal signs observed in addicts might be conditioned responses (Wikler 1948).

Wikler labeled this phenomenon “conditioned withdrawal,” speculating that environmental stimuli, through classical conditioning, can elicit many of the signs and symptoms of pharmacological withdrawal. He further hypothesized that cues formerly associated with drug effects or drug withdrawal symptoms might play an important role in triggering relapse to drug use in the abstinent opioid abuser. Wikler also pointed out that the adaptation to drugs could be conditioned (Wikler 1973), a phenomenon later explored in a series of elegant studies by Siegel on conditioning of tolerance (Siegel 1976). Wikler developed a rat model for studying morphine withdrawal, and in subsequent experiments (Wikler 1965; Wikler and Pescor 1967) he demonstrated that withdrawal signs in rats could be conditioned. Goldberg and Schuster (1970) Davis and Smith (1974) Siegel (1976), and others confirmed that many drugs from different pharmacological classes can produce conditioned responses. Conditioned opioid withdrawal responses also have been experimentally produced in human subjects (O’Brien 1975; O’Brien et al. 1977) (see Grabowski and O’Brien [1981] for a review of both animal and human demonstrations of classical conditioning experimentally produced by drugs).

## **RELAPSE**

Before discussing the conditioning mechanisms that may be involved with clinical relapse, it is important to place the phenomenon of relapse in perspective. Relapse to drug use in a formerly dependent person is one of the core features of addiction. The typical addict may continue drug use for years before seriously trying to break the habit by entering a treatment program. Although the length of time before requesting treatment varies, the addict is likely to have been changed by a long period of exposure to compulsive drug use. These changes probably involve both physiological and social areas. The repetitive behaviors reinforced by drug effects become ingrained, perhaps by a process that includes classical conditioning. Thus, it is not surprising that the reasons for relapse after treatment may be totally different from the reasons that led to the initial drug use (O’Brien et al. 1986). Both psychosocial and biological factors probably contribute to the phenomenon of relapse. A critical aspect of treatment is the analysis of those factors that increase the likelihood of relapse after a period of abstinence; this allows the treatment team to develop ways to reduce relapses and prolong periods of abstinence.

## **Substance Dependence: A Chronic Disorder**

Our studies focus on methods to achieve the long-term rehabilitation of drug-dependent persons. Treatment success is measured by the function of patients

over the weeks, months, and years after an initial course of treatment. Short-term treatment, including detoxification and 28-day rehabilitation, is not meaningful unless there is a program to continue treatment on an outpatient basis and prevent relapse. Like arthritis, the condition is one that has a proclivity to recur repeatedly, even after apparently successful short-term therapy. In followup studies, we attempt to analyze the factors that precipitate a return to the use of drugs and those that seem to be responsible for a prolonged drug-free period. For drug dependence disorders in general, researchers have found that multiple factors influence the likelihood of relapse.

Four classes of relapse factors are:

Psychiatric disorders, including depression and anxiety disorders

Social factors, including employment opportunities and social support network

Protracted abstinence syndrome varies with the drug. Acute abstinence symptoms for opioids may last 5 to 7 days. Protracted opioid abstinence may persist for 6 months or more. Protracted abstinence symptoms also appear to exist for alcohol and cocaine, but there are only clinical data.

Conditioned responses

Treatment outcome studies show that the presence of psychiatric disorders is the most critical factor influencing success or failure in treatment. Psychiatric disorders greatly influence the prognosis of the entire substance dependence syndrome and, thus, must be specifically addressed and treated. Clinical data also suggest that social factors such as employment opportunities and the availability of social supports play a major role in influencing treatment outcome. Psychiatric variables often are not addressed in traditional treatment programs; it is even less common to find programs that deal directly with protracted abstinence syndrome and conditioned responses. Protracted abstinence symptoms may persist for months after detoxification and probably represent prolonged derangements in homeostatic regulation produced by chronic drug use. The patient interprets these abstinence symptoms as “need” for the drug. The state of autonomic nervous system irritability found in the protracted abstinence syndrome probably makes the patient more reactive to classically conditioned phenomena (see below) as well.

### **Conditioned Responses in Substance Dependence**

Although our research center is engaged in treatment studies aimed at each of the four relapse factors cited above, this chapter focuses on Pavlovian

conditioned responses produced by repeated drug administration in the presence of specific stimuli. Conditioned responses produced by drug administration were first reported from Pavlov's laboratory (Pavlov 1927). Since then, such conditioned responses have been reported in association with the administration or the withdrawal of several classes of drugs in animals and humans (Grabowski and O'Brien 1981). These conditioned responses may be classified as drug-like or drug-opposite. Drug-opposite responses can mimic the drug withdrawal syndrome. If drug-opposite responses are elicited just before a dose of the drug is administered, the conditioned responses produce attenuation of drug effects. This attenuation of drug effects produced by conditioned responses can be called "tolerance," and it may form a partial explanation for the diminished drug effects commonly seen with repeated administration of the same dose of a drug (Siegel 1976).

There is also extensive literature on conditioned drug-like responses (Lynch et al. 1976; Grabowski and O'Brien 1981). Drug-like conditioned responses have been produced experimentally in animals by pairing distinct stimuli with drug administration. After repeated pairing, the stimuli themselves can produce drug-like effects. Drug-like responses also have been described in human subjects exposed to drug-related stimuli or in addicts who self-inject saline when they are expecting opioid (O'Brien 1975). Thus, a conditioning mechanism may form a partial explanation for what are known as the "placebo effects" of drugs. This presumes that drug-like or placebo effects have been conditioned by past exposure to the drugs under similar circumstances to the placebo exposure. Our research over the years has provided clues as to which conditioning paradigms are most likely to produce either drug-like conditioned responses or drug-opposite conditioned responses. Both animal and human data suggest that stimulants such as amphetamine and cocaine are more likely to produce conditioned responses that are drug like, whereas typical opioid use in human subjects produces more prominent drug-opposite responses. There also appear to be influences of timing of the conditioning stimulus and unconditioned stimulus. For example, in opioid users, drug-opposite responses are likely to occur when the subject is presented with preinjection stimuli, but postinjection stimuli more often produce drug-like responses (O'Brien et al. 1986). Much more research will be required to sort out the factors that influence the type and robustness of the conditioned response.

In animal experiments drug-naive subjects can be trained by exposing them to drug effects in association with specific environmental stimuli. Thus, we can control the subject's conditioning paradigm and carefully describe unconditioned and conditioned responses. Of course, in studies of drug-dependent patients there is no direct information about the subject's conditioning history. In most cases the patients have repeatedly self-administered the addicting substance

thousands of times over the years and under similar conditions. We can test for the presence of presumed conditioned responses by observing the patient's subjective and physiological reactions to drug-related stimuli in a test situation and then compare the patient's reactions, both subjective and physiological, to neutral stimuli and drug-associated cues. A particularly interesting group of patients are those who have been drug free in an inpatient program for 28 days before being studied. These patients are detoxified and then treated in a protective environment such as a hospital or a therapeutic community. During the 28-day rehabilitation program, the patients are not exposed to the situations that previously were associated with drug use and are given intensive group and individual counseling. Before discharge, the patients are usually confident that they want to refrain from further drug use and despite previous relapses say, "This time will be different."

The test procedure consists of exposing the patient to stimuli previously associated with obtaining and administering drugs and comparing the patients reactions with the responses produced by control, nondrug-related stimuli. The drug-related stimuli are produced by filming or taping addict volunteers planning a drug purchase, making the purchase, and administering the drugs. The stimuli are specific to the type of drug so that crack users are exposed to crack stimuli. However, the stimuli are not personalized to the individual patient and his or her specific drug-using environments. In other words, all heroin users view the same materials. The current protocol consists of sequential exposure to audiotapes, to videotapes, and then to objects related to the acquisition, preparation, administration, and use of the drug on which the patient has been dependent.

The patients come to the experimental sessions feeling well and confident. They are often surprised by the intensity of their reactions to these artificial stimuli even in the laboratory setting. Opiate addicts studied in this way report dysphoria and other withdrawal-like symptoms and/or signs when exposed to opiate-related stimuli (Teasdale 1973; O'Brien 1975; Ternes et al. 1980; Sideroff and Jarvik 1980; McLellan et al. 1986). We assume that these responses were conditioned during the course of the patient's addiction before coming to the treatment program. Opiate addicts often show such drug-opposite responses when presented with the videos and other materials associated with heroin use. Such drug-opposite responses in opiate addicts are similar to those produced in the laboratory when opiate withdrawal is paired with a novel stimulus to demonstrate that the withdrawal syndrome could be conditioned in humans (O'Brien et al. 1977).

Patients who have been addicted to cocaine show arousal, craving and urges to go out and obtain cocaine when exposed to cocaine-related stimuli in the

laboratory (figure 1). Although the reactions in opioid addicts can be classified as conditioned drug-like or drug-opposite effects with a fair degree of certainty based on experimental evidence, responses in drug-free former cocaine addicts are difficult to classify. We lack experimental evidence from studies of unconditioned and conditioned cocaine effects in human subjects. Perhaps the arousal seen in former cocaine addicts presented with cocaine-related stimuli is a conditioned drug-like response similar to the increased activity that rats show when placed in a cage where they have previously received cocaine. This mild conditioned cocaine-like response could act as a primer for the production of craving and drug-seeking behavior. However, one must remember that non-specific arousal can involve sympathetic nervous system stimulation and thus resemble a mild cocaine-like response. However, we believe that many of the responses to cocaine-related stimuli that we have observed are too severe to be classed as non-specific arousal. Moreover, lacking direct experimental data on cocaine conditioning in humans, we cannot be confident about the classification of the responses to cocaine-related stimuli.

Whatever the origin of these responses, former cocaine-dependent patients frequently show striking responses to cocaine-related stimuli. The patients are typically surprised by the intensity of their own responses and by their strong urge to leave the hospital and buy cocaine. Some express confusion because they thought that they had decided never to use cocaine again. The stimuli shown in the test situation are likely to be encountered in "real life" after the patient leaves the hospital; by discovering this continuing aspect of their dependence, patients can be forewarned about their reactions outside of the hospital. Also, there is the possibility that these conditioned reactions can be modified or diminished via an extinction procedure.

### **Clinical Significance of Conditioned Responses**

Given the evidence from animal and human studies, the existence of conditioned responses in drug-dependent patients is generally accepted, but the clinical significance of these responses remains uncertain. One way of assessing clinical importance is to determine whether modification of conditioned responses can influence the course of addiction. This is a particularly difficult criterion because there are multiple factors that influence clinical course (see relapse factors above). Improvement in one area could be overridden by lack of improvement in another. For best results, therefore, a treatment that addresses conditioned responses should be embedded in a comprehensive treatment program, which should address all of the major issues confronting recovering drug addicts. However, such a combined approach means that clinically significant increments in treatment efficacy will be difficult to detect. In a combined treatment approach in which each treatment element

contributes 10 percent to the patient's overall improvement, that contribution may be extremely important, but very difficult, to distinguish from the contributions of the other treatment elements. For the past several years our research group has conducted studies combining efforts to extinguish conditioned responses with use of naltrexone (O'Brien et al. 1980). We also have studied the combination of methadone, psychotherapy, and extinction (McLellan et al. 1986). Currently we are studying the effects of extinction in drug-free patients formerly dependent on cocaine and another group recovering from dependence on heroin. Because it is not ethical or practical to compare the results with patients receiving no treatment, we have tried to measure the effects of adding extinction to another treatment already shown to have efficacy.

The responses targeted in our extinction program include subjective responses such as "craving" and feelings of "high" and drug withdrawal. We also have studied the effects of the extinction program on autonomic responses such as changes in pulse, blood pressure, skin resistance, and skin temperature. The procedure for modifying these responses is based on systematic, gradual exposure to drug-associated cues. The general approach in most of these projects has been first to select conditioned "trigger" stimuli (e.g., sight of syringe, drug talk, "cookup" paraphernalia) that reliably elicit conditioned drug responses in the target population and then to attempt to reduce these responses through repeated, nonreinforced exposure (extinction).

### **Opioid Dependence**

Our research group has studied the conditioned responses associated with chronic opioid use, speculating that some of these responses (particularly conditioned craving and withdrawal) could lead to drug use and relapse in the abstinent patient (O'Brien 1975; O'Brien et al. 1977; Ternes et al. 1980; McLellan et al. 1986). We have found that the opioid-like responses can be easily extinguished in most patients, but the drug-opposite responses in former opioid addicts are very persistent despite repeated efforts at extinction. We began by studying conditioned responses in patients receiving the narcotic antagonist naltrexone (O'Brien et al. 1980). We attempted to extinguish the conditioned responses we observed by administering a course of nonreinforced exposure to drug-related cues and self-injection rituals. The drug-opposite responses in these patients proved very resistant to extinction. Our extinction methods have improved, and we have more recently conducted a large-scale treatment/outcome study employing random assignment of extinction trials in methadone patients (McLellan et al. 1986). We found that drug-related stimuli were reliable elicitors of conditioned responses, particularly conditioned craving and conditioned withdrawal. In about a third of these methadone-maintained subjects, the effects were quite marked. With 20 or more extinction sessions,

conditioned craving was significantly reduced, but conditioned withdrawal was still in evidence despite the patients being maintained on methadone. Currently, we are conducting a treatment study in drug-free patients who recently have been detoxified from opioid dependence.

## **Cocaine Dependence**

The recent upsurge of cocaine use among our patients has given us the opportunity to study and document the kinds of conditioned responses that may occur in chronic cocaine abusers (Childress et al. 1987). Cocaine use tends to be episodic: Whether the user has stopped taking cocaine because of toxicity, incarceration, or admission to a hospital for detoxification, there is a strong tendency to resume taking cocaine after a short abstinence period. Detoxified cocaine users report cocaine craving in certain situations despite their determination to refrain from returning to drug use. Some report intense craving, arousal, and palpitations when they encounter objects as diverse as grains of white sugar in a bowl or talcum powder while changing a child's diaper, or being with a friend with whom they had used cocaine. Many of these situations involve a white substance that—because of the patient's repeated experience with white, crystalline cocaine—now signals cocaine to the former user. Detoxified former cocaine-dependent patients also experience similar responses to cocaine-using friends, drug-buying locations, a pharmaceutical odor—almost anything that has been repeatedly associated with getting and using cocaine. The stimulus acts as a trigger for arousal and craving. By the time he or she enters treatment, most of a patient's environment consists of reminders of cocaine use.

Use of cocaine can produce complex conditioned responses because the unconditioned responses themselves are quite complex. When smoked or injected, cocaine results in a rapid onset of euphoria and pleasurable sensations, often followed in as little as 10 minutes by dysphoria, nervousness, and extreme drug-craving. These biphasic effects are further complicated by the appearance of toxic symptoms (suspiciousness, paranoia, etc.) after high doses, long binges, or even a long history of less frequent use. Finally, after ceasing continued use, patients may complain of "crash" feelings, including depression, irritability, and fatigue. Because the same environmental stimuli may be linked to several different phases of cocaine's actions, there can be several different kinds of responses to the same cocaine reminder.

Although many different factors may contribute to the extremely high rate of relapse among cocaine users, conditioned cues can play a significant role. Traditional treatment approaches intuitively have recognized the power of cocaine reminders. Thus, abstinent patients are warned to avoid "people,

places, and things” associated with prior cocaine use (Marlatt 1982). In reality, complete avoidance is very unlikely, even in a well-motivated patient; patients need additional tools for coping with or reducing drug-craving.

Our cocaine studies have four goals: (1) better characterization of the responses conditioned by cocaine use in humans (Are these indeed drug-like responses?), (2) development of ways to measure the intensity of these responses, (3) development of ways to reduce these responses to cocaine-related stimuli, and (4) determination of the effect on clinical outcome of diminishing or extinguishing these conditioned responses.

### **Integration of Cue Exposure Within A Comprehensive Treatment Program**

Relapse to drug use after detoxification is influenced by several factors both internal and external to the patient. To prevent relapse, all categories of relapse-producing factors should be addressed, including pharmacological, social, occupational, medical, legal, and family issues. If conditioning factors play a role in relapse, the influence of conditioning probably varies with the individual patient, depending on the relative importance of other relapse-producing factors. Thus, we have integrated the extinction procedure within the context of a treatment program that addresses a range of issues thought to be important to the recovering addict.

Although individual patients seem to benefit from systematic cue exposure or extinction, the only way to determine whether any technique adds significantly to the treatment of an illness is to obtain a relatively homogeneous sample of patients and randomly assign them to the experimental treatment or to a control condition. We have studied more than 50 cocaine-dependent patients, and preliminary data are presented here. All subjects were male veterans who had entered the Substance Abuse Treatment Unit of the Philadelphia Veterans Affairs Medical Center with a primary problem of cocaine dependence. These patients ranged in age from 28 to 53 and averaged 3 years of cocaine use. Although several patients also had histories of alcohol and marijuana use, those with a significant history of opiate dependence were specifically excluded. In general, these relatively “pure” cocaine abusers tended to have significantly shorter addiction histories and fewer previous treatment episodes than recent admissions for treatment of opiate or polydrug dependence.

All patients were detoxified before entering the study. The exposure of the patients to cocaine-related stimuli initially took place while the patient was hospitalized so that the protective therapeutic setting would minimize the possibility that the patient would be stimulated to actually acquire and use cocaine in response to any craving/arousal triggered by the cocaine reminders.

Cocaine-related stimuli were tied as closely as possible to the patient's cocaine history, particularly to the preferred mode of cocaine administration (intranasal, intravenous, or smoked). Patients in a pilot study reported that seeing or hearing tapes of cocaine use in a nonpreferred modality generally did not stimulate craving or arousal.

**Laboratory Measurement Sessions.** Before extinction or other treatments, all patients were tested for their initial responsivity to cocaine-related stimuli in a 90-minute laboratory measurement session. These laboratory test sessions are conducted in an environmentally controlled, electrically shielded recording chamber. Both physiological and subjective measures are obtained. Physiological measures include peripheral skin temperature, galvanic skin resistance (GSR), general arousal index, heart rate, and respiration. These physiological measures are simultaneously recorded on a polygraph and a computer database for later analyses. Subjective measures are obtained by asking each abstinent patient to rate, on a 1 to 10 scale, the degree of subjective cocaine "high," "craving," or "crash" (withdrawal) experienced under each set of stimulus conditions. The following stimulus components are used: (1) neutral baseline, (2) neutral videotape (a nature story), (3) neutral activity (video motor skill game), (4) drug baseline, (5) drug-related videotape (buy-sell and cocaine administration rituals), (6) drug-related activity (handling drug paraphernalia and performing a simulated cocaine administration) and (7) recovery baseline. Both neutral and drug-related stimuli were developed through our work with pilot patients. Each patient's drug-related videotapes and paraphernalia were linked to the preferred (usually the most recent) mode of using cocaine.

**Treatment Assignment.** After pretreatment testing, patients were randomly assigned to one of four treatment conditions: (1) supportive-expressive psychotherapy + extinction (SE-X); (2) supportive-expressive psychotherapy + activities to control for the extra attention received by patients assigned to the extinction condition (SE-C); (3) standard drug counseling + extinction (DC-X), and (4) standard drug counseling + control activities (DC-C). Control activities consist of sessions (equal in length and number to extinction sessions) with self-help tapes featuring suggestions for developing a healthy lifestyle and better relationships. Drug counseling is administered by experienced counselors according to a treatment manual and represents good standard treatment for substance abuse. Supportive-expressive psychotherapy is administered by experienced doctoral-level psychologists and has been found to be significantly more effective than drug counseling for opioid-dependent patients (Woody et al. 1963). The efficacy of psychotherapy for cocaine dependence has not been previously examined in a controlled study.

**Treatment Sessions.** Inpatients assigned to extinction groups received 15 hourlong sessions of repeated, nonreinforced exposure to cocaine “reminders” during the 2-week period of hospitalization following initial detoxification from cocaine. (Therapy or counseling sessions were administered on a three-times-per-week basis during this 2-week period). The 2-week inpatient treatment phase was followed by a 2-month outpatient phase offering eight additional weekly sessions of extinction or control activities (as well as weekly therapy or counseling, depending on group assignment). All these treatment sessions were added to basic treatment for cocaine dependence at our clinic. Outpatient treatment and followup evaluations are still in progress; therefore, the data presented here focus primarily on the 15 inpatient extinction sessions.

Each hourlong cocaine extinction session contains three 5-minute audiotape segments, three 5-minute exposures to a cocaine-related videotape, and three simulated cocaine administration rituals. The presentation sequence of these drug-related stimuli is audio/video activity, repeated three times. This procedure provides nine drug-related stimulus exposures per session, for a total of 135 exposures over the course of 15 sessions.

Although most inpatient extinction sessions are conducted on the treatment ward, sessions 1, 8, and 15 are conducted in the laboratory chamber to allow for monitoring of physiological responses over the course of extinction. For both laboratory and hospital ward extinction sessions, subjective data are based on the Within Session Rating Scale for cocaine symptoms (WSRS-C) (Childress et al. 1987) a quantified report that assesses both the type and intensity of conditioned responses that a patient may experience on exposure to cocaine-related stimuli (CSs). With this instrument, the patient first is asked to rate the overall intensity of high, craving, and crash (withdrawal) using a 1-to-10 scale for each. The type and intensity of symptoms then are probed through an accompanying list of 50 responses associated with early high (euphoria), toxic (e.g., paranoia), and crash phases of cocaine use. The entire WSRS-C is administered at the beginning and again at the end of each hourlong extinction session.

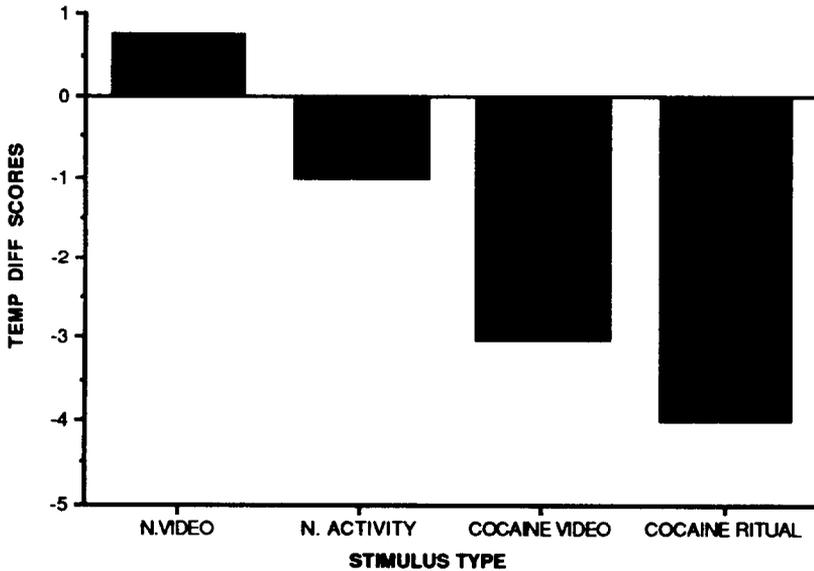
## **RESULTS OF PREEXTINCTION TESTING**

The following interim results illustrate the conditioning phenomena and provide a progress report on the status of our ongoing treatment study.

### **Pretreatment Laboratory Testing (N = 30)**

Data from the laboratory pretest before treatment confirm our preliminary finding that cocaine abusers respond differentially to neutral vs. drug (cocaine)-related

stimuli. A two-way analysis of variance (ANOVA) performed on the skin temperature data yielded significant main effects of stimulus type (neutral vs. drug (cocaine)-related,  $p < .000$ ) and mode (video vs. activity,  $p < .000$ ) on peripheral skin temperature, with no significant interaction effect. These temperature data, presented graphically in figure 1, show that reductions in peripheral skin temperature (an index of arousal) were greater to drug (cocaine)-related stimuli than to neutral stimuli ( $p < .000$ ) and were generally greater in response to activities than to video stimuli.



**FIGURE 1.** *Skin temperature response in cocaine abusers to neutral vs. cocaine-related stimuli (N = 30)*

The average temperature reduction to cocaine-related stimuli (including “nonresponders”) was approximately 4°F. Among those classified as “responders,” however, dramatic reductions of 8 to 12°F (in response to cocaine-related stimuli) were not uncommon. The magnitude and pattern of these temperature changes in response to cocaine-related stimuli are very similar to the changes that occur in former opioid addicts in response to opioid-related stimuli, frequently reported by our laboratory (Childress et al. 1984; Childress et al. 1987).

For the physiological variable of GSR, a two-way ANOVA similarly revealed significant main effects of both stimulus type (neutral vs. drug (cocaine)-related,  $p < .04$ ) and stimulus mode (video vs. activity,  $p < .001$ ). There was a significant type  $\times$  mode interaction effect ( $p < .008$ ): GSR values were significantly different between neutral vs. drug-related video stimuli, but not between neutral vs. drug-related activities. Analyses of heart rate data showed trends similar to those for GSR but fell just short of statistical significance.

### **Subjective Responses (N = 26)**

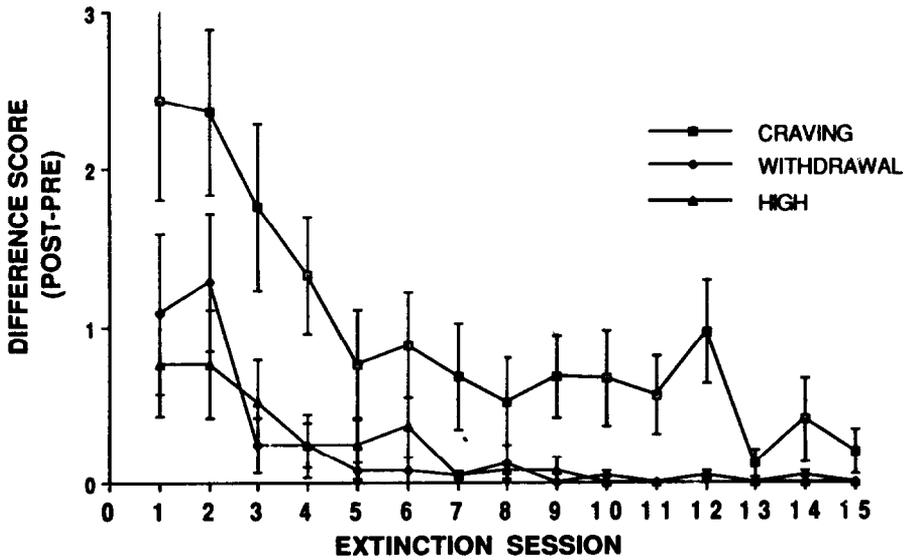
An overall ANOVA (with stimulus condition as the repeated measure) was performed on each of the subjective variables of self-rated high, craving, and withdrawal. For each variable, four difference scores were derived to represent the change in subjective response under each stimulus condition: neutral video (neutral video-baseline), neutral activity (neutral activity-baseline), drug video (drug video-baseline) and drug activity (drug activity-baseline). These overall analyses revealed a significant effect of stimulus condition on cocaine craving ( $p < 0.0000$ ), cocaine high ( $p < .01$ ), and withdrawal/crash ( $p < .01$ ). Of these responses, craving was clearly the most prevalent, being reported two to three times as often as either high or withdrawal/crash responses.

At least one-third of these patients were adamant nonresponders, insisting the pretest stimuli triggered no craving, arousal, or other response(s). For these patients, physiological arousal (as reflected in either decreased skin temperature or a fall in GSR) was sometimes present, even though subjective arousal was denied; these patients are included in the above analyses.

## **EXTINCTION SESSIONS**

### **Subjective Responses**

A one-way ANOVA with repeated measures was performed for each of the subjective variables of craving, high, and withdrawal/crash, using sessions as the repeated measure. These analyses revealed a significant effect of sessions on all three subjective variables: craving ( $p < .0000$ ), high ( $p < .0001$ ), and withdrawal/crash ( $p < .0000$ ). Of these responses, craving was the most prevalent and persistent, reducing gradually over the course of 15 extinction sessions. Reports of high and withdrawal/crash were less common and were largely extinguished by the sixth hour of extinction. Figure 2 shows the reduction in three subjective responses: craving, high, and withdrawal/crash as a function of extinction trials.



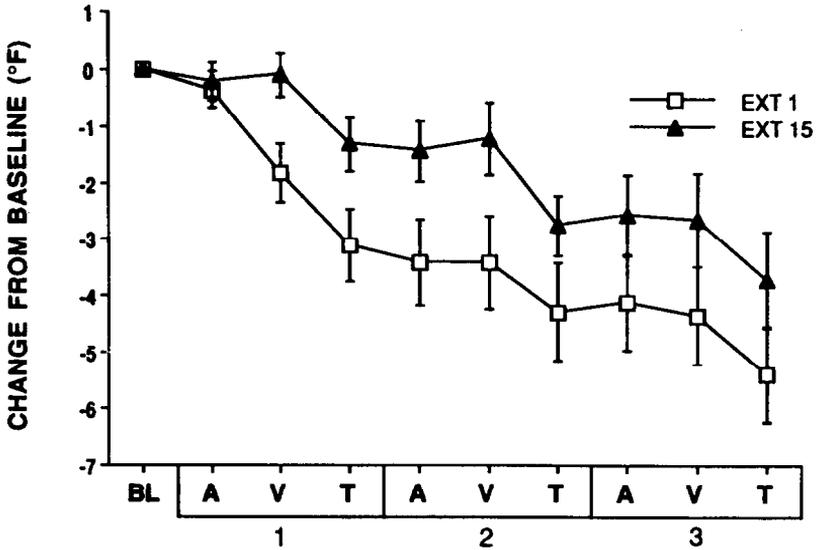
**FIGURE 2.** *Reduction in subjective responses to cocaine-related stimuli as a function of extinction sessions by abstinent cocaine abusers (N = 25)*

### Physiological Responses

Measures of skin temperature and GSR show significant reductions as a function of extinction trials. Figure 3 compares the change in temperature responsivity from extinction session 1 to session 15 (the final inpatient session). Though the skin temperature and GSR responses were reduced as a function of extinction trials, their relative persistence is underscored by the fact that some arousal is still in evidence even after 15 hourlong exposure sessions.

### TREATMENT OUTCOME

The study is still in progress, and outcome results are not yet available. In general, the outcome of treatment for cocaine dependence is not good after patients leave the hospital. The majority of patients drop out of outpatient treatment quickly and commonly return to using cocaine. For this study, the outpatient phase involves 8 weeks of treatment after discharge from the



**FIGURE 3.** *Reduction in skin temperature response to cocaine-related stimuli as a function of extinction by abstinent cocaine abusers (N = 26)*

hospital. Dropout is a serious problem for all treatment groups, and those patients who remain in treatment in any group seem to be those who have developed a good working relationship with a counselor or therapist. Thus far, retention rates in the four treatment groups have varied over the course of the study, but at the present time no group is significantly better than the others.

The critical measure of outcome is cocaine use. The goal is complete abstinence, but during the course of treatment, some cocaine use typically occurs even in successfully treated patients. Thus, a quantitative measure of cocaine use would be desirable so that relative use could be compared; however, this presents problems in measurement. Cocaine metabolites can be detected in urine for at least 3 days (and occasionally for 6 to 10 days) after use. Thus, a positive urine test may not readily distinguish whether cocaine use has decreased. Patient self-reports may be distorted, but they can add significantly to the quantitative information (Gawin et al. 1989a). We are experimenting with outcome measures that combine patient self-reports of amount and frequency of cocaine use given to an independent followup technician and quantitative urine assays of the cocaine metabolite

benzoylecgonine in an effort to improve our comparisons of cocaine use among outpatients.

Clearly, detoxified cocaine abusers can experience conditioned craving and arousal to cocaine reminder stimuli. These responses can be both intense and persistent, meaning that the abstinent cocaine abuser may be vulnerable long after detoxification is complete. Although the program of extinction described here is effective in reducing craving to cocaine-related stimuli presented in the context of the laboratory or clinic, patients often report craving in the natural environment. We are currently considering two approaches to improve generalization from the lab to the street:

1. Use of even more realistic stimuli (e.g., the sight of real cocaine) and individualized stimulus contexts (e.g., *in vivo* repeated exposures). Previously we have been reluctant to employ *in vivo* exposures near “copping” corners or shooting galleries because of possible risk to both patients and clinical staff. Somewhat less dangerous stimuli could involve the patient’s own home or the use of neighborhood videos taped from a moving car.
2. A second approach would explore the effectiveness of several other techniques in actively countering or reducing the conditioned craving and arousal that occur in response to reminder stimuli. These techniques could include training of alternative behaviors (competing responses), aversive imagery, and cognitive techniques.

Our upcoming treatment protocols will feature elements from both these approaches, including the use of more individualized cocaine reminders and the training of active techniques for dealing with the powerful responses to these stimuli.

Although data collection is still in progress, several significant findings are already apparent from our study of cocaine reminders:

1. Detoxified cocaine abusers show a differential responsivity to drug-related cocaine reminders compared with neutral stimuli. In our laboratory setting, patients responded to cocaine reminders with strong signs of physiological arousal, including dramatic reduction in peripheral skin temperature and a fall in GSR. Subjectively, patients experienced increased cocaine craving and, with lesser frequency, feelings of a cocaine-like high and cocaine crash or withdrawal.

2. In extinction sessions, repeated, nonreinforced exposure to cocaine reminders led to a complete reduction in craving to these stimuli by the 15th hourlong session in most patients. High and crash responses were virtually eliminated by the sixth hour of extinction.
3. Physiological arousal to cocaine reminders was often still in evidence after 15 hours of extinction.
4. Even after completing the current extinction protocol, cocaine abusers may crave and use cocaine when experiencing drug reminders in the natural environment.

## **CONCLUSIONS**

There is an extensive literature from animal and human experiments showing that drugs from several pharmacological classes can readily act as unconditioned stimuli in the production of conditioned responses. Further, patients in treatment for opioid or cocaine dependence show subjective and physiological responses when presented with drug-associated stimuli. These responses can be assumed to have been conditioned during the course of becoming drug dependent. Patients who already have been treated in the traditional manner may continue to show dramatic responses to drug-related stimuli despite a strong conscious motivation to avoid drug use in the future.

There are multiple factors that influence the probability that recovering drug addicts will sample drugs again and eventually relapse to a state of dependence. Although one can produce anecdotes suggesting that conditioned responses play an important role in a given patient's relapse, this is not adequate evidence. Controlled studies are required, but the design of such studies is a problem. One can show that repeated unreinforced exposure to drug-related stimuli can extinguish or diminish conditioned responses, but demonstrating that extinction significantly adds to treatment efficacy is difficult. Treatment of a complex medicopsychosocial problem such as addiction requires a multimodal approach. In this situation it is difficult to assess the value of any single element.

We have made progress in the integration of graded cue exposure or extinction into a comprehensive substance abuse treatment program. The technique is acceptable to patients, and the theoretical framework makes sense to both patients and staff. One possibility that we intend to explore is to take advantage of the short-term benefits afforded to recovering cocaine addicts by medication such as desipramine (Gawin et al. 1989a) or flupenthixol (Gawin et al. 1989b) combined with behavior therapy in the form of extinction and other psychosocial

methods for the prevention of relapse. The brief period of abstinence induced by the medication could be used to initiate efforts at long-term behavior change. Such a combination will be even more difficult to study in a prospective controlled fashion, but considering the complex blend of pharmacological and psychosocial problems represented by substance abuse, such a combined approach seems reasonable.

## REFERENCES

- Childress, A.R.; McLellan, A.T.; Ehrman, R.N.; and O'Brien, C.P. Extinction of conditioned responses in abstinent cocaine or opioid users. In: Harris, L.S., ed. *Problems of Drug Dependence, 1986. Proceedings of the 48th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 76. DHHS Pub. No. (ADM)87-1508. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1987. pp. 189-195.
- Childress, A.R.; McLellan, A.T.; and O'Brien, C.P. Measurement and extinction of conditioned withdrawal-like responses in opiate-dependent patients. In: Harris, L.S., ed. *Problems of Drug Dependence, 1988. Proceedings of the 44th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 49. DHHS Pub. No. (ADM)84-1316. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1984. pp. 212-219.
- Davis, W.M., and Smith, S.G. Naloxone use to eliminate opiate-seeking behavior: Need for extinction of conditioned reinforcement. *Biol Psychiatry* 9:181-189, 1974.
- Gawin, F.H.; Allen, D.; and Humblestone, B. Outpatient treatment of "crack" cocaine smoking with flupenthixol deconate: A preliminary report. *Arch Gen Psychiatry* 46(2):322-325, 1989b.
- Gawin, F.H.; Kleber, H.D.; Byck, R.; Rounsaville, B.J.; Kosten, T.R.; Jatlow, P.I.; and Morgan, C. Desipramine facilitation of initial cocaine abuse. *Arch Gen Psychiatry* 46(2):117-121, 1989a.
- Goldberg, S.R., and Schuster, C.R. Conditioned nalorphine-induced abstinence changes: Persistence in postmorphine dependent monkeys. *J Exp Anal Behav* 14:33-46, 1970.
- Grabowski, J., and O'Brien, C.P. Conditioning factors in opiate use. In: Mello, N.K., ed. *Advances in Substance Abuse, Behavioral and Biological Research*. Vol. II. Greenwich, CT: JAI Press, 1981.
- Lynch, J.J.; Stein, E.A.; and Fertsiger, A.P. An analysis of 70 years of morphine classical conditioning: Implications for clinical treatment of narcotic addiction. *J Nerv Ment Dis* 163:47-58, 1976.

- Marlatt, G.A. Relapse prevention: A self-control program for the treatment of addictive behaviors. In: Stuart, R.B., ed. *Adherence, Compliance, and Generalization in Behavioral Medicine*. New York: Brunner/Mazel, 1982.
- McLellan, A.T.; Childress, A.R.; Ehrman, R.N.; and O'Brien, C.P. Extinguishing conditioned responses during treatment for opiate dependence: Turning laboratory findings into clinical procedures. *J Subst Abuse Treat* 3:33-40, 1986.
- O'Brien, C.P. Experimental analysis of conditioning factors in human narcotic addiction. *Pharmacol Rev* 27:535-543, 1975.
- O'Brien, C.P.; Ehrman, R.; and Ternes, J. Classical conditioning in human opioid dependence. In: Goldberg, S.R., and Stolerman, I.P., eds. *Behavioral Analysis of Drug Dependence*. Orlando, FL: Academic Press, 1986. pp. 329-356.
- O'Brien, C.P.; Greenstein, R.; Ternes, J.; McLellan, A.T.; and Grabowski, J. Unreinforced self-injections: Effects on rituals and outcome in heroin addicts. In: *Problems of Drug Dependence, 1979. Proceedings of the 41st Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 27. DHEW Pub. No. (ADM)80-901. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1980. pp. 275-281.
- O'Brien, C.P.; Testa, T.; O'Brien, T.J.; Brady, J.P.; and Wells, B. Conditioned narcotic withdrawal in humans. *Science* 195:1000-1002, 1977.
- Pavlov, I.P. *Conditioned Reflexes*. London: Oxford University Press, 1927.
- Sideroff, S., and Jarvik, ME. Conditioned responses to videotape showing heroin-related stimuli. *Int J Addict* 15:529-536, 1980.
- Siegel, S. Morphine analgesic tolerance: Its situation specificity supports a Pavlovian conditioning model. *Science* 193:323-325, 1976.
- Teasdale, J. Conditioned abstinence in narcotic addicts. *Int J Addict* 8:273-292, 1973.
- Ternes, J.W.; O'Brien, C.P.; Grabowski, J.; Wellerstein, H.; and Jordan-Hayes, J. Conditioned drug responses to naturalistic stimuli. In: Harris, L.S., ed. *Problems of Drug Dependence, 1979. Proceedings of the 41st Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 27. DHEW Pub. No. (ADM)80-901. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1980. pp. 282-288.
- Wikler, A. Recent progress in research on the neurophysiologic basis of morphine addiction. *Am J Psychiatry* 105:329-338, 1948.
- Wikler, A. Conditioning factors in opiate addictions and relapse. In: Wilner, D.M., and Kasebaum, G.G., eds. *Narcotics*. New York: McGraw-Hill, 1965. pp. 85-100.
- Wikler, A. Conditioning of successive adaptive responses to the initial effects of drugs. *Conditional Reflex* 8:193-210, 1973.

Wikler, W.A., and Pescor, F.T. Classical conditioning of a morphine abstinence phenomenon, reinforcement of opioid drinking behavior and "relapse" in morphine addicted rats. *Psychopharmacologia* 10:255-284, 1967.

Woody, G.E.; Luborsky, L.; McLellan, A.T.; O'Brien, C.P.; and Beck, A.T. Psychotherapy for opiate addicts. Does it help? *Arch Gen Psychiatry* 40:639-648, 1983.

## **ACKNOWLEDGMENT**

This work was supported by National Institute on Drug Abuse grants P-50 DA-5186 and DA-3008.

## **AUTHORS**

Charles P. O'Brien, M.D., Ph.D.  
Professor

Anna Rose Childress, Ph.D.  
Clinical Associate Professor

A. Thomas McLellan, Ph.D.  
Clinical Professor

Department of Psychiatry  
University of Pennsylvania  
Veterans Affairs Medical Center  
3900 Chestnut Street  
Philadelphia, PA 19104

# Some Special Considerations for Treatment of Drug Abuse and Dependence in Women

*Jack H. Mendelson, Roger Weiss, Margaret Griffin, Steven M. Mirin, Siew K. Teoh, Nancy K. Mello, and Barbara W. Lex*

## INTRODUCTION

During the past decade there has been a considerable increase in the prevalence of drug abuse problems in women. A survey of metropolitan areas carried out under the aegis of the National Institute of Mental Health revealed that drug abuse and dependence was the second most common psychiatric disorder among women ages 18 to 24 (Robins et al. 1984). This finding highlighted the need for safe and effective therapeutic interventions for women who abuse drugs during their early reproductive years. Although treatment programs for women may be similar or identical to those that have been developed for male substance abusers, there are gender-related factors that merit special attention. This chapter focuses on three areas that may be important for substance abuse treatment program development for women: (1) special considerations for pharmacotherapeutic treatment of drug abuse and dependence for women and development of new medications for women who abuse drugs, (2) polydrug abuse in association with alcohol abuse by women and their unique needs, and (3) new findings concerning gender-related differences that are both antecedent to and consequent on cocaine abuse (Griffin et al. 1989).

## PHARMACOTHERAPY FOR DRUG-DEPENDENT WOMEN OF REPRODUCTIVE AGE

Women who abuse or are dependent on opiates or cocaine may become pregnant, and perpetuation of drug abuse during pregnancy may compromise growth and development of the fetus. There have been numerous reports of opioid abstinence syndromes in the newborn of opiate-dependent women (Finnegan 1979) and serious disorders of neonatal health may occur in the

newborn of women who abuse cocaine (Chasnoff et al. 1985). Because women who abuse drugs also may be lax in applying birth control procedures, their risk for pregnancy may be significantly enhanced. Thus, rational development of pharmacotherapies for women who abuse drugs and are at high risk for pregnancy should meet several special requirements. First, pharmacotherapy for women who are of reproductive age should not increase risk for fetal malformation or disorders if the woman becomes pregnant while receiving medication. Second, pharmacotherapy for drug abuse should not increase risk for pregnancy, especially if the patient does not employ contraceptive measures on a regular basis. Although this second consideration may appear to be speculative, there is evidence that one of the most effective pharmacotherapies for opioid abuse and dependence may increase risk for unwanted pregnancy.

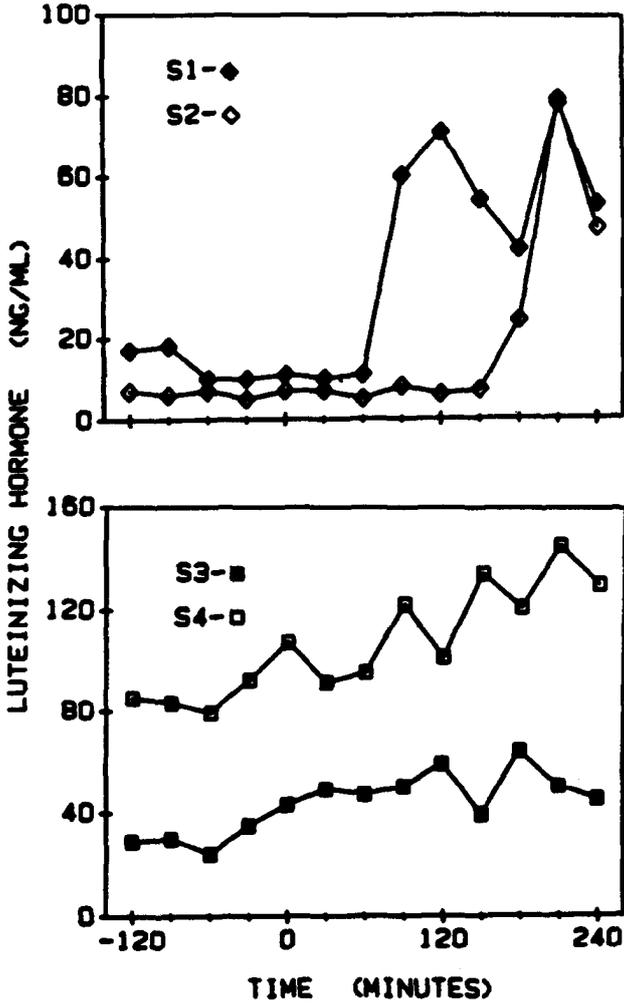
Naltrexone is a potent long-acting opioid antagonist that is prescribed for the treatment of opioid dependence. Although the drug has been shown to be safe and effective in controlled laboratory studies (Meyer and Mirin 1979) clinical effectiveness may be diminished as a consequence of poor patient compliance. At present, there are no restrictions for administering naltrexone to women, although the drug may enhance risk for unwanted pregnancy.

Naltrexone has major effects on the hypothalamic pituitary-gonadal-axis in both men and women (Mendelson et al. 1986; Teoh et al. 1988). Figure 1 shows luteinizing hormone (LH) values for two subjects (1 and 2) studied during the early follicular phase of the menstrual cycle (top panel) and two subjects (3 and 4) studied during the mid- and late-follicular phases (bottom panel).

Baseline LH levels before naltrexone administration for subjects (1 and 2) studied during the early follicular phase ranged between 8 to 18 ng/mL. Peak LH values were detected 210 minutes following naltrexone intake. Peak LH increments above mean baseline levels were 63 ng/mL for subject 1 and 72 ng/mL for subject 2.

Subject 3 was studied during the mid-follicular phase and had baseline LH values averaging 30 ng/mL. Peak LH values were detected 180 minutes following naltrexone administration. The peak increment in LH values for this subject was 33 ng/mL (95-percent increase above baseline values).

Subject 4, studied during the late-follicular phase of the menstrual cycle, had baseline LH levels averaging 90 ng/mL. Peak LH levels following naltrexone administration were detected at 210 minutes. LH levels increased by 55 ng/mL (50-percent increase above baseline values).



**FIGURE 1.** Luteinizing hormone levels prior to and following naltrexone administration at 0 time. Top panel shows LH values for two subjects (S-1, S-2) studied during the early follicular phase of the menstrual cycle. Bottom panel shows LH values for two subjects (S-3, S-4) studied during the mid- and late-follicular phases of the menstrual cycle.

From Mendelson et al. 1986. Copyright 1989 by Pergamon Press (Elmsford, NY).

Naltrexone-induced LH stimulation observed in women studied during the early follicular phase of the menstrual cycle was of greater magnitude than LH increments reported following administration of the standard dose of synthetic luteinizing hormone releasing hormone (LH-RH). Administration of 100 mg IV LH-RH induces a peak increment in LH levels in women ranging between 100 percent and 500 percent above baseline values (Ayerst Laboratories, Inc. 1982).

Induction of ovulation in patients with secondary hypothalamic amenorrhea has been reported following chronic administration of naltrexone (Wildt and Leyendecker 1987). Secondary hypothalamic amenorrhea may be caused by opiate abuse as well as cocaine abuse. Paradoxically, women who receive naltrexone therapy for attenuation of opioid abuse may be at higher risk for unwanted pregnancy because of the effects of naltrexone on stimulating hypothalamic LH-RH secretory activity.

The effects of the opioid antagonist naltrexone on reproductive function in women have been emphasized to highlight an important factor that should be considered in medication development for drug-dependent women. It is obvious that medications that would adversely affect pregnancy should not be administered, but it is also important to consider drug actions that may increase risk for unwanted pregnancy.

### **SPECIAL CONSIDERATIONS FOR TREATMENT OF WOMEN WITH POLYDRUG AND POLYDRUG PLUS ALCOHOL ABUSE PROBLEMS**

As a consequence of increased public concern about morbidity and mortality associated with alcohol-impaired driving, an increasing number of women who abuse alcohol and drugs have been referred for treatment through the criminal justice system. Many of these women require more extensive resources for therapy than their male counterparts because they lack equivalent social and economic support.

A specialized program for alcoholism treatment for men confined by the Criminal Justice System in the Commonwealth of Massachusetts has been available for more than 10 years, but a similar program was not available for women until 1987. Staff members of the Alcohol and Drug Abuse Research Center of Harvard Medical School-McLean Hospital have collaborated with the Massachusetts Departments of Public Health and Corrections for evaluating the needs and resources of women who are mandated for treatment (Lex et al., in press). Many of these women have polydrug abuse or dependence problems in addition to alcohol abuse and dependence.

Women polydrug abuse patients were significantly younger (mean age 26.8 years) than those who had a primary diagnosis of alcohol abuse or dependence (mean age 41.9 years). Their level of educational attainment was significantly lower (10.8 years vs. 13.0 years of education). Women with polydrug abuse and dependence problems reported regular alcohol use at a significantly younger age (15.8 years) than did patients with alcohol abuse and dependence (24.8 years). Women with polydrug abuse disorders sought treatment at a significantly younger age than did women with alcohol problems (21.1 years vs. 34.5 years). The average cost of drugs per week for polydrug abuse patients was \$170, and surprisingly, they spent more on alcohol (\$49) per week than did alcohol-dependent women (\$24). Polydrug abuse by women also was associated with earlier and more frequent heterosexual behavior. For example, women with alcohol abuse and dependence problems had first intercourse at age 18, whereas those with polydrug abuse problems had first intercourse at age 15.

Cocaine abuse and dependence was the predominant problem of women with polydrug abuse disorders; abuse of tranquilizers and sedatives, marijuana, amphetamines, and opiates also was common. Alcohol consumption by women with polydrug abuse problems ranged from 84 to 832 grams per day, and their years of regular drinking ranged from 7 to 18 years. Menstrual cycle function was normal for virtually all of the polydrug abusers, and approximately 50 percent had one or more therapeutic abortions before their admission to treatment.

These observations highlight concern about development of specialized programs for women who are polydrug abusers and also at high risk for unwanted pregnancy. These data also underline the need to develop more effective treatment programs for young women who are polydrug and intravenous drug abusers in light of recent evidence that indicates that women who are drug abusers are at high risk for human immunodeficiency virus infection.

## **GENDER DIFFERENCES IN COCAINE ABUSERS**

The dramatic increase in cocaine use and dependence during the past 15 years has led clinicians and researchers to seek effective treatment strategies for this burgeoning patient population. One area of investigation that has flourished as a part of this effort has been an attempt to classify cocaine abusers into clinical subgroups to develop specific treatment strategies for more homogeneous patient populations (Weiss and Mirin 1986). Although these studies have grouped cocaine abusers by age (White 1988), route of cocaine administration (Verebey and Gold 1988), and psychiatric status (Gawin and Kleber 1986;

Weiss et al. 1986, 1989), relatively little research has focused on differences between men and women who use cocaine (Griffin et al. 1989; Erickson and Murray 1989). This relative lack of attention to gender differences in cocaine abusers reflects an unfortunate trend in much of the substance abuse literature (Davidson and Bemko 1978), as men and women cocaine abusers may differ in some important respects, including their response to treatment. As previous studies have shown that women alcoholics may suffer a higher mortality rate than men (Hill 1986), and women opioid addicts experience poorer long-term adjustment than their male counterparts (Cuskey et al. 1977; Marsh and Simpson 1986; Reed 1978), elucidating sex differences in cocaine abusers assumes potentially great clinical importance.

Although the popular media have paid some attention to the female cocaine abuser, little scientific research has been published on the subject. Erickson and Murray (1989) examined sex differences in patterns and practices of cocaine use in 75 men and 36 women from Ontario. Their study sample was not in treatment, and most subjects used cocaine quite infrequently (less than once a month during the previous year). Erickson and Murray found relatively few differences between men and women in their responses to cocaine, although more women than men (37 percent vs. 14 percent) reported that cocaine made them feel sociable and confident and men were more likely (42 percent vs. 26 percent) to enjoy the sense of a controlled high and increased physical energy while on cocaine. In general, however, men and women experienced quite similar physiological and psychological effects from cocaine. Because this was a nontreatment sample of infrequent cocaine users, the findings may not reflect potential gender differences in a cocaine-dependent population. For example, few of the study sample had experienced significant adverse consequences from cocaine use. It is possible that adverse reactions to cocaine may differ according to gender; these potential differences may have important clinical and treatment implications.

In an attempt to delineate gender-related differences in cocaine abusers, a study was carried out with 129 patients hospitalized because of cocaine abuse at the Drug Dependence Treatment Unit of McLean Hospital, Belmont, Massachusetts (Griffin et al. 1989). The patient sample included 95 men and 34 women admitted between 1980 and 1986. Several major research questions were addressed, including whether men and women reported different reasons for cocaine use, because women alcoholics (Beckman 1975; Curlee 1970; Lisansky 1957) and women who use other drugs (Suffet and Brotman 1976) more frequently cite situational or emotional disturbances as precipitants for substance use. Second, perceived differences in cocaine effects between men and women were evaluated. Studies of therapeutic drugs generally have shown more adverse effects in women (Bottiger et al. 1979;

Domecq et al. 1980; Hurwitz 1969), and animal studies have revealed sex differences in drug response (Finnegan 1979). Finally, evaluation of psychiatric comorbidity in men and women was carried out. Gender-related differences in the prevalence and nature of depression were studied because this has been found to be an important prognostic indicator in other substance abusers (McLellan et al. 1983; Rounsaville et al. 1982a, 1987). Severity of depression and level of overall psychological distress have been shown in other substance abuse populations to be higher in women (Blume 1986; Colten 1980; Ross and Berzins 1974), whereas antisocial personality disorder generally has been more common in men (Hesselbrock et al. 1985; Rounsaville et al. 1982b; Weissman and Klerman 1977). Because the study followed patients over the course of a 4-week hospital stay, it was possible to compare the initial response with treatment among men and women.

Study instruments included a 287-item self-report sociodemographic and substance abuse history questionnaire. The questionnaire also asked about reasons for cocaine use and drug effects. The Social Adjustment Scale (SAS) (Weissman and Bothwell 1976) was used to measure overall social functioning. The 24-item Hamilton Depression Rating Scale (HDRS) (Hamilton 1960) was completed at admission and at the end of the second and fourth weeks of hospitalization. *DSM-III* diagnoses made at discharge reflected a consensus of two psychiatrists who had conducted repeated clinical interviews with the patients throughout the course of a 4-week hospital stay. Patients received an Axis I diagnosis other than substance abuse only if they were currently ill and had previously fulfilled *DSM-III* criteria for that diagnosis while drug free. Further details of the methods and procedure used in the study have been described elsewhere (Griffin et al. 1989).

There were several significant differences between men and women. Women were significantly younger when hospitalized (mean age 26.6 years vs. 30.5 years,  $p < .001$ ). Men were more likely to be employed (78 percent vs. 50 percent,  $p < .005$ ) and held jobs with significantly higher status; 61 percent of the men and only 20 percent of the women held executive, professional, or sales jobs ( $p < .0001$ ). SAS scores revealed significantly better overall social functioning in men than women ( $2.2 \pm 0.5$  for men vs.  $2.5 \pm 0.6$  for women,  $p < .05$ ). Furthermore, women were more likely than men to live with a drug-dependent partner (36 percent vs. 21 percent).

As shown in table 1, women began drug use at an earlier age than men and also were younger when they initially entered drug treatment. Because this finding is unusual and contradicts the usual trend for opioid addicts (Levy and Doyle 1976; Moise et al. 1982), a similar analysis for men and women opiate addicts admitted to our facility during the same period revealed that, unlike the

**TABLE 1.** Substance abuse histories in cocaine abusers by sex

	Women (N=34)		Men (N=95)	
	Mean	S.D.	Mean	S.D.
Age of First Drug Use <sup>a</sup>	15.6	3.5	18.5	7.3
Years of Drug Use	9.0	4.7	10.2	5.4
Years of Heavy Drug Use	4.3	3.2	5.2	4.2
Age at Initial Treatment <sup>b</sup>	24.6	4.7	29.1	7.7
Number of Different Drugs Used During Past 30 Days	4.4	2.7	3.5	2.8
Years of Cocaine Use <sup>c</sup>	3.7	2.2	5.4	3.2
Grams of Cocaine Used During Past 6 Months	107.5	148.2	106.3	177.5
Money Spent on Cocaine During Past 6 Months (\$) <sup>d</sup>	3,050	3,382	9,375	10,778

<sup>a</sup>t=2.99, df=109.61, p<.005

<sup>b</sup>t=3.02, df=114, p<.005

<sup>c</sup>t=2.19, df=30.16, p<.05

<sup>d</sup>t=3.03, df=43.13, p<.005

From Griffin et al. 1969. Copyright 1989 by American Medical Association (Chicago).

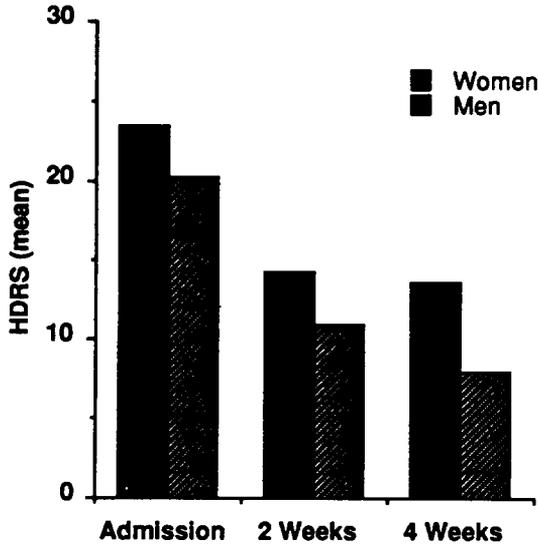
cocaine abusers, women opiate addicts were older than men and had begun drug use at a later age. Men had used cocaine significantly longer before admission, supporting the idea that women may have experienced a more rapid onset of addiction to cocaine.

Diagnostically, 47 percent of the women and 40 percent of the men met *DSM-III* criteria for an Axis I diagnosis other than substance abuse. Major depression was significantly more common among women (24 percent vs. 4 percent, p < .005). Conversely, antisocial personality disorder was found in 22 percent of the men but was not present in any of the women (p < .01).

When asked about reasons for drug use, there were no statistically significant differences between men and women on any single item. However, women cited using cocaine in response to “depression, feeling unsociable, family and job pressures, and health problems” more frequently than did men, who cited no reasons for drug use more often than women. Regarding cocaine effects, men were more likely to report a decreased ability to have sex (67 percent vs. 38 percent, p < .05), although no significant gender differences were reported regarding the effects of cocaine on sexual desire, anxiety, mood, aggression, or

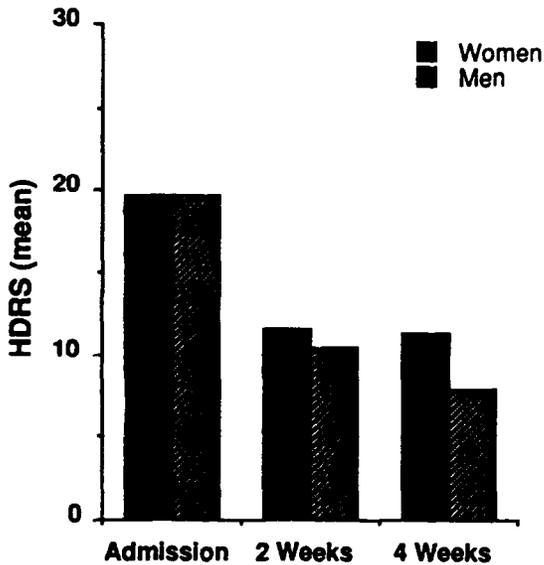
appetite. One interesting difference regarding drug effects was that women were more likely to report decreased guilt during cocaine intoxication (47 percent vs. 23 percent), whereas men were more likely to feel more guilty (56 percent vs. 34 percent) while intoxicated ( $p < .05$ ).

As shown in figure 2, serial administration of the HDRS revealed substantial depressive symptoms in both groups, with consequent improvement during their hospitalization. One notable difference between the sexes, however, was that HDRS scores in women improved significantly between admission and 2 weeks, ( $p < .001$ ) but not between 2 weeks and 4 weeks. Men, on the other hand, improved significantly between admission and 2 weeks ( $p < .001$ ) and between 2 weeks and 4 weeks ( $p < .001$ ). We subsequently eliminated patients with major depression from our analysis (figure 3) and found the same trend, with HDRS scores improving for men throughout the hospital stay ( $p < .001$  between admission and 2 weeks,  $p < .001$  during the subsequent 2 weeks), whereas women improved only during the first 2 weeks ( $p < .01$ ), but not over the next 2 weeks.



**FIGURE 2.** Mean Hamilton Depression Rating Scale scores over time in all cocaine abusers

From Griffin et al. 1989. Copyright 1989 by American Medical Association (Chicago).



**FIGURE 3.** *Mean Hamilton Depression Rating Scale scores over time in cocaine abusers without a diagnosis of major depression*

From Griffin et al. 1989. Copyright 1989 by American Medical Association (Chicago).

This study of hospitalized cocaine abusers revealed several notable differences between men and women. Women began using cocaine earlier than men and entered treatment at a younger age after having used cocaine for a shorter period. Men had better overall social adjustment, including better employment and living situations. Cocaine was more likely to make men feel more guilty and to reduce guilt in women. Men had a higher incidence of antisocial personality disorder, and women were more likely to have major depression. Although men and women were almost equally depressed at admission, men improved more rapidly, with peak differences in HDRS scores at 4 weeks.

These findings suggest that the natural history of cocaine abuse in men and women may be somewhat different; the differential effect on guilt may make cocaine somewhat more reinforcing for some women, thus speeding up the process of their addiction. It also is possible that the cocaine withdrawal

syndrome, which has recently been the subject of some research (Brower et al. 1988; Gawin and Kleber 1986), may be different in men and women. The slower recovery from depressive symptoms may be a function of a sex-related difference in the cocaine withdrawal syndrome, or it may reflect that the overall social adjustment of the women in the study was less satisfying; this suggests that a comprehensive approach to such issues as vocational adjustment, living situation, and relationships with other substance abusers should be thoroughly evaluated in all cocaine abusers, particularly women.

The generalizability of these findings is limited in part by the nature of the study sample (inpatients admitted to a private psychiatric hospital) and the relatively short-term nature of the study. It also is not clear, for example, whether remaining more depressed 1 month after attaining abstinence is a good or a bad prognostic sign. Recent research by Carroll (1989) suggests that depression may be a favorable sign in cocaine abusers, as has been found previously in alcoholic women (Rounsaville et al. 1987). We also must emphasize that women cocaine abusers, like women alcoholics (Martin and Casswell 1988), are not a homogeneous group but must be evaluated and treated individually. However, our findings do suggest that some general differences between men and women cocaine abusers may exist, and these may have important treatment implications.

## REFERENCES

- Ayerst Laboratories Inc. *Factrel (Gonadorelin Hydrochloride). Synthetic Luteinizing Hormone Releasing Hormone (LH-RH)*. Prescription Package Insert, 1982.
- Beckman, L. Women alcoholics: A review of social and psychological studies. *J Stud Alcohol* 36:797-824, 1975.
- Blume, S.B. Women and alcohol. *JAMA* 256:1467-1470, 1986.
- Bottiger, L.E.; Furhoff, A.K.; and Holmberg, L. Fatal reactions to drugs: A ten-year material from the Swedish Adverse Drug Reaction Committee. *Acta Med Scand* 205:451-456, 1979.
- Brower, K.J.; Maddahian, E.; Blow, F.C.; and Beresford, T.P. A comparison of self-reported symptoms and DSM-III-R criteria for cocaine withdrawal. *Am J Drug Alcohol Abuse* 14(3):347-356, 1988.
- Carroll, K.M. "Psychiatric Diagnosis and Cocaine Treatment Response." Paper presented at the 142nd Annual Meeting of the American Psychiatric Association, San Francisco, May 6-11, 1989.
- Chasnoff, I.J.; Burns, W.J.; Schnoll, S.H.; and Burns, K.A. Cocaine use in pregnancy. *N Engl J Med* 313:666-669, 1985.
- Colten, M.E. A descriptive and comparative analysis of self perceptions and attitudes of heroin-addicted women. In: *Addicted Women: Family*

- Dynamics, Self-Perceptions, and Support Systems*. DHHS Pub. No. (ADM)80-762. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1980. pp. 7-36.
- Curlee, J. A comparison of male and female patients at an alcoholism treatment center. *J Psychol* 74:239-247, 1970.
- Cuskey, W.R.; Berger, L.H.; and Denser-Gerber, J. Issues in the treatment of female addiction: A review and critique of the literature. *Contemp Drug Prob* 6:307-371, 1977.
- Davidson, V., and Bemko, J. International review of women and drug abuse (1966-1975). *J Am Med Assoc* 33:507-518, 1978.
- Domecq, C.; Naranjo, C.A.; Ruiz, I.; and Busto, U. Sex-related variations in the frequency and characteristics of adverse drug reactions. *Int J Clin Pharmacol Ther Toxicol* 18:362-366, 1980.
- Erickson, P.G., and Murray, G.F. Sex differences in cocaine use and experiences: A double standard revived. *Am J Drug Alcohol Abuse* 15(2):135-152, 1989.
- Finnegan, L.P. Women in treatment. In: Dupont, R.L.; Goldstein, A.; and O'Donnell, J., eds. *Handbook on Drug Abuse*. Rockville, MD: U.S. Department of Health and Human Services, 1979. pp. 121-131.
- Gawin, F.H., and Kleber, H.D. Abstinence symptomatology and psychiatric diagnosis in cocaine abusers: Clinical observations. *Arch Gen Psychiatry* 43:107-113, 1986.
- Griffin, M.L.; Weiss, R.D.; Mirin, S.M.; and Lange, U. A comparison of male and female cocaine abusers. *Arch Gen Psychiatry* 46:122-126, 1989.
- Hamilton, M. A rating scale for depression. *J Neurol Neurosurg Psychiatry* 23:56-62, 1960
- Hesselbrock, M.N.; Meyer, R.E.; and Keener, J.J. Psychopathology in hospitalized alcoholics. *Arch Gen Psychiatry* 42:1050-1055, 1985.
- Hill, S.Y. Physiological effects of alcohol in women. In: *Women and Alcohol: Health-Related Issues*. DHHS Pub. No. (ADM)86-1139. Washington. DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 199-214.
- Hurwitz, N. Predisposing factors in adverse reactions to drugs. *Br Med J* 1:536-539, 1969.
- Levy, S.J., and Doyle, K.M. *Women in Treatment: Issues and Approaches Resource Manual*. Rockville, MD: National Institute on Drug Abuse, 1976.
- Lex, B.W.; Teoh, S.K.; Lagomasino, I.; Mello, N.K.; and Mendelson, J.H. Characteristics of women receiving mandated treatment for alcohol or polysubstance dependence in Massachusetts. *Drug Alcohol Depend*, in press.
- Lisansky, ES. Alcoholism in women: Social and psychological concomitants. *J Stud Alcohol* 18:588-623, 1957.
- Marsh, K.L., and Simpson, D.D. Sex differences in opioid addiction careers. *Am J Drug Alcohol Abuse* 12:309-329, 1986.

- Martin, C., and Casswell, S. Types of female drinkers: A multivariate study. *J Stud Alcohol* 49:273-280, 1988.
- McLellan, A.T.; Luborsky, L.; Woody, G.E.; O'Brien, C.P.; and Droler, K. Predicting response to alcohol and drug abuse treatments: Role of psychiatric severity. *Arch Gen Psychiatry* 40:620-625, 1983.
- Mendelson, J.H.; Mello, N.K.; Cristofaro, P.; Skupny, A.; and Ellingboe, J. Use of naltrexone as a provocative test for hypothalamic-pituitary hormone function. *Pharmacol Biochem Behav* 24:309-313, 1986.
- Meyer, R.E., and Mirin, S.M. *The Heroin Stimulus*. New York: Plenum Press, 1979.
- Moise, R.; Reed, B.G.; and Ryan, V. Issues in the treatment of heroin-addicted women: A comparison of men and women entering two types of drug abuse programs. *Int J Addict* 17:109-139, 1982.
- Reed, T. Outcome research on treatment and on the drug abuser: An exploration. *Int J Addict* 13:139-171, 1978.
- Robins, L.N.; Helzer, J.E.; Weissman, M.M.; Orvaschel, H.; Gruenberg, E.; Burke, J.D.; and Regier, D.A. Lifetime prevalence of specific psychiatric disorders in three sites. *Arch Gen Psychiatry* 41:949-958, 1984.
- Ross, F., and Berzins, J. Personality characteristics of female addicts on the MMPI. *Psychol Rep* 35:779-784, 1974.
- Rounsaville, B.J.; Dolinsky, Z.S.; Babor, T.F.; and Meyer, R.E. Psychopathology as a predictor of treatment outcome in alcoholics. *Arch Gen Psychiatry* 44:505-513, 1987.
- Rounsaville, B.J.; Weissman, M.M.; Kleber, H.; and Wilber, C. Heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1982a.
- Rounsaville, B.J.; Weissman, M.M.; Wilber, C.H.; Crits-Christoph, K.; and Kleber, H.D. Diagnosis and symptoms of depression in opiate addicts: Course and relationship to treatment outcome. *Arch Gen Psychiatry* 39:151-156, 1982b.
- Suffet, F., and Brotman, R. Female drug use: Some observations. *Int J Addict* 11:19-33, 1976.
- Teoh, S.K.; Mendelson, J.H.; Mello, N.K.; and Skupny, A. Alcohol effects on naltrexone-induced stimulation of pituitary, adrenal, and gonadal hormones during the early follicular phase of the menstrual cycle. *J Clin Endocrinol Metab* 66:1181-1186, 1988.
- Verebey, K., and Gold, M.S. From coca leaves to crack: The effects of dose and routes of administration in abuse liability. *Psychiatr Ann* 18:513-520, 1988.
- Weiss, R.D., and Mirin, S.M. Subtypes of cocaine abusers. *Psychiatr Clin North Am* 9:491-501, 1986.
- Weiss, R.D.; Mirin, S.M.; Griffin, M.L.; and Michael, J.L. Psychopathology in cocaine abusers: Changing trends. *J Nerv Ment Dis* 176:719-725, 1989.

- Weiss, R.D.; Mirin, S.M.; Michael, J.L.; and Sollogub, A.C. Psychopathology in chronic cocaine abusers. *Am J Drug Alcohol Abuse* 12:17-29, 1988.
- Weissman, M.M., and Bothwell, S. Assessment of social adjustment by patient self-report. *Arch Gen Psychiatry* 33:1111-1115, 1976.
- Weissman, M.M., and Klerman, G.L. Sex differences and the epidemiology of depression. *Arch Gen Psychiatry* 34:98-111, 1977.
- White, H.R. Longitudinal patterns of cocaine use among adolescents. *Am J Drug Alcohol Abuse* 14(1):1-15, 1988.
- Wildt, L., and Leyendecker, G. Induction of ovulation by the chronic administration of naltrexone in hypothalamic amenorrhea. *J Clin Endocrinol Metab* 64:1334-1335, 1987.

## **ACKNOWLEDGMENTS**

Preparation of this chapter was supported in part by National Institute on Drug Abuse grants DA-04059, DA-00064, DA-00101, and DA-05944 and by a grant from the Engelhard Foundation.

Portions of this chapter were originally published in the *Archives of General Psychiatry* and *Pharmacology Biochemistry and Behavior* and are reprinted with permission.

## **AUTHORS**

Jack H. Mendelson, M.D.  
Professor and Codirector

Roger Weiss, M.D.  
Associate Psychiatrist

Margaret Griffin, Ph.D.  
Medical Sociologist

Steven M. Mirin, M.D.  
Acting General Director/Psychiatrist in Chief

Siew K. Teoh, M.D.  
Clinical and Research Fellow

Nancy K. Mello, Ph.D.  
Professor

Barbara W. Lex, Ph.D.  
Associate Anthropologist

Alcohol and Drug Abuse Research Center  
Harvard Medical School-McLean Hospital  
115 Mill Street  
Belmont, MA 02178

# Opportunities for Enhancing Drug Abuse Treatment With Criminal Justice Authority

*Carl G. Leukefeld*

## INTRODUCTION

Drug abuse treatment has a traditional relationship with the criminal justice system (Maddux 1967, 1978). After briefly reviewing that relationship, this chapter presents an overview of the high number of drug users who come into contact with the criminal justice system and presents opportunities for enhancing drug abuse treatment with criminal justice authority.

From one point of view, drug abuse treatment began in the United States with two Public Health Service (PHS) farms—one at Lexington, Kentucky, in 1935 and the other at Fort Worth, Texas, in 1938. As drug abuse treatment matured, these facilities were called PHS hospitals and, later, clinical research centers. Treatment at these facilities was designed primarily for Federal prisoners, but voluntary patients with no Federal court pressure could also receive treatment. However, after withdrawal from drugs, most voluntary patients did not stay, and, with no community followup, there was a high relapse rate (Pescor 1943; Vaillant 1966).

With that high relapse rate and using the California and New York civil commitment programs as models, Congress passed the Narcotic Addict Rehabilitation Act (NARA; Public Law 89-793) in 1966 as a Federal civil commitment program. NARA established court-ordered treatment initially at Lexington and Fort Worth as an alternative to incarceration. NARA's purpose was to keep opiate addicts in treatment after detoxification and provide community aftercare. NARA inpatient treatment facilities were also developed in several cities and served as the foundation for community-based drug abuse treatment (Leukefeld 1985). The NARA community "seed money" and NARA-sponsored training for drug abuse counselors and professionals permitted a foundation for local drug treatment expertise and established a close working relationship between community criminal justice activities and health care.

When NARA title I (treatment in lieu of prosecution) and title III (treatment with no formal charges), with no sentencing, were phased out as civil commitment responsibilities of narcotic addicts by the PHS in the mid-1970s, the Lexington and Fort Worth Clinical Research Centers were transferred to the Federal Bureau of Prisons, and they are now Federal correctional facilities. It is important to note that NARA titles I and III (no conviction) must be separated from title II, which provides for the treatment of narcotic addicts convicted of Federal crimes; before enactment of title II, this group was the responsibility of the Department of Justice.

Another milestone in the area of linking drug abuse treatment with the criminal justice system is Treatment Alternatives to Street Crime (TASC), which was initially established by the Special Action Office for Drug Abuse Prevention in 1972. TASC can be described as a diversion program and as case management and helps bridge the gap between the criminal justice system and the drug abuse treatment system (Cook and Weinman 1988). TASC provides identification, assessment, referral, case management, and monitoring services for drug- and alcohol-dependent offenders accused or convicted of nonviolent crimes (Bureau of Justice Assistance 1988).

Case management is used with other groups, including the elderly and in mental health populations, as I . . . an approach to service delivery that attempts to ensure that clients with complex, multiple problems and disabilities receive all the services they need in a timely and appropriate fashion” (Rubin 1987, p. 212). TASC has implemented this case management approach in 128 communities (Beth Weinman, personal communication, August 6, 1989). The use of court authority and coercion derived from the criminal justice system has not been without controversy. In October 1977 Robert L. Du Pont, then Director of the National Institute on Drug Abuse, presented a paper titled “Operation Trip-Wire: A New Proposal Focused on Criminal Heroin Addicts” to the Federal Bar Association Convention (Du Pont 1977). Using the findings of McGlothlin and colleagues (1977), he proposed setting up a “tripwire” in the form of urine testing that would identify daily heroin users who were on probation and parole. If an addicted probationer or parolee did not stop his or her daily drug use, the user would be referred to compulsory drug abuse treatment; if treatment was refused or daily heroin use maintained, the addict would be reincarcerated. Even though the proposal was changed to a research study called Paroled Addicts in Treatment for Heroin (PATH), the study never got under way because of the controversy. Criticism focused on three areas: (1) the image problem created when a health agency proposed a mechanism for behavioral control using the criminal justice system, (2) the violation of probationers’ civil rights when tested, and (3) the inadequacy of the urine testing technology (Leukefeld 1985). However, in spite of the controversy, practitioners

and researchers interested in the relationship between drugs and crime supported the PATH concept, not only because of their clinical experience but also because of the large number of crimes committed by addicts (Ball et al. 1981; Nurco et al. 1986).

## **DRUG USE AND CRIMINAL JUSTICE**

The criminal justice system has a large number of drug abusers. Both adults and juveniles report that they are using drugs at the time of their arrest. This high level of use is substantiated with early data from Eckerman and coworkers (1971) who found, in a sample of arrestees from six major cities, that 49 percent were drug users and 64 percent had used drugs at some time. Another early study (Barton 1976) reported that 30 percent of State correctional facility inmates had used heroin before they were arrested, 21 percent had used it daily, and 14 percent were using heroin daily at the time of their incarceration. A 1975 State survey by the New York Department of Corrections found higher rates, with 58 percent of State prison inmates reporting drug abuse before incarceration (Joseph 1988).

Recent studies support these earlier findings. Data from 22 cities participating in the Drug Use Forecasting (DUF) system indicate that about 60 percent of arrestees were using drugs other than alcohol-confirmed with urine tests—at the time of their arrest (National Institute of Justice 1988). In another study, State prison inmates' self-reports showed that 43 percent were using drugs daily or almost daily in the month before their offense; 35 percent also said they were under the influence of a drug at the time they committed their offense—up from 32 percent in 1979 (Bureau of Justice Statistics 1987).

A survey of institutionalized juveniles in State-operated institutions (Bureau of Justice Statistics 1988) details the drug abuse among youth. Sixty-three percent used illegal drugs regularly (once a week or more for at least a month); 82 percent reported “any” illegal drug use; 46 percent reported cocaine use; and almost 40 percent were under the influence of a drug at the time of their offense. As expected, these juveniles used more drugs than did high school seniors. For example, 81 percent of youth in custody reported that they had used marijuana compared with 51 percent of high school seniors (National Institute on Drug Abuse 1987). And 13 percent of institutionalized youth reported that they had used heroin, while 1 percent of seniors reported use of heroin.

On the other side of the coin, drug abusers in treatment are involved with the criminal justice system. They are frequently on probation, parole, or mandatory release. Early data from the Client Oriented Data Acquisition Process (CODAP)

revealed that 17 percent of clients who entered drug abuse treatment were on probation, parole, or mandatory release (National Institute on Drug Abuse 1974). By 1982 CODAP reported a 4-percent increase of criminal justice involvement for persons in drug abuse treatment to 27 percent for males and 15 percent for females (National Institute on Drug Abuse 1982).

## **OPPORTUNITIES FOR ENHANCING DRUG ABUSE TREATMENT**

In keeping with the overall purpose of this volume (which is to develop recommendations for improving drug abuse treatment), the following opportunities for improvement, using authority derived from the criminal justice system, are presented for consideration and application by drug treatment programs.

### **The Criminal Justice System Provides an Environment for Identifying Potential Drug Abuse Clients**

As suggested by the previously cited studies and underscored by the recent findings from the DUF system, there are a large number of adult drug abusers—about 60 percent—and juvenile drug abusers—more than 60 percent—(Bureau of Justice Statistics 1988) who come into contact with the criminal justice system. From a system's point of view, jails and lockups could serve as natural entry points to provide early intervention, information, and drug abuse treatment referral. More than 1 1/2 percent of the U.S. adult population (2.6 million adults) were under correctional supervision in 1985, with more than 1.8 million persons on probation (up 18 percent from 1983) more than 250,000 in jail (up 14 percent from 1983), more than 500,000 in prison (up 15 percent from 1983), and more than 277,000 on parole (up 12 percent since 1985) (Bureau of Justice Statistics 1988).

One example of an identification and referral program, called KEEP (Key Extended Entry Process), was developed by Charles Laporte in New York City (Joseph 1988). Patients recruited into KEEP at Rikers Island are voluntarily maintained on methadone while in jail and are referred to methadone maintenance programs for immediate outpatient treatment within 24 hours. Early data indicate that 70 percent of the released KEEP inmates reported to methadone programs when they were released.

### **Probation and Parole Can Enhance Behavioral Contingencies**

Drug testing, treatment exposures, and incarceration as well as other court sanctions can be used to keep drug abusers in treatment and reduce drug use. Several studies support the importance of parole in reducing drug abuse

(Diskind and Klonsky 1964; Diskind 1967). Brill and Lieberman (1969) reported that rational authority (i.e., involuntary rehabilitation of addicts with court coercion) was the most important factor in the treatment of narcotic addiction. McGlothlin and coworkers (1977) found that close supervision of parolees, including urine testing, resulted in lower daily narcotic use and less criminal activity than supervision without testing. However, the effectiveness of criminal justice referral to drug abuse treatment is not consistent. For example, Stitzer and McCaul (1987), after reviewing selected alcohol and other drug abuse studies, suggested that the treatment studies they examined did not demonstrate effectiveness. However, they added that community supervision programs combined with substance use monitoring and possible incarceration may reduce substance abuse.

### **Drug Abuse Treatment Programs Can Capitalize on Establishing a Working Relationship With the Criminal Justice System To Enhance Treatment**

However, capitalizing on referrals to treatment from the criminal justice system is not a simple matter. The dilemma is highlighted by Hubbard and colleagues (1988) who reported, in a 3-year followup study, that less than 3 percent of clients in outpatient methadone maintenance treatment were referred to treatment by the criminal justice system compared with about 30 percent of residential and outpatient drug-free clients. Thus, methadone maintenance treatment, which appears to be the most effective drug abuse treatment modality, is least used by the criminal justice system. Anglin (1988) reported that methadone maintenance combined with civil commitment was a powerful combination for decreasing drug abuse and enhancing positive behaviors. Finally, probation and parole officers have considerable information about individuals on their caseloads. This information can be useful for augmenting treatment planning and carrying out drug abuse treatment.

### **Compulsory Treatment In the Form of Civil Commitment Can Reduce Intravenous Drug Abuse but Should Not Be Considered a Panacea**

Reporting on the results of the California Addict Program followup study, Anglin (1988) maintains that parole should be used to monitor addicts against relapse to addiction. After reviewing the followup studies from the PHS hospitals, Maddux (1988) suggests that treatment with legal coercion, when combined with compulsory community followup, produced better outcomes but not vastly different from those for voluntary patients.

Civil commitment also has serious limitations (Maddux 1988), including the following: It cannot overcome service deficits; coercion can bring a person into

treatment, but it cannot force participation; and civil commitment operates within constitutional guarantees of civil liberties. Civil commitment is also administratively cumbersome and expensive. If it is effectively implemented, appropriate sanctions must be available, including incarceration.

### **Court Referral to Drug Abuse Treatment Generally Increases the Length of Time Drug Abusers Remain In Treatment**

Several studies—including Levine and Monroe (1964), McGlothlin and colleagues (1977), Leukefeid (1978), and Collins and Allison (1983)—found that patients involved with the criminal justice system remained in treatment longer than those not involved with the criminal justice system. As previously indicated, retention in treatment was a major force behind the enactment of the NARA civil commitment legislation. However, the findings are not uniform for prisoner addicts. For prisoner addicts committed under NARA title II, Friedman and colleagues (1982) reported that NARA did not accomplish all that was intended but may have contributed to reduced drug use. Englin (1986) found that prison treatment followed by purchased community treatment did not reduce drug use for prisoners civilly committed under NARA title II.

### **Linking Drug Abuse Treatment and the Criminal Justice System Can Help Disrupt the Addiction Life Cycle and Decrease Drug Abuse**

TASC serves as an example of an *effective* case management approach (Lazar Institute 1976; System Sciences, Inc. 1978; Hubbard et al. 1988) that bridges drug abuse treatment programs and the criminal justice system. TASC does this by increasing communication as well as coordinating more effective drug abuse treatment. For TASC clients, drug abuse treatment is used as an alternative or supplement to criminal justice sanctions and procedures.

## **CONCLUSION**

The use of compulsion, coercion, court authority, mandatory treatment, civil commitment, and referral to drug abuse treatment has a tradition in the United States. In general, although the literature is mixed, it seems that the use of court authority and compulsory treatment should not be ignored by treatment programs and treatment program staff. Perhaps, if more widely used, case-managed care and coordinated care focused on the addiction career and reducing the time spent using drugs could make drug abuse treatment more effective in reducing drug abuse.

## REFERENCES

- Anglin, M.D. The efficacy of civil commitment in treating narcotic addiction. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 8-34.
- Ball, J.C.; Rosen, L.; Flurck, J.A.; and Nurco, D.N. The criminality of heroin addicts: When addicted and when off opiates. In: Inciardi, J.A., ed. *The Drugs-Crime Connection, Sage Annual Reviews of Drug and Alcohol Abuse*. Vol. 5. Beverly Hills: Sage Publications, 1981. pp. 39-65.
- Barton, W.I. *Drug Histories of Prisoners: Survey of Inmates of State Correction Facilities*. Washington, DC: Drug Enforcement Administration, 1976.
- Brill, L., and Lieberman, L. *Authority and Addiction*. Boston: Little, Brown, 1969.
- Bureau of Justice Assistance. *Guidelines for Implementing and Operating Treatment Alternatives to Street Crime TASC Programs*. Washington, DC: U.S. Department of Justice, January 1988.
- Bureau of Justice Statistics. *State Prison Inmate Survey, 1986. Special Report*. Washington, DC: U.S. Department of Justice, 1986.
- Bureau of Justice Statistics. *Survey of Youth in Custody, 1987. Special Report*. Washington, DC: U.S. Department of Justice, 1987.
- Bureau of Justice Statistics. *Report to the Nation on Crime and Justice*. 2nd ed. Washington, DC: U.S. Department of Justice, 1988.
- Collins, J.J., and Allison, M. Legal coercion and retention in drug abuse treatment. *Hosp Community Psychiatry* 34(120):1145-1149, 1983.
- Cook, L.F., and Weinman, B.A. Treatment alternatives to street crime. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 99-105.
- Diskind, M. The role of the parole officer or the use of the authoritative casework approach. In: *Rehabilitating the Narcotic Addict*. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1967. pp. 285-292.
- Diskind, M., and Klonsky, G. *New Approaches in the Treatment of Paroled Offenders Addicted to Narcotic Drugs*. Albany, NY: State Division of Parole, 1964. pp. 11-68.
- Du Pont, R.C. "Operation Trip-Wire: A New Proposal Focused on Criminal Heroin Addicts." Paper presented at the Federal Bar Association Convention, Washington, DC, October 1977.

- Eckerman, W.C.; Bates, J.D.; Rachal, J.V.; and Poole, W.K. *Drug Usage and Arrest Charges. A Study of Drug Usage and Arrest Charges Among Arrestees in Six Metropolitan Areas of the United States (Final Report BNDD Contract No. J-70-35)*. Washington, DC: U.S. Department of Justice, 1971.
- Englin, J. *The Impact of Federal Drug Aftercare Program*. Washington, DC: The Federal Judicial Center, 1986. Document No. FJC-86-4.
- Friedman, S.B.; Horvat, G.L.; and Levinson, R.B. The Narcotic Addict Rehabilitation Act: Its impact on Federal prisons. *Contemp Drug Prob Spring*:101-111, 1982.
- Hubbard, R.L.; Collins, J.L.; Rachal, J.V.; and Cavanaugh, E.R. The criminal justice client in drug abuse treatment. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 57-80.
- Joseph, H. The criminal justice system and opiate addiction: A historical perspective. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 106-125.
- Lazar Institute. *Phase I Report, Treatment Alternatives to Street Crime (TASC) National Evaluation Program*. Washington, DC: Law Enforcement Assistance Administration, 1976, NCJ 34057.
- Leukefeld, C.G. A comparison of voluntary and involuntary admissions to treatment for addiction. In: Schecter, A.; Alkine, H.; and Kaufman, E., eds. *Critical Concern in the Field of Drug Abuse*. New York: Marcel Decker, Inc., 1978. pp. 260-264.
- Leukefeld, C.G. The clinical connection: Drugs and crime. *Int J Addict* 20(6,7):1049-1064, 1985.
- Levine, J., and Monroe, J.J. Discharge of narcotic drug addicts against medical advice. *Public Health Rep* 79:13-18, 1964.
- Maddux, J.F. Treatment of narcotic addiction: Issues and problems. In: *Rehabilitating the Narcotic Addict*. Department of Health, Education, and Welfare, Public Health Service, Vocational Rehabilitation Administration, and Texas Christian University. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1967. pp. 11-22.
- Maddux, J.F. History of the hospital treatment programs, 1935-74. In: Martin, W.R., and Isbell, H., eds. *Symposium on Drug Addiction and the U.S. Public Health Service. Proceedings of the Symposium Commemorating the 40th Anniversary of the Addiction Research Center at Lexington, Kentucky*. DHHS Pub. No. (ADM)77-434. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1978. pp. 217-250.

- Maddux, J.F. Clinical experience with civil commitment. In: Leukefeld, C.G., and Tims, F.M., eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)88-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 35-56.
- McGlothlin, W.H.; Anglin, M.D.; and Wilson, B.D. *An Evaluation of the California Civil Addict Program*. Rockville, MD: National Institute on Drug Abuse, 1977.
- National Institute of Justice. *Drug Use Forecasting. Special Report*. Washington, DC, November 1988.
- National Institute on Drug Abuse. *Data from the Client Oriented Data Acquisition Process (CODAP)*. Rockville, MD: National Institute on Drug Abuse, 1974.
- National Institute on Drug Abuse. *Data from the Client Oriented Data Acquisition Process (CODAP)*. Rockville, MD, National Institute on Drug Abuse, 1982.
- National Institute on Drug Abuse. *Monitoring the future. N/DA Capsules*. Rockville, MD, March 1987.
- Nurco, D.N.; Shaffer, J.W.; Ball, J.C.; Kinlock, T.W.; and Langrod, J. A comparison by ethnic group and city of the criminal activities of narcotic addicts. *J Nerv Ment Dis* 174:112-116, 1986.
- Pescor, M.J. Followup study of treated narcotic addicts. *Public Health Rep* 170[Suppl]:1-18, 1943.
- Rubin, A. Case management. In: Greenhall, K.R., ed. *Encyclopedia of Social Work*. Vol. I. Silver Spring, MD: National Association of Social Workers, 1987. pp. 212-222.
- Stitzer, M.L., and McCaul, M.E. Criminal justice interventions with drug and alcohol abusers: The role of compulsory treatment. In: Morris, E.K., and Braukmann, C.J., eds. *Behavioral Approaches to Crime and Delinquency: A Handbook of Application, Research, and Concepts*. New York: Plenum Press, 1987. pp. 331-361.
- System Sciences, Inc. *Final Report-Evaluation of TASC, Phase II*. Bethesda, MD: Law Enforcement Assistance Administration, 1978. NCJ 51931.
- Vaillant, G.A. A twelve-year followup of New York narcotic addicts, III. Some social and psychiatric characteristics. *Arch Gen Psychiatry* 15(6):599-609, 1966.

## **AUTHOR**

Carl G. Leukefeld, D.S.W.  
 Director  
 Multidisciplinary Center on Drug and Alcohol Abuse  
 Department of Psychiatry

University of Kentucky Medical Center  
Room 210  
800 Rose Street  
Lexington, KY 40536

# Contemporary Issues in Drug Abuse Treatment Linkage With Self-Help Groups

*David N. Nurco, Philip Stephenson, and Thomas E. Hanlon*

## INTRODUCTION

The primary purpose of this chapter is to discuss the linkage between self-help, as a viable aftercare modality, and methadone treatment. A particular focus is placed on the relevance of self-help as a vehicle for (1) improving the quality and effectiveness of treatment, (2) reducing the demand for drugs, and (3) reducing the spread of acquired immunodeficiency syndrome (AIDS).

Because this chapter presents a general overview of self-help and related issues, self-help as an aftercare modality is discussed in a broad conceptual context. Specific experiences and research findings are alluded to, but not presented as formal or documented results. This is partly due to a desire to maintain consistency in the amount of material presented as well as the need to adhere to the originally stated purpose of providing a vehicle to stimulate thought rather than present research findings.

## SELF-HELP AND HEALTH CARE SYSTEMS

The past 25 years have witnessed increased interest in self-help as an adjunct to formal health care services. This has been the result of several factors. Traditionally, self-help has represented a "grassroots" response to perceived failure in health care delivery and a natural inclination of those affected by an ailment to band together for mutual support. Health care providers often are perceived as insensitive or as having inadequate resources to effectively treat certain disorders, which has compelled those afflicted to seek alternative forms of treatment.

The gulf that sometimes separates patients and clinicians is exemplified by the current AIDS epidemic. AIDS patients frequently find themselves in conflict with the medical community and, consequently, seek independent means of dealing

with the disorder because already overburdened health services personnel have neither the time nor the resources to adequately inform patients about the progression and consequences of AIDS. Applied within this context, self-help procedures permit those afflicted to share experiences, information, and resources. This mutual assistance is not only informative and educational but also provides a means by which participants can better understand and come to terms with their circumstances. Self-help group support has been particularly effective in relieving the isolation and stigmatization that accompany AIDS.

As spontaneously evolving grassroots organizations demonstrated the capacity to provide effective and responsible services, health care systems took notice and eventually began to use them as a referral resource. Service delivery at times has been changed to reflect innovations introduced by self-help organizations.

The impact of self-help groups on service delivery is perhaps best exemplified by the experience of Alcoholics Anonymous (AA). The basic precepts embodied in the 12 steps and 12 traditions of AA have been incorporated (either partially or intact) into the regimen of many professionally sponsored alcoholism treatment programs. AA also is used widely as an aftercare referral for discharged clients. (It might well be argued that AA is the primary treatment modality for those who seek its fellowship, even when imbedded in a professionally sponsored treatment program.) Senior members of AA, with proven abstinence, also have been hired as professional service providers within alcoholism treatment programs. Moreover, AA's demonstrated effectiveness has spawned a range of "anonymous" groups such as Overeaters Anonymous, Gamblers Anonymous, and Narcotics Anonymous (NA), all using AA's steps and traditions.

A second impetus to the growth of self-help as an accepted intervention is found in the changing pattern of health care problems. Gartner and Riessman note, ". . . the major health problems are not those of acute illness, in which the doctor plays a crucial, curative role, but rather those of chronic illness, in which the patient plays the strategic role" (Gartner and Riessman 1977). Self-help has emerged in response to the needs of those with chronic health problems (e.g., diabetes, heart disease, arthritis, and now AIDS) as well as those recovering from or coping with long-term disorders (e.g., stroke, cancer, and heart attack). Here, self-help provides information and support to facilitate recovery, understand the consequences of the disorder, and better manage illness-related problems over time.

These factors have contributed to a rapid increase in the number of self-help groups in recent decades, along with the development of widespread interest in

professionally sponsored self-help groups as a complementary process. This has been evidenced not only in the health care arena but also in the broader realm of human services and in what Saragin (1969) described as "societies of deviants."

## **SELF-HELP IN ADDICTIONS**

In the field of narcotic addiction (i.e., addictions to opium and its derivatives and synthetics), there also has been considerable interest in self-help. Yet, the employment of self-help procedures has not kept pace with other segments of the health care system.

There are major exceptions. The therapeutic community (TC) movement is strongly immersed in the self-help tradition, although it has gone far beyond the self-help concept (Nurco et al. 1986). Furthermore, the contributions of NA and Cocaine Anonymous have been significant. Currently, NA is the largest self-help group available to drug abusers (Ashery 1979; Peyrot 1985).

Although these self-help initiatives are significant, methadone maintenance remains the primary treatment modality sought by narcotic addicts. Attitudes generally associated with this type of treatment among both methadone maintenance staff and clients have serious implications with regard to the utilization of self-help concepts. Methadone treatment evolved from a "medical" model and, consequently, does not share the grassroots and self-help tradition of TCs. In fact, the two modalities are at considerable variance in their basic approach to treatment. In very general terms, the object of methadone is to enable the addict to control addiction by chemically reducing the craving/need for illicit narcotics and, thus, allow him or her to assume a more adaptive and productive lifestyle. On the other hand, TCs aim at a basic reorientation of the individual and operate by removing the addict from the community until such time as the addictive behavior has been replaced with more socially acceptable and adaptive skills. Whereas individual counseling is an integral aspect of methadone maintenance, group intervention techniques traditionally have been associated with the TC approach, as its name implies.

It would appear that NA's fellowship, steps, and traditions have much to offer methadone clients. Unfortunately, it has been our experience that methadone clients often feel out of place when attending NA meetings. Also, the methadone programs with which we have worked have been unsuccessful in attempts at sponsoring NA meetings within their clinics (Nurco et al., in press), which is largely due to the philosophy of total abstinence espoused by NA. Methadone clients who attend NA meetings are inclined to hide their chemically dependent status, thereby creating an atmosphere of deception. This is not to

say that methadone clients have not participated in and actually benefited from NA. To the contrary, there are probably numerous examples of methadone clients—particularly those receiving either short-term maintenance or detoxification services—successfully engaging the fellowship of NA. Likewise, there are, no doubt, examples of methadone programs having successfully sponsored NA groups. By and large, however, methadone clients and programs have been unable to resolve the conflict between the maintenance of a methadone status—especially over the long term—and NA's avowed stance with regard to the requirement of total abstinence.

Despite only limited documented attempts to adapt self-help concepts to the treatment of narcotic addiction, it should be readily evident that self-help has much to offer. Self-help concepts appear to be particularly relevant for long-term, stabilized, methadone clients who no longer require intensive primary care. For these clients, self-help offers a "common sense" approach to providing aftercare services. There are some compelling and practical reasons for this.

Methadone treatment services currently are operating in a crisis state. Faced with ever-increasing demands, most programs are understaffed and underfunded. As a consequence, there has been an erosion in the quality of services offered. The concurrent epidemics of cocaine abuse and AIDS are two major events that have contributed substantially to the increased demand for methadone services. Cocaine abuse is widespread in many communities and has had an impact on otherwise stable methadone clients. Programs we work with in the northeastern section of the Nation report positive urinalysis results in excess of 40 percent, most of which are for cocaine. At the same time, methadone programs are on the front line of the AIDS epidemic, which especially has affected the intravenous (IV) drug-using population.

IV drug use is the second most common risk behavior associated with AIDS in the United States; in the Northeast, the AIDS epidemic has reached crisis proportions within the IV drug-using population. Even those who have ceased their narcotic abuse remain at risk. Des Jarlais and Friedman (1988) have reported that the States of New York, New Jersey, and Connecticut account for approximately three-fourths of the AIDS cases in the United States in which IV drug use is the primary risk factor. Furthermore, their studies show seroprevalence rates of 50 percent or higher among IV drug users in these states.

Throughout the Nation, methadone programs have been asked to provide additional treatment slots to reduce IV drug use and thereby reduce the risk of HIV infection. Additionally, methadone treatment staffs have been requested to

provide information and counseling to clients seeking to reduce risk behavior, to address the concerns of those who fear they might be infected, and to respond to the specialized needs of those who are seropositive or have become symptomatic with AIDS. Yet, the funding of the additional positions required to carry out these responsibilities has not always kept pace with the demands for service.

The cocaine- and AIDS-generated demands on methadone treatment are in addition to those associated with secondary substance abuse (methadone programs are confronted with high rates of alcohol abuse and abuse of tranquilizers) and with client psychopathology, program dependence, and complex interpersonal and social needs (e.g., family, employment, education, and housing).

Given the increased demands for service, self-help procedures have much to offer methadone programs. As previously noted, self-help concepts offer a common sense approach to providing aftercare services for long-term, stabilized clients who no longer require intensive, one-to-one, primary care. Utilization of self-help concepts would enable such clients to assume more responsibility for their own care and treatment, thus freeing staff to devote greater resources to clients who are in more acute need. Self-help also offers a vehicle by which aftercare services can complement primary care, thereby reducing client dependency on the program. An added feature is that a successful self-help venture has the potential for generating a positive client constituency whose activities would tend to counter the generally negative assessment that the surrounding community has of methadone programs. Successfully engaged individuals also would serve as role models for insecure or less advanced clients. Leaders in the groups could even be brought into the treatment process, serving as cotherapists with trained staff to run groups or to assist with outreach and referral services.

## **THE SELF-HELP EXPERIENCE**

We at the Social Research Center in Baltimore have developed an experimental self-help model, clinically guided self-help (CGSH), with specific applicability for long-term, stabilized methadone clients. We have described CGSH in several publications (Nurco et al. 1983). Although fieldwork concerned with its evaluation will not be concluded until 1991, experiences to date strongly suggest that this model is a viable and cost-effective adjunct to primary treatment.

We have five operational self-help groups and are in the final stages of implementing four additional groups. Groups are small, consisting of 5 to 12

members. Several groups have experienced little attrition, whereas several others have experienced rapid turnover. Attrition appears to correlate directly with the degree of program and staff support for the self-help concept as well as with the general attrition rate of the program as a whole. On the basis of process evidence to date, the groups have supported our original expectation that self-help would provide stabilized clients with a positive peer support network; constructive, nondrug-oriented social and recreational activities; a means of reinforcing the growth achieved by primary treatment; and an opportunity to engage in outreach and advocacy projects to help others. In determining the risk-benefit of the procedure, preliminary assessment suggests that those participating in the self-help process have a lower rate of relapse, as reflected by urinalysis testing, and have greater retention in treatment than their controls. Risks, which primarily involve confidentiality, are minimal and easily addressed.

The CGSH model is founded in the self-help tradition. Participation is voluntary and draws on clients' motivation to assume greater responsibility and control of their lives. It stems from the humanistic social work tradition in that it promotes a nurturing and nonjudgmental environment and draws on the abilities of clients themselves to recognize and act on their needs. CGSH is clinically based in that it is initially dependent on program staff to facilitate the process and ultimately to lead the group to self-sufficiency.

CGSH offers clients the opportunity to develop individual purposes and goals and places responsibility for this development, along with the subsequent attainment of objectives, largely in their hands. Staff members provide the information and skills-training necessary to enable clients to run their groups and maintain responsibility for determining basic standards for group behavior (i.e., only one person speaks at a time, what is said within the group stays there, no aggressive or assaultive behavior is permitted). Staff members also assist in establishing basic criteria for belonging to the group and foster the recognition that success in treatment—especially sustained abstinence from illicit drugs—is an essential characteristic that should be the hallmark of membership in the self-help group. Over time, staff members may disengage from the group and serve only in an advisory or liaison capacity, which is in marked contrast to traditional forms of group therapy, in which program staff predetermine treatment techniques and objectives.

Experiences with our version of self-help generally have been positive. We have found that even long-term, stabilized clients are willing to voluntarily participate in the approach. From these clients, we have learned that even those who are self-motivated and stable in treatment—a few for a decade or longer—present needs that can be effectively addressed by a self-help,

aftercare modality. For some, this may be nothing more than the fellowship offered by a peer support group; for others, it may be the opportunity to participate in social and recreational activities and to engage in leisure activities without drugs. Some experience self-help as an opportunity to acquire or refine life skills, whereas others engage in community outreach projects.

We have found that participants are especially interested in acquiring or refining life skills. Many methadone programs measure treatment success solely in terms of abstinence from illicit narcotic drugs, employment, and family relationships. Little opportunity exists to focus on other issues that might enable the former addict to live a more self-sufficient and fulfilling lifestyle. With respect to this general area of concern, group time is devoted to discussion of a variety of specific issues and topics. These include the following: relationships with spouses, children, siblings, and/or parents; handling work-related stress; how to handle job interviews and improve one's employment opportunities; following through on commitments and obligations (e.g., taking care of aging parents or returning to school); ongoing conflict with local police; budgeting and financial problems; lingering self-doubt associated with their perceived stigma as addicts; concerns about the long-term consequences of methadone maintenance and conflicts arising from their methadone status; guilt surrounding their previous misdeeds toward family and community; how to say "no" when confronted with drugs in the home, community, or workplace; and fear of relapse.

Care is taken to ensure that group time is not wasted on "war stories" or complaints about the clinic. It is equally important that groups not be used as therapy groups to address issues that are more appropriately the target of primary treatment. It was and remains our position that self-help groups should not replace primary treatment and should not become psychotherapy/social work groups. At times, the group developmental process has been slowed by clients who have attempted to use the self-help group as a psychotherapeutic regimen and the group facilitator as a therapist. Such inappropriate demands have been counterproductive and have thwarted the development of group cohesiveness and sense of purpose. Where this has happened, it appears to have been a product of poor client selection and, at least partially, a reflection on the lack of therapeutic services within specific clinics. The most salient issues expressed by clients seeking therapeutic intervention have centered on their depression, dependency, anomie, and/or poor self-esteem. Such clients present an inordinate demand on the time and resources of staff and other group members that was not envisioned in the approach and that should not be part of the focus of a self-help group.

## **POLICY AND ADMINISTRATIVE ISSUES**

In spite of its potential benefits, implementation of self-help within methadone maintenance programs is not without its difficulties. Because many of the proposed benefits are long range, it is difficult for programs to identify and allocate the resources to implement a self-help approach. Program administrators fear that such an endeavor will interfere with normal program operations and further disrupt already strained services. Concern also has been expressed that State and Federal funding might be reduced for those clients in self-help who no longer receive intensive primary care or that treatment slots might be further increased without a corresponding increase in funding. In addition, program administrators have expressed logistical concerns that need to be addressed before self-help procedures can be implemented. Some programs lack adequate space and accommodations for group meetings; many are located in neighborhoods that are not conducive to evening meetings; and some lack convenient public transportation. Also, security concerns confound the process of scheduling meetings during other than regular clinic hours.

Line staffs are equally hesitant about a self-help approach. Counselors and social workers view the endeavor as an unwarranted intrusion on their already difficult workload, and because self-help is directed at those clients who are least demanding and problematic in treatment, staff members are reluctant to relinquish these clients. Often, staff members express the belief that clients will not be receptive to CGSH and cite other group failures as evidence. They are also quick to declare that the segment of the treatment population targeted for self-help will not return to the clinic for the required meetings because this would conflict with employment and family commitments.

Clients, like staff, have been hesitant to become involved with self-help. When queried about participation, clients have raised a variety of issues. Concerns have been expressed about the added time and travel required to return to the program for group meetings; the motives of the researchers, other participating clients, and/or the program; potential conflicts with other responsibilities (e.g., work, family, or school); the negative (i.e., punitive) connotation of group placement within methadone programs because this generally is prescribed for clients with specific problems (e.g., cocaine or alcohol abuse, marital, employment, and so forth); their fear that self-help might be a mechanism to force them to detoxify; and their own impression that they are not doing as well as others and do not deserve to be in the self-help group.

By meeting with candidates individually, we generally have been able to respond to their fears and concerns. Often, they are resolved by taking the time

to correct any misunderstanding the clients have about the purpose and goals of self-help and any false impressions they might have about participation requirements (e.g., forced detoxification). We have found that once they are furnished accurate and concise information about the self-help process, the majority of the clients have agreed to participate. Few clients have rejected our efforts to meet with them or have otherwise become uncooperative or hostile. In our own recruitment to date, 50 percent of the eligible clients have agreed to participate. This figure has far exceeded the expectations of program staff, who believed favorable response to recruitment would be minimal. It is the interest of the clients that often provides the impetus to overcome administrative and staff reluctance.

## **BENCHMARKS/CONCLUSIONS**

Self-help procedures offer overburdened methadone programs a way of providing aftercare services for long-term stabilized clients who no longer require intensive primary care services and for whom a regimen of regular doses of methadone is the only necessary prescriptive treatment. Application of self-help procedures to this segment of the treatment population would permit the programs to devote greater time and resources to other clients, who have not as yet acquired the motivation and/or skills to curb their addictive behavior.

In the long term, self-help concepts afford methadone programs a strategy for expanding treatment services into the realm of aftercare. Expansion and intensification of treatment services would permit programs to more effectively reduce the demand for drugs and thereby reduce the risk of client exposure to AIDS.

Clearly, however, implementation of self-help concepts must be carefully planned and coordinated. The intervention must be tailored to reflect the specific circumstances of each program, taking into account the expectations of both staff and clients. Despite the fact that adjustments will be made in response to individual program requirements, several key policy-related considerations should be recognized to ensure successful implementation of self-help procedures:

1. Self-help is not for everyone. Only those self-motivated clients with demonstrated stability should be recruited. Clients who still require primary care (e.g., those with ongoing substance abuse or psychopathology) are not suitable candidates.
2. Self-help is not a substitute for primary care. It is intended more for ancillary treatment and for aftercare. In this way, it complements primary care.

3. Implementation of self-help procedures requires staff involvement and commitment as well as some clinic resources (e.g., moderators and meeting area). Unfortunately, the benefits of the approach are not immediately obvious to program personnel.
4. Self-help procedures necessitate that clients voluntarily attend meetings onsite more often. This is contrary to the reinforcement policy in many methadone programs that rewards adherence to rules by reducing reporting requirements (i.e., granting take-home privileges).
5. Because methadone maintenance program group sessions generally are prescribed only for those clients who are problematic, a negative impact on self-help recruitment is likely.

## REFERENCES

- Ashery, R.S. Self-help groups serving drug users. In: Brown, B., ed. *Addicts and Aftercare*. Beverly Hills: Sage, 1979. pp. 135-154.
- Des Jarlais, D.C., and Friedman, S.R. HIV infection among persons who inject illicit drugs: Problems and prospects. *J AIDS* 3(1):267-273, 1988.
- Gartner, A., and Riessman, F. *Self-Help in the Human Services*. San Francisco: Jossey-Bass Publishers, 1977. p. 69.
- Nurco, D.N.; Stephenson, P.E.; and Hanlon, T.E. Aftercare/relapse prevention and the self-help movement. *Int J Addict*, in press.
- Nurco, D.N.; Wegner, N.; Stephenson, P.; Makofsky, A.; and Shaffer, J.W. *Ex-Addicts' Self-Help Groups: Potentials and Pitfalls*. New York: Praeger, 1983. p. 15.
- Peyrot, M. Narcotics Anonymous: Its history, structure, and approach. *Int J Addict* 20(10):1509-1522, 1985.
- Saragin, E. *Odd Man In: Societies of Deviants in America*. New York: Quadrangle Books, 1969.

## ACKNOWLEDGMENT

This research was supported by National Institute on Drug Abuse grant DA-03925 and was administered by Friends Medical Science Research Center, Inc.

## AUTHORS

David N. Nurco, D.S.W.  
Research Professor

Thomas E. Hanlon, Ph.D.  
Research Associate Professor

Department of Psychiatry  
University of Maryland  
School of Medicine

Philip Stephenson  
Research Associate  
Friends Medical Science Research Center, Inc.

1229 West Mount Royal Avenue  
Baltimore, MD 21217

# Primary Care and Intravenous Drug Abuse Treatment

*Richard J. Russo*

What is primary care?

Why primary care in drug treatment?

Does not drug treatment have enough to do without adding this new service?

Will primary care break the back of the drug treatment system?

This chapter touches on these and other issues of primary care in drug abuse treatment, but it does not supply answers—only insights into the issues.

Primary care is coordinated, comprehensive, and personal care, available on both a first-contact and a continual basis. It incorporates several tasks: medical diagnosis and treatment, psychological assessment and management, personal support, communication of information about illness, prevention, and health maintenance.

The clinical problems encountered by primary care physicians include responsibilities and tasks beyond the narrow technological confines of medical diagnosis and treatment. Although great effort must be focused on accurate diagnosis and technically sound therapy, the other clinical tasks that complete the definition of primary care also assume major importance.

Alongside this clinical definition of primary care stands a plethora of other definitions. For example, policy planners have defined primary care as a level of medical services, one that is provided outside the hospital. Presumably, primary care (community-based services) is a less technical practice compared with secondary care (consultant or specialty services) and tertiary care (hospital services).

From the standpoint of professionalism, primary care has been defined as a specialty concentrating on humanistic medicine practiced outside the hospital

but devoid of the special procedures and technology that typically characterize medical specialization. From the university comes another definition of primary care as an academic discipline concerned with the expansion of knowledge unique to primary practice and to personal care, a definition that contains the promise of a departmental position for primary care in the medical school.

Although each of these definitions presents a particular perspective of the doctors practice, primary care can be defined by several tasks: (1) medical diagnosis and treatment; (2) psychological diagnosis and treatment; (3) personal support of patients of all backgrounds in all stages of illness; (4) communication of information about diagnosis, treatment, prevention, and prognosis; (5) maintenance of patients with chronic illness; and (6) prevention of disability and disease through detection, education, persuasion, and preventive treatment. These tasks comprise the clinical work of doctors providing primary care.

Drug dependence often compels people to take drugs in spite of severe legal penalties and threats to their health and is a chronic medical disorder, not a temporary condition. Thus, it is more similar to other chronic medical diseases, such as diabetes, hypertension, and emphysema, than to acute conditions that respond rapidly to treatment.

Intravenous (IV) drug abuse has been identified as a major vector for the spread of the human immunodeficiency virus (HIV). Twenty-seven percent of all adult cases of acquired immunodeficiency syndrome (AIDS) report IV drug use. Among IV drug abusers (IVDAs), HIV infection is spread primarily by needle-sharing, a pervasive practice of IV drug abuse that fulfills both practical and social functions. HIV also can be transmitted between IVDAs and others, either sexually or perinatally. HIV contracted through IV drug abuse has been particularly devastating to minority populations.

Successfully combating HIV requires curbing the spread of the virus among IVDAs, their sexual partners, and their families. Treatment of the IVDA presents many challenges, from the entrenched behavior of needle-sharing and multiple drug use to economic, geographic, cultural, and ethnic factors.

Medical complications for drug abusers, in addition to infectious diseases such as HIV, tuberculosis (TB), and sexually transmitted diseases, include bacterial endocarditis, which is life threatening. Heart valve replacement with subsequent intensive care is usually necessary for patient survival, but the problem is not as easily managed as it once was, due to changes over time in the type of organisms infecting IVDAs. Other serious infectious complications

include skin and subcutaneous infections, osteomyelitis, and viral hepatitis types B and non-A, non-B.

Noninfectious complications in IVDAs are generally due to organ insult secondary to injection of foreign material. These include renal failure and attendant amyloidosis, chronic interstitial lung disease, hematologic problems related to vascular damage that can involve aneurysms and false aneurysms, anemia, and thrombocytopenia. Heart failure, secondary to valve damage, also can occur. Cardiomyopathy and chronic liver diseases are frequent complications among alcoholics. Embolic phenomena, secondary to vascular disease, may lead to thrombophlebitis. Malnutrition is common in substance abusers and increases their risk of infections. Cocaine abusers may develop sudden, unpredictable, life-threatening cardiac arrhythmias as well as damage to the nasal septum and mucosa that require a variety of medical interventions. Acute psychiatric complications also are seen with cocaine, amphetamines, alcohol, and psychedelics. Medical care providers perceive this population as presenting special problems: lack of compliance with medical regimens, inability to keep scheduled appointments, lack of transportation and child care, homelessness, and poor coping skills. These patients often have feelings of stigmatization and, therefore, frequently display hostility, which makes receiving adequate care in the existing medical system virtually impossible and taxes the emergency rooms of area hospitals.

Dually diagnosed drug abusers, who may be suffering from major psychiatric disorders as well as the concomitant severe depression that is present in as much as 70 percent of all drug treatment clients, are rarely the recipients of an integrated care program designed to deal with both problems together. Current treatment programs do not offer any of the specialized, short-term, talking therapies that can be valuable for focused anxieties, stress, affective or attention-related disorders, and suicidal ideation. Chemotherapeutic approaches to joint drug dependency and mental health problems have been neglected, as have innovative uses of family dynamics in facilitating behavior change.

The spectrum of care required by HIV-infected IVDAs ranges from hospitalization in acute care facilities through nursing home care to various forms of ambulatory care. The latter includes primary care, medical outpatient specialties, personal care services, home and hospice care, and community services. These services must be coordinated effectively if they are to be delivered in such a way as to improve quality of life. Coordination of these services presents a particular challenge in an AIDS population, where cases have been historically concentrated in the racial and ethnic minority groups in which IV drug use is most widespread. In addition, because of sexual

transmission of HIV from drug users, a disproportionate number of women and infants have AIDS or AIDS-related complex (ARC).

Because of the illegality of their activity, most IVDAs lead marginal existences and rarely seek medical services. Those with AIDS usually first come to the attention of medical professionals in hospital emergency departments relatively late in the course of the illness. Therefore, they have more severe medical complications and shorter lifespans than other AIDS patients.

The emerging continuum of care for persons with HIV infection is a necessary step toward the provision of humane and accessible care. National and private reports and demonstration projects have pursued a model of patient care comprising appropriate inpatient services for those most acutely ill and comprehensive outpatient care in hospitals and community-based agencies. The guiding principle of this model has been that health services should be delivered, if clinically appropriate, in community-based agencies.

A primary care medical unit would consist of physicians with expertise in substance abuse, infectious diseases, general adult and pediatric medicine, and obstetrics and gynecology. Nurse practitioners and nurses are also a necessary component. The medical unit would provide initial medical assessments and acute and ongoing primary medical care for patients and their families. Practitioners would work in close liaison with outside medical treatment providers. Physicians would prescribe appropriate medications; nursing staff, in conjunction with case management staff, should provide supervision over compliance for all medications, including those prescribed by outside or consulting treatment providers, (e.g., AZT, medications for TB). Counseling and testing for HIV antibody should be routine in all drug treatment programs.

The primary care medical unit would function somewhat as a health maintenance organization for substance abusers and their families. Each client (or family member) accepted into the program would be assigned a primary care physician who would perform a thorough intake and an annual physical examination and provide primary care. Along with other health professionals in the unit, primary care physicians also would treat the physical complications of substance abuse, coordinate specialist care, determine whether drug interactions might be harmful, and assist specialists with compliance with their treatment recommendations. This unit would provide the referral physician for those clients tested at admission and found to be seropositive for HIV. The medical unit would take major responsibility for determining whether the client's family or significant others might be at risk for HIV or other infection and would encourage the client to bring family members into the program, or the unit staff could arrange for an appointment.

A mental health services unit would provide psychiatric and psychological services when indicated, including prescriptions for psychotropic medications and ongoing psychotherapy services (individual, family, and group).

Patients with major psychoses, schizophrenia, or manic-depressive psychosis who require psychiatric hospitalization should be referred; however, a small proportion of drug abusers have an underlying affective disorder that might be managed with psychotropics, allowing the client to participate in other ambulatory substance abuse treatment programs. In conventional drug-free outpatient care, this approach generally would not be employed by a single provider. Patients whose mental health problems consisted solely of AIDS dementia or psychiatric symptoms related to substance abuse should be cared for by the program.

Psychological services to be offered to clients and/or family members could include testing for early signs of neurologic impairment due to HIV infection, short-term behavior therapies such as cognitive therapy that have been shown to be effective with depressed drug abusers in treatment, stress management for those suffering from anxiety reactions to information regarding their HIV status, parenting skills for parents of juvenile or adolescent substance abusers, and assertiveness training to assist female sex partners of HIV-infected drug abusers in resisting pressures to engage in unsafe sex practices.

Family therapy and counseling for the identified population should place great emphasis on treating the primary drug abuser conjointly with these significant others. Its aim would be to intervene in the negative and destructive patterns of all group members to destroy addiction-maintaining behaviors and substitute positive, abstinence-maintaining ones.

Adequate care for persons with HIV infection requires the development of an integrated, managed network providing a continuum of care and services for patients and for their families and children. This should be the overall goal of a primary care medical unit.

The continuum of care concept for persons with HIV infection is indispensable to the provision of comprehensive, humane, and accessible care. National and private reports and demonstration projects have pursued a model of patient care comprising appropriate inpatient services for those most acutely ill and comprehensive outpatient care in drug treatment agencies. The guiding principle of this model has been that health services should be delivered to the extent possible and clinically appropriate through a case-managed system of care.

The United States has seen a rapid increase in HIV caseloads at many inner-city hospital-based and freestanding outpatient clinics. There are several reasons for this, each of which will continue to contribute to this upward spiral: high rates of infection among high-risk groups in inner-city areas, the demand for increased counseling and testing resources in many health care settings, the changing clinical nature of HIV disease progression to a more chronic pattern demanding aggressive and continuous ambulatory care, and the relative lack of private physician resources to render primary health care.

Recent Federal Centers for Disease Control recommendations for widespread HIV testing and subsequent CD4 testing of all HIV-positive individuals every 6 months, and for prophylaxis of those with specified cell counts, offer an exciting and challenging opportunity for drug treatment primary care units. The Public Health Service recommends that—unless contraindications exist—physicians should initiate prophylaxis against phenacycline (PCP) for any HIV-infected adult patient who has already had an episode of PCP, even if the patient has been receiving AZT. Unless contraindicated, prophylaxis also should be initiated for HIV-infected patients who have never had an episode of PCP if their CD4+ cell count is  $< 200/\text{mm}^3$  or if their CD4+ cells are  $< 20\%$  of total lymphocytes. Patients with CD4+ cell counts of  $< 100/\text{mm}^3$  or CD4+ cells  $< 10\%$  and patients with oral thrush or persistent fever (temperature of  $> 100^\circ\text{F}$ ) are at particularly high risk. From a prevention perspective, drug treatment units can have contact on a regular and repeated basis with asymptomatic HIV-infected people—while they are most likely to spread their infection. From a therapeutic perspective, there is now a standardized approach to the detection of early HIV-related disease and the prospect of extending the life and prolonging the onset of acute symptoms among infected persons.

A recent Federal study indicates that AZT not only can be crucial for those suffering from AIDS but also can help delay the onset of the deadly disease. AZT may become the drug of choice for all HIV-infected people with a T-cell count between 200 and 400.

Every drug treatment unit should develop a program plan for implementation of this primary care, prophylaxis initiative, which signifies the first step toward a chronic care HIV disease model with significant opportunities for intensive clinical intervention and behavior modification. Until recently, the major focus of effort had been on epidemiology, clinical research, and preventive education. This new public health initiative compares with previous historical public health campaigns to control tuberculosis, cholera, and typhoid.

Clinically, although there may be life-threatening crises, most persons with AIDS are chronically affected with a slow relentless decline in level of

functioning reminiscent of such familiar chronic diseases as certain cancers and cardiovascular disease. The neurologic manifestations of HIV infection are now acknowledged to be a frequent and important aspect of the AIDS epidemic. Patients may require a low level of supportive care with medical monitoring for substantial periods before they progress to life-threatening disease. This has significance for ambulatory/primary care strategies with respect to the epidemic.

Due to the nature of the IVDA/AIDS population and the resultant stresses of poverty and discrimination, the majority of affected persons are without primary health care. Experience suggests that drug treatment centers can serve as major providers of AIDS services for infected IVDA's, and some centers are accepting more responsibility as AIDS primary care centers.

The ambulatory care needs of chemically dependent persons infected with HIV can be enormously varied. Stages of the clinical spectrum of AIDS will affect the patients attitude toward and ability to respond to substance abuse treatment, both physically and motivationally. Some IVDA/AIDS patients are symptomatic and require residential treatment with medical services; some are symptomatic but only minimally debilitated and can be treated for their addictions with ongoing medical monitoring for their AIDS or ARC diagnoses. Asymptomatic HIV-infected persons can be treated in inpatient or outpatient chemical dependency programs or detoxification units, but they should be followed and counseled on an ongoing basis. It is apparent that services for both AIDS and substance abuse should be provided simultaneously in a coordinated manner in drug treatment units.

Drug abuse treatment and primary health care are historically two separate systems of care that, without serious collaboration, negatively affect service provision for drug users with AIDS. There is thus a strong role for case management for this population to help integrate the two systems on behalf of the client.

Case management and primary care coordination for IVDA's with AIDS will help address major issues of importance to the substance abuse treatment system, including:

- Identification of a broader range of health and social service needs than may be otherwise apparent
- Health care personnel who do not understand the substance abuse treatment system and thus provide medical treatment that does not consider a person's substance abuse problem

- Homelessness
- Patient compliance with medical visits
- Black market for AIDS therapeutics
- Lack of community/political support for services
- Lack of volunteer networks (which addicts may not want to use even if they did exist)
- Coordination of home-based services-methadone home delivery and home health care
- Dependence on public entitlements for services
- Realization that AIDS represents a disease of the family (where there is one) and that services may need to evolve that are family focused

An anticipated benefit of pursuing a case management function through substance abuse treatment centers is that, out of necessity, these centers would become an active participant in an emerging continuum of care. This would propel the drug treatment primary care unit into a highly respected partner in the continuum of care health care delivery system.

An effective continuum of care network for those HIV-infected or those with AIDS should be centrally accessible. Because of the geographic distribution of AIDS cases, many areas of the country are hard pressed to deal with current caseloads of symptomatic persons. Outpatient clinic care is already overloaded and is nonexistent in some areas. Drug treatment programs' average enrollments far exceed their capacity. Systems that were strained even before the advent of AIDS are near collapse due to the epidemic. Serious health care personnel shortages exist, as do barriers in the ability of HIV-infected drug users to obtain access to primary health care services. Unfortunately, the current lack of outpatient services only feeds the more costly inpatient system, further burdening individual institutions and public systems that pay for the majority of such care, much of which is unnecessary.

We must work with clinical care providers to develop a practical, short-term plan that will address the availability of comprehensive HIV outpatient clinic/ambulatory care and include the appropriate management and organizational elements at both State and local levels. One of the most important components of this plan is to develop strong linkages with drug treatment systems.

In conclusion, States should develop and implement a program plan for a primary care component in our drug treatment system. This primary care component will be the first step toward a chronic care HIV disease model with significant opportunities for intensive clinical intervention, HIV prophylaxis initiatives, and behavior modification. We in drug treatment must seize the opportunity to develop the necessary linkages and creative methodologies to provide enhanced access to primary care for HIV-infected substance abusers and, thus, build on the existing drug treatment national network.

If we in drug treatment can integrate primary care services into the system, we not only will “improve our treatment effectiveness” but also will “save lives.”

## **AUTHOR**

Richard J. Russo, M.S.P.H.  
Acting Assistant Commissioner  
Division of Alcoholism and Drug Abuse  
New Jersey State Department of Health  
129 East Hanover Street, CN362  
Trenton, NJ 08625

# Establishing a Methadone Quality Assurance System: Rationale and Objectives

*James R. Cooper*

The National Institute on Drug Abuse (NIDA) and the Food and Drug Administration (FDA) recently announced plans to study the feasibility of establishing a methadone maintenance quality assurance system to monitor methadone programs (*Federal Register* 1989). The motivation for such a study is the growing concern about the existing quality of treatment programs and the resultant impact on patients, especially in times of increasing prevalence of human immunodeficiency virus infection among intravenous drug abusers (Ball et al. 1986, 1988; Cooper 1989). Currently, the Federal methadone regulations are the minimum standards of care used to measure the competence of most methadone programs. Some critics argue that these standards are not a valid measure of quality. Others suggest that monitoring for compliance by nonclinical staff makes interpretation of compliance unreliable or impossible. A major objective of this feasibility study is to determine to what extent patient in-treatment performance correlates with program quality and program compliance to existing Federal methadone regulations. NIDA also will examine whether a system built on program performance standards can complement or supplant parts or all of the existing Federal regulations governing the use of methadone.

To better understand the current NIDA study, a general understanding is required of the evolution of the Federal methadone regulations as a minimum measure of quality and other approaches designed to measure treatment quality in other health care delivery systems. The history of the development of methadone treatment and the unique use of the Federal statute since 1974 to regulate this medical treatment have been described in detail elsewhere (Cooper 1988). Relevant to the discussion, however, are several important factors. For approximately 50 years, U.S. policy gradually evolved from one of strict prohibition of narcotic maintenance treatment for narcotic addicts before 1965 to one of qualified acceptance with conditions. The primary impetus for the shift in policy was the growing narcotics abuse problem in the United States and Vietnam and subsequent rapid proliferation of methadone programs after

the initial promising report that narcotic maintenance was an effective treatment (Dole and Nyswander 1965). Many of these new methadone programs were funded with Public Health Service grants.

With the expansion of methadone programs, a growing concern emerged as reports appeared of methadone diversion and of primary addiction to methadone, resulting from either street abuse or inappropriate treatment admissions of nondependent persons. In 1974 Congress, recognizing both the potential benefits of methadone maintenance and the risk of diversion and iatrogenic addiction, legally sanctioned narcotic maintenance treatment with certain provisions for use (Narcotic Addict Treatment Act of 1974). In essence, these provisions for use require a separate Federal registration with the Department of Justice (DOJ) of all practitioners using narcotics for this indication in this population. DOJ registration is contingent on certification/recertification by the Department of Health and Human Services (HHS) that the practitioner/program is qualified under standards established by the Secretary to engage in narcotic maintenance and treatment. Although the legislative history clearly indicated congressional intent to mitigate methadone diversion and to limit registration to only those practitioners capable of rendering appropriate medical treatment, no congressional guidance was provided with regard to defining appropriate medical standards.

HHS authority to develop the Secretary's standards was jointly delegated to NIDA and FDA. NIDA was delegated the authority to determine the appropriate standards of medical treatment; FDA was delegated the authority to determine the safety and efficacy of new drugs and to approve them for this indication. In 1975 the Director of NIDA and the Commissioner of FDA agreed that NIDA would take the lead in drafting these standards and FDA would eventually publish these standards as regulations and monitor for compliance. Subsequently, there were discussions between NIDA and FDA as to what credentials or standards would be required in determining appropriate practitioner certification. The methadone regulations in 1975 were similar to the original FDA Investigational New Drug protocol. Also in existence were NIDA Federal Funding Criteria, generic treatment standards required as a condition for NIDA funding. The decision was made to incorporate some of the process standards embodied in the existing Federal Funding Criteria and to retain some of the structural standards in the existing FDA regulations. These draft standards were further refined after consultation with a group of clinicians and researchers in narcotic addiction treatment. The standards finally were proposed as regulations in 1977 and, after public comment, were revised and finalized as FDA/NIDA regulations in 1980. It is beyond the scope of this chapter to describe the individual standards. However, for purposes of subsequent discussion, these regulations include primarily structural and

process standards such as admission criteria, diagnostic assessment, initial treatment plans with periodic review, periodic urine testing, requirements for take-home privileges, and the availability of a range of ancillary treatment services for those with a diagnosed need.

Although it was clearly HHS's intent that the methadone regulations should embody a minimum standard of care, no subsequent research studies have ever attempted to determine if any correlation exists between regulatory compliance, quality of services rendered, or in-treatment performance measures. This lack of evidence exists in other fields of medicine, in part due to methodological limitations. Moreover, monitoring for compliance has evolved to become a managerial/administrative function. Compliance is determined in large part by the adequacy of the medical record. Interpretation of incomplete or discordant medical record findings is further complicated by the use of inspectors/investigators without clinical training or experience. At best, inspections discover the most noncompliant programs and, hopefully, motivate most program staff to perform better.

There has been a growing body of literature pertaining to the measurement of the quality of health care. Donabedian and others proffer three domains for investigation when assessing quality of care: structure, process, and outcome (Donabedian 1982, 1985; Lohr et al. 1988; McGlynn et al. 1988; Rutstein et al. 1976; Williamson 1971). Various authors have debated the advantages and limitations of each domain (Lohr 1988; Donabedian 1988). Most believe that none has yet been determined superior and that more research is needed to better determine the extent to which correlations exist among the three domains. Historically, most assessments of quality have evaluated the structure and process of treatment by relying heavily on the medical record as a data instrument for making judgments of quality. In the past decade, concerns about health cost containment have focused more interest on developing more precise clinical indicators to measure outcome as a means for judging quality of care. Dole first suggested the use of performance standards as a means for measuring quality methadone programs in 1982 (Dole et al. 1982). More recent concern about acquired immunodeficiency syndrome prevention, the existing quality of drug treatment programs, and renewed congressional interest in program accountability and concomitant increased funding for such research have provided the impetus and resources to develop additional reliable methods to measure program quality by assessing patient in-treatment performance and to compare these methods with the existing process/structure standards.

Designing and implementing a quality assurance system for methadone programs may be less complicated than in some other areas of health care.

Methadone has undergone exhaustive evaluation studies; its effectiveness is well documented as are some of the effective components of treatment, for example, methadone dose, program staffing and structure, and case management (Cooper 1989). A growing body of literature suggests that individual addiction severity or the presence of psychiatric comorbidity influence both in-treatment and posttreatment outcome (Woody et al. 1984, 1987; Rounsaville et al. 1983). Measures of in-treatment performance, for example, illicit drug use, criminality, and social productivity, are well-accepted indicators. Large posttreatment evaluation studies have demonstrated the importance of program retention, suggesting tenure to be another important in-treatment performance measure (Simpson 1979, 1981). Thus, there exists a body of research data from which to operationally define some process and structure parameters of quality and existing reliable performance indicators for measuring outcome, suggesting that some comparison among three domains as measures of program quality is feasible.

In view of the above, NIDA will study the feasibility of establishing a quality assurance system for methadone programs. Plans are under way to develop an ongoing program monitoring system that will assess individual addiction severity and collect in-treatment performance data from a stratified random sample of methadone programs. Selected programs will evaluate each patient's addiction severity using the revised Addiction Severity Index (ASI). This revised instrument will provide a means to categorize programs by the addiction severity of their patients (case mix). Dr. Thomas McLellan (University of Pennsylvania) is currently revising the ASI to include additional questions relating to contemporary drug use and psychiatric diagnosis, is conducting additional reliability and validity testing, and will propose classification strategies that can be used for stratifying program populations. In addition, he will produce an abbreviated instruction manual to assist programs in using the ASI. Instruments will be developed capable of providing reliable, valid, and ongoing measures of patient in-treatment performance. Once program staff is trained, these instruments will be incorporated into randomly selected programs as part of a 2-year data collection and analysis process.

As a result of the study, we hope to learn more about the following:

1. Additional information on the extent to which the addiction severity predicts in-treatment performance
2. The reliability and validity of the revised ASI and its utility in classifying the methadone maintenance population
3. A reliable method for scoring outcome measures

4. The reliability of urinalysis results from local laboratories and the utility of those results as a measure of illicit drug use in the quality assurance system
5. The reliability of this monitoring system to differentiate program quality by case mix and weighted performance standards
6. The linkages between process and outcome standards
7. The extent to which existing process standards (methadone regulations) can be eliminated without affecting the quality of care

Although cognizant of the complexity of the tasks, the author is optimistic that such a system can be designed and implemented and can be a useful method for differentiating program quality. In addition to existing diagnostic instruments and treatment evaluation information data, NIDA will have available the expertise of research consultants knowledgeable in both drug abuse treatment and quality health care evaluation methodologies. If our expectations are realized, such a system might serve as a means for identifying programs in need of technical assistance. In addition, the information generated will provide ongoing documentation with regard to the effectiveness of existing programs to retain patients and to reduce their illicit drug use and improve their social productivity.

The Narcotic Addict Treatment Act has put in place an administrative process and structure whose primary objective is to establish and maintain program accountability. Should this study demonstrate its utility in differentiating program quality, it is plausible that such a quality assurance system could be established nationwide. Such a system is conceptually and legally consistent with the existing statutory framework governing methadone program accountability. Perhaps existing FDA/NIDA regulations could be eliminated. In place of the regulations, continued DOJ registration of methadone programs could be contingent on their routinely providing information to such a quality assurance system and demonstrating a certain level of performance.

## REFERENCES

- Ball, J.C.; Corty, E.; and Graff, H. Medical services provided to 2,394 patients at methadone programs in three States. *J Subst Abuse Treat* 3:203-209, 1986.
- Ball, J.C.; Lange, W.R.; Meyers, C.P.; and Friedman, S.R. Reducing the risk of AIDS through methadone maintenance treatment. *J Health Soc Behav* 29:214-226, 1988.

- Cooper, J.R. Methadone treatment in the United States. In: Arif, A., and Westermeyer, J., eds. *Methadone in the Management of Opioid Dependence: Program and Policies Around the World*. Minneapolis, MN: University of Minnesota, 1988. pp. 139-153.
- Cooper, J.R. Methadone treatment and acquired immunodeficiency disease. *JAMA* 262:1664-1668, 1989.
- Dote, V.P., and Nyswander, M.E. A medical treatment of diacetylmorphine (heroin) addiction. *JAMA* 193:647-650, 1965.
- Dote, V.P.; Nyswander, M.E.; and Des Jarlais, D. Performance-based rating of methadone maintenance programs. *N Engl J Med* 306:169-171, 1982.
- Donabedian, A. *Explorations in Quality Assessment and Monitoring: The Criteria and Standards of Quality*. Ann Arbor, MI: Health Administration Press, 1982.
- Donabedian, A. *The Methods and Findings of Quality Assessment and Monitoring. An Illustrated Analysis*. Ann Arbor, MI: Health Administration Press, 1985.
- Donabedian, A. The quality of care: How can it be assessed? *JAMA* 260:1743-1748, 1988.
- Federal Register*. Vol. 54. March 2, 1989. pp. 8976-8979.
- Lohr, K.N. Outcome measurement: Concepts and questions. *Inquiry* 25:37-50, 1988.
- Lohr, K.N.; Yordy, K.D.; and Thier, S.O. Current issues in quality of care. *Health Aff (Millwood)* 7:5-18, 1988.
- McGlynn, E.A.; Norquist, G.S.; Wells, K.B.; Sullivan, G.; and Liberman, R.P. Quality-of-care research in mental health: Responding to the challenge. *Inquiry* 25:157-170, 1988.
- Rounsaville, B.J.; Glazer, W.; Wilber, C.H.; Weissman, M.M.; and Kleber, H.D. Short-term interpersonal psychotherapy in methadone-maintained opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1983.
- Rutstein, D.D.; Berenberg, W.; Chalmers, T.C. Measuring the quality of medical care: A clinical method. *N Engl J Med* 294:582-588, 1976.
- Simpson, D.D. The relation of time spent in drug abuse treatment to post-treatment outcome. *Am J Psychiatry* 136(11):1449-1453, 1979.
- Simpson, D.D. Treatment for drug abuse: Follow-up outcomes and length of time spent. *Arch Gen Psychiatry* 38:875-880, 1981.
- Williamson, J.W. Evaluating quality of patient care: A strategy relating outcome and process assessment. *JAMA* 218:564-569, 1971.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Severity of psychiatric symptoms as a predictor of benefits from Psychotherapy: The Veterans Administration-Penn Study. *Am J Psychiatry* 141(10):1172-1177, 1984.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P. Twelve-month follow-up of psychotherapy for opiate dependence. *Am J Psychiatry* 5:590-596, 1987.

## **AUTHOR**

James R. Cooper, M.D.  
Assistant Director  
Medical and International Affairs  
National Institute on Drug Abuse  
5600 Fishers Lane  
Rockville, MD 20657

# Methadone Maintenance and Patients in Alcoholism Treatment

*Enoch Gordis*

## INTRODUCTION

Alcoholic ex-heroin addicts who are in methadone-maintenance treatment can be treated for their alcoholism without first withdrawing them from methadone, according to the results of clinical research.

Alcoholism treatment programs have frequently had a policy of first taking the ex-heroin addicts off methadone. This policy now has important public health implications.

Intravenous (IV) drug abusers are the second largest risk group for AIDS, after homosexual and bisexual men. With the recent reduction in the rate of new human immunodeficiency virus (HIV) infection among homosexuals and bisexuals, IV drug abusers have become the primary target for intervention to halt the spread of the disease.

About 25 percent of the almost 1 million chronic IV drug abusers in the United States are HIV seropositive, and approximately 26 percent of all reported acquired immunodeficiency syndrome (AIDS) cases in the United States have occurred among this risk group (Dondero et al. 1987; Novick et al. 1986a). IV drug abuse also is considered to be the direct or indirect source of most of the AIDS cases among mothers and their newborns (Des Jarlais et al. 1985; Dondero et al. 1987). Prompt intervention among this risk group will protect seronegative IV drug abusers and their sexual partners as well as pregnant mothers and their children.

## METHADONE MAINTENANCE EFFECTIVE

Successful intervention strategies among IV drug abusers, however, must overcome the problem of narcotic addiction. Since 1965 methadone maintenance programs have proved to be the most effective treatment for IV

opiate (e.g., heroin) addiction. When properly supervised, a daily dose of 60 to 100 mg of methadone prevents withdrawal symptoms and drug "hunger," produces no euphoria, and enables patients to return to a normal lifestyle. The effectiveness of methadone treatment has been demonstrated by reductions in criminal arrests, increases in employment, and stability of social relationships (Dole and Joseph 1978; Dole and Nyswander 1976). (Methadone maintenance has no role, nor was it designed to have a role, in the treatment of any addiction other than opiate addiction.)

More than 150,000 heroin addicts have been treated with methadone, and almost 100,000 are currently enrolled in programs in the United States (Kreek, in press). Between 55 and 80 percent of addicts remain voluntarily enrolled in methadone maintenance programs for at least 2 years; fewer than 10 percent of these patients continue to abuse heroin while in treatment (Dole and Joseph 1978; Kreek, in press).

### **REDUCING THE RISK OF AIDS**

The observed 90-percent reduction of IV heroin use among methadone-maintained patients can substantially reduce the risk of HIV infection and AIDS. A study conducted in 1984 of methadone-maintained patients in New York City compared patients who had been in continuous treatment before 1978 (the year HIV infection became apparent in New York) with patients who had not been in continuous treatment since 1978. Results indicated that fewer than 10 percent of the patients who had been in continuous treatment before 1978 were seropositive for HIV, compared with 47 percent of the patients who had not been in continuous treatment since 1978 (Novick et al. 1986b).

### **SIDE EFFECTS NOT SERIOUS**

An early concern with methadone maintenance treatment was whether it was harmful to various organ systems. Since then several studies have indicated that high daily oral doses of methadone are safe, although there are a few side effects such as increased sweating, chronic constipation, sexual dysfunction, and sleep abnormalities. These side effects are not considered serious, and they often disappear after the first 6 months of treatment (Kreek 1973, 1978, 1983). Studies of methadone's effect on the liver have shown that methadone is not toxic to this organ, even in patients with severe chronic liver disease (Beverley et al. 1979; Kreek 1973).

## **IMMUNOLOGIC REACTIONS**

It also has been suggested that methadone reduces the effectiveness of the body's immune system, a critical complication that, if true, could have serious consequences for contracting AIDS. Although immunologic alterations are common among methadone-maintained patients, these alterations are largely attributable to preexisting chronic liver disease (caused by hepatitis or alcohol abuse), an illness common among IV drug abusers, and not attributable to methadone (Kreek 1978; Kreek et al. 1986).

At least one study has shown an improvement, over time, in the immunologic status of methadone-maintained patients (Kreek et al. 1986). Laboratory studies of the toxic effects of morphine vs. methadone on cells derived from the immune systems of animals and humans have found that methadone either was not toxic or displayed a much lower toxic potentiality than morphine (Tubaro et al. 1985, 1987).

## **COMMON PROBLEM OF ALCOHOLISM**

Alcoholism is a common problem among people in methadone programs, affecting as many as half of such patients (Birhari 1974; Kreek, in press, 1978; Stimmel et al. 1972). Consequently, many methadone-maintained patients need to be treated simultaneously for alcoholism. Methadone-maintained patients enter alcohol treatment for the same reasons as other alcoholics. In addition to the benefits that all alcoholics derive from treatment, methadone-maintained patients, because of their high rate of chronic liver disease, receive an extra benefit: prevention of further damage to the liver.

## **HIGH RELAPSE RATE WHEN METHADONE STOPPED**

Once a patient is admitted to a methadone maintenance program, it is important that treatment be continuous and long term. When treatment is suspended, it is estimated that from 55 to 60 percent of patients relapse to illicit IV drug use within 2 years (Dole and Nyswander 1976). The result of this high relapse rate is an increase in the risk of hepatitis and HIV infection (and ultimately AIDS) and the spread of these diseases.

## **MINIMAL TREATMENT INTERACTIONS**

Questions have been raised concerning methadone maintenance in combination with alcoholism treatment. First, some concern exists over the possible adverse interaction between methadone and sedatives during detoxification and between methadone and disulfiram (Antabuse) during long-

term treatment. However, to date, research indicates that interactions between methadone and these other drugs are minimal and that no modifications in dosage have to be made to any of the drugs, although more research is needed on the long-term effects of these interactions (Kreek et al. 1976; Liebson et al. 1973, 1978; Tong et al. 1980).

Second, it has been suggested that methadone-maintained patients are not suitable for long-term support such as that offered by Alcoholics Anonymous (AA). However, researchers have concluded that, based on studies of alcoholic methadone-maintained patients, "treatment for alcoholism in methadone patients should follow the time-tested approaches of the alcoholism field" (Khuri et al. 1984).

## **CHALLENGE AND OPPORTUNITY**

AIDS is a major public health threat—arguably the most urgent health threat facing our Nation through the end of the century, if not beyond. To date, the contribution of the alcohol field to the national AIDS effort has focused principally on how to treat alcohol abusers and alcoholics who are HIV infected or who suffer from AIDS-related complex or AIDS. In fact, the speed with which this guidance was provided by alcohol-related organizations is impressive and commendable.

Now the alcoholism field, particularly the treatment community, has an opportunity to demonstrate once more its ability to meet new challenges in a prompt and decisive fashion by confronting and resolving an issue with significant implications for preventing the spread of HIV infection. That issue is treating methadone-maintained alcoholics in alcohol treatment programs.

## **NEED FOR ALCOHOLISM TREATMENT**

Despite the ongoing philosophical debate surrounding the use of methadone maintenance in drug abuse treatment, the fact remains that many former heroin addicts have been able to return to normal functioning due to methadone maintenance. We know that there is a great need for alcoholism treatment in this population; the prevalence of alcoholism among individuals on methadone maintenance is approximately 50 percent. We also know that relapse rates are high—70 to 80 percent—among addicts who discontinue methadone maintenance. AIDS is spreading most rapidly now among IV drug users, their sexual partners, and the children of women who are HIV infected. Preventing relapse to IV drug use, therefore, is a significant step toward containing the spread of AIDS.

This, then, is the problem facing the alcohol field. Many alcohol treatment programs require patients to terminate their use of methadone as a condition of admittance for treatment, forcing alcoholics who are methadone maintained to choose between two equally untenable options: They may choose to continue with methadone maintenance and risk disability and death from the chronic health problems of untreated alcoholism, or they may choose to discontinue methadone maintenance and risk drug use relapse and the development and spread of HIV infection.

## **SUCCESSFUL OUTCOME**

For many years I directed a large alcohol treatment program in which methadone-maintained individuals, while continuing on methadone, were successfully detoxified from alcohol and treated within the framework of existing alcoholism treatment modalities, including chemotherapeutic treatments and long-term support through AA. I do not believe that alcohol treatment providers need fear or be reluctant to do likewise. Based on my experience, I would argue that even if AIDS prevention were not an issue, there is no justifiable reason to deny treatment in an alcohol treatment program to alcoholics who are well stabilized on a program of methadone maintenance.

## **PHARMACOLOGY OF METHADONE MAINTENANCE**

Once the pharmacology of methadone maintenance is understood, it becomes clear that treating methadone-maintained individuals is compatible with good clinical management of alcoholism. Methadone, as used in a methadone maintenance program, is pharmacologically different from heroin and alcohol. It eliminates the body's physical craving for heroin without producing euphoria, allowing former heroin users to stabilize their lives and return to normal patterns of living. There also is little adverse interaction between methadone and other chemotherapeutic agents (e.g., disulfiram) used in alcoholism treatment. Nor does methadone maintenance interfere with the successful utilization of long-term alcoholism treatment, including participation in AA (Obuschowsky and Zweben 1987; Zweben 1987). Perhaps it is best stated by Vincent P. Dole, M.D., a nonalcoholic trustee of AA and cooriginator of methadone maintenance treatment: "It would be more reasonable to consider heroin addiction as a medical problem separate from alcoholism just as a person with both heart disease and alcoholism could receive digitalis from his doctor and still be welcomed into an AA group" (Dole 1972).

## RATIONALE FOR TREATMENT

When the data are examined on the effectiveness of methadone maintenance in preventing IV heroin use, on the degree of alcoholism among former IV heroin users in methadone maintenance programs, and on the alcoholic's risk for deteriorating health conditions such as chronic liver damage, it becomes clear that requiring individuals to terminate methadone maintenance as a condition of acceptance into alcoholism treatment should be rejected as a standard practice by alcohol treatment service providers.

## REFERENCES

- Beverley, C.L.; Kreek, M.J.; Wells, A.O.; and Curtis, J.L. Effects of alcohol abuse on progression of liver disease in methadone-maintained patients. In: Harris, L.S., ed. *Problems of Drug Dependence. 1979: Proceedings of the 41st Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 27. DHHS Pub. No. (ADM)80-901. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1979. pp. 399-401.
- Birhari, B. Alcoholism and methadone maintenance. *Am J Drug Alcohol Abuse* 1:79-87, 1974.
- Des Jarlais, D.C.; Friedman, S.R.; and Hopkins, W. Risk reduction for acquired immunodeficiency syndrome among intravenous drug users. *Ann Intern Med* 103:755-759, 1985.
- Dole, V.P. AA, drug addiction, and pills. *AA Grapevine* October 1972.
- Dole, V.P., and Joseph, H. Long-term outcome of patients treated with methadone maintenance. *Ann N Y Acad Sci* 311:181-189, 1978.
- Dole, V.P., and Nyswander, M.E. Methadone maintenance treatment: A ten-year perspective. *JAMA* 235:2117-2119, 1976.
- Dondero, T.J., and the HIV Data Analysis Team. Human immunodeficiency virus infection in the United States: A review of current knowledge. *MMWR Suppl.* Centers for Disease Control, U.S. Department of Health and Human Services, 36(S-6), 1987.
- Khuri, E.T.; Millman, R.B.; Hartman, N.; and Kreek, M.J. Clinical issues concerning alcoholic youthful narcotic abusers. *Adv Alcohol Subst Abuse* 34:69-86, 1984.
- Kreek, M.J. Medical safety and side effects of methadone in tolerant individuals. *JAMA* 223:665-668, 1973.
- Kreek, M.J. Medical complications in methadone patients. *Ann N Y Acad Sci* 311:110-134, 1978.
- Kreek, M.J. Health consequences associated with the use of methadone. In: Cooper, J.R.; Altman, F.; Brown, B.S.; and Czechowicz, D., eds. *Research*

- on the Treatment of Narcotic Addiction. National Institute on Drug Abuse Treatment Research Monograph Series. DHHS Pub. No. (ADM)83-1281. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1983.
- Kreek, M.J. Opiate-ethanol interactions: Implications for the biological basis and treatment of combined addictive diseases. In: Harris, L.S., ed. *Problems of Drug Dependence, 1987: Proceedings of the 49th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 81. DHHS Pub. No. (ADM)88-1564. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988.
- Kreek, M.J.; Gutjahr, C.L.; Garfield, J.W.; Bowen, D.V.; and Field, F.H. Drug interactions with methadone. *Ann N Y Acad Sci* 281:350-370, 1976.
- Kreek, M.J.; Khuri, E.; Fahey, L.; Miescher, A.; Arns, P.; Spagnoli, D.; Craig, J.; Millman, R.; and Harte, E.H. Long-term followup studies of the medical status of adolescent former heroin addicts in chronic methadone maintenance treatment: Liver disease and immune status. In: Harris, L.S., ed. *Problems of Drug Dependence, 1986: Proceedings of the 47th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 67. DHHS Pub. No. (ADM)86-1448. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986. pp. 307-309.
- Liebson, I.; Bigelow, G.; and Flamer, R. Alcoholism among methadone patients: A specific treatment method. *Am J Psychiatry* 130:483-485, 1973.
- Liebson, I.; Tommasello, A.; and Bigelow, G. A behavioral treatment of alcoholic methadone patients, *Ann Intern Med* 89:342-344, 1978.
- Novick, D.M.; Khan, I.; and Kreek, M.J. Acquired immunodeficiency syndrome and infection with hepatitis viruses in individuals abusing drugs by injection. *Bull Narc* 30(1-2):15-25, 1986a.
- Novick, D.M.; Kreek, M.J.; Des Jarlais, D.C.; Spira, T.J.; Khuri, E.T.; Rangunath, J.; Kalyanaraman, V.S.; Gelb, A.M.; and Miescher, A. Antibody to LAV, the putative agent of AIDS, in parenteral drug abusers and methadone-maintained patients. In: Harris, L.S., ed. *Problems of Drug Dependence, 1986: Proceedings of the 47th Annual Scientific Meeting, The Committee on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 67. DHHS Pub. No. (ADM)86-1448. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1986b. pp. 318-320.
- Obuschowsky, M.A., and Zweben, J.E. Bridging the gap: The methadone client in 12-step programs. *J Psychoactive Drugs* 19(3):301-302, 1987.
- Stimmel, B.; Vernace, S.; and Tobias, H. Hepatic dysfunction in heroin addicts: The role of alcohol. *JAMA* 222:811-812, 1972.
- Tong, T.G.; Benowitz, N.L.; and Kreek, M.J. Methadone-disulfiram interaction during methadone maintenance. *J Clin Pharmacol* 20:506-513, 1980.

- Tubaro, E.; Avico, U.; Santiangeli, C.; Zuccaro, P.; Cavallo, G.; Pacifici, R.; Croce, C.; and Borelli, G. Morphine and methadone impact on human phagocytic physiology. *Int J Immunopharmacol* 7(8):865-874, 1985.
- Tubaro, E.; Santiangeli, C.; Belogi, L.; Borelli, G.; Cavallo, G.; and Croce, C. Methadone vs. morphine: Comparison of their effect on phagocytic functions. *Int J Immunopharmacol* 9(1):79-88, 1987.
- Zweben, J.E. Can the patient on medication be sent to 12-step programs? *J Psychoactive Drugs* 19(3):299-300, 1987.

## **AUTHOR**

Enoch Gordis, M.D.  
Director  
National Institute on Alcohol Abuse and Alcoholism  
5600 Fishers Lane  
Rockville, MD 20857

# Community Resistance to Drug Treatment Program Placement

*Chauncey L. Veatch III*

## INTRODUCTION

In the fiscal year 1990 U.S. budget, the Bush administration provided for a 49-percent increase in Federal funding for drug abuse treatment, resulting in an unprecedented total of \$925 million. This increase is a sign of the magnitude of the drug problem in the United States and also reflects a recognition of the effectiveness of drug abuse treatment. With this increase in funds, the drug treatment community will have a renewed opportunity to ease human suffering and reduce crime by weaning larger numbers of addicts from their expensive and crime-stimulating habits.

Such funding increases have brought into focus one of the keenest challenges to face the drug treatment system: finding new sites for community treatment facilities. Too often drug rehabilitation groups throughout the country are finding proposals for new facilities blocked by indignant citizens who argue vehemently: "Not in my backyard!" (NIMBY). Local community leaders, government officials, and even members of law enforcement who are, or should be, aware of the need for more treatment centers contribute to the so-called NIMBY syndrome (Veatch 1987).

Drug abuse centers are not alone in confronting the NIMBY syndrome. Halfway houses for convicts, juvenile homes, landfills, recycling centers, toxic waste dumps, and nuclear waste repositories are just a few of the facilities that are encountering strong and growing community resistance to placement. Nationwide, no large metropolitan airport has been sited since 1961; no major hazardous waste dumps have been established since 1980 (Hornblower 1988). No new methadone maintenance facilities have been sited in New York City in the past 15 years, even though the city has approximately a quarter of a million heroin addicts and only 40,000 treatment slots (J. Gustafson, personal communication, 1989). California also has limited methadone capacity: 14,631 licensed treatment slots to serve an estimated 291,000 drug abusers. Currently, 1,077 addicts seeking methadone treatment are on waiting lists.

They may waft for 200 days or longer (H. Goldstein, personal communication, 1989).

In some ways, siting community drug rehabilitation centers is even more difficult than siting other facilities because addicts are stigmatized. One 1983 survey, for example, showed that respondents viewed drug addicts as skid row habitues (Dean and Poremba 1983). A 1984 survey found that “the overwhelming image was of a disoriented, unhealthy, thin, low-class, male “hippie” with behavioral and skin problems who suffered from a disease” (Dean and Rud 1984). The prevailing image has not improved since then, particularly given the image of drug users and pushers portrayed on television and in the movies. That this image is demonstrably false is of little consequence in the outcry that accompanies proposed placement of drug treatment centers.

Methadone maintenance clinics may be even more disliked than other types of drug therapy facilities because they are viewed by the public as a form of social control (Ruiz et al. 1976), as a new form of addiction substituted for an old one (Genevie et al. 1988), or as a less desirable form of treatment that does not deal with the presumed underlying problems of the addict (Ball and Corty 1988; Genevie et al. 1988).

One example of the image problem in drug treatment: The citizens of the Hudson River community of Rhinebeck, NY, successfully resisted the placement of a landfill in their community only to be confronted with the possibility that a drug treatment facility would be located there instead. Their response: “Bring back the dump!” (Rimer 1987).

Despite the overwhelming need for more treatment facilities, there are no easy answers to the problem of siting additional programs. The image of the drug abuser will not change overnight, nor will the fears and misperceptions of community residents.

## **THE PROBLEM**

Opposition to the placement of new treatment facilities can be either overt, involving zoning processes, licensing requirements, and lobbying by neighbors and local businesses, or covert, involving opposition by local public officials. Remarkably little information about these problems can be found in the scientific literature. Most information that is available is anecdotal and comes directly from those who have been involved in the process of siting new drug treatment facilities or other types of social service programs. Because many of these people are still engaged in trying to site facilities, some have chosen to remain anonymous in the case histories cited below.

## Covert Opposition

According to Maurice Weiner of the Tarzana Treatment Center in California, zoning is “the single most difficult problem” his group encountered in trying to find a site for a new satellite center to be funded by Los Angeles County (M. Weiner, personal communication, 1989). Potential facilities that had an acceptable price and location did not have the proper zoning for a treatment center, whereas those that had the proper zoning were too expensive or required too many repairs at too great a cost before they could be used.

In Los Angeles County, for example, the typical zoning category for residential drug treatment centers is commercial, a category that includes street corners, shopping centers, and malls, which generally are not appropriate locations for drug treatment centers or would require expensive alterations (M. Weiner, personal communication, 1989). The types of places that are most appropriate for drug treatment centers, such as abandoned convalescent homes, retirement homes, and hospitals, are usually located in the residential communities from which drug treatment clients will come and have the appropriate bedrooms, plumbing, and other necessary qualities. Such in-place housing facilities typically have a waiver or variance from the local zoning requirements that is specific to their current or prior use. Unfortunately, obtaining a variance to use a site as a drug treatment facility requires public hearings, where neighbors have the opportunity to make their objections known. Weiner notes that his group has been intensively but unsuccessfully searching for a residential facility site for 2 years, because they have not been able to obtain the necessary site variance.

Abandoned hospitals present a different challenge. Typically, they have the requisite zoning, so licensing is not a problem. Unfortunately, hospitals have other facilities associated with them, such as surgical operating suites or radiology units, that make their purchase prohibitively expensive for a group wishing to operate a drug treatment center.

Robert Bright, who helped run halfway houses for the Illinois Department of Corrections, has described his experiences with one halfway house that was set up in an inner-city neighborhood of Chicago despite community and political opposition (Krajick 1980). Shortly after it was opened, inspectors from city departments showed up almost weekly to search for violations. In time, corrections officials grew tired of the constant visits and closed the facility.

Although licensing and building codes are important safeguards, their rigid application must not be used to block the creation of or harass new centers once they are established (Lippincott 1979). Public officials, especially city

council members, can play behind-the-scenes key roles in blocking new facilities. Henry Templeton, a former director of work release programs in the Chicago area, has noted that approval had to be obtained from the local alderman before a halfway house could be sited in his ward (Krajick 1980). Templeton noted one instance in which an abandoned nursing home had been selected as a potential site. Templeton called the alderman, who asked, "How many jobs can you guarantee me?" Templeton could not guarantee any jobs, and that was the end of the conversation.

Even staff members of agencies that regulate drug abuse programs have sabotaged the placement of new facilities. Sometimes such individuals disagree with the agency's official views and let material that must pass through their hands languish for long periods. Others actively sabotage proposals. Many of these individuals believe that treatment does not work and that the best social policy is enforcement and incarceration: others are not eager to provide public funds to this stigmatized group of people, arguing that the funds could be more appropriately spent elsewhere.

Conflicting positions taken by officials in the same jurisdiction also can hamper efforts to provide treatment. San Joaquin is one of three counties in California that still provide methadone maintenance directly to clients. The county needs new treatment centers but has no funds to create or maintain new programs. Some local county authorities would like to attract private, for-profit or nonprofit agencies into the county to provide treatment without drawing from scarce public funds, but other county officials have resisted these efforts, concerned that such private endeavors may shortchange clients by becoming "juicebars" that give out methadone without any other form of therapy (H. Goldstein, personal communication, 1989).

Some public and government officials take positions that often are based on emotion winning out over the larger responsibility to the community. Unfortunately, drug abuse deals with very emotional issues, including, Should addicted mothers be prosecuted? Should their babies be taken from them? Do we give addictive opiates (methadone) to some heroin addicts for the rest of their lives? These are issues that, like abortion, have most Americans searching for the definitive answer. Most researchers are searching for rational solutions, but those people who have formed an opinion, either pro or con, are very adamant and are swaying elected boards and community leaders across the country.

## Overt Opposition

Perhaps the most troubling stumbling block to new treatment centers is the resistance of homeowners in the affected communities—the ultimate expression of the NIMBY syndrome. Goldstein surveyed the directors of the 79 methadone maintenance clinics in California and asked them to rate various difficulties in siting new facilities. “Community resistance” was by far the most commonly cited problem, followed by obstruction by “local officials” (H. Goldstein, personal communication, 1989).

The National Institute on Drug Abuse (NIDA) conducted a major study entitled “Overcoming Barriers to Drug Abuse Treatment in the Community.” In a study of community resistance associated with that project, researchers found that two concerns were most frequently cited by individuals opposed to drug treatment centers: security and property values (Technical Assistance and Training Corporation 1989). Residents feared that crime would rise in the community as a result of the influx of drug users. Furthermore, property owners feared that property values would decline because of the center’s presence. Other concerns included increases in traffic and fear that children would be exposed to undesirable influences. Ultimately, however, all rationales boil down to one problem: fear of the unknown. The drug treatment community’s role is to dispel these unfounded fears.

Resistance to treatment centers encompasses all types of neighborhoods and all socioeconomic groups. The residents of rustic Lake View Terrace, approximately 20 miles from downtown Los Angeles, objected vehemently to the Nancy Reagan Center for Drug Rehabilitation proposed for their community by Phoenix House (De Atley 1989). Mrs. Reagan ultimately withdrew her support for the project in deference to the residents, who objected that the center would bring crime to the neighborhood and traffic jams when Mrs. Reagan visited. Phoenix House is still searching for another site.

Residents of inner-city neighborhoods are also vehement in their objections to the location of drug treatment facilities, even when the majority of the facility’s clients will come from that neighborhood. Consider the example of Beth Israel Hospital in New York City, which operates 23 community-based drug treatment centers. The hospital has been trying for 2 years without success to relocate two existing facilities and to open a new one (N. Peyser, personal communication, 1989).

In one case, the hospital lost its lease in one building and is trying to buy another office building on the same block of West 125th Street in a semicommercial section of Harlem. Community leaders argued that the

neighborhood was marked for renaissance and that taking one of its few good office buildings was a disservice to the community (N. Peyser, personal communication, 1989). Race and religion also became an issue (N. Peyser, personal communication, 1989). Meanwhile, nobody else has had the money to buy the building and renovate it. Today, it stands empty, but perhaps it also stands as a monument to NIMBY.

As an alternative location, Beth Israel has been looking at a site over a supermarket on a Harlem commercial block of West 116th Street, in a neighborhood needing additional local drug treatment services. The site is near subway stations and is virtually ideal, but community leaders have opposed it, giving all the usual arguments plus raising such unexplainable issues as the location "was next to a post office." In late 1989 the city said that it would not approve the site over community objections.

Community resistance to drug treatment centers and other facilities does not necessarily end when a facility is finally approved. In April 1987 white residents of Gladwin Avenue in the Borough of Queens burned down a two-story home that was being used as a foster home for black children (Hornblower 1988). Homes for the mentally handicapped also have been burned in middle-class neighborhoods in Hewlett, NY, and Ventura, CA (Hornblower 1988).

## **POTENTIAL SOLUTIONS**

Potential solutions to the problems of siting drug treatment programs and other necessary community facilities are difficult, primarily because so few methods have worked. Some lessons can be learned from the few successes. Overall, perhaps the greatest efforts of the treatment community must be directed to reeducating the public about the need for drug treatment facilities, their positive impact on and value to the communities, and the importance of everyone sharing societal burdens. According to ethicist Willard Gaylin of the Hastings Center, "One of the few things we deprive our middle classes of is the opportunity to serve" (Hornblower 1988). Sociologist Richard Taub from the University of Chicago adds, "Community spirit says "Take care of your own." The ethical challenge is to make people see that the world is their community" (Hornblower 1988). The community at large must come to view the clients of drug treatment facilities not as "them," but as "us."

A critical factor in increasing drug treatment facilities acceptance is educating the public about the effectiveness of such treatment in halting addiction, decreasing drug-seeking behavior, and lowering crime rates and the human immunodeficiency virus transmission rate. "The programs that have been successful almost uniformly have shown the ability to educate people about

program management, what they are doing, and how they are doing it," notes Karst Besteman (K. Besteman, personal communication, 1989).

Reflecting the importance of this approach, NIDA has initiated a study of barriers to drug abuse treatment that suggests that public relations programs can be useful in persuading communities to accept such facilities (Technical Assistance and Training Corporation 1989). Pilot public relations programs are being implemented in four eastern communities. After evaluating those results, NIDA plans to move west and conduct further studies in 20 sites throughout the country over the next 2 years. It is not clear, however, that such a public relations approach will always be successful. In one study of 43 community residences for the mentally retarded in Metropolitan Boston, Seltzer (1984) found that about half had encountered opposition. Significantly, the centers that had conducted extensive public relations campaigns—including open houses, media campaigns, and community meetings—were more likely to encounter opposition than those that had not. It may be that conducting such a campaign too far in advance of a planned opening allows opponents too much time to mobilize opposition (Krajick 1980).

Generally, nontraditional neighborhoods, transitional communities, and commercial zones are the easiest places to site drug treatment facilities (Technical Assistance and Training Corporation 1989). Within those neighborhoods, key support for establishing a treatment center comes most often from two broad groups: those faced with the impact of drug addiction on society, such as elected officials, law enforcement, others in the criminal justice system, and those familiar with the impact of drug addiction on individuals, such as health care professionals, recovering addicts and their families, and the staff and board of directors of the facility (Technical Assistance and Training Corporation 1989).

Fear that property values will decrease and crime will increase in the vicinity of centers are major residential concerns. More research documentation is needed related to the effects of drug treatment centers on both property values and crime. Perhaps the only study of the effects of drug treatment facilities on property values is an old case study of a Phoenix House facility in Brooklyn, which found that property values in the neighborhood continued to rise for a year after the drug treatment center opened (Nash 1969).

The experience of other types of facilities is instructive. The few studies of property values around facilities for retarded or mentally ill persons in several cities and states, for example, have shown no adverse effects from the siting of the facilities (Sigelman et al. 1979; Kappel 1986). "On the contrary, the property values often seem to go up because of superior care given to the building and its environment," according to J.K. Thomas (Sigelman et al. 1979).

Fears that property values around such shelters would fall because neighbors would rush to sell their properties also proved to be unfounded; one study showed, for example, that neighbors often were not even aware of the existence of a group home (Kappel 1986). Another study, conducted by the Green Bay Planning Commission, found that the percentage of homes sold following the establishment of a group home decreased in the immediate block (Knowles and Baba, cited by Lauber and Bangs 1974).

Even fewer studies of crime rates around group facilities are available, and none specifically devoted to drug treatment centers (Technical Assistance and Training Corporation 1989). A 1979 literature survey, however, showed no increase in crime rates around facilities for developmentally disabled persons, ex-convicts, or juvenile delinquents (Sigelman et al. 1979). A more recent study of paired neighborhoods in Toronto—four with halfway houses for ex-convicts and four without such facilities—found no difference in crime rates in the paired neighborhoods (Kappel 1988).

Crime rates in the immediate vicinity of such facilities decrease. An appropriate response to document these impressions would be to initiate and fund studies of both crime rates and property values in areas surrounding treatment programs. The findings could be of significant public relations benefit in the attempt to site new centers.

In the absence of such studies, a few alternatives exist. One possibility is the “tour guide” approach, in which elected officials, community advisory board members, and other influential community residents are invited to tour a potential facility or visit existing facilities. Local realty boards should be able to demonstrate that the existing centers presence has had no effect on property values, and local police may be able to give at least an impression of changes in crime patterns (J. Gustafson, personal communication, 1989).

Such visits to established facilities have an additional benefit. Most facility operators keep their buildings in good shape and their yards neat and clean and participate in the life of the community. In other words, they are good neighbors. After a drug treatment center has been in a neighborhood for a while, most community members no longer consider it a threat; some even consider it a benefit.

Weiner notes that one of his group’s facilities was established in a neighborhood several years ago at a time when a zoning hearing was unnecessary—community residents did not know that drug treatment was being carried out at the site. About 4 or 5 years later, when a few members of the community discovered that it was a drug treatment facility and decided to

organize an effort to keep such “undesirables” out of the community, they were unable to garner any support from other community members (M. Weiner, personal communication, 1989). Similarly, a Brooklyn neighborhood survey about a Phoenix House drug treatment center showed that only 21 percent of the neighbors supported the facility when it was established, but 67 percent supported it a year later (Nash 1969).

Drug treatment facilities can become valuable to a community by providing a community service in addition to drug treatment (Technical Assistance and Training Corporation 1989). For example, a facility might offer free counseling or drug education programs to community organizations or citizens.

Legislative solutions also should be considered. In California and other States, local zoning ordinances can be superseded for periods ranging from 1 to 5 years if the State legislature or other bodies declare an emergency need for such a facility. Weiner and others are convinced that such short-term exemptions allow property owners near the site to become acquainted with the facility and its management and eliminate the fear of the unknown that causes so many potential sites to be rejected.

Another legislative approach is an innovative Wisconsin law, Chapter 205 of the Wisconsin State Code, that prohibits local zoning boards from denying permits to organizations that want to start halfway houses (Krajick 1980). Although the bill arose in 1978 as a result of pressures from lobbyists for handicapped, mentally ill, elderly, and retarded persons, the bill applies specifically to parolees and drug and alcohol abusers. By 1980 the Ohio and Minnesota Legislatures had passed similar statutes (Krajick 1980). In Massachusetts, halfway houses are designated as educational facilities and thus cannot be excluded by local zoning boards (Krajick 1980); State law preempts all local codes except those in Boston. In recent years, at least 37 States have passed laws removing zoning restrictions on group homes in single-family neighborhoods (Hornblower 1988).

Other legislative solutions are possible. Urban planner Perry Norton of New York University advocates tax abatements for homeowners who live near an undesirable public facility or a public guarantee on the resale value of their homes (Hornblower 1988).

Benjamin Miller of the New York City Office of Resource Recovery has cited an alternative, albeit more expensive way, of winning public support for an undesirable facility (B. Miller, personal communication, 1989). His agency spent 4 years trying to site a waste recycling facility. As part of the effort, the agency granted a local citizens advisory committee \$85,000 with which to hire

its own experts to critique the proposed center, suggest improvements, and examine alternatives. Both sides thus gained confidence in the accuracy of the agency's plans and estimates of the project's impact. Equally important, Miller said, "The substantive issues were separated from the bogus, grandstanding, white-noise issues" (B. Miller, personal communication, 1989). Although the expense in this particular instance was high, the same idea could be carried out on a smaller scale. In addition to public relations measures, legislation and other means also must be used to convince communities of the need to accept some type of facility, be it drug treatment centers, recycling facilities, halfway houses, or other facilities that are affected by the NIMBY syndrome. The New Jersey Supreme Court broke new ground in this area in 1975 when it ruled that wealthy suburbs must share the burden of low-cost housing (Hornblower 1988). In a similar vein, Arkansas officials have proposed that any county that refuses to have a prison within its boundaries must pay to have its prisoners housed in other counties (Hornblower 1988). California has passed legislation designed to spread prisons around the State so that they are not disproportionately concentrated in only a few areas.

A final approach involves what has been called a "community pain index" (J. Meyer, personal communication, 1989), in which the State would assign a set of point values to different types of installations. A nuclear waste dump, for example, might be worth 20,000 points, a prison 2,000 points, a halfway house 1,000 points, and a drug abuse treatment center 500 points. After a consideration of the total needs of the State, each community then would be required to accept facilities totaling a certain number of points. Of course, communities would be given a certain amount of flexibility in the nature of the facilities they would accept to reach that total.

## **CONCLUSION**

Covert and overt resistance to siting drug treatment programs must be overcome to salvage drug-dependent citizens. The emotional furor surrounding siting issues can be reduced by public education and other coordinated approaches. Some progress is being made, but the recently released report on the National Drug Control Strategy (Office of National Drug Control Policy 1990) calls for more aggressive treatment efforts. Public policymakers can achieve a more equitable solution to this battle in the "war on drugs" by reasoned, persistent, and constructive efforts.

## **REFERENCES**

Ball, J.C., and Corty, E. Basic issues pertaining to the effectiveness of methadone maintenance treatment. In: Leukefeld, C.G., and Tims, F.M.,

- eds. *Compulsory Treatment of Drug Abuse: Research and Clinical Practice*. National Institute on Drug Abuse Research Monograph 86. DHHS Pub. No. (ADM)89-1578. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1988. pp. 178-191.
- De Atley, R. Nancy Reagan just says no to plans for drug center. *Los Angeles Times* May 27, 1989.
- Dean, J.C., and Poremba, G. The alcoholic stigma and the disease concept. *Int J Addict* 18:739-751, 1983.
- Dean, J.C., and Rud, F. The drug addict and the stigma of addiction. *Int J Addict* 19:859-869, 1984.
- Genevie, L.; Struening, E.; Kallos, J.; and Geiler, I. Urban community reaction to health facilities in a residential area: Lessons from the placement of methadone facilities in New York City. *Int J Addict* 23:603-616, 1988.
- Hornblower, M. Not in my backyard, you don't: Too often, that's the answer to a community in need. *Time* June 27, 1988.
- Kappel, B. *Community Impact Study: The Effect of locating Correctional Group Homes in Residential Neighborhoods*. Toronto: Canadian Training Institute, 1986.
- Krajick, K. Not on my block: Local opposition impedes the search for alternatives. *Corrections* October:15, 1980.
- Lauber, D., and Bangs, F.S., Jr. *Zoning for Family and Group Care Facilities*. Planning Advisory Service Report No. 300. Chicago: American Society of Planning Officials, 1974.
- Lippincott, M.K. "A sanctuary for people": Strategies for overcoming zoning restrictions on community homes for retarded persons. *Stanford Law Rev* 31:767-783, 1979.
- Nash, G. *Community Response to a Narcotic Addiction Treatment Facility: The Case of Prospect Place*. New York: Columbia University, Bureau of Applied Social Research, 1969.
- Office of National Drug Control Policy. *Understanding Drug Treatment*. Office of National Drug Control Policy White Paper, June 1990.
- Rimer, S. Unwelcome guests from New York City. *New York Times* January 24, 1987.
- Ruiz, P.; Langrod, J.; and Lewinson, J. *Community Acceptance of Addiction Treatment Programs: A Contemporary Perspective*. Proceedings, Third National Drug Abuse Conference, 1976.
- Seltzer, M.M. Correlates of community opposition to community residences for mentally retarded persons. *Am J Ment Defic* 89:1-8, 1984.
- Sigelman, C.K.; Spanhel, C.; and Lorenzen, C. Community reactions to deinstitutionalization. *J Rehabil* 45(1):52-54, 1979.
- Technical Assistance and Training Corporation. *Overcoming Barriers to Drug Abuse Treatment: Market Research Report*. National Institute on Drug Abuse, 1989.

Veatch, C. "The Response of State Agencies to AIDS, Alcoholism, and Addiction." Paper presented at the American Medical Society on Alcoholism and Other Drug Dependencies Forum on AIDS and Chemical Dependency, Fort Lauderdale, FL, February 1987. UCLA Drug Abuse Research Group.

### **ACKNOWLEDGMENT**

The California Drug Abuse Information and Monitoring Project compiled materials for the preparation of this report.

### **AUTHOR**

Chauncey L. Veatch III, J.D.  
Director  
California Department of Alcohol and Drug Programs  
1700 K Street  
Sacramento, CA 95814

# The Impact of AIDS on Drug Abuse Treatment

*Lawrence S. Brown, Jr.*

## INTRODUCTION

Amid the changing epidemiology of the acquired immunodeficiency syndrome (AIDS) in the United States, the importance of persons with the risk behavior of intravenous (IV) drug use has increased considerably. Although IV drug use is the second most frequent behavior reported among AIDS cases registered by the Centers for Disease Control (U.S. Department of Health and Human Services 1990) IV drug use is the most pivotal factor in AIDS case reports among women, children, ethnic/racial minorities, and individuals who contract human immunodeficiency virus (HIV) infection via heterosexual contact. AIDS case reports, mortality data, and HIV seroprevalence studies provide invaluable information. Yet, as the first decade ends since the identification of the first AIDS case, the awful morbidity and mortality statistics still do not provide the full dimensions of the human toll associated with HIV infection and disease. An exhaustive analysis of these issues is beyond the scope of this chapter; however, a brief explanation is important to the focus of the present discussion—the impact of the HIV pandemic on the drug-dependent patient, the personnel who provide drug abuse treatment, and drug abuse treatment programs.

The concurrent rise in case reports of *Mycobacterium tuberculosis* (TB), pneumonia, and syphilis and other sexually transmitted diseases (STDs) with the steady rise in AIDS case reports is receiving considerable attention in many discussions of HIV-related medical consequences (Stoneburner et al. 1988; Centers for Disease Control 1987a, 1988). These reports are particularly alarming because these increases are overrepresented among ethnic/racial minorities and IV drug users (Brown and Primm 1988; Centers for Disease Control 1987b). This is attributed in part to the fact that IV drug users are a sexually active population (with a mean age of 35 years of those enrolled in drug treatment in New York City) and that many characteristics of poverty (i.e., poor housing, poor hygiene, unemployment) occur with a greater frequency among IV drug users, especially those in the inner cities of the northeastern

United States. Sexual activity (particularly unprotected) and poverty, respectively, have been demonstrated to be risks for STDs and TB. These extensions of the HIV epidemic represent many of the challenges for drug abuse treatment in the 1990s.

Only in the past several years have the many socioeconomic manifestations of the HIV epidemic become evident. Given the propensity of HIV infection and disease to strike individuals between the ages of 20 and 40 years, there is a considerable increase in demand on health care resources from an age group that required less such utilization before the HIV epidemic (Drucker 1986; Weinberg and Murray 1987). Simultaneously, many inner-city health systems are experiencing an increase in drug abuse in perinatal women and in children who are orphaned (boarder babies). This increased demand is particularly devastating because it occurs in many areas in which there was already a thin fabric of health care resources. The loss of these young men and women also means further deterioration in the economic base of selected communities. In the northeastern United States these communities tend to be areas where drug abuse is prevalent and where the economic base is also weak. This represents further misery to communities in which an injurious state previously existed. As discussed below, this state of affairs is a significant aspect of the background of drug abuse treatment in the HIV era.

Drug abuse treatment plays an important role in preventing HIV transmission and has public health benefits by indirectly dampening the spread of HIV infection (Brown et al. 1988; Hubbard et al. 1988; Cooper 1989) in several ways. First, individuals enrolled in effective drug abuse treatment participate in drug abuse-associated behaviors that place them at risk of HIV infection and/or transmission. Second, as new "recruits" to drug abuse are introduced to psychoactive drug use by individuals with previous such experience, effective drug abuse treatment programs reduce the number of "recruiters" available to introduce new individuals to drug abuse behaviors. Unfortunately, there is not enough drug abuse treatment to maximally achieve these HIV-associated benefits. Also, the impact of the HIV epidemic in many ways may undermine the delivery of drug abuse treatment services.

## **PATIENT PERSPECTIVE**

After all the noble pronouncements about the benefits of various public policy approaches and the focus on health care and social service systems, the impact on the patient/client is the real litmus test. Although there have been several investigations focusing on the cost-effectiveness of drug abuse treatment (i.e., avoidance of crime and incarceration), studies on the impact of chemical dependency on the individual largely have been limited to the

physiological and pharmacological effects of the drug(s) and the psychological aspects of drug dependence. However, the scope of available community drug abuse services is associated strongly with that community's attitude toward drug abusers and drug treatment services. Unfortunately, there are great obstacles impeding effective community responses to drug abuse-associated HIV transmission (Brown 1990).

Even within the subculture of chemically dependent persons, there have been many anecdotal accounts of discrimination, including accounts of parenteral drug users refusing to use drugs with anyone perceived to be infected with the HIV virus, which in part represents the effectiveness of dissemination of HIV-related information among drug abusers. Although this behavior modification is not the desired outcome of prevention efforts, it signals potential changes in the social networks of drug abusers. Unfortunately, these changes also have occurred within drug abuse treatment. Despite the increasing prevalence of patients with symptomatic HIV disease in many drug treatment programs in New York City, there has been no noticeable response of compassion by their fellow patients. To the contrary, once a patient is suspected of having HIV disease, there is often the accompanying ostracism.

Along similar lines, there have been unfortunate accounts of a patient's HIV serostatus limiting his or her admission to drug abuse treatment. There is also the discrimination felt by drug-dependent patients/clients when they attempt to seek medical and social services. Although the stigma against drug abusers in most medical and social service institutions is legendary, it has increased with HIV. Yet, because of the now commonly recognized association between HIV disease and drug abuse, fewer human services providers are willing to extend care to drug abusers.

Besides the discrimination experienced in their previous social networks and in health and social service delivery systems, the HIV-infected drug abuser also may sustain further deterioration in family support. Even without HIV infection, chemically dependent families experience considerable challenges to their integrity; the additional effect of HIV infection often produces family collapse. For drug abusers, this means the unwillingness of family members to provide emotional or physical help or to maintain communications. The stigma against the HIV-infected drug abuser by their friends, their families, and health and social service providers (in addition to some drug abuse treatment providers) makes the challenges to drug abuse treatment monumental.

## **DRUG ABUSE PERSONNEL PERSPECTIVE**

Understanding the impact of the AIDS pandemic requires a brief description of the provider group. Providers can be categorized as former, recovered drug abusers and professionally trained staff. Drug treatment personnel who have had personal past experiences with psychoactive drug use tend to have an inherent understanding of the drug abuse subculture. However, because of the complexities involved in developing effective responses to the consequences of drug dependency, there is an increasing demand for technical knowledge and expertise in a range of disciplines. Both sources of drug treatment personnel are insufficient to meet demand. For professional staff, institutions of higher education do not see the field of drug dependency as an important career path. All too often drug treatment professional personnel are on “temporary leave” from their formal, academic career paths. Universities and other institutions reflect society’s general prejudice against most aspects of drug addiction.

Drug abuse treatment personnel report many different types of experiences in the midst of the HIV epidemic. They express a need to strengthen community health and social service supports as a way to augment drug abuse treatment services; the inadequacy of these resources in many communities is frustrating for treatment staff. An emotional challenge to many treatment personnel is the growing number of patients/clients who become symptomatic and disabled secondary to HIV disease. The alarming frequency of this phenomenon has been the chief complaint of many staff members working with drug-dependent persons.

Another source of confusion for many who provide drug abuse treatment services is reconciling drug abuse rehabilitation with current efforts to prevent further IV drug use associated with HIV transmission. Although arguments for and against needle-exchange efforts are not within the scope of this chapter, many drug treatment professionals find the provision of sterile needles contrary to the principles of drug abuse treatment. Needle-exchange discussions have had important implications regarding the proper role of drug abuse and public health interventions. One implication is whether drug abuse personnel should support total discontinuance of parenteral drug use in concert with drug abuse rehabilitation goals or agree to the provision of sterile needles in concert with the public health goals of impeding the spread of needle-associated HIV. The resulting decision has a major impact on how drug abuse treatment personnel counsel and provide services to their clients.

Another concern for drug treatment personnel in dealing with the AIDS pandemic is learning how to coexist with the range of scientific investigations occurring in many drug treatment settings. Drug abuse treatment clinics

represent logistically important points of contact with persons dependent on illicit substances. Consequently, research efforts involving drug abusers in drug treatment tend to have a greater probability of continued access. Investigators recognize the need to maintain the integrity of the science and the confidentiality of the participants (i.e., using only summary information and not information with any personal identifiers). On the other hand, many drug treatment staff members argue that information gained through research may alert them to impending stresses in their patients' lives and may indicate a need for counseling and other interventions.

In addition to the issue of information-sharing, there is the continuing concern for limited physical space. In New York City, drug abuse treatment clinics tend to be located in unsightly buildings; conducting research in these institutions often is met with resentment by drug abuse treatment staff. This resentment is based on the concern that the limited available space must be shared with nontreatment research staff members who cannot provide direct assistance. Although the number of drug abuse treatment programs nationwide that participate in such behavioral research is probably still in the minority, in the epicenters of IV drug-associated HIV disease (e.g., New York, New Jersey, and Florida), inadequate space has become an increasing concern.

## **PROGRAM OPERATION PERSPECTIVE**

The HIV epidemic offers many challenges for drug abuse treatment clinics and, ironically, many opportunities as well. For example, several factors influence methadone treatment programs. The Federal regulations that provide guidelines for the operation of drug abuse treatment facilities may be modified further by State regulations. State regulations, promulgated by single-state drug abuse service agencies, also address maximum patient capacity. If methadone is provided as a pharmacological intervention, then compliance also is required of the Drug Enforcement Administration, State health departments, and State agencies that oversee controlled substances. Thus, for administrators of drug abuse treatment programs, there is a continuing need to establish systems that ensure compliance with Federal and State regulatory bodies.

During the HIV pandemic, there have been occasions in which Federal and State regulations opposed each other. For example, in some States HIV serostatus is reportable—as are other communicable diseases—to the local public health authority. However, the reporting of such information by drug treatment staff is a violation of Federal regulations governing the confidentiality of persons enrolled in drug abuse treatment. Such circumstances represent administrative challenges in the AIDS era. Drug abuse treatment administrators

must respond to these challenges while also ensuring that revenues are sufficient to meet expenses for maintaining compliance and delivery of drug abuse treatment services.

Even before the HIV epidemic there were disincentives to delivering effective drug abuse treatment services. The lack of a truly effective marketing approach is one such drawback. Because of the societal attitude against drug abuse, providing care to those who are drug dependent has received a low priority. There is no private or public agency (similar to the American Cancer Society or the American Diabetes Association) that could mount an aggressive public relations campaign about the virtues of drug abuse treatment. It is no wonder that the opening of a drug abuse treatment clinic is met with extensive community opposition.

The same issues that influence recruitment of drug abuse treatment personnel affected staff retention and continuing competency before the HIV epidemic. For most drug abuse treatment programs, AIDS has signaled further difficulties. Many employment candidates inquire about the prevalence of HIV disease in the patient population, and in some cases candidates withdraw their applications when they discover that the population consists of drug-dependent persons, chiefly because they perceive that the prospect of working with HIV-infected patients is considerable. For whatever reason, staff shortages are a way of life in most drug abuse treatment programs.

Persistent staff shortages prohibit administrators from sparing their limited staff to obtain important new information, even though this new information may be helpful. Because of AIDS, the need to provide drug abuse treatment staff with up-to-date HIV-related knowledge is paramount. However, as a result, administrators must face the prospects of decreased revenues (by temporarily limiting the delivery of some services) or more aggravating and stressful staff working conditions (by having the remaining staff temporarily accommodate the workload of their absent fellow employees).

In the area of financing most States license drug abuse treatment programs and provide funding based on the number of patients (slots) served. Although there is some indirect and often distant relationship to the breadth of services delivered, reimbursement is not influenced by the types of services required by many patients. This dilemma has stimulated discussions among administrative staff about the composition and mix of services (e.g., serving pregnant, addicted women at the exclusion of other patients). Many drug abuse treatment administrators admit the benefits of enhancing service delivery by adding primary medical care and enhanced counseling services. Simultaneously, many drug abuse treatment programs quickly discover that current systems of

remuneration require difficult decisions about the scope of service delivery. In other words, financing is the force driving drug abuse treatment in the midst of the HIV epidemic.

## **CONCLUSION**

At the threshold of the 20th century's last decade, drug dependency has taken on even greater importance in this country. A large part of this is due to the pivotal role that illicit drug abuse occupies in HIV transmission and in the prevalence of HIV-related morbidity and mortality. These consequences of drug dependency have stimulated interest in finding effective responses to intervene in the natural history of addiction. Drug abuse treatment is one response with proven efficacy (Tims, this volume) to slow the spread of drug abuse-associated HIV. Despite this benefit, however, drug abuse treatment is experiencing considerable challenges.

These challenges can be traced to the increasing medical and social service needs of HIV-infected drug abusers at a time when they are experiencing discrimination in their social networks, in health care and social service delivery systems, and by their families. The challenges to drug abuse treatment also include the increasing frustration experienced by drug abuse treatment staff related to limited social and rehabilitation services, accompanied by the stress of living with the morbidity and mortality of their patients in increasing numbers. Finally, there are challenges related to the operation of drug abuse treatment facilities. Although many disincentives to the provision of effective drug abuse treatment services predated HIV, many of these obstacles have become even more imposing. For administrators, this means complying with an array of Federal and State regulations, which often may be contradictory. This is supplemented by the difficulties in recruiting and retaining staff and reevaluating the role of drug abuse treatment. This reassessment is occurring in an environment of increasing patient care needs without changes in financing or reimbursement mechanisms.

Ironically, the HIV epidemic also has provided drug abuse treatment programs with the mandate to reflect on their purpose. Hopefully, as discussions such as these proceed, there will be opportunities to address long-standing as well as HIV-related disincentives to the provision of quality drug abuse treatment services. Clearly, the challenges raised in this discussion are monumental, but not insurmountable. The significance of developing effective solutions is important to the drug abuse treatment delivery system; there are also benefits to drug abusers, their families, and many communities across this country where drug abuse and HIV-associated consequences of drug abuse are prevalent.

## REFERENCES

- Brown, L.S. Black intravenous drug users: Prospects for intervening in the transmission of human immunodeficiency virus infection. In: Leukefeld, C.G.; Battjes, R.J.; and Amsel, Z., eds. *AIDS and Intravenous Use: Future Directions for Community-Based Prevention Research*. National Institute on Drug Abuse Research Monograph 93. DHHS Pub. No. (ADM)89-1627. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1990. pp. 53-67.
- Brown, L.S.; Burkett W.; and Primm, B.J. Drug treatment and HIV seropositivity. *N Y State J Med* 88:156, 1988.
- Brown, L.S., and Primm, B.J. Intravenous drug abuse and AIDS in minorities. *AIDS Public Policy* 3:5-15, 1988.
- Centers for Disease Control. Tuberculosis and acquired immunodeficiency syndrome-New York. *MMWR* 36:785-795, 1987a.
- Centers for Disease Control. Tuberculosis in minorities-United States. *MMWR* 36:77-80, 1987b.
- Centers for Disease Control. Increase in pneumonia mortality among young adults and the HIV epidemic-New York City. *MMWR* 37:593-496, 1988.
- Cooper, J.R. Methadone treatment and acquired immunodeficiency syndrome. *JAMA* 262:1664-1668, 1989.
- Drucker, E. AIDS and addiction in New York City. *Am J Drug Alcohol Abuse* 12:165-181, 1986.
- Hubbard, R.L.; Marsden, M.E.; Cavanaugh, E.; Rachal, J.V.; and Ginzburg, H.M. Role of drug-abuse treatment in limiting the spread of AIDS. *Rev Infect Dis* 10:377-384, 1988.
- Stoneburner, R.L.; Des Jarlais, D.C.; Benezra, D.; Gorelkin, L.; Sotheran, J.L.; Friedman, S.R.; Schultz, S.; Marmor, M.; Mildvan, D.; and Maslansky, R. A larger spectrum of severe HIV-1-related disease in intravenous drug users in New York City. *Science* 242:916-919, 1988.
- U.S. Department of Health and Human Services. *HIV/AIDS Surveillance—Year-End Edition*. January 1990.
- Weinberg, D.S., and Murray, H.W. Coping with AIDS. The special problems of New York City. *N Engl J Med* 317:1469-1473,1987.

## AUTHOR

Lawrence S. Brown, Jr., M.D., M.P.H.  
Senior Vice President  
Medical Services, Evaluation & Research  
Addiction Research and Treatment Corporation  
22 Chapel Street  
Brooklyn, NY 11201

Department of Medicine  
Harlem Hospital Medical Center  
Columbia University College of Physicians and Surgeons  
New York, NY 10037

# Improving Drug Abuse Treatment: Recommendations for Research and Practice

*Carl G. Leukefeld, Roy W. Pickens, and Charles R. Schuster*

## INTRODUCTION

Drug abuse treatment is effective, but many of us forget that drug abuse is often a chronic and relapsing condition. That recognition and efforts to make drug abuse treatment more effective are the emphasis of this monograph, *Improving Drug Abuse Treatment*. Authors were asked to comment on specific recommendations they could make to improve drug abuse treatment, recognizing the importance of the issue. A 1989 Gallup survey (Gallup International Foundation 1989) reinforced that importance by reporting that drug abuse topped the public's list as the Nation's most important problem, which is virtually unprecedented for any social issue.

To help meet the concern about drug abuse and to coordinate Federal drug efforts, the Office of National Drug Control Policy (ONDCP) was established in the Executive Office of the President. As part of the challenge, ONDCP (1989, 1990) developed and updated the *National Drug Control Strategy*, which focuses both on supply reduction and demand reduction activities, including treatment. It also specifically recognizes that the Nation's emphasis on enforcement during the past decade must be supplemented with expanded activities for treating drug abusers.

As part of emphasizing treatment to reduce the demand for drugs, the Office of Treatment Improvement (OTI) was established in the Alcohol, Drug Abuse, and Mental Health Administration. OTI, among other things, is charged with providing an organizational home and with funding research programs for drug abuse treatment; its principal function is to improve treatment services for individuals who suffer from drug abuse and other problems associated with drug abuse, including alcoholism and physical as well as mental illness. In addition, OTI is staffed with individuals who have firsthand knowledge of and experience with drug abuse treatment.

The importance of drug abuse treatment may be driven partially by the spread of acquired immunodeficiency syndrome (AIDS) and the human immunodeficiency virus (HIV) epidemic among intravenous (IV) drug abusers. IV drug abusers currently represent a high proportion of persons with AIDS, almost 30 percent of adult AIDS cases (Centers for Disease Control 1990). IV drug abusers also account for many AIDS cases among minorities and present a major vector for the spread of HIV to the heterosexual community.

Until recently, drug abuse treatment had not been emphasized or received an increase in revenues at the Federal level since the 1970s when President Nixon declared a “war on drugs.” The National Institute on Drug Abuse (NIDA) was created in 1974 during that period. That drug war expanded drug abuse treatment by focusing on the connection between street crime and heroin addiction and expanded and institutionalized the public drug abuse treatment system. From at least one point of view, the publicly funded drug abuse treatment field has matured, but new treatment approaches have not recently evolved.

Along with the recent attention given to drug abuse treatment and treatment effectiveness is the important recognition that treatment providers can and should improve drug abuse treatment by applying the results of existing clinical research. Unfortunately, the findings from clinical and other studies are not readily transferred from journals and other publications to clinical practice. Therefore, the recommendations at the end of this chapter, based on the most current research results and clinical practice, are made to facilitate improvement of drug abuse clinical practice. These recommendations form the core of this chapter and incorporate administrative as well as fiscal suggestions to help improve drug abuse treatment.

This technical review meeting was structured around specific areas that were perceived as important for a better understanding of drug abuse treatment. Chapter authors were asked to stress practical things that could be done, based on available data and clinical experiences, to improve drug abuse treatment. Many of the participants emphasized the effectiveness of drug abuse treatment in modifying drug-abusing behaviors. In addition, it was suggested that this monograph be dedicated to those drug abuse treatment staffs that have provided treatment over many years—at times, in difficult circumstances.

Chapter authors voiced their concerns that the existing status of publicly funded drug abuse treatment has been shaped by available funding, which until recently has not kept up with inflation. These limitations have had a dramatic influence on drug abuse treatment in the public sector. However, these

resource limitations do not detract from the importance or the efficiency of most drug treatment programs.

This monograph is anchored on the following areas, which serve as an overview of drug abuse treatment and as an outline for this chapter's recommendations: current status of drug abuse treatment, clinical issues, and program/policy issues. There was agreement among meeting participants, bordering on total consensus, on improving drug abuse treatment, which is reflected by the recommendations. There was an underlying sense of urgency to move forward as quickly as possible, not only with the publication of this volume but also, and more importantly, with action steps to improve drug abuse treatment. The following sections present an overview of author contributions to this monograph.

## **CURRENT STATUS OF DRUG ABUSE TREATMENT**

Pickens and Fletcher provide an overview of issues related to improving drug abuse treatment with a confirmation that drug abuse treatment is effective. They also trace early drug abuse treatment efforts and link those early efforts with contemporary treatment issues, including therapeutic community treatment and methadone maintenance treatment. They emphasize the following areas for improving drug abuse treatment: attracting drug abusers to treatment, decreasing drug use rates for those in treatment, matching clients to treatment programs, increasing treatment retention, preventing relapse, applying research findings to clinical practice, increasing staff morale, and changing the reliance on methadone maintenance programs.

Gustafson suggests that drug abuse treatment programs are straining to do more and do it better. He highlights staffing issues as a major area for improving drug abuse treatment and presents specific suggestions in such areas as recruitment and retention, credentialing, facility improvement, staff morale, AIDS and HIV services, and staff training and development.

Price and colleagues present findings from a survey of 569 methadone and drug-free outpatient treatment programs. Multiple drug abuse is the major presenting problem with young males, the predominant group receiving services. Self-referrals and courts are the major treatment referral sources, with self-referral the major source to methadone treatment. Staff members with master's and bachelor's degrees provide the bulk of outpatient treatment services, particularly in drug-free programs. Methadone treatment programs reported more involvement with licensing and program certification. Finally, only two-thirds of outpatient treatment units report any followup or relapse prevention efforts, a major point of emphasis for improving treatment.

Drug abuse treatment programs recently have reported that treatment is not available in certain geographic areas and that treatment waiting lists exist, largely in methadone treatment programs and therapeutic communities (TCs). Butynski reports that there are about 1,600 drug abuse treatment units in the United States in addition to 3,500 combined alcohol and drug abuse treatment units. It is estimated that about 834,000 individuals received drug treatment in 1987 at these units, which have a treatment capacity of about 260,000 at any one time. It is also estimated that 4 million persons had serious drug problems in 1988 and that 2 million of these could benefit from drug abuse treatment (Office of National Drug Control Policy 1989).

Butynski also emphasizes the diversity of publicly funded drug abuse treatment, which is important in meeting treatment needs reflected by the variety and severity of drug abuse. Drug treatment now incorporates the following: *detoxification* programs, which have the goal of stopping the immediate physical addiction to drugs; *chemical dependency units*, which offer 3 to 4 weeks of private residential and inpatient treatment followed by outpatient treatment; *TC treatment* involving 9 to 12 months of structured residential treatment; *outpatient treatment*, the most common form of community drug abuse treatment offering counseling and support, including psychotherapy; *pharmacotherapy treatment*, including maintenance treatment with methadone, a prescribed medication to block heroin withdrawal and craving; and *self-help groups*, which generally apply Narcotics Anonymous (NA) and Alcoholics Anonymous approaches. In addition to methadone, another pharmacotherapy uses naltrexone, which has been approved by the Food and Drug Administration, in addition to methadone, for treating illicit heroin addiction. Naltrexone is a synthetic narcotic antagonist that blocks the "high" experienced from injecting heroin and reduces the craving for heroin without opiate-like effects.

Tims and colleagues emphasize that both controlled and large cohort research studies have reported that drug abuse treatment is effective in reducing drug abuse and related behaviors (Hubbard et al. 1989; Simpson and Sells 1982). An important additional point is that drug abuse treatment appears to be effective in preventing the spread of HIV among IV drug abusers (Battjes et al. 1988; Hubbard et al. 1988; Novick et al. 1990).

Tims and colleagues also reference Hubbard and coworkers' Treatment Outcome Perspective Study (TOPS) as the most recent research that has validated the effectiveness of drug abuse treatment. Subjects for this longitudinal study included more than 11,000 individuals who received drug abuse treatment from 1979 to 1981 from 41 different publicly supported programs in 10 cities. Four treatment approaches were examined: methadone detoxification, methadone maintenance treatment, TC treatment, and outpatient

drug abuse treatment. A sample of three cohorts was followed for up to 3 years. Substantial decreases in heroin use and reduced cocaine use with decreased severity of drug use were reported during and after treatment for those who remained in treatment for at least 3 months. The benefits of treatment matched or exceeded the costs of treatment. The average length of stay was 159 days for residential treatment with an average total cost of \$2,942 per patient, 267 days for outpatient methadone treatment with an average cost of \$1,602, and 101 days for outpatient treatment with an average cost of \$606.

## **CLINICAL ISSUES**

Clinical treatment skills can, and in some cases must, be changed to improve drug abuse treatment. Clearly, there are multiple clinical issues associated with the changing client population. McLellan and Alterman point out the need to develop valid and reliable assessment and diagnostic indicators to match clients to treatment. The Addiction Severity Index has become a standard to collect assessment information, including past and present symptoms, and to estimate the level of discomfort along seven problem areas: alcohol use, medical condition, drug use, employment/support, illegal activity, family/social relations, and psychiatric function. Additional instrumentation is being developed to focus on varied populations and provide clarity for clinical interventions. NIDA, along with the National Institute of Mental Health and the National Institute on Alcohol Abuse and Alcoholism, is collaborating with the World Health Organization and the American Psychiatric Association to develop reliable and validated clinical and research diagnostic criteria for drug abuse and dependence. Reliable instruments are being developed to measure these criteria and have exciting possibilities for both clinical practice and research in both domestic and cross-cultural settings.

Kosten reports that enhanced diagnostic and clinical skills are necessary to treat the more complex client issues related to multiple drug use, and Woody and colleagues support this claim for use with comorbidity or dually diagnosed clients. Kosten also suggests that most current multiple drug abuse involves the use of cocaine, alcohol, opiates, and benzodiazepines and that using drugs in combinations is often more severe than single drug use. Dually diagnosed clients—individuals who have both drug abuse/dependence and a mental disorder such as major depression or schizophrenia—often present special management problems and seem to be increasing in drug abuse treatment programs. Woody and colleagues suggest that addressing psychiatric comorbidity can improve treatment but that implementing the necessary protocols in publicly funded treatment programs is compromised without qualified staff. A theme stressed throughout the presentations was that specific treatments should be mixed and matched to individualize client treatment.

Thus, it is suggested that “talking” therapies such as counseling and psychotherapy could be combined with pharmacotherapy, relapse prevention, and self-help activities to match clients to treatment.

Ongoing research is adding to our knowledge about counseling and psychotherapy. Specifically, Onken presents research showing that therapists differ in their effectiveness, and McCaul and Svikis show that the most effective therapists/counselors should be retained and rewarded for their effectiveness. However, although psychotherapy is effective in treating clients with severe or moderate psychopathology, Onken’s data show that clients in methadone treatment with low levels of psychopathology do as well with drug counseling as with counseling plus psychotherapy.

An important and persistent finding is that drug abusers should be educated about measures they can take to prevent relapse. Relapse prevention is challenging, and although knowledge about relapse exists, Hall and colleagues reveal that many puzzles remain. To better understand relapse, O’Brien and colleagues identify four factors: psychiatric disorders, including depression and anxiety disorders; social factors such as employment opportunities and social supports; protracted abstinence syndrome, which may persist for 6 months or more; and conditioned responses that “recall” drug experiences.

Practical considerations to decrease relapse and enhance recovery include a recommendation from a previous NIDA review that clinicians can make aftercare contacts at specific times following treatment: first week, first month, third month, and first year (Leukefeld and Tims 1989). Nurco and colleagues report that self-help groups are cost-effective for maintaining changes and can help prevent relapse. Self-help groups such as NA help individuals cope with life stressors as well as the discontinued dependency on substances.

A consistent research finding reported by Kreek is that methadone maintenance is effective in significantly reducing or eliminating illicit and regular use of heroin and other short-acting narcotics *when appropriate doses of methadone are prescribed*. Several authors report on the large amount of research carried out in methadone maintenance treatment clinics in several areas: efficacy of treatment (Kreek), provision of rehabilitation services (Childress and colleagues), approaches to reduce illicit drug use (Stitzer and Kirby), alcohol use (Gordis), and HIV (Brown). Cooper presents NIDA’s plan to study the feasibility of establishing a methadone maintenance treatment quality assurance program with the aim of defining appropriate medical standards.

Research is currently proceeding to develop medications that normalize those brain systems that are not regulated by drugs of abuse. For example, possible

medications for cocaine include a painkiller called buprenorphine; an antidepressant called desipramine; flupenthixol, an antipsychotic; an antiseizure drug called carbamazepine; gepirone, an anxiety drug; bromocriptine and mazindol, dopamine antagonists; and bupropion (Holden 1989). This emphasis on medications development activities has been called the “Manhattan Project” for chemists in the war on drugs (*Time* 1989).

## **TREATMENT PROGRAM AND POLICY ISSUES**

The recent events that have helped focus the Nation’s increased drug abuse activities on treatment programs and treatment policies are a result of various perceptions and activities, including consistent media attention; the violence associated with drug abuse; babies born addicted; the use of crack and associated behaviors; and the relationship between needle use, sexual behaviors, and AIDS.

Because the length of time in treatment consistently has been related to positive drug abuse treatment outcomes, shown by Tims and colleagues, it seems desirable to examine policies that enhance treatment retention. McCaul and Svikis point to improving program compliance and De Leon to improving retention as issues related to increasing the length of time in treatment that can supplement relapse prevention activities reported by Hall and coworkers. Mendelson and colleagues highlight the special needs of women with regard to special treatment considerations for pharmacotherapeutic treatments and issues related to polydrug abuse, alcohol abuse, and cocaine use.

There are also linkage issues related to the provision of community drug abuse treatment. Linking community patient care and continuity of care recently has been expanded due to the spread of HIV in large, urban communities. Accounts (presented by Russo) of the overburdened primary care system along with special needs of the IV drug abuser highlight difficulties. There is also a high level of drug use by those who come into contact with the criminal justice system. Leukefeld shows how the justice system provides opportunities for using its authority to enhance drug abuse treatment.

Other policy issues also deserve special attention. First, program accountability for publicly funded treatment providers is an area that will receive additional emphasis. A second policy issue that currently has a direct impact on community drug abuse treatment is community resistance to the neighborhood placement of drug abuse treatment programs. Veatch refers to the NIMBY (“Not In My Backyard”) syndrome as the overriding attitude of community residents—the fear of increased crime and decreased property values. Clearly, there is a need for expansion in this area, including technical assistance,

videotapes, hands-on experiences, staff exchanges, and a variety of media, all of which hold promise.

## **AREAS OF AGREEMENT RELATED TO IMPROVING DRUG ABUSE TREATMENT**

The following statements represent the major areas of agreement reached by those researchers and practitioners who attended the NIDA meeting on "Improving Drug Abuse Treatment." As further introduction and for emphasis, the editors would like to stress that the chapter authors as well as other meeting participants agreed that *drug abuse treatment is effective*. To put it more boldly, participants wanted to go on record that drug abuse treatment saves lives, prevents and reduces criminal activities, improves quality of life, and when compared with the alternative of incarceration without drug abuse treatment, is cost-effective. The following statements represent areas of specific agreement.

### **Funding for Drug Abuse Treatment**

1. The effectiveness of drug abuse treatment in some programs has been compromised by limited funding and enormous demands on services.
2. Treatment program staffs should receive technical assistance and funding to help them review the quality of their clinical services, with the goal of improving their effectiveness.
3. Additional treatment funding should include support for essential administrative and related services such as staff training, staff salaries, enhanced data collection, evaluation activities, vocational services, new facility construction, and new treatment slots.

### **Evaluating Drug Abuse Treatment**

1. Additional data should be collected and new studies designed to allow for more concise characterization of patients, programs, and outcome results.
2. Due to the chronic relapsing nature of drug dependence, evaluations of treatment effectiveness should be based on client performance while in treatment and after leaving treatment.
3. Accountability should be a necessary component of drug abuse treatment, with the provision of fiscal and staff resources to support regular reporting on client characteristics, program characteristics, services provided, fees, and performance measures.

4. Quality assurance components are needed in drug abuse treatment programs to ensure the highest quality of patient care.

### **Clinical Aspects of Drug Abuse Treatment**

1. Special attention should be paid to improving the clinical skills of treatment staff because staff members now are required to intervene with more complex clinical issues (e.g., comorbidity, psychopathology, infectious diseases related to HIV, sexually transmitted diseases, tuberculosis, and medications).
2. Research shows that counselors and therapists differ considerably in their effectiveness, even with the same level of training and experience. Increased efforts should be made to identify and to retain them by providing the most effective counselors and therapists with higher salaries and other inducements.
3. After treatment capacity is expanded, more emphasis should be placed on enhancing outreach activities and recruiting patients into treatment, because evidence suggests that ethnic and cultural matching of clients to treatment may affect compliance with treatment.
4. Psychiatric and medical comorbidity and multiple drug use, including alcohol problems and cocaine/crack use, are becoming increasingly common among clients entering drug abuse treatment; treatment programs must be able to recognize and treat such conditions.
5. Additional emphasis should be placed on matching clients to treatment because evidence suggests that clients with moderate to severe psychopathology do better in programs that provide psychotherapy and/or pharmacotherapy.
6. Although psychotherapy has been effective in treating clients with severe and moderate levels of psychopathology, clients in methadone treatment with low levels of psychopathology do as well with drug counseling as with drug counseling plus psychotherapy.
7. Preliminary evidence indicates that involving senior staff in initial client contacts during the intake process may improve retention rates for TCs.
8. Relapse prevention strategies have been shown to reduce drug use following treatment. Educating drug abusers about these strategies during

treatment and placing greater emphasis on provision of followup services may improve treatment outcomes.

9. Conditioning to drug-related stimuli develops during chronic drug use and continues into relapse after treatment. Although research evidence is not complete, preliminary evidence suggests that exposing drug abusers to these stimuli in a supportive treatment environment may result in extinction and help to eliminate the stimuli as factors that contribute to relapse.
10. Self-help groups are cost-effective for maintaining behavioral changes following drug abuse treatment and for teaching appropriate role behaviors to clients in methadone treatment. Self-help groups are also beneficial for drug abusers who do not require intense treatment.
11. Appropriate medical use of psychotropic medications should not be prohibited in drug treatment programs; their appropriate use has been shown to be beneficial for many drug-dependent persons.

#### **Methadone Maintenance Treatment**

1. Adequate doses of methadone should be prescribed in maintenance treatment because evidence indicates that low doses of methadone are associated with higher rates of illicit drug use, premature treatment termination, and failure to comply with treatment goals.
2. Methadone maintenance programs should be funded and staffed to provide supportive services to those with an assessed need in addition to methadone; preliminary evidence suggests that such clients function better in programs that provide counseling and other needed services.
3. Allowing methadone take-home privileges that are contingent on "clean" urines may be effective in reducing illicit drug use during methadone treatment. However, additional research is needed to determine the durability of such approaches.
4. Methadone-maintained patients should not be prohibited from also entering abstinence-oriented programs for the management of other dependencies, including alcohol.

#### **Linking Drug Abuse Treatment With Other Community Institutions**

1. A stronger linkage must be established by drug abuse treatment programs with the criminal justice system because the justice system has a high

proportion of individuals with drug problems and offers motivation (i.e., probation and parole) for drug abusers to enter and comply with treatment goals.

2. Stronger linkages are needed between drug abuse treatment and primary medical care and mental health care services to provide a continuum of care for drug-dependent persons, especially those with AIDS and other infectious diseases.

### **Minority Involvement in Drug Abuse Treatment**

1. The special needs of minorities and women must be recognized by drug treatment programs along with expanded resources to train existing staff and hire new staff members who are culturally and racially sensitive and who speak the primary language of their clients.

### **Community Barriers to Drug Abuse Treatment**

1. Community obstacles and barriers to identifying and establishing new treatment program sites must be overcome to maximize the use of treatment as an effective strategy for reducing drug abuse and HIV. National, State, and local policymakers must become involved in this process.

### **Transferring Proven Drug Abuse Treatment Technologies**

1. Technology transfer should be improved to ensure rapid communication of research findings so that they can be incorporated into clinical skills-building and practice.
2. Treatment programs and providers must be encouraged to adopt new knowledge based on research into their clinical practice. Such knowledge should be transferred through more intensive direct contacts among researchers and practitioners and through the provision of technical assistance and training to practitioners.

### **Research Focused on Improving Drug Abuse Treatment**

1. Treatment programs should support research efforts that focus on improving the effectiveness and efficiency of drug abuse treatment, including medications development, improved counseling and psychotherapy techniques, psychiatric and medical comorbidity, and quality assurance issues.

2. Research programs should support and incorporate practitioner insights directed to improving treatment.
3. Treatment research should address areas of system improvements to better understand the dynamics of underlying biological and behavioral factors. Specific areas include recruitment, retention, illicit drug use and alcohol problems during treatment, and relapse following treatment.
4. Drug abuse treatment programs should be encouraged to participate in both drug abuse clinical research and evaluation studies.

### Training

1. Training should be expanded to develop and refine clinical skills for physicians, nurses, social workers, clinical psychologists, counselors, and case managers.

### REFERENCES

- Battjes, R.J.; Leukefeld, C.G.; Pickens, R.W.; and Haverkos, H.W. The acquired immunodeficiency syndrome and intravenous drug abuse. *Bull Narc* 40(1):21-34, 1988.
- Can drugs cure drug addiction? *Time* December 11, 1989. pp. 104.
- Centers for Disease Control. *HIV/AIDS Surveillance Report*. Atlanta, GA: Centers for Disease Control, February 1990.
- Gallup international Foundation. "Surveys of the Attitudes of American Adults and Teen-Agers Towards the Drug Crisis and Drug Policy." Press briefing presented at the Old Executive Office Building, Washington, DC, August 4, 1989.
- Holden, C. Street-wise crack research. *Science* 246:1376-1381, 1989.
- Hubbard, R.L.; Marsden, M.E.; Cavanaugh, E.; Rachal, J.V.; and Ginzburg, H.M. Role of drug abuse treatment in limiting the spread of AIDS. *Rev Infect Dis* 10(2):377-384, 1988.
- Hubbard, R.L.; Marsden, M.E.; Rachal, J.V.; Harwood, H.J.; Cavanaugh, E.R.; and Ginzburg, H.M. *Drug Abuse Treatment National Study of Effectiveness*. Chapel Hill, NC: University of North Carolina Press, 1989.
- Leukefeld, C.G., and Tims, F.M. Relapse and recovery in drug abuse: Research and practice. *Int J Addict* 24(3):189-201, 1989.
- Novick, D.M.; Herman, J.; Croxon, T.S.; Salsitz, E.A.; Wang, G.; Richman, B.L.; Poretzky, L.; Keefe, J.B.; and Whimbet, E. Absence of antibody to human immunodeficiency virus on long-term, socially rehabilitated methadone maintenance patients. *Arch Intern Med* 150:97-99, 1990.

Office of National Drug Control Policy. *National Drug Control Strategy*. S/N 040-000-00542-1 Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., September 1989.

Office of National Drug Control Policy. *National Drug Control Strategy*. S/N 040-000-00543-9 Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., January 1990.

Simpson, D.D., and Sells, S.B. *Evaluation of Drug Abuse Treatment Effectiveness: Summary of the DARP followup Research*. DHHS Pub. No. (ADM)82-1209. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1982.

## **AUTHORS**

Carl G. Leukefeld, D.S.W.  
Director  
Multidisciplinary Center on Drug and Alcohol Abuse  
Department of Psychiatry  
University of Kentucky Medical Center  
Room 210  
800 Rose Street  
Lexington, KY 40536

Charles R. Schuster, Ph.D.  
Director  
National Institute on Drug Abuse  
Room 10-05  
5600 Fishers Lane  
Rockville, Maryland 20857

Roy W. Pickens, Ph.D.  
Acting Director  
Addiction Research Center  
National Institute on Drug Abuse  
4940 Eastern Avenue  
Baltimore, MD 21224



## monograph series

While limited supplies last, single copies of the monographs may be obtained free of charge from the National Clearinghouse for Alcohol and Drug Information (NCADI). Please contact NCADI also for information about availability of coming issues and other publications of the National Institute on Drug Abuse relevant to drug abuse research.

Additional copies may be purchased from the U.S. Government Printing Office (GPO) and/or the National Technical Information Service (NTIS) as indicated. NTIS prices are for paper copy; add \$3 handling charge for each order. Microfiche copies are also available from NTIS. Prices from either source are subject to change.

Addresses are:

NCADI  
National Clearinghouse for Alcohol and Drug Information  
P.O. Box 2345  
Rockville, MD 20852  
(301) 468-2600  
(800) 729-6686

GPO  
Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402  
(202) 275-2981

NTIS  
National Technical Information Service  
U.S. Department of Commerce  
Springfield, VA 22161  
(703) 487-4650

*For information on availability of NIDA Research Monographs 1 through 24 (1975-1979) and others not listed, write to NIDA, Community and Professional Education Branch, Room 10A-54, 5600 Fishers Lane, Rockville, MD 20857.*

- 25 BEHAVIORAL ANALYSIS AND TREATMENT OF SUBSTANCE ABUSE. Norman A. Krasnegor, Ph.D., ed.  
GPO out of stock NCADI out of stock  
NTIS PB #80-112428/AS \$31
- 26 THE BEHAVIORAL ASPECTS OF SMOKING. Norman A. Krasnegor, Ph.D., ed. (reprint from 1979 Surgeon General's Report on Smoking and Health)  
GPO out of stock NTIS PB #80-118755/AS \$23
- 30 THEORIES ON DRUG ABUSE: SELECTED CONTEMPORARY PERSPECTIVES. Dan J. Lettieri, Ph.D.; Mollie Sayers; and Helen W. Pearson, eds.  
GPO out of stock NCADI out of stock  
Not available from NTIS
- 31 MARIJUANA RESEARCH FINDINGS: 1980. Robert C. Petersen, Ph.D., ed.  
GPO out of stock NTIS PB #80-215171/AS \$31
- 32 GC/MS ASSAYS FOR ABUSED DRUGS IN BODY FLUIDS. Rodger L. Foltz, Ph.D.; Allison F. Fentiman, Jr., Ph.D.; and Ruth B. Foltz, eds.  
GPO out of stock NCADI out of stock  
NTIS PB #81-133746/AS \$31
- 36 NEW APPROACHES TO TREATMENT OF CHRONIC PAIN: A REVIEW OF MULTIDISCIPLINARY PAIN CLINICS AND PAIN CENTERS. Lorenz K.Y. Ng, M.D., ed.  
GPO out of stock NCADI out of stock  
NTIS PB #81-240913/AS \$31
- 37 BEHAVIORAL PHARMACOLOGY OF HUMAN DRUG DEPENDENCE. Travis Thompson, Ph.D., and Chris E. Johanson, Ph.D., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #82-136961/AS \$39
- 38 DRUG ABUSE AND THE AMERICAN ADOLESCENT. Dan J. Lettieri, Ph.D., and Jacqueline P. Ludford, M.S., eds. A RAUS Review Report.  
GPO out of stock NCADI out of stock  
NTIS PB #82-148198/AS \$23

- 40 ADOLESCENT MARIJUANA ABUSERS AND THEIR FAMILIES. Herbert Hendin, M.D.; Ann Pollinger, Ph.D.; Richard Ulman, Ph.D.; and Arthur Carr, Ph.D., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #82-133117/AS \$23
- 42 THE ANALYSIS OF CANNABINOIDS IN BIOLOGICAL FLUIDS. Richard L. Hawks, Ph.D., ed.  
GPO out of stock NTIS PB #83-136044/AS \$23
- 44 MARIJUANA EFFECTS ON THE ENDOCRINE AND REPRODUCTIVE SYSTEMS. Monique C. Braude, Ph.D., and Jacqueline P. Ludford, M.S., eds. A RAUS Review Report.  
GPO out of stock NCADI out of stock  
NTIS PB #85-150563/AS \$23
- 45 CONTEMPORARY RESEARCH IN PAIN AND ANALGESIA, 1983. Roger M. Brown, Ph.D.; Theodore M. Pinkert, M.D., J.D.; and Jacqueline P. Ludford, M.S. eds. A RAUS Review Report.  
GPO out of stock NCADI out of stock  
NTIS PB #84-184670/AS \$17
- 46 BEHAVIORAL INTERVENTION TECHNIQUES IN DRUG ABUSE TREATMENT. John Grabowski, Ph.D.; Maxine L. Stitzer, Ph.D.; and Jack E. Henningfield, Ph.D., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #84-184688/AS \$23
- 47 PREVENTING ADOLESCENT DRUG ABUSE: INTERVENTION STRATEGIES. Thomas J. Glynn, Ph.D.; Carl G. Leukefeld, D.S.W.; and Jacqueline P. Ludford, M.S., eds. A RAUS Review Report.  
GPO out of stock NCADI out of stock  
NTIS PB #85-159663/AS \$31
- 48 MEASUREMENT IN THE ANALYSIS AND TREATMENT OF SMOKING BEHAVIOR. John Grabowski, Ph.D., and Catherine Bell, M.S., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #84-145184/AS \$23
- 50 COCAINE: PHARMACOLOGY, EFFECTS, AND TREATMENT OF ABUSE. John Grabowski, Ph.D., ed.  
GPO Stock #017-024-01214-9 \$4 NTIS PB #85-150381 /AS \$23

- 51 DRUG ABUSE TREATMENT EVALUATION: STRATEGIES, PROGRESS, AND PROSPECTS. Frank M. Tims, Ph.D., ed.  
GPO out of stock NTIS PB #85-150365/AS \$23
- 52 TESTING DRUGS FOR PHYSICAL DEPENDENCE POTENTIAL AND ABUSE LIABILITY. Joseph V. Brady, Ph.D., and Scott E. Lukas, Ph.D., eds.  
GPO out of stock NTIS PB #85-150373/AS \$23
- 53 PHARMACOLOGICAL ADJUNCTS IN SMOKING CESSATION. John Grabowski, Ph.D., and Sharon M. Hall, Ph.D., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #89-123186/AS \$23
- 54 MECHANISMS OF TOLERANCE AND DEPENDENCE. Charles Wm. Sharp, Ph.D., ed.  
GPO out of stock NCADI out of stock  
NTIS PB #89-103279/AS \$39
- 55 PROBLEMS OF DRUG DEPENDENCE, 1984: PROCEEDINGS OF THE 46TH ANNUAL SCIENTIFIC MEETING, THE COMMITTEE ON PROBLEMS OF DRUG DEPENDENCE, INC. Louis S. Harris, Ph.D., ed.  
GPO out of stock NCADI out of stock  
NTIS PB #89-123194/AS \$45
- 56 ETIOLOGY OF DRUG ABUSE: IMPLICATIONS FOR PREVENTION. Coryl LaRue Jones, Ph.D., and Robert J. Battjes, D.S.W., eds.  
GPO Stock #017-024-01250-5 \$6.50 NTIS PB #89-123160/AS \$31
- 57 SELF-REPORT METHODS OF ESTIMATING DRUG USE: MEETING CURRENT CHALLENGES TO VALIDITY. Beatrice A. Rouse, Ph.D.; Nicholas J. Kozel, M.S.; and Louise G. Richards, Ph.D., eds.  
GPO out of stock NTIS PB #88-248083/AS \$23
- 58 PROGRESS IN THE DEVELOPMENT OF COST-EFFECTIVE TREATMENT FOR DRUG ABUSERS. Rebecca S. Ashery, D.S.W., ed.  
GPO out of stock NTIS PB #89-125017/AS \$23
- 59 CURRENT RESEARCH ON THE CONSEQUENCES OF MATERNAL DRUG ABUSE. Theodore M. Pinkert, M.D., J.D., ed.  
GPO out of stock NTIS PB #89-125025/AS \$23

- 60 PRENATAL DRUG EXPOSURE: KINETICS AND DYNAMICS. C. Nora Chiang, Ph.D., and Charles C. Lee, Ph.D., eds.  
GPO out of stock NTIS PB #89-124564/AS \$23
- 61 COCAINE USE IN AMERICA: EPIDEMIOLOGIC AND CLINICAL PERSPECTIVES. Nicholas J. Kozel, M.S., and Edgar H. Adams, M.S., eds.  
GPO out of stock NTIS PB #89-131866/AS \$31
- 62 NEUROSCIENCE METHODS IN DRUG ABUSE RESEARCH. Roger M. Brown, Ph.D.; David P. Friedman, Ph.D.; and Yuth Nimit, Ph.D., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #89-130660/AS \$23
- 63 PREVENTION RESEARCH: DETERRING DRUG ABUSE AMONG CHILDREN AND ADOLESCENTS. Catherine S. Bell, M.S., and Robert Battjes, D.S.W., eds.  
GPO out of stock NTIS PB #89-103267/AS \$31
- 64 PHENCYCLIDINE: AN UPDATE. Doris H. Clouet, Ph.D., ed.  
GPO out of stock NTIS PB #89-131858/AS \$31
- 65 WOMEN AND DRUGS: A NEW ERA FOR RESEARCH. Barbara A. Ray, Ph.D., and Monique C. Braude, Ph.D., eds.  
GPO Stock #017-024-01283-1 \$3.50 NTIS PB #89-130637/AS \$23
- 66 GENETIC AND BIOLOGICAL MARKERS IN DRUG ABUSE AND ALCOHOLISM. Monique C. Braude, Ph.D., and Helen M. Chao, Ph.D., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #89-134423/AS \$23
- 68 STRATEGIES FOR RESEARCH ON THE INTERACTIONS OF DRUGS OF ABUSE. Monique C. Braude, Ph.D., and Harold M. Ginzburg, M.D., J.D., M.P.H., eds.  
GPO out of stock NCADI out of stock  
NTIS PB #89-134936/AS \$31
- 69 OPIOID PEPTIDES: MEDICINAL CHEMISTRY. Rao S. Rapaka, Ph.D.; Gene Barnett, Ph.D.; and Richard L. Hawks, Ph.D., eds.  
GPO out of stock NTIS PB #89-158422/AS \$39
- 70 OPIOID PEPTIDES: MOLECULAR PHARMACOLOGY, BIOSYNTHESIS, AND ANALYSIS. Rao S. Rapaka, Ph.D., and Richard L. Hawks, Ph.D., eds.  
GPO out of stock NTIS PB #89-158430/AS \$45

- 71 OPIATE RECEPTOR SUBTYPES AND BRAIN FUNCTION. Roger M. Brown, Ph.D.; Doris H. Clouet, Ph.D.; and David P. Friedman, Ph.D., eds.  
GPO out of stock NTIS PB #89-151955/AS \$31
- 72 RELAPSE AND RECOVERY IN DRUG ABUSE. Frank M. Tims, Ph.D., and Carl G. Leukefeld, D.S.W., eds.  
GPO Stock #017-024-01302-1 \$6 NTIS PB #89-151963/AS \$31
- 73 URINE TESTING FOR DRUGS OF ABUSE. Richard L. Hawks, Ph.D., and C. Nora Chiang, Ph.D., eds.  
GPO Stock #017-024-01313-7 \$3.75 NTIS PB #89-151971/AS \$23
- 74 NEUROBIOLOGY OF BEHAVIORAL CONTROL IN DRUG ABUSE. Stephen I. Szara, M.D., DSc., ed.  
GPO Stock #017-024-01314-5 63.75 NTIS PB #89-151989/AS \$23
- 75 PROGRESS IN OPIOID RESEARCH. PROCEEDINGS OF THE 1986 INTERNATIONAL NARCOTICS RESEARCH CONFERENCE. John W. Holaday, Ph.D.; Ping-Yee Law, Ph.D.; and Albert Herz, M.D., eds.  
GPO out of stock NCADI out of stock  
Not available from NTIS
- 76 PROBLEMS OF DRUG DEPENDENCE, 1986: PROCEEDINGS OF THE 48TH ANNUAL SCIENTIFIC MEETING, THE COMMITTEE ON PROBLEMS OF DRUG DEPENDENCE, INC. Louis S. Harris, Ph.D., ed.  
GPO out of stock NCADI out of stock  
NTIS PB #88-208111/AS \$53
- 77 ADOLESCENT DRUG ABUSE: ANALYSES OF TREATMENT RESEARCH. Elizabeth R. Rahdert, Ph.D., and John Grabowski, Ph.D., eds.  
GPO Stock #017-024-01348-0 \$4 NCADI out of stock  
NTIS PB #89-125488/AS \$23
- 78 THE ROLE OF NEUROPLASTICITY IN THE RESPONSE TO DRUGS. David P. Friedman, Ph.D., and Doris H. Clouet, Ph.D., eds.  
GPO out of stock NTIS PB #88-245683/AS \$31
- 79 STRUCTURE-ACTIVITY RELATIONSHIPS OF THE CANNABINOIDS. Rao S. Rapaka, Ph.D., and Alexandros Makriyannis, Ph.D., eds.  
GPO out of stock NTIS PB #89-109201/AS \$31

- 80 NEEDLE SHARING AMONG INTRAVENOUS DRUG ABUSERS: NATIONAL AND INTERNATIONAL PERSPECTIVES. Robert J. Battjes, D.S.W., and Roy W. Pickens, Ph.D., eds.  
GPO out of stock NTIS PB #88-2361381/AS \$31
- 81 PROBLEMS OF DRUG DEPENDENCE, 1987: PROCEEDINGS OF THE 49TH ANNUAL SCIENTIFIC MEETING, THE COMMITTEE ON PROBLEMS OF DRUG DEPENDENCE, INC. Louis S. Harris, Ph.D., ed.  
GPO Stock #017-024-01354-4 \$17 NTIS PB #89-109227/AS  
Contact NTIS for price
- 82 OPIOIDS IN THE HIPPOCAMPUS. Jacqueline F. McGinty, Ph.D., and David P. Friedman, Ph.D., eds.  
GPO out of stock NTIS PB #88-245691/AS \$23
- 83 HEALTH HAZARDS OF NITRITE INHALANTS. Harry W. Haverkos, M.D., and John A. Dougherty, Ph.D., eds.  
GPO out of stock NTIS PB #89-125496/AS \$23
- 84 LEARNING FACTORS IN SUBSTANCE ABUSE. Barbara A. Ray, Ph.D., ed.  
GPO Stock #017-024-01353-6 \$6 NTIS PB #89-125504/AS \$31
- 85 EPIDEMIOLOGY OF INHALANT ABUSE: AN UPDATE. Raquel A. Crider, Ph.D., and Beatrice A. Rouse, Ph.D., eds.  
GPO Stock #017-024-01360-9 \$5.50 NTIS PB #89-123178/AS \$31
- 86 COMPULSORY TREATMENT OF DRUG ABUSE: RESEARCH AND CLINICAL PRACTICE. Carl G. Leukefeld, D.S.W., and Frank M. Tims, Ph.D., eds.  
GPO Stock #017-024-01352-8 \$7.50 NTIS PB #89-151997/AS \$31
- 87 OPIOID PEPTIDES: AN UPDATE. Rao S. Rapaka, Ph.D., and Bhola N. Dhawan, M.D., eds.  
GPO Stock #017-024-01366-8 \$7 NTIS PB #89-158430/AS \$45
- 88 MECHANISMS OF COCAINE ABUSE AND TOXICITY. Doris H. Clouet, Ph.D.; Khursheed Asghar, Ph.D.; and Roger M. Brown, Ph.D., eds.  
GPO Stock #017-024-01359-5 \$11 NTIS PB #89-125512/AS \$39
- 89 BIOLOGICAL VULNERABILITY TO DRUG ABUSE. Roy W. Pickens, Ph.D., and Dace S. Svikis, B.A., eds.  
GPO Stock #017-022-01054-2 \$5 NTIS PB #89-125520/AS \$23

90 PROBLEMS OF DRUG DEPENDENCE, 1988: PROCEEDINGS OF THE 50TH ANNUAL SCIENTIFIC MEETING, THE COMMITTEE ON PROBLEMS OF DRUG DEPENDENCE. INC. Louis S. Harris, Ph.D., ed.  
GPO Stock #017-024-01362-5 \$17

91 DRUGS IN THE WORKPLACE: RESEARCH AND EVALUATION DATA. Steven W. Gust, Ph.D., and J. Michael Walsh, Ph.D., eds.  
GPO Stock #017-024-01384-6 \$10                      NTIS PB #90-147257/AS \$39

92 TESTING FOR ABUSE LIABILITY OF DRUGS IN HUMANS. Marian W. Fischman, Ph.D., and Nancy K. Mello, Ph.D., eds.  
GPO Stock #017-024-01379-0 \$12                      NTIS PB #90-148933/AS \$45

93 AIDS AND INTRAVENOUS DRUG USE: FUTURE DIRECTIONS FOR COMMUNITY-BASED PREVENTION RESEARCH. C.G. Leukefeld, D.S.W.; R.J. Battjes, D.S.W.; and Z. Amsel, D.Sc., eds.  
GPO Stock #017-024-01388-9 \$10                      NTIS PB #90-148941/AS \$39

94 PHARMACOLOGY AND TOXICOLOGY OF AMPHETAMINE AND RELATED DESIGNER DRUGS. Khursheed Asghar, Ph.D., and Errol De Souza, Ph.D., eds.  
GPO Stock #017-024-01386-2 \$11                      NTIS PB #90-148958/AS \$39

95 PROBLEMS OF DRUG DEPENDENCE, 1989: PROCEEDINGS OF THE 51ST ANNUAL SCIENTIFIC MEETING. THE COMMITTEE ON PROBLEMS OF DRUG DEPENDENCE, INC. Louis S. Harris, Ph.D., ed.  
GPO Stock #017-024-01399-4 \$21                      NTIS PB #90-237660/AS \$67

96 DRUGS OF ABUSE: CHEMISTRY, PHARMACOLOGY, IMMUNOLOGY, AND AIDS. Phuong Thi Kim Pham. Ph.D., and Kenner Rice, Ph.D., eds.  
GPO Stock #017-024-01403-6 \$8                      NTIS PB #90-237678/AS \$31

97 NEUROBIOLOGY OF DRUG ABUSE: LEARNING AND MEMORY. Lynda Erinoff, Ph.D., ed.  
GPO Stock #017-024-01404-4 \$8                      NTIS PB #90-237686/AS \$31

98 THE COLLECTION AND INTERPRETATION OF DATA FROM HIDDEN POPULATIONS. Elizabeth Y. Lambert. M.S., ed.  
GPO Stock #017-024-01407-9 64.75                      NTIS PB #90-237694/AS \$23

99 RESEARCH FINDINGS ON SMOKING OF ABUSED SUBSTANCES, C. Nora Chiang, Ph.D., and Richard L. Hawks, Ph.D. eds.  
GPO Stock #017-024-01412-5 \$5

100 DRUGS IN THE WORKPLACE: RESEARCH AND EVALUATION DATA. VOL. II. Steven W. Gust, Ph.D., and J. Michael Walsh, Ph.D., eds.

101 RESIDUAL EFFECTS OF ABUSED DRUGS ON BEHAVIOR. John W. Spencer, Ph.D., and John J. Boren, Ph.D., eds.  
GPO Stock #017-024-01426-5 \$6

102 ANABOLIC STEROID ABUSE. Geraline C. Lin, Ph.D., and Lynda Erinoff, Ph.D., eds.  
GPO Stock #017-024-01425-7 \$6

103 DRUGS AND VIOLENCE: CAUSES, CORRELATES, AND CONSEQUENCES. Mario De La Rosa, Ph.D.; Elizabeth Y. Lambert, M.S.; and Bernard Gropper, Ph.D., eds.  
GPO Stock #017-024-01427-3 \$9

104 PSYCHOTHERAPY AND COUNSELING IN THE TREATMENT OF DRUG ABUSE. Lisa Simon Onken, Ph.D., and Jack D. Blaine, M.D., eds.  
GPO Stock #017-024-01429-0 \$4

105 PROBLEMS OF DRUG DEPENDENCE, 1990: PROCEEDINGS OF THE 52ND ANNUAL SCIENTIFIC MEETING, THE COMMITTEE ON PROBLEMS OF DRUG DEPENDENCE, INC. Louis S. Harris, Ph.D., ed.