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THE EFFECT OF CASE MANAGEMENT IN SUBSTANCE ABUSE TREATMENT: ANALYSIS OF SPECIAL POPULATIONS

October 2002

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Center for Substance Abuse Treatment
SAMHSA

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THE EFFECT OF CASE MANAGEMENT IN SUBSTANCE ABUSE TREATMENT: ANALYSIS OF SPECIAL POPULATIONS

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FOREWORD

The mission of the Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA), is to improve the lives of individuals and families affected by alcohol and drug abuse by ensuring access to clinically sound, cost-effective addiction treatment that reduces the health and social costs to our communities and the nation. As part of its mission, CSAT supports the development of innovative treatment approaches, based on sound data and state-of-the-art analyses, and disseminates information on treatment approaches shown to be effective for curbing addiction and related behaviors.

In 1997, CSAT established the National Evaluation Data Services (NEDS) contract to support the CSAT mission. In 2000, through a new contract (Contract No. 270-00-7078), CSAT continued and expanded the scope of NEDS. NEDS activities help to foster collaboration and partnering among the public and private sectors along the Federal-state-local community-based treatment continuum. The three major activities of NEDS, under the current contract, are to assist in developing data infrastructure vehicles and tools, to perform treatment services secondary analyses on existing data, and to support the Government Performance Results Act (GPRA) activities. NEDS, through its Secondary Analysis Technical Reports, provides evidence-based information on substance abuse treatment issues relevant to treatment needs, access, utilization, efficacy, effectiveness, and efficiency. NEDS analyses focus on treatment needs, services received, and populations of interest to the substance abuse treatment field in order to provide new information about which services yield the best outcomes for what types of clients, at what cost. This information helps address treatment issues such as the treatment gap, culturally competent treatment services, and recovery.

This technical report describes the findings of a secondary analysis of the Boston Office of Treatment Improvement (BOTI) data. The analysis assessed whether case management improves treatment outcomes for clients who were homeless, had a dual diagnosis of mental illness, or were involved with the criminal justice system. The research literature suggests that individuals in substance abuse treatment can benefit from case management services in ways that are directly linked to the intended outcomes of treatment. The findings, which show that case management improves substance abuse treatment outcomes for each of the special populations in the analysis, have application within substance abuse treatment specifically and public policy more generally. The findings support the use of case management as standard practice in substance abuse treatment, especially for special populations. They also support public policies that promote case management within substance abuse treatment and that coordinate case management across relevant systems, such as the mental health, housing, Medicaid, and legal systems.

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National Evaluation Data Services (NEDS)

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We would also like to thank the Massachusetts Department of Public Health, Bureau of Substance Abuse Services, for providing access to the Boston Office for Treatment Improvement (BOTI) data, particularly Deborah Klein Walker, Associate Commissioner for Programs and Prevention, and Teresa Anderson, Director of the Office of Statistics and Evaluation, Bureau of Substance Abuse Services, who both lent their support to this project.

ABSTRACT

This analysis examined the impact of case management on outcomes for homeless, dually diagnosed, and criminal justice clients receiving treatment in the publicly funded substance abuse treatment system in Boston, Massachusetts. A retrospective cohort design was used to assess clients in short-term residential, long-term residential, and outpatient treatment and clients receiving detoxification (detox) services. The sample included 4,031 homeless clients, 2,932 dually diagnosed clients, 6,290 criminal justice clients, and a comparison group of 9,572 clients who did not fit into any of the three selected special populations. Logistic regression models were used to analyze the impact of case management on treatment outcomes after controlling for baseline characteristics. The intermediate outcomes assessed were long length of stay, transition to another type of treatment within 30 days of discharge, and admission to detox within 90 days of discharge. Overall, the findings showed that case management improved intermediate outcomes for clients in each of the special population groups as well as for comparison clients. For clients in most of the types of treatment and for those receiving detox, case management improved the odds of longer retention and of transitioning to another level of care when appropriate. The only clients case management protected from the negative outcome of being admitted to detox within 90 days of discharge were homeless clients in short-term residential treatment. The findings of this analysis support the use of case management as standard practice in substance abuse treatment. They also support public policies that coordinate case management across relevant systems, such as the mental health, housing, Medicaid, and legal systems.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This analysis examined whether and how case management affects the outcomes of substance abuse treatment for homeless clients, dually diagnosed clients, and clients involved with the criminal justice system.

1. INTRODUCTION

Case management was introduced into the mental health system to help clients navigate the system and obtain services. Most research on the effects of case management has focused on a specific population in conjunction with a particular system of care. Although some of the research shows that case management has a positive effect on substance abuse treatment outcomes, no studies have assessed outcomes for multiple special populations within the context of the same data set.

Generally, research studies have found that case management improves outcomes for persons with a variety of serious and chronic illnesses, including substance abuse and mental illness. Studies of substance abuse clients in particular report that such clients have better treatment outcomes when all of their problems are addressed concurrently. A few studies of homeless individuals in substance abuse treatment found some positive outcomes resulting from case management, but the improvement in outcomes diminished over time. Studies of individuals with co-occurring substance abuse and mental illness have shown mixed results in terms of outcomes associated with case management. Studies of case management for criminal justice clients in substance abuse treatment have reported reduced substance use and recidivism, longer lengths of stay, fewer legal problems, and greater symptom relief.

This analysis addressed the following questions:

- Does case management improve retention in treatment for clients in short-term residential, long-term residential, and outpatient treatment and those receiving residential detoxification services?
- Does case management increase transition to appropriate levels of care?
- Does case management decrease short-term relapse for clients in short-term residential, long-term residential, and outpatient treatment and clients receiving residential detox services?

Each of these questions was examined in relation to each special population (homeless, dually diagnosed, and criminal justice clients).

2. METHODS

To address the analytic questions, the analysis used admission, case management, and discharge data from the Boston Office for Treatment Improvement (BOTI) demonstration project. BOTI, established in the fall of 1990, was one of eight national Target City demonstration projects funded by the Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA), to design and implement system enhancements to the substance abuse treatment system.

The sample for this analysis included clients discharged between January 1993 and December 1994 from short-term residential, long-term residential, outpatient, and residential detox facilities. Of the total number of clients followed longitudinally (n=20,873), 26 percent received case management services. The sample included 4,031 homeless clients, 2,932 dually diagnosed clients, and 6,290 criminal justice clients. Clients in the special population groups were compared to 9,572 clients who did not fall into any of these special population categories.

The three intermediate measures related to treatment success were:

- Long length of stay
- Transition to another type of treatment within 30 days of discharge
- Admission to detox within 90 days of discharge (a negative outcome suggesting relapse).

Transitioning to another type of treatment within 30 days of discharge was viewed as a successful outcome for detox services and for short-term residential treatment (often an intermediate treatment in the continuum of care) and not a successful outcome for clients in long-term residential and outpatient, types of treatment nearer the end of the continuum of care.

A retrospective cohort design was used. Logistic regression models were used to analyze the association of case management with treatment outcomes after controlling for baseline characteristics.

3. FINDINGS

For each of the special populations, case management improved some or all of the outcomes examined. The rates at which case-managed clients in the special populations achieved positive outcomes were similar to those for the comparison clients with case management.

Within the homeless population, case-managed clients were more likely than non-case-managed clients to stay longer in detox and all types of treatment except outpatient. Homeless clients who received case management in short-term residential treatment and in residential detox were more likely than those who did not receive case management to transition to another level of care within 30 days of discharge. Homeless clients in short-term residential treatment who received case management were less likely to be admitted to detox within 90 days of discharge.

Dually diagnosed clients who received case management in all three types of treatment and in detox had a greater likelihood of staying in services longer, compared to dually diagnosed clients without case management. Dually diagnosed clients receiving case management in residential detox were also more likely to transition to another level of care within 30 days of discharge, compared to their counterparts not receiving case management.

Criminal justice clients with case management were more likely to stay longer in residential detox and in all types of treatment except long-term residential treatment. Those in short-term residential treatment and residential detox who received case management were more likely to transition to another level of care within 30 days of discharge, compared to their counterparts who did not receive case management.

4. SUMMARY AND IMPLICATIONS

Overall, case-managed clients with special needs did as well as case-managed clients without special needs and better than clients not receiving case management. Training, funding, and policies that support case management services might encourage substance abuse treatment providers to adopt case management strategies. Collaboration between the substance abuse field and other public health and social service fields might further improve services and clients' outcomes since case management efforts, and clients' issues, cross fields. An integrated approach could both produce the strongest outcomes and benefit multiple systems and society in general. In-house training regarding case management and appropriate policies and procedures might help providers maximize the benefits of case management services. Finally, the identification of efficient models of case management would be aided by future analyses that explore the specific ways in which case management improves outcomes.

I. INTRODUCTION

I. INTRODUCTION

Case management was introduced as a mechanism to help clients navigate the mental health system of care and obtain needed services (Bachrach, 1981; Mueser, Bond, Drake, & Resnick, 1998). The case manager functions, in theory, as a human link between the client and the community, particularly the maze of organizations and providers in the fragmented system of mental health care (Pescolido, Wright, & Sullivan, 1995). Case management services are expected to address the needs of persons with chronic conditions, such as substance abuse and addiction, who experience impairment due to symptoms, role dysfunction due to periods of disability, and limited opportunity due to disadvantage.

This chapter focuses on issues related to the current analysis, the importance of the analysis, and a review of prior research. It also presents the purpose of the analysis and the organization of the report.

1. ISSUES RELATED TO THE CURRENT ANALYSIS

Most research on the effects of case management has focused on a specific population in a particular system of care, for example, chronic persistent mental illness clients in psychiatric hospitals (Jinnett, Alexander, & Ullman, 2001) or the dually diagnosed substance abuser in substance abuse treatment organizations (Godley et al., 2000). In addition, statistical analyses typically control for client characteristics such as homelessness, dual diagnosis, or criminal justice involvement.

The purpose of this analysis was to analyze the effect of case management on outcomes for clients who arrived in the substance abuse treatment system from very different circumstances. There is a lack of evidence of outcome differences for multiple special populations within the context of the same study. Data from the Boston Office on Treatment Improvement (BOTI) study, funded by the Center for Substance Abuse Treatment (CSAT) in the Substance Abuse and Mental Health Services Administration (SAMHSA), were analyzed in this report to compare outcomes for clients from different circumstances in the same system of care. The only differences among groups were the circumstances in which clients arrived at substance abuse treatment (e.g., being homeless, dealing with other mental illness, or being involved with the criminal justice system). In this way, clients who were homeless, had mental illness in addition to their substance abuse, or were involved with the criminal justice system were assessed separately to address the question of the effect of case management on outcomes.

2. IMPORTANCE OF THE ANALYSIS

An understanding of how case management affects outcomes for special populations in the substance abuse treatment system can guide treatment providers in designing and implementing services, policymakers in funding and supporting services, and analysts and evaluators in designing and conducting new analyses and evaluations. Results from this analysis can help treatment providers improve their services by helping to determine the value of case management services for special populations enrolled in treatment. Similarly, a better understanding of the value of case management for special populations can help policymakers in the substance abuse treatment system target policies and funding strategies. Moreover, policymakers across state systems need to understand the value of case management and to begin to think about how they can collaborate to fund and promote services that improve outcomes for clients in their systems. An analysis of this type has not been presented previously in the literature, so analysts and evaluators will have new information with which to move the field forward.

3. REVIEW OF PRIOR RESEARCH

Alcohol and other drug dependence affects many areas of an individual's life. Case management services for individuals in substance abuse treatment are expected to address a range of needs, including housing issues, co-occurring illnesses, and legal issues. Case management addresses these needs and many others by (1) actively coordinating and following up on the client's ongoing substance abuse and mental health treatment, thereby reducing his or her impairment due to substance abuse or addiction/mental health issues; (2) training the client in psychosocial rehabilitation and social skills to increase his or her psychosocial functioning; and (3) brokering resources to open up a broader range of financial, employment, and social opportunities for the client.

Although different models and definitions of case management exist, general agreement has emerged concerning the basic service elements that case management should incorporate, including outreach, assessment, treatment plan development, arranging for service delivery (either directly or through referral), and monitoring and assessment of services (Holloway, Oliver, Collins, & Carson, 1995). Case management services vary, however, in comprehensiveness and intensity (Chamberlin & Rapp, 1991; Eggert, Zimmer, Hall, & Freidman, 1991; Graham & Birchmore-Timney, 1989). This analysis focused on the outcomes of case management.

Case management services have been studied in relation to a wide variety of outcomes, including hospitalization, costs of care, use of other substance abuse or mental health services, and client outcomes such as symptomatology, social functioning, compliance with treatment, residential stability, and quality of life (Eggert et al., 1991; Holloway et al., 1995; Scott & Dixon, 1995; Solomon, 1992). Researchers generally agree that exposure to case management services is a critical component of care for persons with a variety of serious and chronic illnesses, including substance abuse and mental illness (Gorey et al., 1998; Lamb, 1995; Mueser et al., 1998). In fact, other researchers suggest that some of the inconsistent results reported in the literature result from such study limitations as inadequate follow-up time to measure change (Holloway et al., 1995) and inadequate attention to the amount of case management provided (Scott & Dixon, 1995).

In general, prior studies examining the effect of case management on substance abuse treatment outcomes report that clients have better treatment outcomes when all of their problems are addressed concurrently (Seigal, 2001), which is the purpose of case management. These studies address improving access to health services (Godley et al., 2000), reducing societal costs (Jerrell, Hu, & Ridgely, 1994), reducing hospitalizations (Okin et al., 2000), reducing other medical and criminal justice costs (Jerrell & Hu, 1996), and strengthening links to community services (Witbeck, Hornfeld, & Dalack, 2000). This evidence suggests that those with substance abuse problems can benefit from case management activities in a way that is directly linked to the intended outcomes of treatment.

The purpose of this analysis is to assess the impact of case management on substance abuse treatment outcomes with an emphasis on the special populations of homeless individuals, dually diagnosed individuals, and individuals involved with the criminal justice system. The following sections review prior research, by population, in terms of whether case management was found to improve treatment outcomes.

3.1 Case Management for Homeless Individuals

Case management has been an addition to the services targeted to the homeless since 1980 (Morse, 1999). According to Morse, the homeless with serious mental illness have been of particular interest because their needs for services are exacerbated by their mental health issues. Little is known about homeless individuals with substance abuse disorders: most studies of the effectiveness of case management for the homeless are of homeless clients with serious mental illness. In a review of the literature for the National Symposium on Homelessness Research, Morse found that 8 of the 10 studies of the effectiveness of case management for the homeless with mental illness that were reviewed showed positive client outcomes resulting from case

management. In comparison, for homeless individuals with serious mental disorders, case management was found to be less effective than interventions made as part of the Assertive Community Treatment (ACT) project, an aggressive outreach project (Morse et al., 1997).

Case management services for homeless individuals with substance abuse issues without a dual diagnosis have been evaluated as well. Cox et al. (1998) found that intensive case management helped the chronic public inebriates in his study in three targeted areas of intervention: total income from public sources increased, the number of nights spent at the client's own place of residence in the past 60 days increased, and the number of days drinking in the previous 30 days decreased. Conrad et al. (1998) found improvements for a group of homeless addicted veterans in case management residential care in the areas of addiction, alcohol and drug use, housing, employment, and use of medical services. These improvements diminished during the follow-up year, however. No differences were found for legal or psychiatric factors.

3.2 Case Management for Dually Diagnosed Individuals

The existing literature that is current on the effect that case management has on clients with mental illness is largely about those who are homeless and have a mental illness. A few current studies exist, however, that address clients with dual diagnosis who are not homeless. These studies show mixed results for outcomes associated with case management. D'Ercole, Struening, Curtis, Millman, & Morris (1997) found that case management did not improve outcomes for clients except in the case of the special diagnosis of schizophrenia. The Assertive Community Treatment project model provided better outcomes than case management for clients with dual diagnoses of mental illness and substance abuse (Teague, Drake, & Ackerson, 1995). In another study, behavioral skills training produced better outcomes for these clients than did case management overall, although case management did have some good outcomes that were not statistically significant (Jerrell & Ridgely, 1995). Havassey, Shopshire, & Quigley (2000) found that case management helped those with mental illness diagnoses but not those with a dual diagnosis of substance abuse and mental illness.

3.3 Case Management for Individuals Involved with the Criminal Justice System

Treatment Alternatives for Safe Communities (TASC), developed in 1972, is one model of case management for individuals involved with the criminal justice system and represents one of the first attempts to develop a case-management-style system for offenders who have substance abuse problems. It coordinates substance abuse treatment services with the criminal justice system. Originally known as Treatment Alternatives for Street Crime, TASC was

established and funded by the Drug Abuse Office and Treatment Act of 1972 (Bureau of Justice Assistance, 1999). Although Federal funding ended in 1982 (Cook & Weinman, 1988), 185 TASC programs continue to operate in some states and are funded by state and local organizations (Seigal, 2001). TASC programs perform case management activities by identifying substance abusers in the courts and referring them to community-based services. TASC monitors the progress of these clients and aids in the imposition of sanctions, if deemed appropriate, to hold clients accountable for their participation and outcomes (Bureau of Justice Assistance, 1999).

The Treatment Outcomes Prospective Study (TOPS) analyzed the impact of TASC compared to other criminal justice involvement and no criminal justice involvement on outcomes for clients in residential and outpatient substance abuse treatment. TOPS found that TASC and other criminal justice involvement produced longer lengths of stay, which are associated with better outcomes (Hubbard, Collins, Rachal, & Cavanaugh, 1988).

TASC has been modified, of late, to include services for persons with mental illness in a rural demonstration project (Godley et al., 2000). The study had very few cases as it was a pilot project. Participants in the project showed significantly fewer legal problems and greater symptom relief at the six-month follow-up, compared to clients' legal problems and symptoms at baseline.

The National Institute of Justice (NIJ) and the National Institute on Drug Abuse (NIDA) funded an evaluation of a case management intervention for drug-involved arrestees in two cities (Rhodes & Gross, 1997). After the six-month case management intervention was delivered to drug-involved arrestees, drug use was reduced in one of the two cities, and criminal recidivism was reduced in both cities.

4. PURPOSE AND PARAMETERS OF THIS ANALYSIS

This analysis was conducted to evaluate the impact of case management on special populations of clients receiving treatment in the publicly funded substance abuse treatment system. The special populations of interest were homeless, dually diagnosed, and criminal justice clients. Earlier research shows that case management is correlated with better outcomes for substance abuse clients in general. This analysis, however, examined the effect of case management for clients with distinct needs. It closes gaps in the literature by analyzing all of these populations from one demonstration project within one city, an approach that controls for possible geographic effects that may confound other evaluations and adds the advantage of including a large sample of treatment facilities and clients.

For each of the special populations, the analysis addressed the following questions:

- Does case management increase retention for clients in short-term residential, long-term residential, and outpatient treatment and clients receiving residential detoxification services?
- Does case management increase transition to appropriate levels of care for clients in short-term residential treatment and residential detox? (Transition to other levels of care are generally not desired in long-term residential and outpatient treatment.)
- Does case management decrease short-term relapse for clients in short-term residential, long-term residential, and outpatient treatment and clients in residential detox?

The sample included clients discharged between January 1993 and December 1994 from short-term residential, long-term residential, outpatient, and residential detox facilities in the project. Of the total number of clients followed longitudinally (n=20,873), 26 percent received case management services. The sample included 4,031 homeless clients, 27 percent of whom received case management services; 2,932 dually diagnosed clients, 28 percent with case management services; and 6,290 criminal justice clients, 23 percent with case management services. Clients in the special population groups were compared to 9,572 clients who did not fall into any of these special population categories, 27 percent of whom received case management services. A retrospective cohort design was used to analyze the clients. Logistic regression models were used to analyze the association of case management with treatment outcomes after controlling for baseline characteristics.

5. ORGANIZATION OF THIS REPORT

An overview of prior research was presented in this chapter. Chapter II provides a detailed account of the data set and methods used in the analysis. The findings of the analysis are discussed in Chapter III. Chapter IV provides a summary of the analysis and discusses its implications.

II. METHODS

II. METHODS

This chapter describes the data used in the analyses and the analytic approach employed. The study that originally generated the data is described, as are the sample, information about the clients, the outcome measures, the statistical analyses, and the constraints of the data.

1. DATA SOURCE

The data for this analysis come from the admission, case management, and discharge data from the Boston Office for Treatment Improvement (BOTI) demonstration project. The data were collected between the fall of 1990 and December 1994. BOTI, established in the fall of 1990, was one of eight national Target City demonstration projects funded by CSAT to design and implement system enhancements to the substance abuse treatment system (Shwartz, Baker, Mulvey, & Plough, 1997a). The Massachusetts Department of Public Health (MDPH) Bureau of Substance Abuse Services (BSAS) granted access to the authors to analyze these data.

2. SAMPLE

The publicly funded treatment providers participating in the BOTI project consisted of 3 short-term (less than 30 days) residential facilities, 19 long-term residential facilities (average length of stay was 6 months), 19 outpatient facilities, 4 residential detoxification (detox) facilities, 3 acupuncture detox facilities, and 5 methadone facilities. The sample for this analysis included clients discharged between January 1993 and December 1994 from the short-term residential, long-term residential, outpatient, and residential detox facilities. To avoid problems with correlated observations, we included only the last discharge of a client from each type of service, an approach that resulted in the following sample sizes (since clients could have multiple admissions and discharges, the number in parentheses is the percentage of clients in the sample relative to the total number of discharges from the type of service over the two-year period):

- 3,114 short-term residential clients (81%)
- 2,891 long-term residential clients (87%)
- 7,164 outpatient clients (83%)
- 7,704 residential detox clients (53%).

The percentage of clients drawn from residential detox services is lower than the percentages of clients from each of the types of treatment because of the much higher rates of readmission to detox services.

Of the total number of clients followed longitudinally (n=20,873), 26 percent received case management services. Case management status was derived from case management data collected for the BOTI project. Clients were coded as receiving case management ("yes") if

they had any case management at all during the project. Case management services consisted of activities focused on linking the client to services and coordinating services to increase the likelihood of successful treatment outcomes. These services, which were client-centered and goal-oriented, included assessing needs for services and working with clients to obtain and maintain continuity of services.

Exhibit II-1 details the number and percentage of clients receiving case management services, by special population and type of service. Overall, there were 4,031 homeless clients, 27 percent of whom received case management services. Among the 2,932 dually diagnosed clients, 28 percent received case management services. Of the 6,290 criminal justice clients, 23 percent received case management services. Finally, clients in the special population groups were compared to 9,572 clients who did not fall into any of these special population categories, 27 percent of whom received case management services. The special populations were identified as part of the admission process screening procedure, which included questions about life situations. This initial assessment included questions on living arrangements, prior medical diagnoses and treatment, and criminal justice contact. Homeless clients were defined as individuals living on the streets or in a homeless shelter at the time of admission. Dually diagnosed clients were defined as individuals with one or more mental health hospitalizations in their lifetime or having a prescribed medication for emotional or psychological problems during the past year. Criminal justice clients were defined as being a prisoner, probationer, or parolee; being referred to treatment by a professional in the criminal justice system; or being on bail awaiting sentencing or in jail awaiting sentencing at the time of admission. All other clients were included in the comparison group. Although some of the comparison clients may have had life situations that approached those of the special populations as defined, these issues were not evident to the extent that they were for clients who fell into the special population categories. Note that some of the clients in the special populations may have been included in more than one special population category if they met the criteria for multiple categories.

EXHIBIT II-1
CLIENTS BY POPULATION, TYPE OF SERVICE, AND CASE MANAGEMENT (CM) STATUS

Population	Type of Service																Total			
	Short-term Residential				Long-term Residential				Outpatient				Detox							
	CM		No CM		CM		No CM		CM		No CM		CM		No CM		CM		No CM	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Homeless	290	42	387	58	387	70	169	30	54	12	404	88	375	16	1,954	84	1,106	27	2,925	73
Dually Diagnosed	256	47	290	53	273	60	185	40	170	16	881	84	134	15	743	85	833	28	2,099	72
Criminal Justice	353	53	315	47	640	71	265	29	253	7	3,359	93	204	18	901	82	1,450	23	4,840	77
Comparison	680	44	854	56	925	69	420	31	321	12	2,277	88	674	16	3,421	84	2,600	27	6,972	73
Total*	1,429	46	1,685	54	1,981	69	910	31	734	10	6,430	90	1,263	16	6,441	84	5,407	26	15,466	74

*The total is not a sum of the column since some clients may be in multiple special populations if they meet the eligibility requirements for each group.

3. INFORMATION ABOUT CLIENTS

The admission and discharge forms used for the project were the same forms used in the MDPH BSAS Substance Abuse Treatment Management Information System (SAMIS) (Camp, Krakow, McCarty, & Argeriou, 1992). The admission form collects standard socio-demographic information, employment information, information on living situation, public assistance and health insurance status, treatment service history, and patterns of substance abuse. Relevant variables from the discharge form were discharge date and whether the client completed treatment or detox. Both forms had an encrypted client code that allows linkage of admission and discharge records over time. To track out-of-Boston admissions, analysts from the BOTI project merged their data with data from MDPH BSAS SAMIS, which used the same encrypted client identification number as the BOTI management information system.

The specific variables from the admission form that were used as potential covariates in multivariate models were:

- Gender
- Race/Ethnicity (white, black, Latino, Asian, other)
- Age
- Employment (coded yes/no)
- Income (coded as "no income" for under $1,000 or "some income" for $1,000 or more per year)
- Education (college graduate, high school graduate only, not a high school graduate)
- Residence (shelter/street, institution/boarding house, private residence)
- Living situation (living with child, living with other adult but no child, living alone)
- Insurance status (no insurance, Medicaid, private, other)
- Prior mental health hospitalizations (coded as yes/no)
- Primary substance (alcohol, cocaine, crack, heroin, or marijuana)
- Substance abuse treatment history.

The data come from an administrative database, from forms completed by clinicians with the clients as part of intake and discharge. Substance abuse treatment history included prior detox services and prior residential, outpatient, methadone, drunk driving, and other treatment, all coded as yes/no on the basis of any past treatment experience.

The number of admissions to each type of service received in Massachusetts in the year preceding each index admission was extrapolated from the admission data (determined from the management information system by linking admission records on the same client and coded as 0, 1, or 2 or more prior admissions). Additionally, the admission data were used to create a substance abuse severity score, as described by Caspi and colleagues (Caspi, Turner, Panas, McCarty, & Gastfriend, 2001). The substance abuse severity score was derived from admission data by combining age of first use, last regular use, and frequency of last regular use of cocaine (including crack), heroin, and alcohol. The scores range between 0 (no use of any of the drugs) and 100 (most severe use), with a mean of 47.3 and a median of 48.9. The standard deviation is 20.9. The quartiles are:

- Quartile 1 = 28.9
- Quartile 2 = 48.9
- Quartile 3 = 60.0
- Quartile 4 = 100.0.

The measure was validated against the Addiction Severity Index (ASI) and correlates well with the ASI severity composite score and interviewers' severity ratings (Caspi et al., 2001).

4. OUTCOME MEASURES

Ideally, the outcome measures would include an indicator of long-term abstinence or recovery. Since this analysis used administrative data from a past demonstration project, however, it was limited to the data contained in the data set. For this reason, three intermediate measures related to treatment success were selected:

- Long length of stay
- Transition to another type of treatment within 30 days of discharge
- Admission to detox within 90 days of discharge (a negative outcome suggesting relapse).

Transitioning to another type of treatment within 30 days of discharge was viewed as a successful outcome for clients in detox and clients in short-term residential treatment, which is

often an intermediate treatment in the continuum of care. Transitioning to another type of treatment within 30 days of discharge was not viewed as a successful outcome for clients in long-term residential and outpatient treatment, types of treatment nearer the end of the continuum of care.

Length of stay is used as an intermediate outcome, since longer lengths of time in treatment are correlated with positive treatment outcomes (Shwartz, Mulvey, Woods, Brannigan, & Plough, 1997b; Hubbard et al., 1988). In an earlier analysis, the relationship between length of stay in treatment and treatment completion status was used to develop length of stay categories for each type of treatment such that clients in the long-stay category had high completion rates (Shwartz et al., 1997b). Long length of stay was defined as:

- 26 or more days in short-term residential treatment
- 120 or more days in long-term residential treatment
- 140 or more days in outpatient treatment
- 6 or more days in detox.

Clients who stayed for these lengths of time had completion rates of about 90 percent in short-term residential treatment, 80 percent in long-term residential treatment, 30 percent in outpatient treatment (which was high only in relation to shorter-stay clients, whose completion rate was around 5%), and 85 percent in detox. Once the cutoff time had been reached, staying longer in treatment bought little in terms of increased odds of completion. For example, clients in the long-stay category had much lower odds of being readmitted to detox in the two years following discharge and, with the exception of detox clients, much lower odds of being readmitted for further treatment over the subsequent two years. Detox clients in the long-stay category had higher odds of being admitted to post-detox treatment, consistent with the role of detox as a stepping stone into treatment.

5. STATISTICAL ANALYSES

Chi-square tests were used to analyze the strength of the relationship between client characteristics at admission and the likelihood of case management, as well as the relationship between case management and each intermediate outcome variable: long length of stay, transition to another type of treatment within 30 days of discharge, and admission to detox within 90 days of discharge.

Logistic regression models were used to analyze the association of case management with the outcome variables after adjusting for differences in baseline client characteristics. Twelve

separate models were run for each special population and the comparison group (three outcome variables by each of the four types of services). Independent variables were client characteristics at admission and a dummy variable for case management status (case management versus no case management). The odds ratios and 95-percent confidence intervals of the case management variable are reported.

A previous analysis went beyond the distinction between case management and no case management and also included level of case management, using two measures: (1) the total amount of case management time spent per client (time spent on various client activities was recorded in case management logs) and (2) time per client divided by length of stay in treatment (Shwartz et al., 1997a). The second measure adjusted for the fact that a case-managed client who stayed in treatment longer was likely to receive more total case management time. For each measure, the group of case-managed clients in each type of treatment was divided into approximate thirds, representing low, medium, and high intensity. We then examined the relationship between the level of case management intensity and the three outcome measures for all clients. Overall, the findings were similar to those for the dichotomous case management/no case management. For this reason, the current analysis focuses only on the distinction of case management.

6. CONSTRAINTS OF THE DATA

Because submission of the admission form was necessary for state reimbursement, most admissions were recorded. Discharge data were less reliably submitted, particularly for clients in outpatient treatment. For short-term residential treatment and detox services, over 97 percent of admissions had discharge forms. For long-term residential treatment, over 88 percent of admissions had discharge forms. For outpatient treatment, however, only 65 percent of admissions had completed discharge forms. Only clients with admission and discharge data were included in the analysis. The data have not been analyzed to determine if clients who dropped out of treatment were more likely to be missing discharge forms and, therefore, excluded from the analysis. If this is the case, however, the results may be skewed to underestimate the impact of case management if clients with case management have higher odds of reaching the long length of stay category, which correlates highly with completion.

Additionally, although clients were tracked in the MDPH SAMIS, the analyses missed subsequent admissions to substance abuse treatment in other states. Based on the data, there is no reason, however, to believe that some clients used treatment services in other states more than other clients.

III. FINDINGS

III. Findings

This chapter presents the findings of the analysis organized in four sections, one for each of the special populations. Homeless clients are described first, followed by dually diagnosed clients, clients involved in the criminal justice system, and clients in the comparison group. Each of these populations was examined in the context of the following four types of services received and the three intermediate outcomes:

- Clients in short-term residential treatment
- Clients in long-term residential treatment
- Clients in outpatient treatment
- Clients receiving detoxification services
- Retention in treatment
- Transition to appropriate levels of care
- Short-term relapse.

Within each special population or comparison group, clients who received case management services are compared to those in the same group who did not receive case management services.

1. HOMELESS CLIENTS

Exhibit III-1 presents characteristics of the homeless client population, by type of service and case management status. Overall, there were 4,031 homeless clients, 27 percent of whom received case management services. Eight out of ten (81%) homeless clients were male, nearly half (49%) were white, and two out of five (38%) were black. Nearly all (95%) were unemployed, and seven out of ten (69%) had no health insurance. Two out of five (40%) had not graduated high school, and another 55 percent had no education beyond high school. Fewer than one out of ten clients (8%) reported prior mental health hospitalizations. Half of the clients (51%) reported alcohol as their primary substance of abuse, 18 percent reported heroin, 15 percent cocaine, and 13 percent crack.

Higher proportions of homeless clients received case management in short-term and long-term residential treatment (42% and 70%, respectively) than in outpatient treatment and detox (12% and 16%, respectively). Homeless clients receiving case management services were more likely than those not receiving case management to be:

- Women (23% versus 18%)
- Non-white (55% versus 50%)
- Uninsured (74% versus 68%)

- In detox in the last year (62% versus 53%)
- In short-term residential treatment in the last year (21% versus 13%)
- In outpatient treatment in the last year (23% versus 18%).

Homeless clients receiving case management services were less likely than those not receiving case management to report alcohol as their primary substance of abuse (45% versus 53%). Finally, homeless clients receiving case management services had significantly higher substance abuse severity scores than those not receiving case management (51.6 case managed versus 49.8 not case managed).

The remainder of this section describes the homeless clients in each of the types of treatment and in detox and for each of the three intermediate outcomes.

1.1 Homeless Clients in Short-term Residential Treatment

Of the 688 homeless clients in short-term residential treatment, 42 percent received case management services. Those receiving case management services were more likely than those not receiving case management services to:

- Be female (32% versus 20%)
- Report crack as their primary substance of abuse (22% versus 14%).

Homeless clients in short-term residential treatment who received case management were less likely than those not receiving case management to report alcohol as their primary substance of abuse (39% versus 46%).

1.2 Homeless Clients in Long-term Residential Treatment

A total 556 homeless clients were in long-term residential treatment. Seven out of ten homeless clients in long-term residential treatment (70%) received case management services (see Exhibit III-1). Those receiving case management were less likely than those not receiving case management to:

- Be white (51% versus 62%)
- Have prior mental health hospitalizations (5% versus 19%)
- Have had a previous long-term residential admission in the past year (18% versus 28%).

Conversely, those receiving case management services were more likely than those not receiving case management to be Latino (13% versus 4%).

EXHIBIT III-1
CHARACTERISTICS OF HOMELESS CLIENTS,* BY TYPE OF SERVICE AND CASE MANAGEMENT (CM) STATUS

	Short-term Residential (n=688) %		Long-term Residential (n=556) %		Outpatient (n=458) %		Detox (n=2,329) %	
Characteristics	**CM**	**No CM**	**CM**	**No CM**	**CM**	**No CM**	**CM**	**No CM**
CM status	42	58	70	30	12	88	16	84
Female	32**	20	13	10	15	20	27**	17
Race/Ethnicity								
White	45	48	51**	62	57**	41	36**	51
Black	45	40	34	31	22**	45	52**	35
Latino	8	9	13**	4	15	12	9	10
Unemployed	97	96	94	92	91	91	96	97
Not a high school graduate	38	37	36	34	44	43	37	41
Living with child	3	1	3	1	0	7	< 1	1
No insurance	73	74	82	75	59	66	69	66
With Medicaid	16	18	11	10	24	25	26	27
With prior mental health hospitalizations	8	9	5**	19	24**	10	5	7
Primary substance								
Alcohol	39**	46	47	54	61**	46	46**	56
Cocaine	17	19	16	22	17	22	16	12
Crack	22**	14	16	8	2	9	21*	11
Heroin	19	21	19	14	20	14	14	20
Prior treatment in last year								
1 detox admission	41	31	31	27	28	18	23	21
2+ detox admissions	39	47	35	40	20	16	25**	30
1 short-term residential admission	14	18	26	27	7	8	10	8
1 long-term residential admission	15	17	18	28**	18**	12	12	11
1 outpatient admission	18	16	22	17	17	14	16	14
Average drug severity score ***	51.9	52.1	52.5	51.6	44.9	44.5	51.3	50.3

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**Difference is statistically significant at .05 level.
***See Caspi et al., 2001.

1.3 Homeless Clients in Outpatient Treatment

Of the 458 homeless clients in the analysis receiving outpatient treatment, 12 percent received case management services (see Exhibit III-1). In outpatient treatment, homeless clients who received case management services were more likely to:

- Be white (57% versus 41%)
- Have prior mental health hospitalizations (24% versus 10%)
- Report alcohol as their primary substance of abuse (61% versus 46%)
- Have had one admission to long-term residential treatment in the past year (18% versus 12%).

Among the homeless clients in outpatient treatment, case-managed clients were less likely than those without case management to be black (22% versus 45%).

1.4 Homeless Clients Receiving Detoxification Services

Overall, 2,329 homeless clients in the analysis were receiving detox services; 16 percent of these clients received case management services (see Exhibit III-1). Those who received case management were more likely than those not receiving case management to:

- Be female (27% versus 17%)
- Be black (52% versus 35%)
- Report crack as their primary substance of abuse (21% versus 11%).

Conversely, those receiving case management were less likely to:

- Be white (36% versus 51%)
- Report alcohol as their primary substance of abuse (46% versus 56%)
- Have had two or more prior detox admissions in the past year (25% versus 30%).

On all other characteristics being studied, homeless clients in detox receiving case management services were similar to homeless clients in detox not receiving case management services.

1.5 Retention of Homeless Clients

Exhibit III-2 shows the percentage of homeless clients who achieved a long length of stay as a function of case management. In all types of services except outpatient treatment, case-

managed homeless clients were more likely than non-case-managed homeless clients to achieve a long length of stay. In short-term residential treatment, nearly half of all case-managed homeless clients (48%) stayed 26 days or more, whereas only one out of seven homeless clients without case management (15%) stayed that long. One out of three case-managed homeless clients in long-term residential treatment (33%) stayed 120 days or more, compared to 22 percent of homeless clients who did not receive case management services. In residential detox, seven out of ten case-managed homeless clients (72%) stayed six or more days, while only half (49%) of homeless clients in detox without case management remained that long.

Exhibit III-3 presents the unadjusted odds ratios associated with case management for all homeless clients (derived from the probabilities shown in Exhibit III-2) and the adjusted estimates of the impact of case management from the multivariate models. With the exception of outpatient treatment, the odds that case-managed homeless clients would achieve a long length of stay were 1.8 times (long-term residential) to 5.7 times (short-term residential) higher than for non-case-managed homeless clients.

EXHIBIT III-2
PERCENTAGE OF HOMELESS CLIENTS* EXPERIENCING INDICATED OUTCOMES AS A FUNCTION OF CASE MANAGEMENT (CM) STATUS, BY TYPE OF SERVICE

Type of Service	CM Status	Outcome		
		Long Length of Stay	Transition to Treatment within 30 days	Admission to Detox within 90 days
Short-term residential treatment	CM	48.3**	40.7**	16.2**
	No CM	14.6	25.9	23.1
Long-term residential treatment	CM	33.1**	07.5	17.0
	No CM	22.5	05.9	22.5
Outpatient treatment	CM	53.7	07.4	14.8
	No CM	44.1	08.7	12.6
Detox services	CM	71.7**	35.7**	12.0
	No CM	48.7	23.5	13.5

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**$p < .05$.

EXHIBIT III-3 EFFECT OF CASE MANAGEMENT ON OUTCOMES FOR HOMELESS CLIENTS,* BY TYPE OF SERVICE		
	Odds Ratios with 95% Confidence Intervals	
Type of Service and Outcome	**Unadjusted**	**Adjusted**
Short-term residential treatment		
Long length of stay	5.47 (3.81, 7.85)	5.71 (3.88, 8.38)
Transition to treatment within 30 days	1.96 (1.42, 2.72)	2.32 (1.63, 3.32)
Admission to detox within 90 days	0.64 (0.44, 0.95)	0.70 (0.46, 1.07)
Long-term residential treatment		
Long length of stay	1.70 (1.12, 2.59)	1.82 (1.16, 2.87)
Transition to treatment within 30 days	1.29 (0.61, 2.71)	1.25 (0.56, 2.79)
Admission to detox within 90 days	0.71 (0.45, 1.11)	0.92 (0.55, 1.53)
Outpatient treatment		
Long length of stay	1.47 (0.83, 2.60)	1.42 (0.73, 2.76)
Transition to treatment within 30 days	0.84 (0.29, 2.47)	1.00 (0.31, 3.26)
Admission to detox within 90 days	1.20 (0.54, 2.69)	0.79 (0.30, 2.05)
Detox services		
Long length of stay	2.67 (2.10, 3.40)	2.34 (1.83, 3.01)
Transition to treatment within 30 days	1.81 (1.43, 2.29)	1.57 (1.22, 2.01)
Admission to detox within 90 days	0.87 (0.62, 1.22)	1.07 (0.75, 1.53)

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.

1.6 Transition to Appropriate Levels of Care for Homeless Clients

Homeless clients in short-term residential treatment and in detox who received case management services were more likely to transition to other appropriate levels of care than those who did not receive case management services (see Exhibits III-2 and III-3). Two out of five case-managed homeless clients in short-term residential treatment (41%) transitioned to another level of care within 30 days of discharge, compared to 26 percent of homeless clients in short-term residential treatment who did not receive case management (see Exhibit III-2). The odds of case-managed homeless clients in short-term residential treatment transitioning to another level of care were 2.3 times higher than for non-case-managed homeless clients in this type of treatment (see Exhibit III-3).

Similarly, more than one out of three case-managed homeless clients in detox (36%) transitioned to another level of care within 30 days of discharge, compared to 24 percent of homeless clients without case management (see Exhibit III-2). The odds of transitioning to another level of care were 1.6 times higher for homeless clients with case management than for homeless clients without case management (see Exhibit III-3). There were no significant differences in transitions to other levels of care for homeless clients in long-term residential treatment and outpatient treatment.

1.7 Short-term Relapse for Homeless Clients

Homeless clients in short-term residential treatment receiving case management were less likely to enter detox within 90 days of discharge than those clients without case management; 16 percent of case-managed homeless clients entered detox within 90 days, compared to 23 percent of non-case-managed homeless clients (see Exhibits III-2 and III-3). Within all other types of services, there were no significant differences in detox admissions within 90 days of discharge between case-managed and non-case-managed homeless clients.

2. DUALLY DIAGNOSED CLIENTS

Exhibit III-4 presents characteristics of the dually diagnosed client population by type of service and case management status. Overall, there were 2,932 dually diagnosed clients, 28 percent of whom received case management services. Two out of three (64%) dually diagnosed clients were male, two out of three (64%) were white, and one out of four (26%) was black. Nearly all (90%) were unemployed. Two out of five (40%) had no health insurance, and another two out of five (40%) were on Medicaid. One out of three (34%) had not graduated high school, and another 57 percent had no education beyond high school. One out of five (19%) was homeless, and two out of five (43%) lived alone. Half of these clients (52%) reported alcohol as their primary substance of abuse, 16 percent reported heroin, 15 percent cocaine, and 11 percent crack.

Higher proportions of dually diagnosed clients received case management in short-term and long-term residential treatment (47% and 60%, respectively) than in outpatient treatment and detox (16% and 15%, respectively). In the dually diagnosed population, clients receiving case management services were more likely than those not receiving case management services to:

- Be women (41% versus 35%)
- Be uninsured (47% versus 38%)
- Have been in short-term residential treatment once in the last year (13% versus 8%).

Dually diagnosed clients receiving case management services were less likely than those not receiving case management services to report alcohol as their primary substance of abuse (47% case managed versus 54% not case managed). Finally, dually diagnosed clients receiving case management services had significantly higher substance abuse severity scores than those who were not receiving case management (50.0 versus 47.6).

The remainder of this section describes the dually diagnosed clients in each of the types of services and for each of the three intermediate outcomes.

2.1 Dually Diagnosed Clients in Short-term Residential Treatment

There were 546 dually diagnosed clients in short-term residential treatment, 47 percent of whom received case management services (see Exhibit III-4). In short-term residential treatment, dually diagnosed clients receiving case management services were more likely than those not receiving case management to be female (57% versus 47%) and uninsured (59% versus 49%).

2.2 Dually Diagnosed Clients in Long-term Residential Treatment

There were 458 dually diagnosed clients in long-term residential treatment. Six out of ten dually diagnosed clients in long-term residential treatment (60%) received case management services (see Exhibit III-4). Clients receiving case management were less likely than those without case management to be homeless (19% versus 25%).

2.3 Dually Diagnosed Clients in Outpatient Treatment

Of the 1,051 dually diagnosed clients receiving outpatient treatment, 16 percent received case management services (see Exhibit III-4). There were no statistically significant differences between case-managed and non-case-managed dually diagnosed clients in outpatient treatment.

2.4 Dually Diagnosed Clients Receiving Detoxification Services

Overall, 877 dually diagnosed clients in the analysis were receiving detox services, and 15 percent of these clients also received case management services (see Exhibit III-4). Dually diagnosed clients in detox receiving case management services were more likely than those not receiving case management services to:

- Be women (45% versus 30%)
- Be black (50% versus 34%)
- Report crack (18% versus 11%) and cocaine (18% versus 14%) as their primary substances of abuse.

Conversely, these clients were less likely to:

- Be white (39% versus 56%)
- Report alcohol as their primary substance of abuse (40% versus 56%).

Additionally, case-managed dually diagnosed clients in detox had significantly higher substance abuse severity scores than those who were not case managed (54.2 versus 49.3).

EXHIBIT III-4
CHARACTERISTICS OF DUALLY DIAGNOSED CLIENTS,* BY TYPE OF SERVICE AND CASE MANAGEMENT (CM) STATUS

	Short-term Residential (n=546) %		Long-term Residential (n=458) %		Outpatient (n=1,051) %		Detox (n=877) %	
Characteristics	**CM**	**No CM**	**CM**	**No CM**	**CM**	**No CM**	**CM**	**No CM**
CM status	47	53	60	40	16	84	15	85
Female	57**	47	19	14	47	39	45**	30
Race/Ethnicity								
White	68	58	68	76	74	69	39**	56
Black	25	32	19	17	16	21	50**	34
Latino	5	6	10	4	8	8	10	8
Unemployed	94	98	95	96	83	81	96	93
Not high school graduate	32	37	37	29	38	31	45	37
Living in shelter or on the streets	16	23	19**	25	11	7	36	32
Living with child	14	14	15	10	18	16	12	7
No insurance	59**	49	50	55	36	33	34	35
With Medicaid	26	30	23	18	42	40	50	56
Primary substance								
Alcohol	41	39	50	56	57	56	40**	56
Cocaine	13	18	16	13	18	14	18**	14
Crack	23	19	6	6	8	8	18**	11
Heroin	20	21	18	14	9	13	20	18
Prior treatment in last year								
1 detox admission	27	30	27	21	12	12	22	22
2+ detox admissions	26	33	23	25	7	9	22	29
1 short-term residential admission	13	14	22	18	4	5	7	7
1 long-term residential admission	9	11	17	22	10	7	10	8
1 outpatient admission	17	16	21	20	16	15	18	14
Average drug severity score ***	52.3	52.8	51.0	52.1	41.4	43.5	54.2**	49.3

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**Difference is statistically significant at .05 level.
***See Caspi et al., 2001.

2.5 Retention of Dually Diagnosed Clients

Exhibit III-5 shows the percentage of dually diagnosed clients who achieved a long length of stay as a function of case management. In all types of services, dually diagnosed clients who received case management services were more likely to achieve a long length of stay, compared to clients who were not case-managed. In short-term residential treatment, half of the case-managed dually diagnosed clients (49%) stayed 26 days or more, whereas only one-fifth of the dually diagnosed clients without case management (19%) stayed that long. Nearly two out of five case-managed dually diagnosed clients in long-term residential treatment (37%) stayed 120 days or more, compared to 25 percent of dually diagnosed clients who did not receive case management services. Two out of three case-managed dually diagnosed clients (64%) in outpatient treatment stayed 140 days or longer, compared to 46 percent of dually diagnosed clients without case management. In residential detox, three out of four case-managed dually diagnosed clients (74%) stayed six or more days, while half (49%) without case management remained that long.

EXHIBIT III-5
PERCENTAGE OF DUALLY DIAGNOSED CLIENTS* EXPERIENCING INDICATED OUTCOMES AS A FUNCTION OF CASE MANAGEMENT (CM) STATUS, BY TYPE OF SERVICE

Type of Service	CM Status	Outcome		
		Long Length of Stay	Transition to Treatment within 30 days	Admission to Detox within 90 days
Short-term residential treatment	CM	48.8**	25.8	13.3
	No CM	19.0	22.8	16.9
Long-term residential treatment	CM	37.0**	11.7	13.9
	No CM	25.4	07.0	17.8
Outpatient treatment	CM	63.5**	05.3	05.9
	No CM	46.0	05.1	07.3
Detox services	CM	73.9**	29.8**	09.2
	No CM	49.1	16.0	14.5

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**$p < .05$.

Exhibit III-6 presents the unadjusted odds ratios associated with case management for all dually diagnosed clients (derived from the probabilities shown in Exhibit III-5) and the adjusted estimates of the impact of case management yielded by the multivariate models. The odds were 2.1 times (long-term residential treatment) to 4.2 times (short-term residential treatment) higher that case-managed dually diagnosed clients would achieve a long length of stay in comparison to clients who were not case managed.

2.6 Transition to Appropriate Levels of Care for Dually Diagnosed Clients

Of the dually diagnosed clients receiving residential detox services, those who also received case management services were more likely to transition to other appropriate levels of care than those who did not receive case management services (see Exhibits III-5 and III-6). Three out of ten case-managed dually diagnosed clients in residential detox (30%) transitioned to another level of care within 30 days of discharge, compared to 16 percent of dually diagnosed clients in residential detox who did not receive case management (see Exhibit III-5). The odds of dually diagnosed clients in residential detox transitioning to another level of care were 2.1 times higher for case-managed clients than for non-case-managed clients (see Exhibit III-6). There were no significant differences in transitions to other levels of care for dually diagnosed clients in short-term residential (26% case managed versus 23% not case managed), long-term residential (12% case managed versus 7% not case managed), and outpatient (5% case managed versus 5% not case managed) treatment.

EXHIBIT III-6
EFFECT OF CASE MANAGEMENT ON OUTCOMES FOR DUALLY DIAGNOSED CLIENTS,* BY TYPE OF SERVICE

Type of Service and Outcome	Odds Ratios with 95% Confidence Intervals	
	Unadjusted	Adjusted
Short-term residential treatment		
Long length of stay	4.08 (2.78, 5.98)	4.15 (2.76, 6.25)
Transition to treatment within 30 days	1.18 (0.80, 1.75)	1.30 (0.86, 1.97)
Admission to detox within 90 days	0.75 (0.47, 1.10)	0.88 (0.51, 1.52)
Long-term residential treatment		
Long length of stay	1.72 (1.14, 2.60)	2.14 (1.36, 3.38)
Transition to treatment within 30 days	1.76 (0.90, 3.45)	1.61 (0.78, 3.34)
Admission to detox within 90 days	0.75 (0.45, 1.24)	0.83 (0.47, 1.48)
Outpatient treatment		
Long length of stay	2.05 (1.46, 2.87)	2.23 (1.57, 3.17)
Transition to treatment within 30 days	1.04 (0.50, 2.17)	1.16 (0.54, 2.49)
Admission to detox within 90 days	0.80 (0.40, 1.59)	0.97 (0.45, 2.08)
Detox services		
Long length of stay	2.93 (1.94, 4.42)	2.61 (1.71, 4.00)
Transition to treatment within 30 days	2.23 (1.47, 3.39)	2.11 (1.35, 3.31)
Admission to detox within 90 days	0.58 (0.31, 1.08)	0.56 (0.29, 1.11)

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.

2.7 Short-term Relapse for Dually Diagnosed Clients

In all types of services, there were no significant differences between case-managed and non-case-managed dually diagnosed clients for detox admissions within 90 days of discharge (see Exhibits III-5 and III-6).

3. CLIENTS INVOLVED IN THE CRIMINAL JUSTICE SYSTEM

Exhibit III-7 presents characteristics of the client population involved in the criminal justice system, by type of service and case management status. Overall, there were 6,287 criminal justice clients, 23 percent of whom received case management services. Four out of five (82%) criminal justice clients were male, two out of five (41%) were white, and two out of five (43%) were black. Four out of five (80%) were unemployed, and seven out of ten (70%) had no health insurance. Two out of five (41%) had not graduated high school, and another 55 percent had no education beyond high school. More than one out of ten (13%) criminal justice clients were homeless. Few (6%) reported prior mental health hospitalizations. Two out of five criminal justice clients (41%) reported alcohol as their primary substance of abuse, 23 percent reported heroin, 18 percent cocaine, and 10 percent crack.

Higher proportions of criminal justice clients received case management in short-term and long-term residential treatment (53% and 71%, respectively) than in outpatient treatment and detox (23% and 18%, respectively). Among criminal justice clients, those who received case management services were more likely than those who did not receive case management services to:

- Be women (21% versus 18%)
- Be white (53% versus 37%)
- Be unemployed (89% versus 78%)
- Be uninsured (74% versus 69%)
- Report crack as their primary substance of abuse (24% versus 15%)
- Have been in detox services in the last year (48% versus 26%)
- Have been in short-term residential treatment in the last year (15% versus 6%)
- Have been in long-term residential treatment in the last year (12% versus 8%)
- Have been in outpatient treatment in the last year (22% versus 18%).

On the other hand, criminal justice clients who received case management were less likely to:

- Be black (31% versus 46%)
- Report alcohol as their primary substance of abuse (37% versus 42%).

Finally, criminal justice clients receiving case management services had significantly higher substance abuse severity scores than those not receiving case management (52.7 versus 44.6).

The remainder of this section on criminal justice clients describes the clients in the analysis in each of the types of services and for each of the three intermediate outcomes.

EXHIBIT III-7
CHARACTERISTICS OF CRIMINAL JUSTICE CLIENTS,* BY TYPE OF SERVICE AND CASE MANAGEMENT (CM) STATUS

Characteristics	Short-term Residential (n=667) %		Long-term Residential (n=905) %		Outpatient (n=3,610) %		Detox (n=1,105) %	
	CM	No CM	CM	No CM	CM	No CM	CM	No CM
CM status	53	47	71	29	7	93	18	82
Female	35	30	8	10	21**	14	35	30
Race/Ethnicity								
White	57	51	59**	66	47**	31	37**	48
Black	36	39	25	24	24**	50	52**	38
Latino	3	8	14**	8	26**	16	10	8
Unemployed	92	94	94	94	68	71	94	92
Not high school graduate	36	43	37	32	42	42	47	41
Living in shelter or on the streets	17	19	18	14	5	6	30	28
Living with child	10	12	13	11	17**	12	7	6
No insurance	77	72	75	75	70	69	69	67
With Medicaid	16	19	11	9	13	13	26	27
With prior mental health hospitalizations	9	10	8**	14	9*	4	5	7
Primary substance								
Alcohol	33	33	38	37	47	46	29**	35
Cocaine	15	13	17	24	21	19	18**	14
Crack	24	24	13	10	4	5	20**	15
Heroin	24	28	26	25	21	19	29**	34
Prior treatment in last year								
1 detox admission	33	36	28	21	12	9	18	20
2+ detox admissions	31	37	25	29	7	6	23	23
1 short-term residential admission	14	17	20	17	5	4	10	8
1 long-term residential admission	10	10	16*	23	7	5	11	11
1 outpatient admission	22	23	25	26	12	17	22	18
Average drug severity score***	54.3	53.2	54.3	54.5	44.0**	39.8	55.6	56.4

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**Difference is statistically significant at .05 level.
***See Caspi et al., 2001.

3.1 Criminal Justice Clients in Short-term Residential Treatment

Of the 667 criminal justice clients receiving short-term residential treatment, half (53%) received case management services (see Exhibit III-7). There were no statistically significant differences in characteristics between case-managed and non-case-managed criminal justice clients in short-term residential treatment.

3.2 Criminal Justice Clients in Long-term Residential Treatment

A total of 905 criminal justice clients were in long-term residential treatment. Seven out of ten criminal justice clients in long-term residential treatment (71%) received case management services (see Exhibit III-7). In the criminal justice group in long-term residential treatment, clients receiving case management services were less likely to:

- Be white (59% versus 66%)
- Have had prior mental health hospitalizations (6% versus 14%)
- Have had a prior long-term residential admission in the past year (16% versus 23%).

Conversely, criminal justice clients receiving case management in long-term residential treatment were more likely to be Latino (14% versus 8%).

3.3 Criminal Justice Clients in Outpatient Treatment

Of the 3,612 criminal justice clients receiving outpatient treatment, only 7 percent received case management services (see Exhibit III-7). Criminal justice clients who received case management services were more likely than those not receiving case management services to:

- Be female (21% versus 14%)
- Be white (47% versus 31%) or Latino (26% versus 16%)
- Be living with children (17% versus 12%)
- Have had prior mental health hospitalizations (9% versus 4%).

Among the criminal justice clients in outpatient treatment, those receiving case management were less likely than those without case management to be black (24% versus 50%). Additionally, case-managed criminal justice clients in outpatient treatment scored higher on the substance abuse severity scale than non-case managed criminal justice clients (44.0 versus 39.8).

3.4 Criminal Justice Clients Receiving Detoxification Services

Overall, 1,105 criminal justice clients were in detox services; 18 percent of these clients received case management services (see Exhibit III-7). Criminal justice clients in detox with case management were more likely than those without case management to:

- Be black (52% versus 38%)
- Report crack (20% versus 15%) or cocaine (18% versus 14%) as their primary substance of abuse.

Criminal justice clients receiving case management services were less likely than those not receiving case management to:

- Be white (37% versus 48%)
- Report alcohol (29% versus 35%) or heroin (29% versus 34%) as their primary substance of abuse.

Criminal justice clients in detox receiving case management services were similar to criminal justice clients in detox not receiving case management services on all other characteristics being studied.

3.5 Retention of Criminal Justice Clients

Exhibit III-8 shows the percentage of criminal justice clients who achieved a long length of stay as a function of case management. In all types of services except long-term residential treatment, case-managed criminal justice clients were more likely to achieve a long length of stay than those not receiving case management. Of the criminal justice clients, nearly half of those receiving case management services in short-term residential treatment (46%) stayed 26 days or more, whereas only one out of six without case management (18%) achieved a long length of stay. In outpatient treatment, three out of four case-managed clients (73%) stayed 140 days or longer, compared to 41 percent without case management. Four out of five case-managed criminal justice clients receiving detox services (79%) stayed six or more days, while less than half (48%) without case management remained for six or more days.

EXHIBIT III-8
PERCENTAGE OF CRIMINAL JUSTICE CLIENTS* EXPERIENCING INDICATED OUTCOMES AS A FUNCTION OF CASE MANAGEMENT (CM) STATUS, BY TYPE OF SERVICE

Type of Service	CM Status	Outcome		
		Long Length of Stay	Transition to Treatment within 30 days	Admission to Detox within 90 days
Short-term residential treatment	CM	45.6**	38.2**	16.5
	No CM	17.8	28.6	16.5
Long-term residential treatment	CM	35.0	08.3	13.6
	No CM	27.9	07.6	15.8
Outpatient treatment	CM	72.7**	08.7	05.9
	No CM	40.8	07.5	06.1
Detox services	CM	79.4**	43.6**	14.7
	No CM	47.7	28.2	11.9

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**$p < .05$.

Exhibit III-9 presents the unadjusted odds ratios associated with case management for all criminal justice clients (derived from the probabilities shown in Exhibit III-8) and the adjusted estimates of the impact of case management yielded by the multivariate models. With the exception of long-term residential treatment, the odds were 3.9 times (outpatient) to 4.2 times (residential detox) higher that case-managed criminal justice clients would achieve a long length of stay in treatment, in comparison to those who were not case managed.

3.6 Transition to Appropriate Levels of Care for Criminal Justice Clients

In short-term residential treatment and detox, criminal justice clients who received case management services were more likely to transition to other appropriate levels of care than clients who did not receive case management services (see Exhibits III-8 and III-9). Two out of five case-managed criminal justice clients in short-term residential treatment (38%) transitioned to another level of care within 30 days of discharge, compared to 29 percent of the clients who did not receive case management services (see Exhibit III-8). The odds of case-managed criminal justice clients in short-term residential treatment transitioning to another level of care were 1.7 times higher than for non-case-managed criminal justice clients in short-term residential treatment (see Exhibit III-9).

Similarly, more than two out of five case-managed criminal justice clients in detox (44%) transitioned to another level of care within 30 days of discharge, compared to 28 percent of criminal justice clients in detox without case management (see Exhibit III-8). The odds that criminal justice clients in detox with case management would transition to another level of care were 1.9 times higher than for those without case management (see Exhibit III-9).

3.7 Short-term Relapse for Criminal Justice Clients

For all types of services, there were no significant differences between case-managed and non-case-managed criminal justice clients for detox admissions within 90 days of discharge (see Exhibits III-8 and III-9).

EXHIBIT III-9
EFFECT OF CASE MANAGEMENT ON OUTCOMES FOR CRIMINAL JUSTICE CLIENTS,* BY TYPE OF SERVICE

Type of Service and Outcome	Odds Ratios with 95% Confidence Intervals	
	Unadjusted	Adjusted
Short-term residential treatment		
Long length of stay	3.88 (2.71, 5.54)	4.11 (2.78, 6.07)
Transition to treatment within 30 days	1.55 (1.12, 2.14)	1.72 (1.22, 2.43)
Admission to detox within 90 days	0.63 (0.40, 0.98)	0.70 (0.43, 1.12)
Long-term residential treatment		
Long length of stay	1.39 (1.02, 1.90)	1.36 (0.98, 1.88)
Transition to treatment within 30 days	1.11 (0.65, 1.89)	1.10 (0.63, 1.94)
Admission to detox within 90 days	0.84 (0.56, 1.25)	0.90 (0.58, 1.40)
Outpatient treatment		
Long length of stay	3.87 (2.91, 5.15)	3.94 (2.91, 5.32)
Transition to treatment within 30 days	1.18 (0.75, 1.86)	1.26 (0.78, 2.04)
Admission to detox within 90 days	0.97 (0.56, 1.66)	0.84 (0.47, 1.51)
Detox services		
Long length of stay	4.22 (2.94, 6.08)	4.23 (2.89, 6.18)
Transition to treatment within 30 days	1.97 (1.44, 2.70)	1.91 (1.37, 2.65)
Admission to detox within 90 days	1.28 (0.83, 1.98)	1.51 (0.94, 2.42)

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.

4. CLIENTS IN THE COMPARISON GROUP

Exhibit III-10 presents characteristics of the comparison group client population, by type of service and case management status. The comparison group included all clients who were not homeless, dually diagnosed, or involved with the criminal justice system. Overall, of the 9,572 clients in the comparison group, 27 percent received case management services. Two out of three (66%) comparison clients were male, two out of five (42%) were white, and two out of five (43%) were black. Six out of seven (85%) were unemployed, and two out of three (63%) had no health insurance. One out of three (35%) had not graduated high school, and another 59 percent had no education beyond high school. Nearly two out of five clients (37%) reported alcohol as their primary substance of abuse, 20 percent reported heroin, 20 percent cocaine, and 18 percent crack.

Higher proportions of comparison group clients received case management in short-term and long-term residential treatment (44% and 69%, respectively), than in outpatient treatment

and detox (12% and 16%, respectively). Comparison group clients receiving case management services were more likely than those not receiving case management services to:

- Be women (36% versus 33%)
- Be unemployed (90% versus 83%)
- Be uninsured (67% versus 62%)
- Report crack as their primary substance of abuse (24% versus 15%)
- Have been in detox services in the last year (53% versus 40%)
- Have been in short-term residential treatment in the last year (18% versus 11%)
- Have been in outpatient treatment in the last year (14% versus 11%).

Finally, comparison group clients receiving case management services had significantly higher substance abuse severity scores than those not receiving case management (50.0 versus 46.7).

The remainder of this section describes the clients in each of the types of services and for each of the three intermediate outcomes.

4.1 Comparison Group Clients in Short-term Residential Treatment

Of the 1,534 comparison group clients in short-term residential treatment, 44 percent received case management services (see Exhibit III-10). Those receiving case management services were more likely than those not receiving case management services to:

- Be women (55% versus 34%)
- Have children (22% versus 16%)
- Report crack as their primary substance of abuse (33% versus 24%).

Conversely, comparison group clients in short-term residential treatment who received case management services were less likely than those without case management services to have had two or more detox admissions in the past year (30% versus 39%) or one short-term residential admission in the past year (10% versus 18%).

4.2 Comparison Group Clients in Long-term Residential Treatment

A total of 1,345 comparison group clients were in long-term residential treatment. Seven out of ten (69%) received case management services (see Exhibit III-10). Clients receiving case management services were more likely than those not receiving case management services to:

- Be Latino (12% versus 6%)
- Have children (17% versus 11%)
- Report crack as their primary substance of abuse (18% versus 7%).

Comparison group clients in long-term residential treatment who received case management services were less likely than those without case management services to be white (53% versus 64%) and to report alcohol as their primary substance of abuse (37% versus 45%). They were also less likely to have had a prior outpatient admission in the past year (15% versus 23%).

EXHIBIT III-10
CHARACTERISTICS OF COMPARISON CLIENTS,* BY TYPE OF SERVICE AND CASE MANAGEMENT (CM) STATUS

	Short-term Residential (n=1,534) %		Long-term Residential (n=1,345) %		Outpatient (n=2,598) %		Detox (n=4,095) %	
Characteristics	**CM**	**No CM**	**CM**	**No CM**	**CM**	**No CM**	**CM**	**No CM**
CM status	44	56	69	31	12	88	16	84
Female	55**	34	16	16	38	38	43**	31
Race/Ethnicity								
White	40	38	53**	64	60**	52	23**	34
Black	50	51	33	29	27**	35	63**	48
Latino	7	9	12**	6	11	9	10	14
Unemployed	92	91	91	94	74**	67	94	91
Not high school graduate	36	37	35	32	23**	30	38	39
Living with child	22**	16	17**	11	24	23	15	13
No insurance	68	70	74	77	44**	51	67	65
With Medicaid	22	19	10	11	27	23	24**	27
Primary substance								
Alcohol	29	30	37**	45	54**	44	28**	35
Cocaine	20	24	23	27	21	22	17	15
Crack	33**	24	18**	7	7	8	31**	19
Heroin	15	20	17	18	12	10	23**	30
Prior treatment in last year								
1 detox admission	44	40	32	34	11	15	20	20
2+ detox admissions	30**	39	27	31	11**	7	17	19
1 short-term residential admission	10**	18	24	26	6	6	11**	7
1 long-term residential admission	9	11	15	17	10	9	9	7
1 outpatient admission	13	16	15**	23	14	12	17**	13
Average drug severity score***	51.1	51.3	51.6	53.2	39.4	37.7	51.7	50.8

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**Difference is statistically significant at .05 level.
***See Caspi et al., 2001.

4.3 Comparison Group Clients in Outpatient Treatment

Of the 2,598 comparison group clients receiving outpatient treatment, 12 percent received case management services (see Exhibit III-10). In outpatient treatment, comparison group clients

who received case management services were more likely than those without case management services to:

- Be white (60% versus 52%)
- Be unemployed (74% versus 67%)
- Report alcohol as their primary substance of abuse (54% versus 44%)
- Have had two or more detox admissions in the past year (11% versus 7%).

Additionally, comparison group clients in outpatient treatment who received case management services were less likely than those who did not receive case management services to:

- Be black (27% versus 35%)
- Not have high school diplomas (23% versus 30%)
- Be uninsured (44% versus 51%).

4.4 Comparison Group Clients Receiving Detoxification Services

Overall, 4,095 comparison group clients were receiving detox services; 16 percent received case management services (see Exhibit III-10). Comparison group clients in detox with case management were more likely than those without case management to:

- Be women (43% versus 31%)
- Be black (63% versus 48%)
- Report crack as their primary substance of abuse (31% versus 19%).

Conversely, they were less likely than those without case management to:

- Be white (23% versus 34%)
- Be on Medicaid (24% versus 27%)
- Report alcohol (28% versus 35%) or heroin (23% versus 30%) as their primary substances of abuse.

Finally, comparison group clients in detox who received case management services were more likely to have had a prior short-term residential treatment admission (11% versus 7%) and a prior outpatient treatment admission (17% versus 13%) in the past year.

4.5 Retention of Comparison Group Clients

Exhibit III-11 shows the percentage of comparison group clients who achieved a long length of stay as a function of case management. In all types of services except outpatient

treatment, case-managed comparison group clients were more likely to achieve a long length of stay. In short-term residential treatment, more than two out of five case-managed clients (44%) stayed 26 days or more, whereas only one out of six clients without case management (18%) achieved a long length of stay. Nearly two out of five case-managed clients in long-term residential treatment (36%) stayed 120 days or more, compared to 28 percent of those who did not receive case management services. In residential detox, seven out of ten case-managed comparison group clients (72%) stayed six or more days, while less than half (46%) of those without case management did so.

EXHIBIT III-11
PERCENTAGE OF COMPARISON CLIENTS* EXPERIENCING INDICATED OUTCOMES AS A FUNCTION OF CASE MANAGEMENT (CM) STATUS, BY TYPE OF SERVICE

Type of Service	CM Status	Outcome		
		Long Length of Stay	**Transition to Treatment within 30 days**	**Admission to Detox within 90 days**
Short-term residential treatment	CM	44.0**	38.8**	11.0**
	No CM	18.2	30.2	17.1
Long-term residential treatment	CM	36.1**	08.1	14.0**
	No CM	27.9	08.3	21.2
Outpatient treatment	CM	63.9	05.9**	07.2
	No CM	59.1	12.6	04.9
Detox services	CM	72.4**	41.7**	09.9
	No CM	45.8	24.7	11.2

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.
**$p < .05$.

Exhibit III-12 presents the unadjusted odds ratios associated with case management for all comparison group clients (derived from the probabilities shown in Exhibit III-11) and the adjusted estimates of the impact of case management yielded by the multivariate models. The odds of achieving a long length of stay were 1.3 times (outpatient) to 3.8 times (short-term residential) higher for case-managed clients than for those without case management.

4.6 Transition to Appropriate Levels of Care for Comparison Group Clients

Comparison group clients in short-term residential treatment and detox who received case management services were more likely to transition to other appropriate levels of care than comparison group clients who did not receive case management services (see Exhibits III-11 and III-12). Two out of five case-managed clients in short-term residential treatment (39%) transitioned to another level of care within 30 days of discharge, compared to 30 percent of those

who did not receive case management services (see Exhibit III-11). The odds of case-managed comparison group clients in short-term residential treatment transitioning to another level of care were 1.7 times higher than for non-case-managed comparison group clients (see Exhibit III-12).

EXHIBIT III-12
EFFECT OF CASE MANAGEMENT ON OUTCOME MEASURES FOR COMPARISON CLIENTS,* BY TYPE OF SERVICE

Type of Service and Outcome	Odds Ratios with 95% Confidence Intervals	
	Unadjusted	**Adjusted**
Short-term residential treatment		
Long length of stay	3.54 (2.81, 4.46)	3.79 (2.96, 4.86)
Transition to treatment within 30 days	1.47 (1.18, 1.81)	1.68 (1.34, 2.12)
Admission to detox within 90 days	0.60 (0.45, 0.81)	0.72 (0.52, 0.99)
Long-term residential treatment		
Long length of stay	1.46 (1.14, 1.88)	1.55 (1.19, 2.03)
Transition to treatment within 30 days	0.97 (0.64, 1.48)	1.00 (0.64, 1.56)
Admission to detox within 90 days	0.60 (0.45, 0.81)	0.64 (0.46, 0.90)
Outpatient treatment		
Long length of stay	1.22 (0.96, 1.56)	1.31 (1.02, 1.70)
Transition to treatment within 30 days	0.44 (0.27, 0.70)	0.48 (0.28, 0.82)
Admission to detox within 90 days	1.49 (0.94, 2.38)	1.45 (0.88, 2.40)
Detox services		
Long length of stay	3.11 (2.59, 3.73)	2.80 (2.32, 3.39)
Transition to treatment within 30 days	2.18 (1.84, 2.59)	1.86 (1.55, 2.22)
Admission to detox within 90 days	0.87 (0.66, 1.14)	1.04 (0.77, 1.39)

*Discharged from publicly funded substance abuse treatment between January 1993 and December 1994.

Similarly, two out of five case-managed comparison group clients receiving detox services (42%) transitioned to another level of care within 30 days of discharge, compared to 25 percent of comparison group clients in detox without case management (see Exhibit III-11). For clients in detox with case management, the odds were 1.9 times higher than for those without case management that they would transition to another level of care (see Exhibit III-12).

Although very few outpatient comparison group clients transitioned to other treatment services within 30 days of discharge (a negative outcome), case-managed clients (6%) were less likely to make this transition than non-case-managed clients (13%). The odds of case-managed clients' transitioning to another type of treatment were about half those for non-case-managed clients. There were no significant differences in transitions to other levels of care for clients in long-term residential treatment (8% for both case managed and non-case managed).

4.7 Short-term Relapse for Comparison Group Clients

Comparison group clients in short-term and long-term residential treatment receiving case management were less likely than those without case management to enter detox within 90 days of discharge (see Exhibits III-11 and III-12). One out of ten case-managed clients in short-term residential treatment (11%) entered detox within 90 days, compared to 17 percent of non-case-managed clients (see Exhibit 11). For case-managed clients, the odds of entering detox within 90 days were about three-fourths the odds for non-case-managed comparison clients. Similarly, 14 percent of case-managed comparison group clients in long-term residential treatment entered detox within 90 days of discharge, compared to 21 percent of non-case-managed clients. Case-managed clients in long-term residential treatment had almost two-thirds the odds of entering detox within 90 days of discharge, compared to non-case-managed clients. In outpatient treatment and residential detox, there were no significant differences between case-managed and non-case-managed comparison group clients for detox admissions within 90 days of discharge.

IV. SUMMARY AND IMPLICATIONS

IV. Summary and Implications

This final chapter provides an overview of the findings and discusses their application and implications. Additionally, future steps are identified.

1. OVERVIEW OF FINDINGS

For each of the special populations, case management improved some or all of the outcomes being studied. In the homeless population, clients with case management were more likely than those without case management to achieve a long length of stay in short-term residential and long-term residential treatment and in residential detoxification facilities. Although this analysis did not measure abstinence outcomes at discharge or follow-up, the literature shows that longer lengths of time in treatment are correlated with positive treatment outcomes (Shwartz et al., 1997b, Hubbard et al., 1988). Additionally, homeless clients in short-term residential treatment and in residential detox who received case management were more likely than those who did not receive case management to transition to another level of care within 30 days of discharge. Finally, homeless clients in short-term residential treatment who received case management were less likely to be admitted to detox within 90 days of discharge.

Similarly, for dually diagnosed clients in all four types of services under analysis, those with case management had a greater likelihood of achieving long lengths of stay than dually diagnosed clients without case management. Dually diagnosed clients receiving case management in short-term residential treatment and in residential detox were also more likely to transition to another level of care within 30 days of discharge, compared to dually diagnosed clients not receiving case management in those services.

Criminal justice clients receiving case management showed similar patterns of positive outcomes. Criminal justice clients with case management were more likely to achieve a long length of stay in all types of services except long-term residential treatment. Additionally, criminal justice clients in short-term residential treatment and in residential detox who received case management were more likely to transition to another level of care within 30 days of discharge, compared to criminal justice clients not receiving case management in those services.

Overall, case management improved the odds of achieving a long length of stay across each of the special populations and in most of the types of services (all except outpatient treatment for homeless clients and long-term residential treatment for criminal justice clients). Bearing in mind that transitioning to another level of care is a positive outcome for short-term residential treatment and residential detox but not for long-term residential and outpatient

treatment, case management helped clients in special populations transition to another level of care, when appropriate, in all cases except for dually diagnosed clients in short-term residential treatment. Case management protected only homeless clients in short-term residential treatment from the negative outcomes of being admitted to detox within 90 days of discharge.

The analysis of the comparison group showed that clients in all types of services except outpatient treatment were more likely to achieve a long length of stay if they received case management. Similarly, clients in short-term residential treatment and in residential detox with case management were more likely to transition to other levels of care. Conversely, clients in outpatient treatment with case management were less likely to transition to other levels of care, a positive outcome since outpatient treatment is generally at the end of the continuum of treatment services. Finally, clients in short-term and long-term residential treatment who received case management were less likely to be admitted to detox within 90 days of discharge. These findings show that case management improved outcomes for all clients, regardless of the nature and level of co-occurring issues and illnesses.

In view of the complex social, medical, and legal issues that these special populations bring to their addictions, treatment, and recovery environments, case management does seem to provide an added benefit. The rates at which case-managed clients in the special populations achieved positive outcomes were similar to those for the comparison clients with case management. One might speculate that the special population clients would have had less success, even with case management, because of their complicated circumstances, which are typically deeply entwined with their substance abuse problems. This analysis showed, however, that, with case management, these clients did as well as case-managed clients without special needs and better than comparison clients not receiving case management.

2. APPLICATION OF FINDINGS

The findings that case management increases both length of time in treatment and transition to appropriate levels of care for the homeless, dually diagnosed, and criminal justice populations and, in the case of short-term residential treatment for homeless clients, decreases admissions to detox following treatment have applications within the substance abuse treatment field specifically and for public policy more generally. These findings support the use of case management as standard practice in substance abuse treatment, especially for special populations. Case management helps clients reach lengths of care that are long enough to attain positive outcomes. Additionally, case management facilitates movement to appropriate levels of care and can decrease admissions to detox following treatment. Across clients, improvements in

these areas help individual treatment providers meet their goals and objectives and help improve systems of care.

Given that substance abuse has direct consequences on other areas of life, such as employment, housing, legal issues, and family relationships, these findings support public policies that promote the use of case management with substance abuse treatment and that coordinate case management across relevant systems such as the mental health, housing, Medicaid, and legal systems. Case management crosses systems to bring cohesive and rational care to the individual. The improvements associated with case management lead to a higher quality of life for persons in recovery, their families, and their communities.

3. IMPLICATIONS

The findings of this analysis have implications for substance abuse treatment researchers/evaluators, policymakers, and treatment providers.

3.1 Implications for Treatment Providers

Innovations, even when supported through analysis and evaluation, are often difficult for substance abuse treatment providers to adopt because of limited resources and staff commitment to familiar practices of care. To apply new approaches, treatment staff may need training to understand and adopt the new practice. With case management specifically, case managers might benefit from training on the findings of this analysis, and similar ones, to realize that even clients with complex circumstances like homelessness, co-occurring disorders, and legal issues benefit from case management. This might help case managers realize that they do not need to select the most promising clients for their services. Additionally, training might help clinical staff understand how they can communicate and interact with case managers on specific cases. Case managers may also benefit from training on how to maintain boundaries with clients because they come into close contact with the client and his or her life.

To integrate case management services fully into practice, treatment providers may want to assess their policies and procedures. For example, some treatment agencies do not let staff drive clients to other locations. Case managers may need more flexibility in this area (for example, they may need to drive the client to court or the housing office) to meet clients' needs. Although the evidence-based literature supports the use of case managers to assist clients with special needs in substance abuse treatment, implementation will not be as successful as it could be unless consideration is given to such issues as hiring, training, and supporting staff in bringing case management services to these special populations.

3.2 Implications for Policymakers

The findings from this analysis support the use of case management services for special populations in substance abuse treatment. Training, funding, policies, and analysis and evaluation are needed to increase the use of these services and to apply them effectively. Training is necessary to build treatment providers' capacity to staff case management and to support case managers. While setting recommended guidelines within a policy structure, policies, accompanied by funding, may motivate treatment providers to adopt this promising approach. Future analysis and evaluation can help refine an understanding of case management and the way it helps improve outcomes for clients in special populations.

Policymakers across Federal and state agencies play an active role in collaborations associated with case management. Case managers help individuals to bridge the complex and often confusing public health, mental health, legal, housing, and justice systems, to access services, and to improve outcomes. Policymakers play an important role in supporting and promoting case management to improve individual and community outcomes across these systems. An example is the conceptual framework developed by participants in the first National Dialogue on Co-occurring Mental Health and Substance Abuse Disorders in June 1998, with support from two SAMHSA centers, the Center for Mental Health Services (CMHS) and CSAT, and co-sponsored by the National Association of State Mental Health Program Directors (NASMHPD) and the National Association of State Alcohol and Drug Abuse Directors (NASADAD). As described by the Joint Task Force on Co-Occurring Mental Health and Substance Abuse Disorders, the conceptual framework (Joint Task Force, 1999):

> "…views co-occurring disorders in terms of symptom multiplicity and severity rather than specific diagnoses. The framework specifies the level of service coordination, defined as consultation, collaboration, or integration, needed to improve consumer outcomes. Use of the conceptual framework encourages development and funding of a continuum of care for people with co-occurring disorders."

3.3 Implications for Researchers/Evaluators

The findings from this analysis begin to reveal the relationship between case management and outcomes for multiple special populations accessing substance abuse treatment. Previous studies have analyzed the impact of case management on single special populations; this analysis expanded that work to include multiple populations in the same population within a single treatment system (i.e., Boston) and in the same analytic structure. The findings of the analysis

show that positive outcomes result from case management for each of the special populations. More analysis is needed, however, to increase understanding of the relationship of case management to outcomes for special populations and how different case management approaches might improve outcomes for different special populations.

4. FUTURE STEPS

The findings from this analysis present additional questions for future analyses and evaluations. First, longitudinal studies that collect substance use and other relevant outcomes at discharge and at follow-up periods can help explain the influence of case management on outcomes for special populations using substance abuse treatment services. These studies can contribute to the information base in the field by collecting direct client outcomes rather than the proxy measures used in this analysis.

More detailed analysis of case management (to determine, for example, what elements most benefit which populations and at what costs) will help substance abuse treatment providers and policymakers better understand the nature of case management. For example, although this analysis supports the use of case management for special populations in substance abuse treatment, it does not, and cannot, comment on the specific role the case manager plays. Given treatment providers' lack of resources, some providers might have a case manager function in a clinical role that blends clinical care with case management. Other providers might concentrate the case management function in one person who provides highly specialized case management services. By systematically examining the impact of different case management models on different client populations, future evaluation efforts will help providers understand how best to meet clients' needs in the most efficient way possible. The substance abuse treatment field can also benefit from analyses that examine the characteristics of case management and how such characteristics specifically influence outcomes for each population. For example, does case management improve outcomes when it focuses on concrete issues, such as housing issues or legal issues? Or are outcomes influenced more by the committed relationship between the case manager and client? By answering such questions, future analyses can help substance abuse treatment providers, and the system overall, understand better how to staff, train, and support case managers. In this way, future analysis and evaluations can better guide policy and practice.

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