

Review of Integrated Mental Health and Substance Abuse Treatment for Patients With Dual Disorders

by Robert E. Drake, Carolyn Mercer-McFadden, Kim T. Mueser,
Gregory J. McHugo, and Gary R. Bond

Abstract

Patients with severe mental disorders such as schizophrenia and co-occurring substance use disorders traditionally received treatments for their two disorders from two different sets of clinicians in parallel treatment systems. Dissatisfaction with this clinical tradition led to the development of integrated treatment models in which the same clinicians or teams of clinicians provide substance abuse treatment and mental health treatment in a coordinated fashion. We reviewed 36 research studies on the effectiveness of integrated treatment for dually diagnosed patients. Studies of adding dual-disorders groups to traditional services, studies of intensive integrated treatments in controlled settings, and studies of demonstration projects have thus far yielded disappointing results. On the other hand, 10 recent studies of comprehensive, integrated outpatient treatment programs provide encouraging evidence of the programs' potential to engage dually diagnosed patients in services and to help them reduce substance abuse and attain remission. Outcomes related to hospital use, psychiatric symptoms, and other domains are less consistent. Several program features appear to be associated with effectiveness: assertive outreach, case management, and a longitudinal, stage-wise, motivational approach to substance abuse treatment. Given the magnitude and severity of the problem of dual disorders, more controlled research on integrated treatment is needed.

Key words: Substance abuse, dual disorders, integrated treatment, case management, dual diagnosis.

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In the early 1980s, clinicians and researchers began to note that high rates of substance abuse complicated the community adjustment of many young persons with severe mental disorders such as schizophrenia (Caton

1981; Pepper et al. 1981; Bachrach 1982). Studies continue to show that lifetime rates of substance use disorder are generally in the 40 to 60 percent range (Mueser et al. 1995a; Cuffel 1996). Rates of active substance use disorder (i.e., without remission or recovery) are higher among patients in crisis settings such as hospitals, jails, emergency rooms, and homeless shelters (Galanter et al. 1988). Epidemiological data also show high rates of comorbidity (Regier et al. 1990). In addition, research has confirmed that comorbid substance use disorder is associated with several medical or social complications for this population: relapse and rehospitalization (Linszen et al. 1994; Haywood et al. 1995), depression and suicidality (Bartels et al. 1992), violence (Cuffel et al. 1994), incarceration (Abram and Teplin 1991), homelessness (Drake et al. 1991), human immunodeficiency virus (HIV) infection (Cournos et al. 1991), and increased family problems (Dixon et al. 1995).

Prospective studies have shown that treatment outcomes, such as symptom levels, hospitalization rates, housing stability, and functional status, are worse among patients with dual disorders than among those who have single disorders (Drake et al. 1989; Linszen et al. 1994; Osher et al. 1994; Chouljian et al. 1995; Swofford et al. 1996). Studies have also shown that problems related to substance use tend to persist over the long term among patients with severe mental illness (Morse et al. 1992; Chouljian et al. 1995; Kozaric-Kovacic et al. 1995; Okin et al. 1995). The economic costs of dual disorders have also become apparent. Research has demonstrated that, even though patients with dual disorders are prone to drop out of traditional outpatient treatments, their total treatment costs are higher than treatment costs for patients with single disorders because they are high users of

Reprint requests should be sent to Dr. R.E. Drake, New Hampshire-Dartmouth Psychiatric Research Center, 2 Whipple Pl., Lebanon, NH 03766.

expensive hospital and emergency services (Bartels et al. 1993; Dickey and Azeni 1996).

Much of our current knowledge concerning the problem of dual disorders stems from work initiated in the early 1980s. By the mid-1980s, the National Institute of Mental Health (NIMH), the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and the National Institute on Drug Abuse (NIDA) had commissioned reviews of the problem. These reviews identified the difficulties encountered by individuals with dual disorders as they received treatment in separate mental health and substance abuse systems (Ridgely et al. 1986, 1987). In practice, patients with dual disorders tended to receive services from one system and not from the other, and they were often excluded from both systems because of the complicating features of the second disorder. Not surprisingly, the patients' outcomes were poor in the separate treatment systems. The reviews commissioned in the mid-1980s thus recommended integrating mental health treatments and substance abuse treatments for patients with severe mental disorders and co-occurring substance use disorders (Ridgely et al. 1986, 1987, 1990).

Integrated treatment combines substance abuse and mental health interventions in one clinical program. (The specific interventions are described in the next section.) By the late 1980s, Minkoff (1989) and others (Carey 1989; Osher and Kofoed 1989) began to conceptualize the integration of mental health and substance abuse services, and the literature described several approaches to integrated treatment (Minkoff and Drake 1991). As the early integrated treatment programs were designed and implemented, researchers began to study their outcomes. A watershed in this development was the Community Support Program (CSP), a demonstration program for young adults with dual disorders (National Institute of Mental Health 1989). This program developed many of the integrated treatment models that are still being studied.

Since 1990, researchers have investigated long-term outcomes in integrated dual-disorders treatment programs. These recent studies are more sophisticated than earlier studies, both in treatment approaches and in research methods. Many reviewers today assume that integrated treatment is superior to sequential or parallel treatment (Mueser et al. 1992; Zimberg 1993; Center for Substance Abuse Treatment 1994; Minkoff 1994; Carey 1995; Woody 1996). However, until now no comprehensive reviews of integrated treatment have been published. The purposes of this article are to describe the evolution of integrated treatment programs and to review the research to date on these programs.

Integrated Mental Health and Substance Abuse Treatment

Integrated treatments simultaneously address two or more interwoven, chronic disorders. Conceptually, interventions for patients with severe mental disorders such as schizophrenia and interventions for patients with substance use disorders share common ground: both hold the philosophy that treatment of chronic illness requires a long-term approach in which stabilization, education, and self-management are central (Minkoff 1989). In integrated treatments for patients with dual disorders, mental health treatments and substance abuse treatments are brought together by the same clinician, or team of clinicians, in the same program to ensure that the patient receives a consistent explanation of illness and a coherent prescription for treatment rather than a contradictory set of messages from different providers. Integrated treatment aims to reduce conflicts between providers, to eliminate the patient's burden of attending two programs and hearing potentially conflicting messages, and to remove financial and other barriers to access and retention (Minkoff 1989).

One of the earliest approaches to integrated treatment for patients with dual disorders involved adding a substance abuse treatment group to the usual mental health program. The groups were tailored for patients with dual disorders; they aimed to enhance knowledge about substance abuse, to develop skills for reducing or abstaining from substance use, and to provide peer support for reducing substance use or developing abstinence (Kofoed et al. 1986; Hellerstein and Meehan 1987). Another early approach to integrated treatment involved an intensive substance abuse intervention with the goal of rapidly achieving sustained abstinence. Intensive integrated treatments have been provided in settings that allow for several sessions per day: inpatient settings, residential settings, and day programs. Intensive models have generally provided multiple dual-disorders treatments in a milieu of peers and professional counselors, for several hours each day, over a few weeks or months.

As integrated treatment evolved in the late 1980s, treatment programs became more comprehensive. These more comprehensive treatment programs, for which the CSP demonstration projects were important pioneers (Mercer-McFadden and Drake 1995), incorporated several components of integrated treatment. Comprehensive programs have frequently included not only standard mental health interventions, such as medication monitoring and support services, but also assertive outreach to engage patients in treatment; intensive case management;

individual, group, and family substance abuse counseling; and occasionally an intensive or residential component (Evans and Sullivan 1990; Minkoff and Drake 1991; Miller 1994; Lehman and Dixon 1995). An important organizational model for providing the integrated treatments has been the multidisciplinary case management team. The team provides mental health interventions, such as medication management and skills training, that are appropriate for patients with severe mental disorders, plus assertive outreach and substance abuse education and treatment (Fariello and Scheidt 1989; Minkoff and Drake 1991; Drake and Noordsy 1994).

Clinicians in the early integrated programs observed that many patients with dual disorders did not recognize that their substance use was a problem and were not motivated to pursue abstinence (Kofoed and Keys 1988; Osher and Kofoed 1989; Test et al. 1989; Drake et al. 1990b; Lehman et al. 1993). Clinicians therefore devised stage-wise treatments for these patients, that is, long-term treatments incorporating motivational interventions that correspond to the patient's stage of recovery (Drake et al. 1993a; Minkoff 1994; Carey 1996).

Motivational interventions, based on interviewing techniques developed in the substance abuse treatment field (Miller and Rollnick 1991), are designed to build

trust, to cultivate awareness of a problem and motivation for change, and to enhance self-esteem and self-efficacy (Carey 1996). As the client progresses through phases of change, the emphasis of clinical interventions shifts (Prochaska et al. 1992). Osher and Kofoed (1989) conceptualized four overlapping stages of substance abuse treatment for patients with severe mental illnesses: engagement, persuasion, active treatment, and relapse prevention. Thus, before approaching patients with interventions that directly targeted their substance use for reduction or elimination, clinicians would gradually engage patients' trust, help them to examine their substance use, and persuade them of the benefits of substance use reduction (Minkoff and Drake 1992; Drake et al. 1993a; Ziedonis and Fisher 1994; Carey 1996).

Philosophies, approaches, and components for integrated treatment have continued to evolve and to be refined. Current concepts are summarized in table 1. Today, integrated treatment programs are designed to provide interventions and support over a long period. They include stage-wise, motivational interventions, and they generally include components of assertive outreach, case management, group interventions, individual counseling, and family interventions (Lehman and Dixon 1995; Carey 1996; Drake and Mueser 1996).

Table 1. Integrated treatment for dual disorders

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- The patient participates in one program that provides treatment for two disorders—severe mental disorder and substance use disorder.
 - The patient's mental disorder and substance use disorder are treated by the same clinicians.
 - The clinicians are trained in psychopathology, assessment, and treatment strategies for both mental disorders and for substance use disorders.
 - The clinicians offer substance abuse treatments tailored for patients who have severe mental illnesses. These tailored treatments differ from traditional substance abuse treatment.
 - Focus on preventing increased anxiety *rather than* on breaking through denial
 - Emphasis on trust, understanding, and learning *rather than* on confrontation, criticism, and expression
 - Emphasis on reduction of harm from substance use *rather than* on immediate abstinence
 - Slow pace and long-term perspective *rather than* rapid withdrawal and short-term treatment
 - Provision of stage-wise and motivational counseling *rather than* confrontation and front-loaded treatment
 - Supportive clinicians readily available in familiar settings *rather than* being available only during office hours and at clinics
 - 12-step groups available to those who choose and can benefit *rather than* being mandated for all patients
 - Neuroleptics and other pharmacotherapies indicated according to patients' psychiatric and medical needs *rather than* being contraindicated for all patients in substance abuse treatment
 - Some program components specifically address substance use reduction as a central focus of programming. Components focus especially on integrated treatment.
 - Substance abuse group interventions
 - Specialized substance abuse assessment
 - Case management
 - Individual counseling
 - Housing supports
 - Medications and medication management
 - Family psychoeducation
 - Psychosocial rehabilitation
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Method of the Review

We identified 36 completed studies of integrated treatment by conducting computerized literature searches of the Medline and Project Cork databases using the key words "substance abuse," "chronic mental illness," and "dual diagnosis." We also consulted project officers at NIMH, NIAAA, NIDA, and the Substance Abuse and Mental Health Services Administration (SAMHSA). The review includes only those studies that focused on patients dually diagnosed with severe mental illnesses (such as schizophrenia) and substance use disorders (alcohol or other drugs). The patients in these studies either met State eligibility criteria for severe and persistent mental illness (i.e., major mental illness, chronicity, and disability) or met the diagnostic criteria for a long-term, major mental disorder (i.e., schizophrenia, schizoaffective disorder, recurrent major depression, or bipolar disorder). They also met criteria for an alcohol or drug use disorder. Alcohol was the most common drug of abuse in most studies, but many patients abused more than one substance, yielding substance disorder totals of greater than 100 percent. We included only those studies that evaluated integrated treatments that combined mental health and substance abuse treatments consisting of psychosocial interventions, as distinguished from pharmacological therapies. Because the 36 studies examined different outcomes, we emphasized the domains that were assessed most consistently and that are particularly relevant to patients with dual disorders: engagement in treatment, substance use behaviors and outcomes, hospital utilization, and symptoms of mental illness.

We divided the 36 studies into four categories according to their integrated treatment models: dual-disorders treatment groups (4 studies); intensive integrated treatments (9 studies); CSP demonstration projects for young adults with co-occurring disorders (13 studies); and comprehensive integrated dual-disorders programs (10 studies). The categories reflect the growth and refinement of integrated treatment over the decade. In terms of research design, the 36 studies include 23 uncontrolled studies (open clinical trials) and 13 controlled studies (6 using quasi-experimental designs and 7 using experimental designs).

Studies of Dual-Disorders Treatment Groups. Four studies examined the effects of adding a substance abuse treatment group to existing outpatient mental health services. As reviewed by Mueser and Noordsy (1996), the integrated treatment groups were specifically tailored to address substance abuse among patients with severe mental illness in a supportive setting of peers. Most groups addressed substance abuse through education, skills train-

ing, and peer support. Three of the four studies were open clinical trials, and one study used an experimental design.

Kofoed et al. (1986) studied 32 Veterans Affairs (VA) patients with severe mental illness (50% with schizophrenia, 22% with severe personality disorders, 13% with bipolar disorders, and 15% with other diagnoses) and co-occurring substance use disorder (100% with alcohol use disorders and 40% with other drug use disorders). The patients were referred to a weekly support group that included substance abuse education and counseling, laboratory monitoring, and disulfiram use. The majority of patients (66%) dropped out of treatment within 3 months. The 11 (34%) who remained in the group for at least 3 months decreased their days of hospital utilization: the average for group attendees was 46.5 days during the year before the group versus 11 days during the year after starting the group. Outcome data on substance abuse and psychiatric symptoms were not reported.

In a similar study, Hellerstein and Meehan (1987) reported on 10 patients with schizophrenia and substance use disorder (50% alcohol use disorder and 100% other drug use disorder) who participated in a weekly outpatient group that focused on engagement, interpersonal skill development, and problem solving. Results showed that seven patients remained in treatment for 6 months and five for 1 year. Patients again decreased their days of hospital use: the average for all 10 patients was 38.2 days during the year before the group versus 7.8 days during the year after starting the group. Again, data on substance abuse and other outcomes were not reported.

In a third study, Nigam et al. (1992) examined an adjunctive dual-disorders group for eight outpatients with major mental illness (50% schizophrenia, 25% bipolar disorder, and 25% other psychotic disorders) and co-occurring substance use disorder (100% had both alcohol use disorder and drug use disorder). The group used a psychoeducational approach to address substance abuse education, principles of recovery, and relapse prevention, and was integrated with case management and mental health treatment. Six of the eight patients remained in the group for at least 6 months and achieved substantial periods of abstinence (1–13 months). Data on other outcomes were not reported.

More recently, in a fourth study of an outpatient group, Hellerstein et al. (1995) examined 47 patients with schizophrenia and substance use disorder (92% with alcohol use disorder and at least 87% with drug use disorder). Patients were randomly assigned at the time of hospital discharge to nonintegrated versus integrated outpatient services. Nonintegrated services included case management, group psychotherapy, and psychopharmacology, with substance abuse and mental health services provided in separate settings. Integrated services included similar

amounts of substance abuse and mental health treatments within the same site, with much of the treatment delivered within a dual-disorders group that met twice a week and offered supportive psychotherapy. Motivation to reduce substance abuse was a condition for participating in the study, and the experimental treatment condition included neither outreach nor motivational interventions. At 4 months after discharge, significantly more experimental subjects than control subjects remained in treatment (69.6% vs. 37.5%), but there were no group differences in days of hospitalization or in substance abuse or psychiatric symptoms. By 8 months, so many patients had dropped out of both treatments that it was not possible to conduct meaningful analyses or to assess the effects of the group intervention. This study thus offered prospective evidence that patients with dual disorders drop out of services when the program does not provide extensive efforts at engagement and motivation.

In summary, the studies evaluating the addition of a dual-disorders group to mental health services have been limited by selection of only motivated patients, small study groups, brief followups, high dropout rates, lack of control subjects, and reliance on self-report. Nonetheless, these studies suggested that patients who consistently attended a dual-disorders group benefited in terms of engagement in treatment, decreased use of the hospital, or increased abstinence. These studies raised concerns that adding an outpatient group intervention by itself may not be sufficient to maintain most dual-disorders patients in treatment.

Studies of Intensive Integrated Treatments.

Integrated treatments are defined as intensive when they involve multiple interventions daily, for several hours each day, over a period of weeks or months. The nine intensive treatment studies include four studies of inpatient programs, three studies of residential programs, one study of a day treatment program, and one study that examined both residential and day treatment conditions. Five of the nine studies were open clinical trials, and four used controlled designs (one quasi-experimental and three experimental).

Four studies examined inpatient dual-disorders programs. Using an open clinical trial method, Ries and Ellingson (1990) studied 17 patients with severe mental illness (59% mood disorders, 29% schizophrenia or other psychotic disorders, and 12% panic disorder) and substance use disorder (82% alcohol use disorder and 88% drug use disorder). While in a psychiatric hospital (average 13.4 days), the patients attended a dual-disorder program that included a twice-a-week drug and alcohol discussion group; daily meetings of Alcoholics Anonymous, Cocaine Anonymous, and Narcotics Anonymous groups

both on and off the unit; drug and alcohol education videos; and discharge planning focused on chemical dependency. At 1 month after discharge, 12 patients (71%) reported continued abstinence, and the other 5 acknowledged that they had returned to substance use. No other outcomes were reported. The study was limited by brief followup and lack of verification of self-report.

In a similar open clinical trial, Hoffman et al. (1993) followed 12 inpatients with thought disorder (no diagnoses given) and substance use disorder (83% alcohol use disorder and 67% drug use disorder) who successfully completed an inpatient dual-disorders program with 4 to 6 hours of concrete, educational groups on substance abuse, mental illness, and relapse prevention each day for 30 to 90 days (no average length of stay provided). At 3 months after discharge, 67 percent of the patients contacted by telephone reported continued abstinence, and 75 percent reported compliance with community treatment. This study was limited by selection bias (only program completers were followed) and by the use of clinicians or probation officers as telephone interviewers, which may have led to bias in patients' self-reports.

In another open clinical trial, Bachman and colleagues (1997) studied 33 patients with severe mental illness (50% schizophrenia; other diagnoses not reported) and substance use disorder (50% alcohol use disorder only and 50% polysubstance use disorder). The patients completed 6 months of an inpatient dual-disorders program that included education, group therapy for substance abuse, individual cognitive-behavioral treatment, and family sessions that addressed substance abuse. At 1 year after discharge, the patients had improved their living situations (although this outcome was not defined) and their positive symptoms of psychosis but showed no changes in their rates of substance use or in negative symptoms.

Using an experimental design and a larger study group, Mowbray and colleagues (Herman et al. 1997; Mowbray et al. 1995; Ribisl et al., unpublished manuscript, 1996) examined an inpatient dual-disorders program in a State psychiatric hospital in a study with 427 participants. Mental illness diagnoses included 28 percent schizophrenia, 50 percent mood disorders, and 22 percent other; substance use diagnoses were 76 percent alcohol use disorders and, although totals were unclear, at least 60 percent drug use disorders. Nonexperimental patients received usual hospital mental health services such as psychiatric consultation, medications, psychotherapy, family education, and activity therapy. Patients assigned to the specialized dual-disorders unit received, in addition, several hours of daily substance abuse interventions: lectures on substance abuse and related topics, 12-step meetings, substance abuse groups, and family therapy (Mowbray et al. 1995).

Patients on the experimental unit stayed longer in the hospital (no data on length of stay provided) and at discharge demonstrated greater involvement in treatment and better awareness of their substance abuse and mental health problems (Herman et al. 1997). However, the experimental group did not have better alcohol or drug treatment outcomes at 2- or 6-month followups (Ribisl et al., unpublished manuscript, 1996). Substance abuse outcomes were related instead to the postdischarge environment (e.g., amount of contact with members of a substance-abusing network) other outcomes were not reported.

Three studies of intensive integrated treatment examined residential programs. In an open clinical trial, Bartels and Drake (1996) evaluated 41 dual-diagnosis patients who were high utilizers of inpatient hospital services; mental illness diagnoses were 63 percent schizophrenia, 15 percent bipolar disorder, and 22 percent other diagnoses; substance use disorders were 76 percent alcohol use disorder and 59 percent drug use disorder. Patients were admitted to a 3- to 6-month dual-disorders residential program that included medication management, psychotherapy groups, 12-step groups in the program and in the community, work activities, and regular urine drug tests. The program was intended to reduce both substance abuse and hospital utilization.

Fewer than one-third (31%) of the patients successfully completed at least 3 months in the program. At followup 6 months after discharge, the patients showed no reduction in days of hospital utilization compared with the 6 months preceding residential treatment, and 92 percent had returned to abusing substances. Only 28 percent continued to attend self-help groups. Other outcomes were not reported. Thus, the residential treatment program did not appear to influence the long-term course of the patients' substance abuse or hospital utilization.

Using a quasi-experimental design, Blankertz and Cnaan (1994) compared two residential programs for homeless adults with dual disorders (79% schizophrenia, 11% bipolar disorder, and 10% other mental illness diagnoses; substance disorder diagnoses not clear). The experimental program integrated mental health and substance abuse treatments in a psychosocial rehabilitation approach that emphasized education, skill building, and support. The comparison program was a conventional therapeutic community residence directed by an alcohol and drug treatment agency; it used a 12-step substance abuse treatment model and provided mental health treatment offsite. Patients were not randomly assigned to programs; and, although they were similar on several measures at baseline, those in the 12-step substance abuse treatment model had more severe substance abuse histories. Regular urine drug tests were part of the treatment programs.

Of 176 patients who began in the project, those in the experimental program were less likely to drop out (19% vs. 47%). Among the 89 patients who completed at least 60 days in residential treatment, those in the experimental program were more likely to attain successful discharge (29% vs. 8%), defined as abstinence, stable residence, and no rehospitalization for 3 months. Although few patients in either the experimental or the comparison group attained successful outcomes compared with the number who entered treatment, the evidence suggested that the more integrated experimental program produced better outcomes. This study was limited by relatively brief followup, the use of combined variables for a single measure of success, and the nonequivalence of the groups at baseline.

In a large, experimental study of residential treatments, Rahav et al. (1995) examined 616 men who were homeless or at risk for homelessness and who were diagnosed with severe mental illness (59% schizophrenia or other psychotic disorders, 20% mood disorders, and 21% other diagnoses) and co-occurring substance use disorder (98% with alcohol use disorder and 93% or more with drug use disorder). The researchers randomly assigned these men to one of two residential programs: a modified therapeutic community (TC) or a modified community residence (CR) program. The TC program was modified by integrating psychiatric care for mental illness into the usual residential substance abuse program, while the CR program integrated substance abuse counseling into a "low-demand" residence and day treatment center.

The major finding was an enormous rate of clinical attrition for both conditions: Of those assigned to TC, 27 percent dropped out before admission, 25 percent were rejected by the facility, 26 percent dropped out of treatment, and 7 percent were discharged early from the program; only 15 percent completed the program. Of those assigned to CR, 40 percent dropped out before admission, 21 percent were rejected by the facility, 16 percent dropped out of treatment, and 6 percent were discharged early from the program; only 17 percent completed the program. Among the 13 percent ($n = 80$) of the original participants who were included in an outcome analysis, the TC participants experienced greater improvements in depression, but not in other symptoms; hospitalization and substance abuse outcomes were not reported. The extremely low completion rates in both programs suggest that these residential services were inappropriate or ineffective for the great majority of homeless patients with dual disorders, at least in the absence of other components such as outreach and stage-wise treatments.

In an open clinical trial study of day treatment, Hanson et al. (1990) examined 118 patients with severe mental illness (70% with schizophrenia, 7% with

schizoaffective disorder, 15% with mood disorders, and 8% with other diagnoses) and co-occurring substance use disorder (62% with alcohol use disorder; percentage with other drug use disorder unclear). The day treatment program was intensive (8 hours per day, 5 days per week) and included supportive psychotherapy, medication management, mental health and substance abuse education, behavioral skills training, 12-step groups, family therapy, and case management. Outcomes were determined by a review of clinical records, which included urine drug screens.

About one-third of the patients (33.9%) dropped out of treatment within 1 month of referral, and only about one-third (32.2%) remained in treatment at 6 months. Although the authors reported that some patients improved in substance abuse status and in hospital use at the time of followup or dropout, these outcomes were reported in different terms from the intake values; therefore, it was impossible to determine how many patients improved. One outcome, adaptive functioning, was reported as a change score: Most of the patients (56.8%) were unchanged, while similar proportions improved (22.0%) and worsened (21.2%). Thus, this program, like other intensive treatment programs, produced a high dropout rate and uncertain benefits.

In a final study of intensive integrated treatment, Burnam et al. (1995) used an experimental design to evaluate 276 homeless adults with severe mental illness (38% schizophrenia plus mood disorder, 7% schizophrenia only, and 55% mood disorder only) and substance use disorder (79% alcohol use disorder and 72% drug use disorder). Patients were randomly assigned to receive one of two experimental interventions that combined mental health and substance abuse services—either residential treatment or day treatment; or to the control condition of separate mental health and substance abuse services. Substance abuse treatments in both experimental interventions were based on the social model of recovery, which uses small, structured, therapeutic environments and a 12-step approach (McGlynn et al. 1993). Patients in these two experimental conditions were eligible to receive intensive services (several hours per day) for 3 months, followed by nonresidential maintenance for 3 months. Those in the control condition also received 12-step substance abuse services, but these services were not linked with mental health treatment.

More than half the patients assigned to the residential treatment program never attended (40%) or dropped out within the first 2 weeks (11%); nonattendance (47%) and early dropout (18%) were even higher for the nonresidential treatment condition (Stecher et al. 1994). Of the patients assigned to residential treatment, 24 percent completed 3 months; of those assigned to day treatment, only

8 percent completed 3 months. All patients were evaluated at baseline and 3, 6, and 9 months after admission. At 3 months, those who participated in the experimental groups were doing better in terms of residential stability, but the effects faded rapidly: At 6 and 9 months, there were no group differences in substance abuse, housing, or other outcomes. The investigators pointed out that the control group also received many services, that the experimental treatments were too brief (3 months), and that the experimental treatments were not linked to housing services.

In summary, studies of intensive integrated treatment in inpatient, residential, and day treatment settings have been limited by high dropout rates and by the brevity of interventions. These studies found that it was difficult to retain patients with dual disorders in intensive services, perhaps because most were unprepared for or unable to tolerate intensive interventions. Patients who were retained in treatment did well during the intensive programs, but once discharged, their relapse rates were high. This finding suggests that patients improved while in the intensive programs because their access to substances was limited, but program participation did not enable them to maintain their gains after they left. In effect, there was minimal evidence for sustained improvement among patients who received intensive integrated treatment compared with controls.

These studies offer little encouragement for further research on intensive treatment programs. Given the expense of inpatient care, it seems unlikely that dually diagnosed patients will be hospitalized for prolonged treatment. The goals of inpatient treatment will instead be modest (assessment, stabilization, engagement, and referral), and treatment other than detoxification or stabilization will likely occur in the community (Drake and Noordsy 1995; Greenfield et al. 1995).

Studies of the CSP Demonstration Projects. In 1987, the CSP office at NIMH funded 13 demonstrations for young adults with severe mental illness and co-occurring substance use disorder (National Institute of Mental Health 1989). (CSP is now part of the Center for Mental Health Services at SAMHSA.) As service demonstrations rather than research projects, the CSP projects explored the feasibility of combining mental health and substance abuse interventions into integrated treatment programs for specific high-risk groups (e.g., homeless people, migrant workers, inner-city residents). The 13 projects served 1,157 patients using a variety of innovative, integrated service components. All 13 projects included dual-disorders treatment groups, 11 included case management services, and 10 included family interventions. Additional components offered by four or more of the projects were

day treatment and clubhouse services, residential treatment, individual peer counseling, and culturally sensitive programming for specific minority groups. Most of the service models changed over the brief duration of the demonstrations as clinicians and researchers learned about the population. Although many of these projects did not make standardized diagnoses, schizophrenia was the most common mental illness (35%–100% of patients in the projects that provided diagnoses), and mood disorder was the next most common (7%–34%). Among substance use disorders, alcohol use disorder was the most common. The program evaluation studies, which the grantees completed between 1990 and 1992, did not meet rigorous research standards. We have reviewed the 13 projects and their evaluations in detail elsewhere (Teague et al. 1990; Mercer-McFadden and Drake 1995; Mercer-McFadden et al. 1997). Here, we will summarize the findings, first for the nine open clinical trials and then for the four controlled studies. (Because these grants went to State mental health agencies, we refer to the projects by State.)

Nine of the 13 demonstrations used open clinical trial designs to evaluate the integrated services (California, Louisiana, Michigan, New Mexico, Ohio, South Carolina, Tennessee, Utah, Washington). The most positive finding from these projects was that a large majority of the patients (59%–87%) were engaged in outpatient treatment for 1 year or longer in the five projects that reported 1-year engagement data. Pre-post improvements in other domains were less consistent: eight projects reported reductions in the number of hospitalizations or of days hospitalized (only three tested for significance); and six reported reductions in substance abuse severity (using continuous measures such as the Addiction Severity Index [McLellan et al. 1980] composite scores), in the number of substance abuse treatment episodes, or in the number of inpatient admissions related to substance abuse (only five tested for significance). Smaller numbers reported gains in diverse other areas such as psychiatric symptoms, problematic behaviors, or functional level. Several projects reported that abstinence was rare and that patients needed motivational interventions to increase their awareness of substance abuse and to support their motivation for reducing or abstaining from substance use.

Four of the 13 CSP demonstration projects used controlled designs to evaluate the integrated services. Three of the four projects with controlled studies used quasi-experimental designs—Indiana (Bond et al. 1991), New Jersey (Karpf and Steinberg, unpublished manuscript, 1991; Steinberg et al. 1991), and Oregon (Edwards et al., unpublished manuscript, 1991); the Maryland project (Lehman et al. 1993) used an experimental design. All four projects were able to engage and retain a substantial majority (65%–86%) of the patients in the experimental

programs, and two projects that tested experimental differences in retention found significance. A detailed analysis of patients' participation in Maryland's abstinence-oriented group intervention, however, showed only 20 percent attendance. Like several other CSP demonstrations, this project identified the need for stage-wise, motivational interventions. Although each of the four projects observed some pre-post reductions in the number of hospitalizations or in total days of psychiatric hospitalization, none found between-group differences. Similarly, each project observed pre-post differences in substance abuse, but no between-group differences. Only two projects reported on psychiatric symptoms; again, only pre-post differences were found.

In summary, the 13 CSP demonstrations had serious limitations as research studies (e.g., small study groups, changing program models, lack of controls, nonstandard measures, minimal statistical analysis, and use of clinicians as evaluators). The projects nonetheless made important contributions to the evolution of integrated services and to the advancement of evaluation methodologies. First, they showed that integrated dual-disorders services could be created in a variety of clinical settings. Second, they demonstrated that special populations could be attracted into services and that short-term benefits typically included some reductions in hospitalization and in severity of substance abuse. Third, after discovering in the field that patients were not ready for traditional abstinence-oriented substance abuse treatments, several projects developed stage-wise, motivational interventions for patients at different levels of engagement and motivation refocused on reducing the most immediately damaging consequences of substance abuse. Fourth, they identified the difficulties of using traditional substance abuse assessment instruments, such as the Addiction Severity Index (McLellan et al. 1980), for assessing substance abuse among patients with severe mental illnesses.

Studies of Comprehensive Integrated Treatment Programs. Ten studies examined comprehensive, integrated, dual-disorders treatment programs. These studies have several advantages over other studies. They evaluated programs that resemble many current dual-disorders programs because they incorporate motivational interventions, assertive outreach, intensive case management, individual counseling, and family interventions. In addition, the studies followed patients for longer than 1 year; several incorporated multiple measures of substance abuse; and a number of them evaluated remission, defined as 6 months or longer without evidence of abuse, in addition to other substance use outcomes. The 10 studies and their findings are summarized in tables 2 and 3. Note in these tables that "engagement" refers to retention in treatment, while

Table 2. Uncontrolled studies of comprehensive integrated treatment programs

Study characteristics	Detrick and Stlepock 1992	Durell et al. 1983	Godley et al. 1994	Bartels et al. 1995	Drake et al. 1993b	Melsler et al. 1997
<i>n</i>	17	43	44	148	18	67
Mental illness	—	—	46% Schizophrenia 29% Affective psychosis 65% AUD ≥ 42% DUD	73% Schizophrenia 19% Bipolar disorder 24% AUD 20% DUD	100% Schizophrenia	—
Substance use disorder	—	47% PUD	—	—	100% AUD 22% DUD	—
Other features	Criminal justice system involvement	30% African Americans	—	—	—	Homeless
Interventions	ACT and SAC	ICM and SAC	ICM and SAC	ICM and SAC	ICM and SAC	ACT and SAC
Followup period	18 months	18 months	2 years	7 years	4 years	31 months (mean)
Research attrition ¹	0%	—	62%	21%	0%	0%
Engagement ²	100%	Improved (no specific data)	74%	—	100%	100%
Substance abuse outcomes	Reduced SA ³ Reduced detoxification admissions ³	2/3 Reduced SA ³	No change in days of use Reduced consequences	44% Remission from AUD 41% Remission from DUD	61% Remission from AUD	41% Remission from SUD
Hospital use outcomes	Reduced incidence of hospitalizations ³	Reduced ³	Reduced number of admissions and days	—	—	Reduced hospitalizations
Symptom outcomes	—	—	No change	—	—	—
Other outcomes	Reduced emergencies and arrests ³	—	Reduced medical problems Reduced social problems	—	—	42% Employed 82% Attained community domicile

Note: Dashes = no data; ACT = assertive community treatment; AUD = alcohol use disorder; DUD = drug use disorder; ICM = intensive case management; PUD = polysubstance use disorder; SA = substance abuse; SAC = substance abuse counseling; SUD = substance use disorder.

¹Research attrition refers to percent of patients lost to research followup.

²Engagement refers to percent of patients engaged in outpatient dual-disorders program at followup.

³Report includes descriptive outcomes without specific numerical data.

Table 3. Controlled studies of comprehensive integrated treatment programs

Study characteristics	Jerrell and Ridgely 1995a; Ridgely and Jerrell 1996	Drake et al. 1998	Godley et al. 1994	Drake et al. 1997
<i>n</i>	132	203	38	217
Mental illness	—	77% Schizophrenia 23% Bipolar disorder	44% Schizophrenia 39% Affective psychosis	50% Schizophrenia 47% Mood disorders
Substance use disorder	40% AUD 19% DUD 30% Minority	73% AUD 42% DUD None	58% AUD ≥ 42% DUD None	55% AUD 61% DUD 89% African-American
Other features				Homeless
Interventions	BST vs. 12-step CM vs. 12-step	ACT and SAC vs. SCM and SAC	ICM and SAC vs. SS	Integrated ICM, SAC, and housing (IT) vs. nonintegrated services (SS)
Research design	Quasi-experimental Integrated vs. integrated	Experimental Integrated vs. integrated	Experimental Integrated vs. nonintegrated	Quasi-experimental Integrated vs. nonintegrated
Followup period	18 months	3 years	2 years	18 months
Research attrition ¹	31%	9%	21%	14%
Engagement ²	—	85% ACT = SCM	Very high ³	IT > SS
outcomes				91% vs. 58% for psychiatric counseling
Substance abuse outcomes	BST > 12-step CM = 12-step	ACT > SCM on treatment progress and decreased alcohol severity	ICM > SS on days of drug use	76% vs. 24% for SA counsel- ing
Hospital use outcomes	—	ACT = SCM	ICM = SS for days of hospitalization	IT > SS for treatment progress and decreased alcohol severity
Symptom outcomes	BST > 12-step ICM > 12-step	ACT = SCM	ICM = SS	IT > SS for reduced days in hospital
Other outcomes	No differences for social functioning and role performance	ACT = SCM on QOL	—	IT = SS

Note.—Dashes = no data; ACT = assertive community treatment; AUD = alcohol use disorder; BST = behavioral skills training; CM = case management; DUD = drug use disorder; ICM = intensive case management; IT = integrated treatment; QOL = quality of life; SA = substance abuse; SAC = substance abuse counseling; SCM = standard case management; SS = standard services; SUD = substance use disorder.

¹Research attrition refers to percent of patients lost to research followup.

²Engagement refers to percent of patients engaged in outpatient dual-disorders program at followup.

³Report includes descriptive outcomes without specific numerical data.

“research attrition” refers to percent of patients lost to research followup. Sometimes patients stayed in the research but dropped out of services and vice versa. Some of these studies are brief reports in which outcomes are described but exact numbers are not provided.

Six of the 10 studies, summarized in table 2, were open clinical trials. Three of these studies followed patients for 18 to 24 months (Detrick and Stieppock 1992; Durell et al. 1993; Godley et al. 1994), and the other three followed patients for longer than 24 months (Drake et al. 1993b; Bartels et al. 1995; Meisler et al. 1997). These six studies contained small study groups and lacked controls, but most found excellent engagement in services and substantial reductions in substance abuse. Furthermore, the three longer-term studies demonstrated substantial rates of stable remission of substance use disorders (41%–61%). Details of these six open trials follow, beginning with the three shorter-term studies.

Detrick and Stieppock (1992) studied multidisciplinary team interventions provided to patients with dual disorders; there were no data on mental illness or substance disorder diagnoses. The Mobile Treatment Teams were based on assertive community treatment principles: assertive outreach; medication management; integration of treatment, rehabilitation, and support; multidisciplinary team approach; low client-to-staff ratio of 8 to 1; extended service hours; and long-term commitment to clients. In addition, teams were designed to deliver integrated mental health and substance abuse treatment to patients with dual disorders and criminal justice system involvement. Substance abuse treatments were stage-wise, educational, and integrated with mental health care.

An 18-month evaluation of the first 17 patients assigned to Mobile Treatment Teams found 100 percent engagement in services; the authors also reported reductions in the incidence of psychiatric hospitalization, detoxification admissions, amount of substance abuse, emergency services contacts, and arrests, but no data were provided on these outcomes. The authors reported no changes in residential stability or employment status. They did not report on psychiatric symptoms.

Durell et al. (1993) studied 84 patients with severe mental illnesses who received intensive case management (psychiatric care, supportive services, psychoeducation, skills training, crisis intervention, and individual psychotherapy) and integrated substance abuse counseling for at least 18 months. Specific diagnoses were not provided.

Of the 43 patients with dual disorders in the study group (47% polysubstance use disorder), two-thirds had reduced substance abuse over the 18 months. Although three-quarters (76%) of the 84 patients increased their total time in the community (community tenure), a small group of patients whose community tenure worsened con-

sisted disproportionately of dually disordered patients. Psychiatric symptoms and other outcomes were not reported for the patients with dual disorders, and specific data were not provided in this report.

Using a similar intervention (intensive case management plus integrated, stage-wise substance abuse counseling), Godley et al. (1994) attempted to study 234 patients with dual disorders as part of a six-site demonstration program. Mental illness diagnoses were 46 percent schizophrenia and 29 percent mood disorders; substance-related diagnoses were 65 percent alcohol use disorder and more than 42 percent other drug use disorders. Patients were followed every 6 months in two sites using an experimental study design and in four sites using open clinical trials, but followup data were available for only three of the sites using uncontrolled designs and one of the sites using an experimental design. (Results from the site with an experimental design are reviewed later.)

Pre-post results from the 3 sites that lacked control groups were available for 44 of the original 116 clients (38%) at these sites. Results indicated decreased use of the hospital (number of admissions and days of hospitalization), decreased substance abuse consequences (no details on consequences provided), reduced medical problems, reduced social difficulties, no change in days of substance use, no changes in psychiatric symptoms, and no change in work. This study was limited by the high attrition rate.

Among the three longer-term studies, Bartels et al. (1995) followed up 148 patients with severe mental illness in a State hospital aftercare service 7 years after baseline evaluation. Mental illness diagnoses were 73 percent schizophrenia, 19 percent bipolar disorder, and 8 percent personality disorder; substance-related diagnoses were 24 percent alcohol use disorder and 20 percent drug use disorder. The integrated treatment was an early form of comprehensive treatment in which intensive case management teams provided individual and group substance abuse treatments using a 12-step approach and attempted to link patients with self-help groups in the community. Of the 36 patients who had alcohol use disorder at baseline, 44 percent were in remission for 6 months or more at followup; of the 29 with drug use disorder at baseline, 41 percent were in remission. No other outcomes were reported.

Drake et al. (1993b) evaluated 18 patients with schizophrenia and alcohol use disorder after 4 years of integrated treatment involving assertive outreach, intensive case management, medication management, skills training, and individual and group substance abuse counseling using a stage-wise, dual-disorders approach. Of the 18 patients, 100 percent were maintained in treatment, and 61 percent attained stable remission of alcoholism. No other outcomes were reported.

Meisler et al. (1997) studied an integrated treatment approach for homeless patients with severe mental illness and co-occurring substance use disorder. No specific diagnoses were reported. The integrated treatment combined assertive community treatment with a form of substance abuse counseling that emphasized harm reduction.

All 67 patients with dual disorders were retained in treatment and reevaluated after 12 to 48 months of treatment (mean = 31). At followup 82 percent had attained a community domicile, 41 percent had experienced remission of substance use disorder, and 42 percent had become employed. Patients in a larger study group of 114 that included the 67 dually diagnosed patients had reduced hospitalizations, but changes in hospital use were not reported separately for the patients with dual disorders. Changes in psychiatric symptoms were not reported.

Thus, the six uncontrolled studies of comprehensive integrated treatment found high rates of patient engagement, reduced substance abuse, and, where studied, reduced hospitalizations. In addition, the three studies that followed patients for longer time periods found substantial rates of remission of substance use disorders. However, these studies were limited not only by the lack of control subjects but also by small study groups. Outcomes were often based on clinician ratings, which may provide a more valid measure than self-report, at least as a single data source for substance abuse assessment (Drake et al. 1990a; Goldfinger et al. 1996).

Four studies of comprehensive integrated treatment included research controls (see table 3). Two of these studies (Jerrell and Ridgely 1995a; Drake et al. 1998) compared different forms of integrated treatment and thus yielded no data on the question of integrated versus non-integrated approaches. The other two controlled studies (Godley et al. 1994; Drake et al. 1997) compared integrated treatment programs with nonintegrated programs.

Jerrell and Ridgely (1995a) used a quasi-experimental design to study 132 patients with psychotic or major affective disorder (no further definition given regarding mental illness diagnoses) and co-occurring substance use disorder (40% alcohol use disorder and 19% drug use disorder at baseline) in five mental health centers. The study compared three techniques for integrating substance abuse treatment with community mental health services: behavioral skills training, case management, and a 12-step approach. The behavioral skills training approach emphasized teaching specific self-management skills necessary to maintain abstinence. The case management approach relied on case managers to provide substance abuse counseling. The 12-step approach helped patients to understand and link with existing self-help groups, such as Alcoholics Anonymous, in the community. The study has

been described in several different reports (Jerrell and Ridgely 1995a, 1995b; Jerrell 1996; Ridgely and Jerrell 1996); except as noted, we refer to the report on comparative effectiveness (Jerrell and Ridgely 1995a). The study was quasi-experimental because only 48 percent of the 132 patients were randomly assigned to the treatment conditions.

At endpoint (12 or 18 months), the authors examined a broad range of outcomes. Patients in the behavioral skills training group and in the case management group had more improvement in psychiatric symptoms and other outcomes than those in the 12-step group. Using a p value of ≤ 0.01 to control for numerous tests, results showed that patients in behavioral skills training did better than those in the 12-step group in terms of symptoms of schizophrenia, depression, mania, alcohol abuse, and drug abuse. Patients in the case management condition did better than those in the 12-step group on global life satisfaction and symptoms of schizophrenia, depression, and mania, but not on substance abuse outcomes. There were no significant differences on measures of social adjustment and role functioning. Findings related to hospitalization were not reported. The behavioral skills training group had lower treatment costs, but differences on services utilization and costs were difficult to interpret because the groups were nonequivalent at baseline on hospital use (Jerrell 1996). The study suffered from research attrition of 31 percent and had serious implementation problems, especially with the 12-step and case management conditions (Ridgely and Jerrell 1996). In addition, only a minority of the patients met criteria for alcohol or drug use disorders, and these proportions did not change significantly at endpoint (Jerrell and Ridgely 1995b). The study nonetheless did suggest that behavioral skills training may be superior to 12-step programs in addressing substance abuse among patients with severe mental illness.

Drake et al. (1998) used an experimental design to study 203 patients with dual disorders in 7 sites. Mental illness diagnoses were 77 percent schizophrenia and 23 percent bipolar disorder; 73 percent had alcohol use disorder and 42 percent had drug use disorder. The patients were randomly assigned to two forms of integrated treatment and followed for 3 years. Individual and group substance abuse interventions based on a stage-wise approach were integrated into either assertive community treatment (ACT) teams or standard case management (SCM) teams. Both groups received community-based, team-oriented services, but ACT patients received more intensive services by the team because of lower case loads (25:1 vs. 12:1) (Teague et al. 1995). Substance abuse was assessed by combining data from self-reports, clinician ratings, and urine drug screens.

Only 9 percent of the patients were lost to followup due to death or inability to locate, and 85 percent of those followed were continuously engaged in the community treatments. Patients in ACT had better outcomes on some measures of substance abuse (progress toward recovery and severity of alcohol abuse). The groups made similar progress in terms of remission of substance use disorders, reductions in hospital days, reductions in psychiatric symptoms, and increased quality of life. This study was limited by treatment diffusion (i.e., the SCM condition increased service intensity and dual-disorders services by linking with other services to resemble the ACT condition), by the variability in ACT implementation, and by the use of a relatively intensive case management condition for the usual services control group.

Two controlled studies compared integrated treatment with nonintegrated treatment. Godley et al. (1994) reported on a study that used an experimental design to evaluate the 24-month outcomes for 38 patients with dual disorders. The most common mental illness diagnoses were 44 percent schizophrenia and 39 percent affective psychoses; substance-related diagnoses included 58 percent alcohol use disorder and 42 percent drug use disorder. Patients were randomly assigned to integrated or nonintegrated services. This study was conducted and reported as a part of the statewide demonstration described above. Integrated services were delivered by intensive case management teams that provided substance abuse counseling. Two of the sites in this demonstration attempted experimental designs, and the 24-month outcome data were available from one of the two. Marginally significant ($p < 0.10$) group \times time interactions favored integrated treatment on days of drug use, but other outcomes, including consequences of drug use, days of hospitalization, and psychiatric symptoms, were similar for the two groups. This study was limited by high attrition (21%), small study group size, and low statistical power.

Drake et al. (1997) used a quasi-experimental design to study integrated mental health, substance abuse, and housing services for 217 homeless patients with severe mental illness and co-occurring substance use disorder. Mental illness diagnoses included 50 percent schizophrenia and 47 percent mood disorders; substance-related diagnoses included 55 percent alcohol use disorder and 61 percent drug use disorder. The integrated interventions included intensive case management, mental health and substance abuse counseling, behavioral group treatments for substance abuse, and access to a supported housing continuum. A comparison group received mental health services in community mental health centers, substance abuse treatment through 12-step programs and self-help groups, and mainstream housing with supports. Substance

abuse outcomes were determined by combining self-report and clinician ratings.

Research attrition was 14 percent. Patient engagement was significantly better for the integrated treatment group than the comparison group both in psychological counseling (91% vs. 58%) and in alcohol and drug counseling (76% vs. 24%). Patients in both the integrated treatment condition and the comparison group had fewer homeless days, but patients in the treatment group spent significantly less time in institutions and more time in stable housing. In addition, patients in the integrated treatment program made greater progress toward recovery in substance abuse treatment and showed greater improvement in alcohol abuse. Both groups improved similarly in terms of abuse of other drugs, psychiatric symptoms, and quality of life. This study was limited by lack of random assignment; because more of the experimental group were recruited in hospitals, they were more likely to be diagnosed with schizophrenia and had more extensive histories of hospitalization.

In summary, although the 10 recent studies of comprehensive dual-disorders treatment programs were limited in different ways, the results provide encouraging evidence for the effectiveness of integrated treatment of dual disorders. In these studies, integrated treatment, especially when delivered for 18 months or longer, resulted in significant reductions of substance abuse and, in some cases, in substantial rates of remission, as well as reductions in hospital use and/or improvements in other outcomes. These studies, therefore, are consistent with the hypotheses that patients with dual disorders can be successfully rehabilitated from substance use disorders and that integrated treatments are superior to nonintegrated treatments.

Discussion and Conclusions

The health care delivery system has moved rapidly toward endorsing integrated treatment approaches for patients with dual disorders (Smith and Burns 1994; Center for Substance Abuse Treatment 1994; Osher and Drake 1996; Woody 1996). Yet research concerning the effectiveness of integrated treatment, at least for patients with severe mental illnesses such as schizophrenia, has provided only modest encouragement. The most encouraging evidence thus far comes from 10 studies of comprehensive, integrated dual-disorders programs. These 10 programs differed from earlier integrated treatment programs by incorporating into their basic designs an array of components, including assertive outreach and motivational interventions for substance abuse. The related research studies also differed from most earlier studies by following patients for longer than 1 year. Although flawed, these

studies provide the best and most optimistic data currently available on integrated dual-disorders services. They show that comprehensive dual-disorders programs are able not only to attract and retain patients in services but also to help patients attain clinically meaningful reduction and remission of substance use disorders over time.

The 26 studies of earlier integrated service models yielded disappointing results, but nonetheless they contributed to a clearer understanding of patients' needs, treatment dynamics, and research requirements. The four studies focusing on programs that added a dual-disorders group intervention to usual services showed this approach to be effective for highly motivated patients who continued in the groups. However, in the absence of assertive outreach, many patients who were not yet motivated to pursue abstinence dropped out of these programs. The nine studies focusing on intensive dual-disorders treatment in hospital, residential, or day treatment settings showed that the interventions were not generally effective: Many patients dropped out, presumably lacking motivation to participate in abstinence-oriented services. Those who seemed to benefit while in the programs had difficulties maintaining their gains after they left the intensive treatment settings. The 13 CSP demonstrations showed that mental health and substance abuse treatments could be integrated in a variety of settings and that dual-disorders programs could attract and retain different high-risk groups. Project staff attributed excellent retention to assertive outreach and culturally sensitive services. In 12- to 18-month followups, however, the CSP projects did not consistently find improvements in substance abuse, hospital use, or other outcomes. Instead, the projects found that many patients needed long-term, stage-wise interventions because they were unmotivated early in treatment to pursue abstinence.

Most studies of dual-disorders interventions have been limited by small study groups, lack of control groups, implementation problems, and difficulties in assessing substance abuse. Consequently, from a research perspective, integrated treatment for dual disorders remains a working hypothesis with only modest empirical support.

Given the magnitude of the problem of dual disorders, more controlled research is needed. Research is needed to examine not only integrated versus nonintegrated treatment programs but also the different components of integrated interventions. Some of the methodological problems alluded to above should be remediable. Programs must be comprehensive, including assertive outreach, case management, and stage-wise, motivational interventions for substance abuse. Treatment interventions need to be guided by program manuals, and implementation should be measured carefully with fidelity measures.

Studies should have control groups and enough patients to achieve statistical validity. Because substance use disorders, like severe mental disorders, are chronic and relapsing, programs and services should span a period of at least 2 years (Drake et al. 1996).

One critical area for dual-disorders programs and research is the measurement of substance abuse. A number of studies now show that reliance on self-report alone, especially relying on single measures of substance abuse, yields inadequate information (Drake et al. 1990a; Galletly et al. 1993; Shaner et al. 1993; Stone et al. 1993; Corse et al. 1995; Goldfinger et al. 1996; Wolford et al., in press). Therefore, at least one other source, such as multiple instruments, clinical ratings, or laboratory tests, should supplement self-report. Furthermore, because most patients with dual disorders make progress and recover from substance use disorders in stages, assessment needs to measure patients' stages of recovery (McHugo et al. 1995; Mueser et al. 1995b).

We have focused this review primarily on the question of integrated dual-disorders treatment versus nonintegrated treatment rather than on different components (e.g., types of case management) or on specific interventions (e.g., types of counseling techniques or specific medications). Nevertheless, individual components and specific interventions need to be refined and tested. For example, all the programs reviewed here attempted to incorporate state-of-the-art pharmacological interventions, but few efficacy studies establish appropriate pharmacological treatments for patients with dual disorders. Evidence from case studies of patients on clozapine who concomitantly reduce their substance use (Albanese et al. 1994; Marcus and Snyder 1995) indicates that adequacy of antipsychotic response may be critical in recovery from substance abuse or that some antipsychotics may have direct effects on substance abuse. Assuring medication compliance and adequate response should also be critical factors in dual-disorders treatment (Osher and Kofoed 1989). There have been no studies of medication compliance, however, or of long-acting antipsychotic medications in relation to substance abuse treatments.

Studies regarding adjunctive pharmacological treatments for substance abuse among dually disordered patients are also needed. Ziedonis et al. (1992) studied adjunctive desipramine for schizophrenia patients abusing cocaine and found partial support for reductions in substance abuse. In a similar study, Siris et al. (1993) found no reductions in substance abuse. Kofoed et al. (1986) reported the usefulness of adjunctive disulfiram in an open clinical trial, but no controlled studies have examined disulfiram, naltrexone, or other medications that reduce alcohol use or craving.

Another critical issue is the heterogeneity of the population. We need more research on various types of heterogeneity among patients: motivated versus unmotivated patients, men versus women, patients with substance dependence versus substance abuse, those with polysubstance abuse versus those with alcohol abuse alone, those with trauma histories versus those with none, and those with antisocial behavior versus those with none. We are just beginning to document the individual differences in treatment needs of severely mentally ill patients with substance abuse comorbidity. For example, we are learning about the substantially different treatment needs of women with dual disorders compared with men (Alexander 1996; Brunette and Drake 1997).

Greater understanding of the organization and costs of these treatment systems is another important research need. The few existing data suggest at this point that community-based care for individuals with dual disorders is expensive (Bartels et al. 1993; Jerrell 1996) and burdensome to families (Clark 1994; Clark and Drake 1994). Integrated dual-disorders treatment has the potential to reduce costs substantially (Jerrell et al. 1994), but this potential needs to be evaluated in controlled studies. Because patients with dual disorders consume extensive resources outside the mental health system, cost studies should include a societal perspective (Clark and Fox 1993).

Considerable progress has occurred over the last 10 years in what was a particularly poorly understood area in mental health services. We have learned about essential components of integrated treatment and about assessing substance abuse in patients with severe mental disorders. Research provides at least some encouragement for the effectiveness of long-term, stage-wise, motivational treatment. Patients, their families, and clinicians have reason to be optimistic over the long term concerning the potential for recovery from substance use disorders (Drake et al. 1996).

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The Authors

Robert E. Drake, M.D., Ph.D., is Professor of Psychiatry; Carolyn Mercer-McFadden, Ph.D., is Research Associate, Department of Community and Family Medicine; Kim T. Mueser, Ph.D., is Professor of Psychiatry; and Gregory J. McHugo, Ph.D., is Research Assistant Professor, Department of Community and Family Medicine, all at Dartmouth Medical School, Lebanon, NH. Gary R. Bond, Ph.D., is Professor of Psychology, Indiana University-Purdue University at Indianapolis, IN.