

## Using Behavioral Reinforcement To Improve Methadone Treatment Participation

A new service delivery system for the treatment of opioid dependence, called motivational stepped care, matches the intensity of counseling services to each patient's clinical progress. Adherence to a counseling schedule is reinforced through the linking of counseling attendance with the patient's methadone dispensing schedule and, ultimately, his or her ability to continue receiving treatment services. The article describes the scientific evidence supporting the major elements of the model, the model in action, and evaluations that have been conducted to date.

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The effectiveness of methadone treatment in reducing use of heroin and other opioids has been confirmed in studies spanning more than three decades but has declined in recent years. One factor in this development is greater scope and severity of problems among current patients than among their counterparts in the mid-1960s. The changing clinical profile includes high rates of use of cocaine and other drugs (e.g., Brooner et al., 1997), high rates of psychiatric and other life-threatening health problems (e.g., Brooner et al., 1997), high rates of unemployment (Platt, 1995), and an expanding drug culture that isolates patients from drug-free social supports (e.g., Latkin et al., 1995). While there has always been a subgroup of opioid-dependent patients who use other drugs and have other serious health and social problems, the growing number of such patients has produced an acute need for more comprehensive and intensive services.

Several general strategies have been tried to improve the functioning of drug-dependent patients. Simply intensifying routine drug abuse counseling improves outcomes for patients receiving methadone, and even better response can be achieved with more specialized interventions (e.g., Woody et al., 1995). This work has led to a critical principle in the treatment of drug abuse: Providing appropriate intensities of proven psychological interventions enhances patients' response to medications. Yet many programs deliver only limited counseling. Inadequate funding, large caseloads, and overextended counseling staff partially account for this problem. However, even when sufficient counseling is available, even in well-designed and adequately funded treatment studies, patients often attend fewer than half of their scheduled sessions (Kidorf et al., 1999). The consequences are less effective therapy and reduced staff morale.

This article presents a therapeutic approach that integrates the use of methadone with routine and specialized counseling. The approach, called motivational stepped care (MSC), is designed to motivate patients to attend counseling sessions, even when scheduled frequently, and to help them achieve at least brief periods of abstinence through a clear and predictable set of behavioral contingencies. It is based on the stepped-care approach that has been used with patients who have alcohol or other psychiatric problems (e.g., Davison, 2000) and uses a simple matching principle in which people who respond poorly to treatment are moved to greater intensities of care, while those who respond well receive less intensive services. As shown in Figure 1, new patients begin treatment at Step 1 and move to greater intensities of care according to their rates of counseling attendance and drug-positive urine specimens.

### SCIENTIFIC BASIS FOR MSC

Three main principles underlie the MSC model. All have been repeatedly validated by empirical research.

#### Psychosocial Interventions Are Effective

The importance of individual and group counseling for drug-dependent patients was recognized by the founders of methadone treatment, and counseling has always been a standard part of medication therapy. Empirically validated counseling interventions can help patients identify problem areas, establish rational targets for step-by-step improvement, adhere to program guidelines and procedures, recognize progress in treatment, and cope with occasional relapses. Counselors also use sessions to provide and facilitate referrals related to needs that cannot be met within the program, for example, medical and psychiatric care, housing, and legal help. Studies have shown that individual and group counseling, case management services, and professional psychotherapy improve methadone treatment by reducing drug use, increasing employment, and fostering other changes important to recovery.

A study by McLellan and colleagues (1993) illustrates both that counseling services are, in general, important to treatment outcome and that more counseling often produces better results. Methadone patients who were randomly assigned to receive standard counseling plus additional psychiatric and medical services achieved more consecutive weeks of opioid- and cocaine-

negative urine samples than did patients who received only standard counseling or no counseling. In contrast, patients assigned to receive no counseling did so poorly that standard counseling was added to the treatment for many, who then improved rapidly, significantly reducing both cocaine and heroin use within 1 month.

#### Stepped Care Is Effective and Cost-Sensitive

The amount of counseling necessary to maximize therapeutic response varies from patient to patient and program to program. Indeed, the amount needed to initiate or sustain good response by a single patient may vary at different stages of therapy, especially during long-term treatment.

Stepped-care treatment models have been shown to provide a rational and flexible system for determining what quantity of services an individual patient needs at any point during treatment for alcohol abuse and other psychiatric problems. These models are also gaining acceptance among drug abuse clinicians and researchers. Stepped care initiates treatment services at a “least restrictive” level and moves the patient to more intensive and invasive schedules only if the response is poor. Each patient is thus matched to the least intensive, least costly intervention necessary to achieve his or her best clinical response.

The stepped-care service delivery approach has considerable relevance to the treatment of opioid dependence. Some patients respond well to minimal counseling, while others respond poorly, with high rates of missed sessions and continuing drug use. Maintaining good responders at the minimal levels while assigning poor responders to more intensive counseling schedules—at least for brief periods—is a cost-sensitive approach well suited to the need of programs using methadone to make the best possible use of their limited resources for providing services.

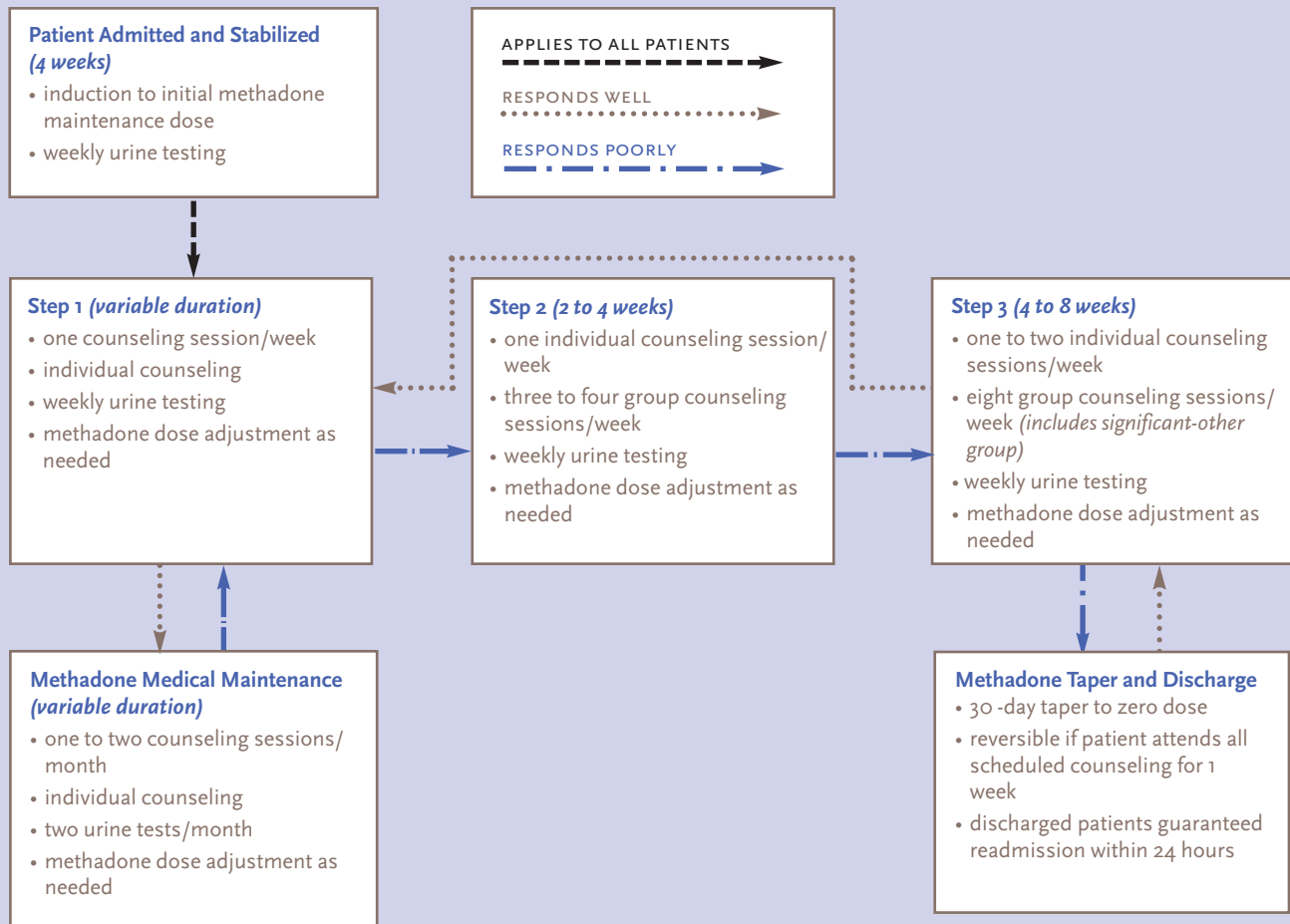
A feature of stepped care is that patients who are among the least likely to attend minimal counseling sessions are assigned even more sessions. To overcome this apparent paradox, programs must include interventions to motivate attendance, particularly at more intense levels of service.

#### Contingency Management Incentives Can Reinforce Counseling Attendance

Contingency management promotes greater treatment participation by linking it to services patients

*People who respond poorly to treatment are moved to greater intensities of care, while those who respond well receive less intensive services.*

FIGURE 1. Motivational Stepped Care Approach\*



\* Programs can tailor counseling content and movement across steps to fit their resources and patient populations

value. Programs that use methadone offer many services that can be used as contingencies to promote counseling attendance and other important behavior changes, such as reducing drug use and getting a job (see review by Kidorf and Stitzer, 1999) (Table 1). Such interventions are most effective when they are administered consistently and applied proximately to target behaviors.

Behavioral contingencies have been implemented in many treatment programs with varying degrees of success. Contingent take-home doses of medication have been associated with only modest reductions in drug use (Kidorf and Stitzer, 1996); better results have been seen when take-home doses are used to improve counseling attendance (Kidorf et al., 1994;

Iguchi et al., 1988). However, some unstable patients may sell or misuse the take-home medication.

Another widely used approach involves increasing the medication dose to reward counseling attendance or drug abstinence, and applying dose reductions for missed counseling sessions or continued drug use (Stitzer et al., 1986). This approach is a workable but more short-term intervention because dose increases may be limited by a ceiling effect, and dose reductions can worsen response and lead to discharge.

A more recent approach to contingency management involves issuing vouchers for goods and services to reward reductions in drug use. While the voucher system has produced good results (Silverman et al., 1996), most community programs cannot purchase

items to use as rewards for abstinence or counseling attendance.

One of the more effective behavioral reinforcement strategies in drug abuse treatment, and among the easiest to adopt in community settings, is contingent access to ongoing treatment services. This approach often involves telling patients they will be discharged from the program if they continue using drugs. While it works for some patients, special measures are needed to prevent unintended high rates of discharge (Zanis and Woody, 1998).

Sustaining behavioral changes motivated by contingency management interventions can also be problematic, especially among drug abusers mired in social networks that reinforce continued drug use (Hawkins and Fraser, 1987; Latkin et al., 1995). Azrin developed a community reinforcement intervention that utilizes the support of spouses and significant others to improve medication adherence, provide social and other reinforcement contingent on abstinence, and help patients become involved in social activities (e.g., Azrin et al., 1994). While this intervention has been used mainly with patients suffering from alcohol problems, it can be used with opioid abusers who have drug-free family members or friends.

## THE MSC MODEL

The MSC service delivery approach was implemented in 1992 by the Addiction Treatment Services program at Johns Hopkins Bayview Medical Center. At that time, we were seeing increasing cocaine and heroin use by patients, 12-month retention rates were dropping, and most patients were failing to attend the modestly increased counseling services offered to them.

Patients avoiding counseling sessions is a problem shared by nearly all drug abuse programs. Given the effectiveness of counseling, it is intuitively clear that missed counseling sessions must have an impact on outcomes (see “Missed Counseling Sessions = Less Therapeutic Effectiveness,” page 43). The MSC system was designed to increase the intensity of services available to poor responders and to motivate them to attend counseling by linking the continuation of services to their attendance and to documented abstinence of modest duration (2 to 4 weeks) (Brooner et al., 1996; Kidorf et al., 1999).

MSC employs three aspects of standard opioid agonist treatment as incentives:

- **Daily medication dosing time.** Early medication dosing times are offered only to patients who regularly attend scheduled counseling sessions. The more sessions a patient misses, the later his or her clinic dosing is scheduled.
- **The amount of required weekly counseling.** Patients who regularly attend scheduled counseling sessions and produce drug-negative urine specimens are offered the option of fewer counseling sessions. Patients who persistently miss counseling sessions and/or continue to use drugs are assigned to intensified counseling schedules. The desire to avoid this contingency motivates some patients to adhere to their current counseling schedules and/or achieve brief periods of abstinence. For those who do not improve, the increased frequency of counseling as well as greater expertise of counselors (most counseling in the intensified schedules is group-based and delivered by senior staff members) enhances the potential benefit of the intervention.
- **Continued availability of treatment.** Patients who have been moved along to the most intense level of counseling and continue to miss counseling sessions are tapered off their opioid agonist medication and discharged from the program.

Two elements of the MSC model require further explanation to allay potential concerns. First, the linkage of counseling intensity to therapeutic goals utilizes the behavioral principle of an avoidance schedule, in which some patients reduce drug use and attend routine counseling to avoid more intensive weekly counseling at higher steps. Some treatment experts have expressed concern that the MSC model relies partly upon the patient’s desire to minimize exposure to counseling to motivate clinical progress. They argue that if counseling services are of high quality, patients will naturally seek them out, rather than avoid them. We believe that patients who make clinical progress because of a desire to avoid more intensive interventions have made a rational choice. People with other medical problems are often encouraged by health professionals to change specific behaviors to avoid more intensive and invasive interventions, and such patients are commended when they succeed.

Some observers have interpreted the MSC model’s ultimate contingency, the 30-day medication taper,

*All patients receive education about the structured steps of care.*

as punishment for the poorly responding patient, but this is not its intent. Rather, this intervention was adopted to utilize the principle of behavioral reinforcement, linking a highly valued outcome—the ongoing availability of opioid agonist medication—to therapeutic objectives. In effect, the MSC approach uses methadone to eliminate opioid withdrawal, suppress drug craving, and reinforce greater participation in the treatment plan.

Patients retain considerable control over the process and can reverse tapers simply by adhering to the treatment plan for 1 week. Most importantly, patients who choose to leave the program rather than attend counseling sessions in Step 3—the most intensive step of the program—are told they can return to the program as soon as 1 day later if they simply agree to attend all scheduled counseling sessions. Guaranteed readmission remains in place for 30 days, and patients return to the Step 3 schedule.

In summary, the MSC therapeutic model fully integrates the three major elements of a comprehensive system of care: access to a wide range of medications and doses, access to a wide range of counseling interventions and intensities, and use of behavioral reinforcement to motivate counseling attendance. The model's overall goal is to retain patients in treatment and provide each one with the psychosocial interventions most likely to improve his or her outcomes. Its structural and dynamic aspects are consistent with stepped-care models described by others (e.g., Davison, 2000), in which treatment intensity is increased only for those who demonstrate a need for additional service.

MSC produces a treatment plan with predictable responses to the changing decisions and problems that patients express and therefore maximizes the goal of individualized care. It is also cost-effective, by directing more intensive and specialized services only to those doing poorly. The escalating intensities of weekly counseling also impose an extra measure of structure on the daily lives of drug-using patients who remain disorganized and unproductive.

### **MSC IN ACTION**

The MSC delivery system provides three distinct intensities of weekly counseling, clear guidelines for movement between the steps, and a process that ultimately links the continuation of the treatment episode with

attendance at all scheduled counseling sessions. All changes in counseling intensities are based upon measurable factors, namely, rates of drug-positive urine specimens and counseling attendance, which are monitored weekly by the clinical staff. All patients receive education about the structured steps of care at admission and throughout their therapy to ensure that they understand the treatment plan and the consequences of missing counseling sessions and uninterrupted use of drugs.

One important feature of an MSC approach is the ability of each program to establish its own criteria for changing counseling intensities. This encourages programs to select thresholds that are well suited to the special characteristics of the populations they serve.

Patients newly admitted to our MSC program begin treatment in Step 1 (standard care) after a 4-week stabilization period, and they are scheduled to attend one 30-minute individual counseling session per week. We generally resist the temptation to start treatment at more intense steps for patients with particularly severe drug use disorder or other psychiatric problems. We have observed that some of the more severely affected patients respond well to Step 1, so greater intensities of care would be cost-ineffective as well as unnecessarily disruptive to them. Starting patients at more intense levels of care might also increase resistance to the intervention and produce high rates of failure and discharge. Delaying the use of more intensive services until a patient provides evidence of poor response can improve the acceptability of the intervention. This approach is also consistent with the way medication is used in many programs. For example, new patients are often started on relatively low doses of methadone (30 mg to 40 mg daily) and advanced to higher doses only as needed to manage continuing opioid withdrawal symptoms or drug craving.

Patients in Step 1 who achieve and sustain good clinical response—for example, documented abstinence and attending all sessions—for several months are shifted to a case management status—methadone medical maintenance—that gradually reduces program reporting to once every 14 to 30 days, for an individual counseling session and renewal of medication supply. This intensity of care constitutes the least intensive service available in the program. Step 1 patients who produce drug-positive urine specimens

and/or miss counseling sessions in any 2 consecutive weeks after the 4-week stabilization period are moved along to Step 2.

Step 2 patients are scheduled to receive one individual counseling session and three to four group sessions per week for 2 to 4 weeks. The manual-guided counseling groups teach skills including relapse control, job training, stress management, abstinence role recovery, coping with urges to use drugs and other problems, and time management. Senior clinical personnel deliver most group counseling services, which increases cost-effectiveness and avoids overburdening the primary counseling staff, many of whom manage caseloads of 40 or more patients. Counselor and patient together decide on group assignments, which are based on the patient's needs and work schedule; services are provided between 7 a.m. and 8 p.m. on weekdays. Step 2 patients who attend all their scheduled sessions and provide drug-negative urine samples for 2 consecutive weeks return to Step 1 for ongoing care. Step 2 patients who continue to miss counseling sessions and/or use drugs are reassigned to Step 3.

The counseling schedule in Step 3 consists of one to two individual sessions and eight group sessions per week. One of the required groups for Step 3 patients

is a manual-guided significant-other intervention that is based on the community reinforcement literature (Hunt and Azrin, 1973). This intervention requires patients to enlist the help of drug-free family or friends to attend group counseling and help them develop or expand drug-free social supports. Patients who attend all counseling sessions and remain drug-free for 4 consecutive weeks are returned to Step 1, although the significant-other group meeting remains in place for a few weeks to ensure a successful transition to less intensive service. Patients in Step 3 who continue to miss counseling sessions and use drugs are discharged after completing a 30-day medication taper.

Patients discharged from the program have provided considerable evidence of their unwillingness to follow the clearly articulated plan of care. Although it is tempting to keep such patients in the program anyway, doing so can dilute the effectiveness of treatment by allowing them to persistently avoid the services most likely to improve their functioning. Patients who choose a 30-day medication taper in preparation for discharge are reminded daily that attending scheduled counseling sessions for 1 week will stop the taper. Many patients begin attending sessions during this period. Those who complete the 30-day medication taper are

### Missed Counseling Sessions = Less Therapeutic Effectiveness

High rates of missed counseling sessions appear to be a pervasive and long-standing problem in programs offering methadone and other agonist medications. Nyswander and colleagues (1958) commented more than four decades ago on the small percentage of drug abusers who participated in available counseling. The high rates of missed counseling visits relative to missed medication visits in programs using opioid agonist medications reflects the view that counseling is supplementary and subordinate to the medication (Kidorf et al., 1994). This bias can be observed in programs that discharge patients who miss several consecutive days of medication, yet take no action when patients miss numerous counseling sessions. Such policies can have the unintended effect of communicating to the staff and patients the view that medication is the primary treatment, the intervention most likely to produce the largest and most sustained changes in behavior. So it is not particularly surprising when programs describe patients who regularly appear for medication but vanish before counseling can be delivered.

Many clinical trials that have evaluated the efficacy of psychosocial services have either failed to report rates of counseling attendance or documented only modest rates (Kidorf et al., 1999). Given the overall effectiveness of counseling, these studies may have produced even more impressive outcomes if more of the scheduled service were actually delivered to patients. Proper evaluation of the potential impact of counseling on the extent of rehabilitation is difficult when the intervention is delivered at low doses, intermittently, and unpredictably. While considerable attention is directed toward efforts to match patients to specific types of verbal or behavioral therapies, the more central problem is how to motivate patients to regularly attend even routine counseling sessions. The MSC therapeutic approach is designed to address this core problem that, if unresolved, will continue to limit the effectiveness of most counseling interventions.



**TABLE 1. Effectiveness of Clinic-Based, Behavior-Contingent Incentives**

All studies documented improvements in the targeted behaviors except Magura et al. (1988) (no effect) and Iguchi et al. (1988) (negative effect). Treatment outcome for each study was determined by rates of counseling attendance, urinalysis results, job acquisition, and/or involvement of significant others.

Clinic-based incentive	Target behavior	Study
Contingent take-home medication	Increased drug-free urine specimens	Milby et al. (1978); Magura et al. (1988); Stitzer et al. (1992); Kidorf and Stitzer (1996)
	Improved counseling attendance	Stitzer et al. (1977); Iguchi et al. (1996)
	Decreased self-reported drug use	Iguchi et al. (1988)
Contingent methadone dose alterations	Increased drug-free urine specimens	Glosser (1983); Stitzer et al. (1986); Higgins et al. (1986); Iguchi et al. (1988)
	Involvement of significant other	Kidorf et al. (1997)
	Job acquisition	Kidorf et al. (1998)
Contingent treatment availability	Increased drug-free urine specimens	McCarthy and Borders (1985); Dolan et al. (1985); Kidorf and Stitzer (1993); Kidorf et al. (1999)
	Improved counseling attendance	Kidorf et al. (1999)

discharged “against medical advice” and are guaranteed readmission as soon as 1 day later.

In the MSC model, discharge is a reversible intervention designed to motivate adherence to the treatment plan. The rapid-readmission intervention also encourages patients to return to the same program the next time they seek care. Patients with chronic drug use disorder often have histories of multiple episodes of care delivered by different programs. Increasing the likelihood of a patient’s return to the same program is advantageous because experience gained in the preceding episode of care can inform the new treatment plan.

#### EVALUATION OF THE MSC APPROACH

Several preliminary reports have been published using data from a randomized, controlled study evaluating the effectiveness of MSC for patients receiving methadone. These reports found that counseling attendance was significantly higher with MSC than with standard care (about 80 percent vs. 30 percent) and that rates of heroin use were lower (Bigelow et al., 1998; Brooner et al., 1996; Carter et al., 2000). Retention of patients was good and comparable across MSC and standard care—about 90 percent. The final report of this study

is completed and is being submitted for publication; results for the entire sample of participants are comparable to those reported here.

Another study was conducted in our program to evaluate the impact of attention-deficit/hyperactivity disorder (ADHD) on the treatment response of drug abusers (King et al., 1999). That study is presented here because the MSC approach was used to treat all of the patients, and outcomes were evaluated over a longer period (12 months) than studies specifically designed to assess the MSC model.

New patients were classified as having or not having ADHD, and all were treated with the MSC approach. In both groups, more than 75 percent were retained in treatment for the entire year, and more than 60 percent of all urine specimens were negative for heroin, cocaine, sedatives, and alcohol.

Recently, serendipity provided a unique opportunity to compare our patients’ outcomes to those of patients in Baltimore’s eight other publicly funded programs that use methadone. The City of Baltimore mandated that all publicly funded drug abuse treatment programs track retention rates at 1, 6, and 12 months; collect urine specimens at least twice monthly; and test the specimens in the same certified laboratory. The MSC approach produced the lowest rate of opioid-positive and cocaine-positive urine specimens, with 6- and 12-month retention rates similar to or better than the comparison programs (Baltimore City Health Department, unpublished data).

The available evidence from these evaluations indicates that the MSC approach can be used effectively with opioid abusers to motivate counseling attendance and reduce drug use, without producing high rates of discharge from treatment. Still, even though our program is community-based, it remains unclear

whether MSC will work as well in other programs. A large-scale, randomized replication in community clinics outside the control of our clinical research team will show whether this new approach to working with opioid-dependent patients is a “hothouse” model (one that requires unique attention for success) or a hardier approach that adapts successfully to most programs.

## MSC OUTSTANDING ISSUES

### Essential Elements

Most programs offering methadone or other agonist medications already have the elements necessary to implement an MSC approach, with the possible exception of high-intensity counseling services. Programs with a limited counseling staff may be able to obtain good patient outcomes with MSC using schedules that require considerably less counseling input than we currently use. The primary concern in setting counseling schedules is that patients clearly recognize that each forward step is distinctly more intense and each backward step distinctly less intense. We originally required only 6 hours of counseling per week in Step 3 and achieved good outcomes on that schedule. Step 3 was increased to 9 hours per week only to satisfy new State requirements that intensive outpatient program (IOP) services include at least 9 hours of counseling per week; there is no evidence that the change further improved patient outcomes. It is likely that good outcomes are possible with even less intensive schedules. With a schedule of 2 hours for Step 2 and 4 hours for Step 3, for example, the intensity of each step would remain at least twice that of the preceding step, which may be different enough to influence behavior.

Programs might also use senior clinical personnel to distribute the burden of additional counseling more widely; this has worked well in our program. The medical director and three remaining senior staff members each provide several hours of group counseling each week, for a total of about 25 hours of additional services weekly. The primary counseling staff delivers all of the individual sessions for a caseload of about 40 patients. A comprehensive and user-friendly manual is being developed to assist others who want to implement the MSC approach in their settings.

### Funding

MSC services are fully supported by annual block grant funding that uses a State-approved sliding fee schedule based on income and number of dependents. The

program receives the same level of grant funding per treatment slot as other publicly supported programs in Baltimore. Although many patients are uninsured, we have reimbursement agreements with several third-party insurers and with many managed care organizations. Under these agreements, the program can bill for IOP services for Step 3 patients. This new revenue stream supports additional billing staff and provides an opportunity to upgrade equipment and generally improve the program’s infrastructure.

### Staff and Patient Acceptance

The MSC approach has been widely accepted by the staff and patients. The active involvement of senior staff members in the day-to-day care of patients who have responded poorly to low-intensity care has proven an effective method for supporting the difficult work of primary counselors, who no longer have the primary responsibility of managing these patients. Staff morale has been improved by the counselors’ having access to a wider range of interventions—that is, the variety of counseling groups and intensities offered by the steps—than existed prior to our adoption of the MSC approach.

Patients express a mix of positive and negative reactions to MSC—often simultaneously. Very few believe at the outset of a treatment episode that they will require the more intense steps of care, and most react with some anxiety and anger when the change occurs. It is important to continually educate patients about the principles underlying MSC and remind them that negative feelings about more intensive interventions are a normal and reasonable response. Nevertheless, most patients tolerate the approach well, and many strongly endorse it, as evidenced by the following observations:

- Short- and long-term retention rates in the program equal or exceed those of other programs using methadone in Baltimore; and
- We had to increase the number of group services because patients in Step 1 who were previously exposed to more intense steps of care began to request more counseling.

Over the past few years, several drug abuse treatment experts visited the program to observe the MSC approach and talk with patients. The visitors typically



asked patients what they liked most and least about the program. Patients most often reported the greatest appreciation and the greatest dislike for the same program feature—the escalating intensities of weekly counseling. Their response illustrates a crucial element in the therapeutic process: the staff's ability to help patients understand and accept that the interventions they like least are often the ones most likely to help them.

The MSC program has yielded strong initial signals of efficacy. The next step will be to identify the elements that can support its successful adoption into the wider community. Adapting programs that have worked in a single setting to produce good results in a wide variety of settings is one of the most complex challenges to improving the effectiveness of drug abuse

treatment in this country, and one that calls for considerable collaboration between research and treatment professionals.

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## REFERENCES<sup>1</sup>

- Azrin, N.H., et al., 1994. Behavior therapy for drug abuse: A controlled treatment outcome study. *Behaviour Research and Therapy* 32(8):857-866.
- Bigelow, G.E.; Brooner, R.K.; and Silverman, K., 1998. Competing motivations: Drug reinforcement vs. non-drug reinforcement. *Journal of Psychopharmacology* 12(1):8-14.
- Brooner, R.K.; Kidorf, M.; King, V.L.; and Bigelow, G.E., 1996. Using behaviorally contingent pharmacotherapy in opioid abusers enhances treatment outcome. In L.S. Harris (ed.), *Problems of Drug Dependence, 1996: Proceedings of the 58th Annual Scientific Meeting of the College on Problems of Drug Dependence, Inc.* National Institute on Drug Abuse Research Monograph 174, NIH Publication No. 97-4236, p. 305. Rockville, MD: U.S. Department of Health and Human Services.
- Brooner, R.K., et al., 1997. Psychiatric and substance use comorbidity in treatment-seeking opioid abusers. *Archives of General Psychiatry* 54(1):71-80.
- Carter, J., et al., 2000. "Effects of Behaviorally Contingent Pharmacotherapy on Treatment Outcome of Opioid Dependent Outpatients." Paper presented at the College on Problems of Drug Dependence Annual Meeting, San Juan, PR, June 2000.
- Davison, G.C., 2000. Stepped care: Doing more with less? *Journal of Consulting and Clinical Psychology* 68(4):580-585.
- Dolan, M.P., et al., 1985. Contracting for treatment termination to reduce illicit drug use among methadone maintenance treatment failures. *Journal of Consulting and Clinical Psychology* 53(4):549-551.
- Glosser, D.S., 1983. The use of a token economy to reduce illicit drug use among methadone maintenance clients. *Addictive Behaviors* 8:93-104.
- Hawkins, J.D., and Fraser, M.W., 1987. The social networks of drug abusers before and after treatment. *International Journal of the Addictions* 22(4):343-355.
- Higgins, S.T.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A., 1986. Contingent methadone delivery: Effects on illicit opiate use. *Drug and Alcohol Dependence* 17(4):311-322.
- Hunt, G. M., and Azrin, N.H., 1973. A community-reinforcement approach to alcoholism. *Behaviour Research and Therapy* 11:91-104.
- Iguchi, M.Y.; Stitzer, M.L.; Bigelow, G.E.; and Liebson, I.A., 1988. Contingency management in methadone maintenance: Effects of reinforcing and aversive consequences on illicit polydrug use. *Drug and Alcohol Dependence* 22(1-2):1-7.
- Iguchi, M.Y., et al., 1996. Contingent reinforcement of group participation versus abstinence in a methadone maintenance program. *Experimental and Clinical Psychopharmacology* 4(3):315-321.
- Kidorf, M.; Brooner, R.K.; and King, V.L., 1997. Motivating methadone patients to include drug-free significant others in treatment: A behavioral intervention. *Journal of Substance Abuse Treatment* 14(1):23-28.
- Kidorf, M.; Hollander, J.R.; King, V.L.; and Brooner, R.K., 1998. Increasing employment of opioid-dependent outpatients: An intensive behavioral intervention. *Drug and Alcohol Dependence* 50(1):73-80.
- Kidorf, M.; King, V.L.; and Brooner, R.K., 1999. Integrating psychosocial services with methadone treatment: Behaviorally contingent pharmacotherapy. In E.C. Strain and M.L. Stitzer (eds.), *Methadone Treatment for Opioid Dependence*, pp. 167-195. Baltimore: Johns Hopkins University Press.
- Kidorf, M., and Stitzer, M.L., 1993. Contingent access to methadone maintenance treatment: Effects on cocaine use of mixed opiate-cocaine abusers. *Experimental and Clinical Psychopharmacology* 1:200-206.
- Kidorf, M., and Stitzer, M.L., 1996. Contingent use of take-homes and split-dosing to reduce illicit drug use of methadone patients. *Behavior Therapy* 27:41-51.
- Kidorf, M., and Stitzer, M.L., 1999. Contingent access to clinic privileges reduces drug abuse in methadone maintenance patients. In S.T. Higgins and K. Silverman (eds.), *Motivating Behavior Change Among Illicit-Drug Abusers: Research on Contingency Management Interventions*, pp. 221-241. Washington, DC: American Psychological Association.
- Kidorf, M., and Stitzer, M.L., 1996. Contingent use of take-homes and split-dosing to reduce illicit drug use of methadone patients. *Behavior Therapy* 27:41-51.
- Kidorf, M.; Stitzer, M.L.; Brooner, R.K.; and Goldberg, J., 1994. Contingent methadone take-home doses reinforce adjunct therapy attendance of methadone maintenance patients. *Drug and Alcohol Dependence* 36(3):221-226.

<sup>1</sup>A fully referenced version of this article appears in the Web version of *Science & Practice Perspectives*.

- King, V.L., et al., 1999. Attention deficit hyperactivity disorder and treatment outcome in opioid abusers entering treatment. *Journal of Nervous and Mental Disease* 187(8):487-495.
- Latkin, C., et al., 1995. Using social network analysis to study patterns of drug use among urban drug users at high risk for HIV/AIDS. *Drug and Alcohol Dependence* 38(1):1-9.
- Magura, S., et al., 1988. Contingency contracting with polydrug-abusing methadone patients. *Addictive Behaviors* 13(1):113-118.
- McCarthy, J.J., and Borders, O.T., 1985. Limit setting on drug abuse in methadone maintenance patients. *American Journal of Psychiatry* 142(12):1419-1423.
- McLellan, A.T., et al., 1993. The effects of psychosocial services in substance abuse treatment. *Journal of the American Medical Association* 269:1953-1959.
- Milby, J.B., et al., 1978. Take-home methadone: Contingency effects on drug-seeking and productivity of narcotic addicts. *Addictive Behaviors* 3:215-220.
- Platt, J.J., 1995. Vocational rehabilitation of drug abusers. *Psychological Bulletin* 117(3):416-433.
- Silverman, K., et al., 1995. Incongruity between occupational interests and academic skills in drug abusing women. *Drug and Alcohol Dependence* 40:115-123.
- Silverman, K., et al., 1996. Increasing opiate abstinence through voucher-based reinforcement therapy. *Drug and Alcohol Dependence* 41(2):157-165.
- Stitzer, M.L.; Bickel, W.K.; Bigelow, G.E.; and Liebson, I.A., 1986. Effect of methadone dose contingencies on urinalysis test results of polydrug-abusing methadone-maintenance patients. *Drug and Alcohol Dependence* 18(4):341-348.
- Stitzer, M., et al., 1977. Medication take-home as a reinforcer in a methadone maintenance program. *Addictive Behaviors* 2(1):9-14.
- Stitzer, M. L.; Iguchi, M.Y.; and Felch, L., 1992. Contingent take-home incentive: Effects on drug use of methadone maintenance patients. *Journal of Consulting and Clinical Psychology* 60(6):927-934.
- Woody, G.E.; McLellan, A.T.; Luborsky, L.; and O'Brien, C.P., 1995. Psychotherapy in community methadone programs: A validation study. *American Journal of Psychiatry* 152(9):1302-1308.
- Zanis, D.A., and Woody, G.E., 1998. One-year mortality rates following methadone treatment discharge. *Drug and Alcohol Dependence* 52(3):257-260.



## RESPONSE: IMPLEMENTING MOTIVATIONAL STEPPED CARE

Tom Brewster, L.C.S.W., Chris Farentinos, M.D., and Douglas Ziedonis, M.D.

### The changing methadone population

**Chris Farentinos:** The methadone population has changed. Today we are treating a jobless, skill-less population that is much more difficult to treat than the patients of decades past. Still, I am not sure I really see any difference in the effectiveness of methadone today compared to 10 years ago. I think you have one-third of people who will benefit, stay on methadone, get good results, improve their life conditions, get a job. You have a middle third who will have some relapses and will struggle, and might diminish the rate of criminal offenses related to drug-seeking. Then you have the bottom third who cycle through programs.

**Doug Ziedonis:** The field of addiction has more complicated patients now than in the past, because some of the easier patients got treatment and moved forward. In the 1980s, when the 28-day programs started, their success rate was phenomenal, probably because lots of people got into treatment who should have been treated as outpatients. The methadone programs that are left get all the really tough cases: dually diagnosed, polydrug, polylife problems. Methadone programs always get all the toughest cases.

Juice alone will work for some people, but not for tougher cases. So what are you going to do for that

group? How do we strengthen the social treatment in these different places? Part of it is bringing over models from other settings, as Brooner and Kidorf have done.

### What community programs can gain from the MSC model

**Ziedonis:** Having behavioral contracts in methadone treatment isn't a new thing, even in outpatient settings. The big issue is always, what are the consequences going to be? Are we going to discharge patients if they take drugs? Are we going to push them to a high level of care? Do we have a high level care that they can go to? Are we going to make them go to more NA meetings in the community?

Brooner and Kidorf's paper is good because here is one program spelling out the way it thinks about these issues. Some of the smaller programs that don't have big psychosocial treatment components still have behavioral plans, but theirs don't offer as many benefits, such as an IOP [intensive outpatient program] for patients who are doing well as inpatients. They are more limited on what positive perks there can be and usually only have negative consequences. And, from my experience, they usually are not rigorous in kicking out people who use drugs.

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