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Using Enhanced and Integrated Services to Improve Response to Standard Methadone Treatment: Changing the Clinical Infrastructure of Treatment Networks

Karin Neufeld, MD MPH, **Michael Kidorf, PhD**, **Van King, MD**, **Ken Stoller, MD**, **Michael Clark, MD MPH**, **Jessica Peirce, PhD**, and **Robert K. Brooner, PhD**
Department of Psychiatry and Behavioral Sciences, The Johns Hopkins University School of Medicine, Baltimore, MD 21224 USA

Abstract

Outcomes are presented from opioid-dependent outpatients (N = 81) participating in a new community-based initiative designed to improve access to enhanced substance abuse and psychiatric services in the publicly-supported methadone maintenance treatment network in Baltimore, Maryland. The initiative, entitled Community Access to Specialized Treatment (CAST), is located at the Addiction Treatment Services (ATS), a program within this network. Network programs referred patients engaged in unremitting drug use and at risk for discharge to CAST, where they received methadone substitution, individual and group counseling within an adaptive platform, behavioral contingencies to reinforce adherence, and on-site psychiatric evaluation and care. Patients returned to their referring program after producing at least two consecutive weeks of drug-negative urine samples and full counseling adherence. CAST was well-utilized by the community. Patients had high rates of adherence to scheduled individual and group counseling services (93% and 73%, respectively); 43% of referrals successfully completed the program in an average of 101 days. This community-wide service delivery approach is a novel alternative to integrating intensive substance abuse and psychiatric care at each program within a treatment network.

Keywords

opioid dependence; substance abuse treatment; treatment systems

1. Introduction

Despite the availability of effective interventions for co-occurring substance use and other psychiatric problems in opioid-dependent patients receiving methadone, a large proportion of these patients continue to use drugs and struggle with the demands of everyday life. The primary objectives of opioid agonist treatment include the reduction of drug use, increased periods of abstinence, and high rates of treatment retention. A substantial body of research has shown that these goals are often hindered by cocaine and other drug use disorders and by other

Corresponding Author: Karin Neufeld, MD MPH, Assistant Professor, Johns Hopkins University School of Medicine, 5510 Nathan Shock Drive, Suite 1500 Baltimore, MD 21224, kneufel2@jhmi.edu, Office: 410-550-0147; Fax: 410-550-2957.

comorbid psychiatric disorders (Hser, Anglin, & Fletcher, 1998; McGovern, Xie, Segal, Siembab, & Drake, 2006; Stitzer & Sigmon, 2006). Research has also established that most patients in methadone treatment have at least one co-occurring substance use disorder (Brooner, King, Kidorf, Schmidt, & Bigelow, 1997). Current cocaine dependence is prevalent in more than half of this population, and many likewise suffer from current alcohol and sedative dependence (Brooner et al., 1997; Stitzer & Sigmon, 2006). Similarly, at least 50% of new admissions to opioid agonist treatment programs have consistently been reported to have at least one co-occurring psychiatric disorder, often including mood disorder, anxiety disorder, and Cluster B personality disorders (Brooner et al., 1997; McGovern et al., 2006). These and other co-occurring disorders limit the benefits of standard methadone treatment services, reduce retention, and generally impede the process of recovery (Compton, Cottler, Jacobs, Ben-Abdallah, & Spitznagel, 2003; Kidorf, Brooner, King, Stoller, & Wertz, 1998; Williamson, Darke, Ross & Teesson, 2006).

Most opioid agonist programs continue to rely on standard (fixed) counseling schedules that are often poorly responsive to changes in the patients drug use, consisting largely of daily methadone administration, weekly to perhaps monthly brief counseling sessions, and biweekly to monthly or less frequent urinalysis testing (Ball & Ross, 1991). More adaptive types of treatment planning and service delivery have been shown to reduce drug use (Fals-Stewart & Birchler, 2001; Kidorf, King, & Brooner, 2006). Adaptive treatment models require, among other things, some variability in the scope and intensity of clinical services (McGovern et al., 2006; Pringle, Emptage, & Hubbard, 2006). This feature is essential to the ongoing “matching” of treatment schedule intensities to selected indexes of clinical response and facilitates the inclusion of integrated psychiatric interventions for patients with comorbid psychiatric disorder (e.g., drug use, retention, psychiatric symptom severity variables).

The incorporation of adaptive treatment models and inclusion of adequate types and intensities of psychiatric care in opioid agonist programs are often hindered by financial concerns (McGovern et al., 2006). For instance, the delivery of more substance abuse and psychiatric services might require additional funding or at least a substantial reorganization of existing resources or staffing patterns. While continuing effort to move the treatment field in the direction of more adaptive and integrated care models is a worthwhile enterprise (Drake, O’Neal, & Wallach, 2008), other strategies exist that reduce the additional clinical expertise and related infrastructure necessary for programs to incorporate and deliver a wider scope of integrated services and treatment intensities. The present report focuses on one of these alternatives. The Centralized Access to Substance Abuse Treatment (CAST) service was designed and implemented as part of the publicly-supported opioid agonist treatment network in Baltimore Maryland approximately two years ago. The CAST service offers a wide range of intensive drug abuse and other psychiatric care and evaluation to patients referred from other network programs that are at risk for discharge due to months of persistent drug use. Patients return to the referring program after achieving abstinence and improved psychiatric and psychosocial functioning.

The present article reports on the development, implementation, and initial outcomes associated with the implementation of the CAST service within the network of publicly-supported opioid agonist treatment programs in Baltimore. Data includes utilization of new treatment slots, demographic and clinical characteristics of the referred sample (N=81), overall treatment approach, initial referral and between program clinical update processes, and available treatment outcomes.

2. Method

2.1 Development Overview

2.1.1 Goals—The CAST initiative was developed and launched with the primary goal of providing publicly-funded opioid agonist programs in Baltimore City a highly accessible alternative to discharge for patients with persistent and unremitting drug use, with or without other psychiatric comorbidities (i.e., current comorbid psychiatric disorder(s), chronic pain complaints). These patients are admitted to CAST with the expectation of return to the referring program within 4–12 weeks. Treatment success was broadly defined as submission of two or more consecutive weeks of drug-negative urine samples and attendance to all scheduled evaluation and counseling sessions; limits, however, were not established for duration of participation in the CAST treatment.

2.1.2 Setting and Funding—CAST operates as a specific service component within Addiction Treatment Services (ATS) program at the Johns Hopkins Bayview Medical Center in Baltimore. Eligible patients have current opioid dependence and meet Center for Substance Abuse Treatment criteria for long-term use of methadone and other opioid-agonist medications. The Baltimore Substance Abuse Systems, Inc. (BSAS), a quasi-public agency that awards, coordinates, and monitors the publicly-supported treatment network in Baltimore, provided the funding to ATS to initiate the CAST service component to provide dedicated service support to the other 11 opioid agonist treatment programs in the city. The grant annually funds 22 outpatient slots and includes all costs associated with the service: personnel, medications, drug testing and other patient care costs (voucher-based attendance incentives, patient transportation to and from program), directly related infrastructure costs (space, utilities, housekeeping), and overall administrative, accounting, and finance and institutional oversight support (from the10% indirect rate).

2.1.3 Staffing Patterns—The CAST supervisor coordinated admissions, facilitated weekly communication with referring programs, and coordinated the discharge and return of patients to referring programs. The CAST supervisor, three other clinical supervisors with Masters degrees, and two senior Certified (Drug and Alcohol) Associate Counselors provided individual counseling services for an average daily census of 22 CAST patients. Psychiatrists and clinical psychologists supervised the clinical staff; and provided psychiatric and chronic pain evaluations and care.

2.1.4 Treatment Schedule—CAST uses an adaptive stepped care model to plan and deliver counseling services (Brooner & Kidorf, 2002; Brooner, Kidorf, King, Stoller, Neufeld & Kolodner, 2007; Brooner et al., 2004). Patients started at Step 1 for 2 – 4 weeks (see Table 1), consisting of 1 individual, and 2 group counseling sessions per week. All patients were required to provide a urine sample for testing once per week (using a random schedule) observed by staff. Patients meeting successful completion criteria by attending all scheduled sessions and submitting drug-negative urine samples for two consecutive weeks returned to their parent treatment program. Step 1 patients who failed to meet these criteria were advanced to Step 2 for four additional weeks, and were scheduled to attend one individual counseling session and 8 hours of group counseling sessions per week for another four weeks. Those who failed to successfully complete the program in Step 2 were advanced to Step 3 with the additional requirement of including a drug-free community support person to attend a weekly group counseling session designed to help patients improve the availability and magnitude of drug-free social support (Kidorf, King, Neufeld, Stoller, Peirce & Brooner, 2005). Patients remained in Step 3 until they met completion criteria, at which point they were eligible to return to the parent program.

Attendance to scheduled counseling sessions was reinforced through clinic-based and modest monetary (cash) incentives (see Table 2). Patients missing scheduled counseling sessions had their earliest methadone medication time increased by one hour the next day. Patients returned to their earliest (least restrictive) medication dispensing time after attending all scheduled sessions for one week. Patients advanced to Step 3 who subsequently failed to meet completion criteria within 8-weeks started a 30-day methadone dose taper. The taper was reversed after one week of adherence to all scheduled sessions and submission of a single drug-negative urine specimen. All patients that tapered to a methadone dose of 0 milligrams were offered readmission (Step 3) within 24 to 72-hours of their last dose of medication. Readmissions were re-inducted on methadone and raised to their usual maintenance dose. Patients who attended all scheduled sessions for a week earned one methadone take-home dose for the weekend and $25.00. Patients were also provided public transportation bus passes as needed ($16.50/month) to attend services scheduled in the program. Bus passes were suspended for patients failing to attend at least half of the scheduled counseling sessions, and reinstituted following attendance to all sessions for one week. Patients successfully completing CAST received a certificate of achievement.

2.1.5 Co-occurring Psychiatric and Chronic Pain Problems—Patients referred to CAST because of unremitting drug use and psychiatric complaints received a comprehensive psychiatric evaluation by a program psychiatrist. Many of these patients were started on one or more psychiatric medications, and arrangements were made at discharge with the referring program's physician to continue the medications upon the patient's return. The referring program's physician was also encouraged to consult with CAST psychiatrists regarding changes in medication dosing or other aspects of the psychiatric treatment plan. Nursing staff dispensed psychiatric medications in the program each day to ensure medication adherence until the patient was stable enough to manage this aspect of their care. Patients reporting chronic pain were systematically evaluated as part of the overall psychiatric interview. Some of these patients were prescribed medication for pain, which was coordinated upon discharge from CAST with the physician in the referring program.

2.2 Implementation

2.2.1 Participants—The study sample (N = 81) was drawn from the first cohort of 101 patients referred to CAST between January 2007 and March 2008. Of the 20 patients (20%) that were not included in the report, 7 patients did not appear for the initial intake and their status is unknown, 6 patients had their referral revoked by the referring program before starting CAST, 4 patients were discharged by the referring program before the CAST referral could be completed, 1 patient chose to avoid the referral to CAST by transferring to another program, 1 patient was returned immediately to the parent program after it was discovered that he had a large unpaid fee balance there, and 1 patient had not completed their CAST treatment episode by the time these data were grouped and analyzed.

2.2.2 Referral and Intake Procedures—All of the opioid agonist programs in Baltimore were required to fax a structured CAST referral/enrollment form along with a copy of several portions of the patient's medical record (e.g., physical exam, medication dosing and dosing schedule, a brief summary of the reasons for referral) for inclusion in the CAST medical record. The patient was not discharged from the referring program but remained on the census, receiving methadone on a "guest-dosing" or temporary basis while attending CAST. During the admission evaluation, the CAST supervisor provided a program orientation (including a tour of the facilities), reviewed treatment policies, the criteria for successful program completion, and the list of patient rights and confidentiality protections and limitations. Patients presenting with symptoms of a co-occurring psychiatric or chronic pain problem were extensively evaluated in week one of treatment by a program psychiatrist or clinical

psychologist. Nursing staff verified methadone dosing information, including last dose received. The patient met with the assigned counselor and received their first dose of methadone from the CAST program. While referrals were often maintained on the same methadone dose provided at the referring program, dose changes were made based on clinical indicators. All subsequent treatment was provided at CAST until the patient was transferred back to the referring program.

2.2.3 Communication with Referring Programs—Staff providing counseling to CAST referrals completed progress notes each week and faxed them to the patient's counselor in the referring program. Treatment progress was also communicated via frequent phone conversations, coordinated by the CAST supervisor. At the end of a treatment episode, counselors in the CAST service completed a discharge summary that described patient drug use outcomes, psychiatric functioning, major topics focused upon during individual and group counseling sessions, and major recommendations for continuing care, including any medications that were started and continued during the CAST episode of treatment. The referring program was contacted immediately when patients left CAST against medical advice and was encouraged to send these patients back for readmission to complete the program.

2.3 Data Evaluation

2.3.1 Source of Information—All data were obtained from a systematic chart review of admissions to CAST, which was conducted as part of a performance-based quality improvement plan to evaluate and refine the new service and maximize its effectiveness. The Johns Hopkins Institutional Review Board (IRB) exempted the presentation of these data from IRB review based on US Department of Health and Human Services regulations concerning the presentation of routine clinical data when it is re-coded in a manner that eliminates links to individual patient records and identities.

2.3.2 Sample—The demographic characteristics for the sample of 81 consecutive admissions included a mean age of 43.5 years; 57% were female; 72% were African-American, 27% Caucasian, 1% Other; 16% were married; and 19% were employed. All patients were referred for current and unremitting drug or alcohol use; cocaine use was most prevalent with 67% testing positive on the first urine screen. The target problem identified by referring programs for most referrals was unremitting substance use and impending discharge (57%; n = 46). Remaining patients were referred for continuing drug use in the context of a co-occurring psychiatric problem (26%; n = 21) or co-morbid chronic pain problem (17%; n = 14), most of whom (79%, 11/14) also reported other psychiatric problems.

2.3.3 Major evaluation variables—The study utilizes a descriptive approach (N = 81). Slot utilization was defined as the mean proportion of the 22 CAST treatment slots used each week during the study. The proportion of network programs using CAST is also described. Treatment outcome was assessed via the proportion of patients meeting completion criteria (i.e., at least 2 consecutive weeks of drug-negative urine samples and full adherence to scheduled counseling) and days of CAST treatment. Substance abuse treatment engagement was assessed via attendance and adherence (attended / scheduled) rates to scheduled individual, group, and community support sessions. Adherence to the initial psychiatric evaluation, and the proportion of patients diagnosed with a psychiatric disorder and prescribed medications is presented. The study also describes response to the behavioral contingencies (i.e., methadone dose taper; voucher incentives).

3. Results

3.1 Utilization of Slots

The 22 CAST treatment slots were completely filled (100%) five weeks following implementation and the utilization rate over the course of this evaluation was 94%. Ten of eleven (91%) of the network opioid agonist programs referred patients to CAST.

3.2 Treatment Outcomes

3.2.1 Successful Completion—As shown in the Table 3, 43% of the sample (n = 35) met criteria for successful program completion and returned to their referring program. These patients are referred to as "completers;" the remaining patients (n=46) are classified as non-completers. The majority of non-completers (n = 27) left treatment against medical advice, though a sizeable number of patients (n = 10) were permitted by the parent program to return without meeting criteria for completing the CAST episode of care. The remaining non-completers were incarcerated (n = 2), administratively discharged (n = 2) for selling drugs on campus or bringing a deadly weapon to the program, or transferred to another specialty service on the campus (Center for Addiction and Pregnancy) after becoming pregnant (n = 2). Another three patients arranged their transfer to another treatment program.

3.2.2. Treatment Duration—Patients remained at CAST for an average of 107.4 days (SD = 77.8; median = 91; range: 7 to 405 days), which was within the expected duration of stay projected at the onset of this new service. CAST completers (M = 101.3 days; SD = 57.1; median = 96; range: 32 to 272 days) and CAST non-completers (M = 112.1 days; SD = 90.9; median = 91; range: 7 to 405 days) had a similar mean duration of treatment days (t = 0.62, df = 79, ns).

3.3 Engagement in Intensified Services

3.3.1 Individual Counseling—Patients attended an average of 13.4 (SD = 8.3; range: 1 to 41) individual counseling sessions during the treatment episode, and were adherent with 93.4% of their scheduled sessions. Completers (M = 13.7; SD = 6.9; range: 6 to 37) versus non-completers (M = 13.1; SD = 9.3; range: 1 to 41) attended a similar mean number of sessions (t = 0.33, df = 79, ns), and demonstrated outstanding adherence (completers: M = 97.2% vs. non-completers: M = 90.5%; t = 1.11, df = 78, ns).

3.3.2 Group-based Counseling—Patients attended a mean of 40.2 (SD = 40.5; range: 0 to 181) group-based counseling sessions, excluding the community support group sessions (see below). The overall adherence to these sessions was good (73.2%). Completers (M = 39.4; SD = 37.8; range: 5 to 181) and non-completers (M = 40.8; SD = 42.9; range: 0 to 156) attended a similar number of group-based counseling sessions (t = 0.16, df = 79, ns), but had very different rates of adherence because non-completers were more likely advanced to Step 3 and scheduled to attend more counseling services. Thus, completers evidenced a much higher rate of adherence to these sessions (CAST completers: M = 93.4% vs. CAST non-completers: M = 57.6%; t = 6.44, df = 78, p < .001).

3.3.3 Community Support Services—Once in Step 3, patients were asked to identify and include a drug-free community support person in their treatment to enhance the availability of drug-free support and replace existing drug using support networks. A total of 56 patients (69.1%) advanced to Step 3 and met criteria for the addition of the community support group. Most of these patients (n = 48; 85.7%) identified a drug-free community support person and included them in treatment. Completers (M = 7.1; SD = 8.7) and non-completers (M = 7.3; SD = 9.4) attended a similar number of these groups (t = 0.06, df = 54, ns), although completers had much higher rates of adherence to these sessions (CAST completers: M = 77.5% vs. CAST

non-completers: M = 34.5%; t = 5.62, df = 54, p < .001) because they were scheduled to attend less of them.

3.4 Engagement in Psychiatric Treatment Services

Overall, 44% (n = 36/81) of the CAST referrals received an evaluation by a psychiatrist which included an additional pain evaluation in those also reporting chronic pain problems; most (n = 30; 86%) of the patients completed the scheduled evaluation. For those receiving only a psychiatric evaluation (n = 20), almost all (n = 18) were diagnosed with a current psychiatric disorder. Twelve of these patients were started on a psychiatric medication regimen (one patient was already receiving medication from the parent program and it was continued but adjusted during their CAST treatment course). Among patients receiving both a psychiatric and pain evaluation (n = 10), nine met criterion for a psychiatric disorder. Over half (n=5/9) of these patients were started on psychiatric medications. Patients ultimately diagnosed with a psychiatric disorder (n = 27) had more days of treatment (M = 136.7; SD = 89.3) than those not receiving a diagnosis (n = 54; M = 92.8; SD = 67.7) (t = 2.47, df = 79, p < .05), although rates of adherence to individual, group, and community support groups remained similar across these two subgroups.

3.5 Implementation of Treatment Contingencies

3.5.1 Methadone Dose Taper—Over half of the patients (51.9%; n = 42) were placed on at least one methadone dose taper for poor attendance to scheduled sessions and ongoing drug use at some point during the treatment episode (84 tapers throughout the study). Half of medication tapers (n = 42; 52%) were reversed. Among CAST completers, seven patients were started on a methadone dose taper that was reversed in all cases. Among CAST non-completers, a much larger number (n=35) were exposed to one or more methadone dose tapers because of continued nonattendance to scheduled sessions and/or drug use, although nearly half (47%) of them were able to discontinue and reverse the taper after improving their attendance to sessions.

3.5.2 Voucher Earnings—Patients earned an average of US $141 (SD = $127; range: 0 to $625) in monetary-based vouchers for attending scheduled counseling sessions. CAST completers earned more vouchers (M = US $218; SD = $127; range: $25 to $625) than CAST non-completers (M = US $82; SD = $90; range: 0 to $375) (t = 5.65, df = 79, p < .001).

4. Discussion

While it is certainly possible to incorporate more adaptive treatment models with or without integrated treatments for psychiatric or other comorbid problems in opioid agonist treatment programs, this is not the only way to improve the treatment network and the patients it manages. This report provides descriptive information on the goals and outcomes of one alternative. CAST operates within the publicly-supported opioid agonist treatment network in Baltimore and accepts referrals of chronic drug using patients from other network programs for a brief duration of intensified services that includes comprehensive psychiatric and pain evaluations and care. The good utilization of treatment slots over the study evaluation is compelling evidence of both the need for, and acceptance of, this approach across most of the publicly-supported opioid agonist treatment providers in Baltimore.

The strong and sustained support for the CAST initiative may also be interwoven with the finding that a substantial number of treatment referrals benefited appreciably from their relatively brief exposure to the CAST treatment approach. Many of these patients were at high risk of discharge from the referring program. These findings provide good support for the use of adaptive treatments with behavioral contingencies to reduce substance use (Brooner & Kidorf, 2002). The CAST service delivery approach can potentially decrease treatment drop-

out and discharge rates in Baltimore and reduce the unproductive cycling of patients from one substance abuse treatment program to another, although this hypothesis was not tested in the present study.

The excellent adherence to highly intensive schedules of counseling over significant durations of time also illustrates the benefits of using reinforcement to improve service utilization (Brooner et al., 2004; Carroll & Onken, 2005; Petry, Martin, & Simcic Jr., 2005; Rawson et al., 2002). Higher rates of adherence to group-based counseling, including the community support group, was associated with successful completion, demonstrating the critical role of adherence in achieving good treatment outcomes (Brooner et al., 2004; World Health Organization, 2003). That even highly adherent patients received care for many weeks before meeting completion criteria is consistent with other studies showing that the beneficial effects of counseling are often delayed in drug-using populations (Carroll, Rounsaville, Nich, Gordon, Wirtz, & Gawin, 1994; Carroll & Onken, 2005). Taken together, the good outcomes provide preliminary support for the use of CAST service delivery models in other publicly-funded methadone maintenance treatment networks, with a possible further application for the increasing number of opioid-dependent individuals receiving buprenorphine in physician office-based settings that experience episodes of drug use within usual care practices.

Despite the overall success of this clinical initiative, about half of the sample failed to achieve enough improvement to return to the referring program in the time period covered by this report, many of whom chose to go to other treatment centers. While this was a group of patients selected for unremitting drug use despite months of routine care in the referring program, we nonetheless are exploring ways to increase the percentage of these patients meeting reasonable criteria for success. Most of the patients who continued to use drugs in the CAST service left the program against medical advice, though ten of them were accepted back by the referring program despite the lack of significant improvement. This fact may have inadvertently weakened the CAST intervention by reducing the motivation to reduce drug use as a condition of return to the parent program. This has become a topic of concern to us and the referring programs, and new approaches are being developed to address the issue.

The high rates of psychiatric disorder identified in the sample sharply contrasts with low rates of reported chronic pain problems. Across varying definitions of chronic pain, studies have reported prevalence rates for chronic pain that range from about 30% to 60% of patients in substance abuse programs (e.g., Peles, Schreiber, Gordon, & Adelson, 2005; Rosenblum, Joseph, Fong, Kipnis, Cleland, & Portenoy, 2003), with very few of these patients reporting any specific treatment for the problem (Clark, Stoller & Brooner, 2008). It is possible that some of these patients simply stopped reporting chronic pain to staff based on the belief that it will be dismissed in an attempt to seek additional medication or rationalize continuing drug use. We are working on methods to raise awareness of the issue and increase the detection of this problem in patients with persistent drug use.

The major limitation of this report is its naturalistic and descriptive design. While the overall results are encouraging, a randomized controlled trial would provide a more rigorous evaluation of the merits of this approach. The report evaluated a selected sample of drug using patients, of uncertain representativeness, referred by their substance abuse counselors from community-based programs in one northeastern city. It is not known how this sample of patients compared with others attending privately funded methadone treatment programs, the individuals who failed to attend the CAST program upon initial referral, or with other poorly functioning patients never referred to the CAST initiative. The absence of available baseline data on individual patients, including the length of time in prior methadone treatment and severity of co-occurring drug use, also limits the generalizability of this report and the extent to which these patients represent the most severely affected subset in the treatment system.

The present report would also have been strengthened by the collection and inclusion of some outcome data on patients returned to the referring program (e.g., urinalysis results, retention for at least a month or longer). Nevertheless, the good utilization of CAST treatment slots over the first 14–15 months of the service, the high rates of program completion and participation, and the favorable anecdotal reports from referring programs, suggest that this approach is a viable alternative to substantially changing the infrastructure of each of the individual network programs to offer more intensive and integrated substance abuse and psychiatric services.

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Table 1

CAST Adaptive Stepped Care Approach

Step	Frequency of	Frequency of Group	Weeks to Meet CAST	Behaviors Determining
	Individual Sessions	Sessions	Completion Criteria[1]	Step Advancement
1	1 per week	2 per week	2–4 weeks	Failure to meet CAST completion criteria
2	1 per week	8 per week	2–4 weeks	Failure to meet CAST completion criteria
3	1 per week	8 per week + Community Support Group	Unlimited	Failure to meet CAST completion criteria within 8 weeks leads to 30 day methadone dose taper[2]

[1] CAST completion criteria requires at least 2 consecutive weeks of drug-negative urine samples and 100% adherence to scheduled counseling

[2] 30 day methadone dose taper is reversed after patient submits a urine sample negative for drug use and attends all scheduled sessions for the same week. Patients tapered to a methadone dose of 0 are guaranteed immediate readmission by agreeing to restart Step 3.

Table 2

Behavioral Contingencies Applied in the CAST Program

Methadone Take-Home Dose	• provided weekly contingent on 100% adherence to scheduled counseling and psychiatric sessions each week
Methadone Availability	• earliest methadone dispensing time moved one hour later for each scheduled counseling session missed each week • earliest methadone dispensing time reset following one week of 100% adherence • 30-day methadone dose taper started if Step 3 not successfully completed within 8 weeks • taper stopped and methadone dose reset after one negative urine and 100% adherence in the same week
Monetary Voucher ($25.00)	• provided weekly contingent on 100% adherence to scheduled counseling and psychiatric sessions
Bus Passes	• provided weekly to patients with no other means to attend the program • revoked if > 50% of counseling sessions missed in a week • reinstated with 100% adherence the following week
Certificate	• provided at successful completion of CAST

Table 3

Treatment Response of CAST Admissions (N=81)

Outcome	n	Percent
Successful completion of CAST	35	43%
Returned to referring program without completing CAST	10	12%
Patient transferred to another treatment program	3	4%
Transfer to Center for Addiction and Pregnancy	2	2%
Incarcerated during admission	2	2%
Administrative discharge from CAST	2	2%
Left treatment against medical advice	27	33%