Published in final edited form as:

J Subst Abuse Treat. 2011 December ; 41(4): 415–421. doi:10.1016/j.jsat.2011.06.008.

A treatment re-engagement intervention for syringe exchangers

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Abstract

Poor sustained treatment engagement limits the effectiveness of all modalities of substance abuse treatment. This study evaluated the efficacy of a novel treatment re-engagement intervention for a subset of syringe exchange program (SEP) participants ($n = 113$) that had enrolled in treatment as part of a 4-month clinical trial (Kidorf et al., 2009). Three re-engagement conditions for participants leaving treatment were compared. Motivational referral (MRC) participants ($n = 31$) could attend group sessions that focused on renewing treatment-interest. MRC plus incentive (MRC+I) participants ($n = 49$) could receive modest monetary incentives for attending these sessions and re-enrolling in treatment. Standard referral (SCR) participants ($n = 33$) could not attend groups or receive incentives. Across a one-year observation window, almost all study participants (86%) were discharged from treatment. MRC+I participants attended more group sessions than MRC participants, and were considerably more likely to re-enroll in treatment than participants in the other study conditions. Re-engagement strategies can further enhance the public health benefits of SEPs by increasing rates of treatment participation over time.

1.0 Introduction

The majority of injection opioid users in the United States are not receiving treatment for their disorder (SAMHSA, 2009). Community syringe exchange programs (SEPs) are ideal settings to locate large samples of these persons and to evaluate strategies to improve rates of treatment engagement and re-engagement. Prior research has shown that community SEPs are particularly good settings to identify severely impaired and otherwise hard-to-reach opioid users (Grau, Bluthenthal, Marchall, Singer, & Heimer, 2005; Huo & Ouellet, 2007; Kidorf et al., 2004). These and other studies have also shown that the exchange of new for used injection equipment that occurs in these settings is often associated with reduced HIV prevalence and associated risk behaviors (Des Jarlais et al., 1996; Huo & Ouellet, 2007; see Wodak & Cooney, 2006, for a review). While safer injection practices in syringe exchangers are unquestionably associated with reductions in the transmission of HIV and other blood-borne diseases, large numbers of SEP participants report continued drug use and drug injections. The continuing drug use in these samples unfortunately limits the protective influence of SEPs. Strategies that increase and sustain participation in

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substance abuse treatment programs will increase the public health benefits of community SEPs.

Successful bridging of community syringe exchanges and substance abuse treatment programs involves at least two overlapping but distinctive phases (Kidorf & King, 2008). The first phase is primarily concerned with using SEP settings to increase substance abuse treatment-seeking interests, activities, and enrollment. While this objective requires more empirical study, several strategies that motivate treatment-seeking in other samples of drug and alcohol users may prove useful for syringe exchangers. Contingency management, for example, uses principles of behavioral reinforcement to provide monetary-based incentives to motivate treatment enrollment (Booth et al., 2003; Sorensen et al., 2005), while motivational enhancement strategies (e.g., Miller & Rollnick, 2002) encourage treatment-seeking behaviors by helping people consider and resolve ambivalence to change (Booth et al., 1998; Carroll et al., 2006). Both of these approaches can be readily administered and studied in syringe exchange settings.

Because active drug users often leave treatment prior to achieving abstinence (Booth, Corsi, & Mikulich, 2004; Villafranca, McKellar, Trafton, & Humphreys, 2006), the second phase of a successful bridging strategy requires more effective methods to re-engage these people in treatment. While improving treatment retention and participation is relevant across all populations of drug and alcohol users, it appears particularly important in syringe exchangers with severe and persistent drug use problems and little treatment experience. Neufeld et al. (2008), for example, reported that opioid users referred to methadone treatment by a SEP had a more severe spectrum of drug use problems, more drug use during treatment, and a greater likelihood of leaving treatment than opioid users referred by other sources.

A recent study by Kidorf et al. (2009) showed that syringe exchangers can be motivated to enroll in substance abuse treatment. The study sample were new registrants to the Baltimore Needle Exchange Program (BNEP) that agreed to random assignment to one of three substance abuse treatment referral conditions: 1) motivational referral condition (MRC), a series of individual and group motivational enhancement sessions designed to encourage treatment-seeking; 2) MRC plus modest monetary incentives contingent on attending sessions and entering treatment (MRC+I), or 3) a standard referral condition employing services used routinely by SEP staff (SRC). To manage treatment attrition and sustain participation, participants in the two motivational referral conditions (with and without voucher reinforcement) were offered a series of treatment re-engagement groups if they left treatment before resolution of the problem; MRC+I participants received incentives for attending the group and returning to treatment. SRC participants could return to treatment using usual procedures. Results showed that the MRC+I condition was associated with the highest rates of methadone and other substance abuse treatment enrollment. The brief evaluation period (4 months), however, precluded study of the effectiveness of the re-engagement strategy in the study for participants who entered and were subsequently discharged from substance abuse treatment (across treatment modalities).

This study reports 12-month treatment re-engagement outcomes of participants (n = 113) in our original report (Kidorf et al., 2009). It specifically evaluates the efficacy of the treatment re-engagement strategy used in the study for participants discharged from substance abuse treatment during the 12-month observation window. While similar rates of treatment attrition were expected across the three main study conditions in the original study, MRC+I participants were expected to have a higher rate of re-enrollment in treatment and more days of treatment across the 12-month follow-up period.

2.0 Materials and methods

2.1 Participants

Participants (n = 113) were selected for inclusion in this report if they had enrolled in any modality of substance abuse treatment during the first 4-months of the original randomized trial (n = 281) evaluating three methods for improving rates of initial treatment enrollment among community syringe exchangers (Kidorf et al., 2009). All participants in the main study were initially recruited by BNEP staff and referred to our research van parked nearby at community SEP sites, where they were informed about the study rationale, and the risks and benefits of participation. Informed written consent to participate in the main study was provided by all participants and documented on a consent form approved by the Western Institutional Review Board (WIRB) and the Baltimore City Health Department; participants were paid \$15.00/hr for completing the 12 monthly study assessments. The subsample (n = 113/281) included in this report has the following demographic characteristics: M age = 41 years; 67% non-white (mostly African-American); 65% male; 13% married; and 17% employed (see Table 1); no significant differences were found between this subsample (n = 113) and the sample included in the main study (n = 281).

2.2. Measures

Baseline assessment—Participants reported demographic variables and lifetime participation in opioid treatment. Participants also completed the substance use section of The Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1995), a semi-structured diagnostic interview used in the main study to confirm diagnosis of opioid dependence and to stratify participants with a diagnosis of cocaine dependence. The Addiction Severity Index – Fifth Edition (ASI; McLellan et al., 1992) was used to assess problem severity in seven areas commonly affected by substance use (alcohol use, drug use, medical, legal, employment, family/social, and psychiatric status). It has good psychometric properties (McLellan, 2006). Participants also completed the University of Rhode Island Change Assessment Scale (URICA; McConaughy, DiClemente, Prochaska, & Velicer, 1989) to assess self-reported motivation to change opioid use, across four stages of change: pre-contemplation, contemplation, action and maintenance. For the present report, a single readiness to change composite score was derived by summing the contemplation, action, and maintenance subscales, and subtracting the pre-contemplation subscale (Project Match Research Group, 1997). The URICA has yielded internal consistency coefficients between 0.69 and 0.89 (Carey, Prunine, & Maisto, 1999). The Mini Mental Status Exam (Folstein et al., 1975) was included in the assessment battery to help detect cognitive impairment in participants (score lower than 27/30) before administration of the baseline assessment battery.

Follow-up assessments—Participants completed a monthly follow-up interview (Kidorf et al., 2009) that assessed days in treatment over the past 30-days. Those enrolling in treatment were coded by modality, admission, and discharge dates. Research staff was systematically trained in the administration of all semi-structured interviews (Brooner et al., 1997). Participants completed a high rate (92%; M = 11) of their twelve follow-up assessments, with no condition differences.

2.3 Procedure

Study participants (n = 113) were drawn from a larger sample of participants randomly assigned to one of three referral interventions: 1) MRC, 2) MRC+I, or 3) SRC. Kidorf et al. (2009) provides a full description of these conditions, including information on staff training and treatment fidelity. In brief, both MRC and MRC+I participants were referred to: 1) 8 one-hour individual motivational enhancement sessions (2/wk over the first 2-months), and

2) 16 one-hour treatment readiness groups (2x/wk over the first 4-months). The motivational enhancement sessions were conducted in the research van and based on the Motivational Enhancement Therapy (MET) manual developed for project MATCH (Project Match Research Group, 1997). The MET protocol used clinical techniques (e.g., listening with empathy; eliciting self-motivational statements; reframing resistance) across four distinct phases of the intervention (e.g., assessment feedback, values clarification, decisional balance, and change plan) to facilitate motivation to enroll in substance abuse treatment. Treatment readiness groups were conducted on the Johns Hopkins Bayview Medical Center campus and used a manual-guided protocol (**available upon request: mkidorf@jhmi.edu**) to help participants develop a more informed and positive view of substance abuse treatment with and without opioid-agonist medications, and locate available treatment slots in the city. Motivational topics for this group included: 1) developing discrepancy between current behavior and life goals; 2) examining positive and negative effects of drug use; 3) examining positive and negative features of substance abuse treatment; and 4) contrasting life consequences of drug use vs. abstinence.

The difference between the MRC and MRC+I conditions is that MRC+I participants received incentives for attending each motivational enhancement session (\$10 cash, \$10 McDonalds gift certificate, \$3 day bus pass), for attending each treatment readiness group (\$10 cash, \$3 day bus pass), and for enrolling in treatment (\$50 voucher to help pay for intake and admission charges and mailed directly to the program on behalf of the participant). SRC participants were informed of routine referral services offered at the BNEP. All participants were encouraged to contact the BNEP throughout the study, and were provided a list of substance abuse programs and community resources relevant to individuals with chronic drug use.

MRC and MRC+I participants were informed at random assignment that upon leaving any treatment episode, they could attend up to 12 additional weekly treatment re-engagement group sessions conducted at the Hopkins Bayview campus, and could continue attending the group concurrent with treatment participation. Participants interested in this intervention were required to return to the study research van located adjacent to the BNEP to receive a schedule of re-engagement sessions. These sessions were modeled after the treatment readiness groups (see above) and also permitted participants to share previous treatment experiences. MRC+I participants were eligible to earn modest financial incentives for attending these groups (\$10 cash, \$3 day bus pass), and received an additional \$50.00 voucher for enrolling in another treatment facility (the \$50.00 was mailed directly to the program). SRC participants did not have the opportunity to participate in treatment re-engagement groups or receive incentives, and were encouraged to return to the BNEP if they were interested in a new treatment referral.

2.4 Data Analyses

Analyses of variance (ANOVAs) and chi square tests were used to compare study conditions in demographic characteristics, and ASI and URICA scores. Cox proportional hazards regressions were used to evaluate condition differences with respect to time to first leaving treatment over the 12-month observation window. The “event” was defined as the date of discharge. Those remaining in treatment were censored to the date of the end of the study period. Results were reported as Hazards ratios, with 95% confidence intervals. MRC+I and MRC conditions were compared using t-tests and chi-square tests to evaluate total number of treatment re-engagement sessions attended following treatment discharge, and the proportion of participants attending at least one group. Chi square tests were used to compare study conditions on modality of first treatment episode (i.e., methadone vs. other), on rates of re-enrollment following discharge from treatment, and on modality of subsequent treatment episodes (methadone treatment was coded for any participation in this modality).

Between group comparisons were represented using unadjusted odds ratios and 95% confidence intervals obtained via logistic regression. ANOVAs were used to compare study conditions on total days in treatment over the 12-month observation window. Significant p-values were followed by multiple comparisons (with Tukey's correction). Finally, two logistic regression analyses were conducted to evaluate the association between treatment re-engagement group participation (yes vs. no) and both 1) any treatment re-engagement and 2) methadone treatment re-engagement, controlling for modality of first treatment episode (methadone vs. other treatment) and days of treatment of first treatment episode (using two categories based on the frequency distribution: < 60 days vs. ≥ 60 days). Results were reported as adjusted odds ratios and 95% confidence intervals.

3.0 Results

3.1 Baseline characteristics of participants enrolled in treatment during the first 4-months

Table 1 shows the demographics, methadone maintenance history, ASI, and URICA scores across the three treatment referral conditions for participants (n = 113) that enrolled in treatment during the study; no treatment referral condition differences were observed

3.2 Modality and days of first treatment episode across study conditions

A similar proportion of participants in each treatment referral condition enrolled in methadone maintenance. Table 2 shows no condition differences in time to leaving the first treatment episode, though on average MRC participants remained in their first episode of treatment almost 40 days longer than MRC+I participants.

3.3 Treatment re-engagement intervention

A total of 70 participants (25 MRC and 45 MRC+I) left substance abuse treatment during the one-year observation window and had the opportunity to participate in the re-engagement group intervention. MRC+I participants were considerably more likely than MRC participants to attend at least one re-engagement group session (51% (n = 23) vs. 4% (n = 1); χ^2 (df = 1) = 15.8, $p < .001$); they also attended a higher mean number of these groups (3.6 (SE = 5.04) vs. .08; (SE = .40); $t(df = 68) = 3.45$, $p = .001$). Overall, MRC+I participants earned an average of \$92.40 in incentives.

3.4 Rates and modalities of treatment re-enrollment and total treatment days

As shown in Table 2, MRC+I participants were more likely to re-enroll in treatment following discharge than participants in the other two study conditions. Of the 29 MRC+I participants returning to treatment, about half (52%; n = 15) attended at least one treatment re-engagement group session. Table 2 also shows that MRC+I participants were much more likely to re-enroll in methadone treatment at least once compared to the other two conditions. No treatment referral condition differences were observed for overall days of treatment. Table 3 shows that participation in at least one treatment re-engagement group session was associated with methadone treatment re-enrollment, though not any treatment re-enrollment.

4.0 Discussion

The importance of developing effective treatment re-engagement strategies for drug injecting opioid users was supported by two findings. The first is that almost all syringe exchangers entering methadone maintenance left treatment prior to the end of the 12-month observation window, supporting other studies reporting low rates of retention in syringe exchangers and other subgroups of heroin users entering opioid-agonist treatments (Booth et al., 2004; Neufeld et al., 2008; Villafranca et al., 2006). Longer durations of opioid agonist

treatment participation are consistently associated with better treatment outcomes (e.g., Simpson et al., 1997; Zhang, Friedmann, & Gerstein, 2003). The second finding is that a sizeable portion of syringe exchangers across treatment referral conditions (40%) chose to enter short-term treatment modalities (e.g., detoxification). Unfortunately, short-term treatment episodes are often associated with rapid return to drug use, particularly in injecting drug users (McLellan et al., 2000).

The effectiveness of the treatment re-engagement intervention used in the study (combining group motivational counseling with modest monetary vouchers) was supported by two findings. MRC+I participants were more likely to re-enroll in substance abuse treatment, and across all treatment referral conditions, participation in the re-engagement group was associated with return to methadone maintenance. This set of findings is consistent with other studies reporting that behavioral and motivational strategies are effective in facilitating treatment entry (Kidorf et al., 2009; Sorensen et al., 2005). The fact that only one participant in the MRC-only referral intervention attended any treatment re-engagement sessions nicely illustrates the value of using reinforcement strategies to motivate treatment seeking behavior (Kidorf et al., 2009). An added benefit of the MRC+I referral intervention is that it was strongly associated with re-enrollment in methadone maintenance, an optimal treatment strategy for injection drug users with persistent and severe opioid dependence disorder (McLellan et al., 2000; Gowing et al., 2007).

While the MRC+I condition was associated with better treatment enrollment and re-enrollment rates throughout the study, it was not associated with more days of treatment by the end of the trial. This unexpected finding is at least partially related to the surprising observation that MRC+I participants remained in their initial episode of treatment an average of 40 days less than MRC participants. While this difference did not reach statistical significance, it raised the possibility that the MRC+I intervention attracted into treatment more impaired drug users with less treatment motivation or treatment history, though measures included in the present study identified no condition differences in these or other variables. It should also be noted that MRC+I participants lost access to the incentive upon enrollment in methadone treatment, which may have produced an unintended negative effect on treatment retention for some participants. This speculation is consistent with the frequency distribution of early treatment drop-out showing that six MRC+I participants left methadone maintenance in less than 1 week, compared to a total of 2 participants across the remaining study conditions (MRC & SRC). Most treatment interventions have at least some risks of bad outcomes, including behavioral interventions like the one reported in this study. The calculation of risk/benefit evaluations can be complicated at times. For example, the negative effects of early treatment dropout in MRC+I condition during the initial episode of treatment disappeared over the course of the study as a function of the higher rate of treatment re-engagement associated with the reinforcement intervention.

The study has some notable limitations. The absence of an experimental design to evaluate the treatment re-engagement intervention is arguably the biggest limitation. This re-engagement intervention was embedded within the larger randomized clinical trial evaluating the efficacy of a motivational intervention offered with and without a behavioral reinforcement intervention to motivate attendance to motivational enhancement and treatment readiness group sessions. It is possible that exposure to these interventions may have affected subsequent decisions to return to treatment following discharge. The optimal design would be to randomly assign participants leaving treatment to different re-engagement interventions. Nevertheless, even without the benefit of this alternative design, the data clearly provide support for the benefits of using the SEP setting as a platform for delivering motivational interventions designed to sustain treatment-engagement in syringe exchangers.

The potentially limited feasibility of incorporating this incentive-based re-engagement intervention in community-based settings may also be considered a study limitation. It should be noted, however, that the mean cost per re-enrolled participant in the present study (i.e., \$92.40) compares favorably with the costs of admitting new patients to community programs, which often exceeds \$100.00. Viewed from this perspective, successful re-engagement of recent treatment drop-outs might ultimately reduce the costs of sustaining a program's patient census. A possible clinical advantage of this strategy is that recently returning patients may be considerably more informed of the requirements and expectations of treatment than new admissions.

The present study also provides additional and important support for the benefits of conceptualizing SEPs and substance abuse treatment as a continuum of community-based health services (Brooner et al., 1998; Heimer, 1998; Kidorf & King, 2008; Van Den Berg, 2007). Syringe exchanges provide an important clinical setting that reaches a highly impaired subset of injection drug users that are otherwise missed by typical referral sources, a setting that can be used to increase treatment interest and enrollment, and even re-enrollment following discharge (Kidorf et al., 2009). While the present study evaluated the effectiveness of using a combination of verbal and monetary-based strategies, other options are possible. Strathdee et al. (2006), for instance, employed a case management approach to facilitate treatment referrals for SEP participants that expressed an interest in methadone treatment. While this and other strategies used to improve adherence in other settings, such as providing reliable transportation options (e.g., Friedmann et al., 2001), would require funding support, the potential benefits to the individual and public health from increasing enrollment of opioid-dependent injection drug users to methadone treatment appear to be considerable (Ettner et al., 2006; Gowing et al., 2007).

Acknowledgments

This study was supported by research grant RO1 DA 12347 (M. Kidorf, PI) from the National Institute on Drug Abuse. We gratefully acknowledge the research staff whose diligence ensured both the quality and integrity of the study, especially Kori Kindbom, M.A., Michael Sklar, M.A., Jim Blucher, M.A., Mark Levinson, M.A., Karin Taylor, M.A., Rachel Burns, B.A., and Samantha DiBastiani, B.A.

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Table 1

Demographics, opioid treatment history, Addiction Severity Index (ASI) composite scores, and University of Rhode Island Change Assessment (URICA) scores for those enrolling in treatment during the first four months of study participation

Characteristic	Overall (n=113)		MRC ^I (n=31)		MRC+I ^I (n=49)		SRC ^I (n=33)		χ ² or F-test ²	p-value
	<u>M</u> (SE)		<u>M</u> (SE)		<u>M</u> (SE)		<u>M</u> (SE)			
<u>Demographics</u>										
Gender (%)										
Male	64.6%		74.2%		61.2%		60.6%		χ ² = 1.72	0.423
Female	35.4%		25.8%		38.8%		39.4%			
Race (%)										
Non-white	67.3%		67.7%		65.3%		69.7%		χ ² = 0.18	0.915
White	32.7%		32.3%		34.7%		30.3%			
Age (years)	40.75 (0.78)		42.26 (1.63)		40.02 (1.25)		40.42 (1.18)		F = 0.72	0.487
Education (%)										
<12 years	36.3%		35.5%		32.7%		42.4%		χ ² = 0.83	0.662
12+ years	63.7%		64.5%		67.3%		57.6%			
Marital (%)										
Not Married	86.7%		83.9%		81.6%		97.0%		χ ² = 4.33	0.115
Married	13.3%		16.1%		18.4%		3.0%			
Employment (%)										
Unemployed	83.2%		70.9%		85.7%		90.9%		χ ² = 4.94	0.085
Employed	16.8%		29.1%		14.3%		9.1%			
<u>Opioid Treatment History (%)</u>										
No	53.1%		48.4%		55.1%		54.5%		χ ² = 0.38	0.826
Yes	46.9%		51.6%		44.9%		45.5%			
<u>Addiction Severity Index Composite Scores</u>										
Medical	0.32 (0.04)		0.37 (0.07)		0.34 (0.06)		0.25 (0.06)		F = 0.83	0.438

Characteristic	Overall (n=113)		MRC ¹ (n=31)		MRC+I ¹ (n=49)		SRC ¹ (n=33)		χ^2 or F-test ²	p-value
	$\bar{M}$ (SE)	$\bar{M}$ (SE)	$\bar{M}$ (SE)	$\bar{M}$ (SE)	$\bar{M}$ (SE)	$\bar{M}$ (SE)	$\bar{M}$ (SE)	$\bar{M}$ (SE)		
Employment	0.82 (0.02)	0.83 (0.03)	0.83 (0.03)	0.83 (0.03)	0.83 (0.03)	0.83 (0.03)	0.79 (0.04)	0.79 (0.04)	F = 0.56	0.575
Alcohol	0.12 (0.02)	0.13 (0.04)	0.13 (0.04)	0.13 (0.04)	0.11 (0.03)	0.11 (0.03)	0.14 (0.04)	0.14 (0.04)	F = 0.14	0.867
Drug	0.35 (0.01)	0.35 (0.02)	0.35 (0.02)	0.35 (0.02)	0.35 (0.02)	0.35 (0.02)	0.34 (0.02)	0.34 (0.02)	F = 0.22	0.802
Legal	0.18 (0.02)	0.13 (0.02)	0.13 (0.02)	0.13 (0.02)	0.17 (0.03)	0.17 (0.03)	0.24 (0.05)	0.24 (0.05)	F = 2.50	0.087
Family/Social	0.23 (0.02)	0.25 (0.04)	0.25 (0.04)	0.25 (0.04)	0.23 (0.03)	0.23 (0.03)	0.22 (0.04)	0.22 (0.04)	F = 0.12	0.884
Psychiatric	0.13 (0.02)	0.14 (0.03)	0.14 (0.03)	0.14 (0.03)	0.14 (0.03)	0.14 (0.03)	0.10 (0.03)	0.10 (0.03)	F = 0.50	0.609
<u>URICA</u>										
Readiness to change ³	10.42 (0.16)	10.26 (0.26)	10.26 (0.26)	10.26 (0.26)	10.63 (0.24)	10.63 (0.24)	10.26 (0.34)	10.26 (0.34)	F = 0.63	0.535

¹ MRC=Motivated Referral Condition; MRC+I=Motivated Referral Condition + Incentives; SRC=Standard Referral Condition

² F test degrees of freedom = 2, 110; χ^2 test degrees of freedom = 2

³ (Contemplation + Action + Maintenance) – Pre-contemplation subscale

Table 2

Treatment engagement and re-engagement variables across study conditions

Characteristic	Overall (n=113)			MRC ^I (n=31)		MRC+I ^I (n=49)		SRC ^I (n=33)		χ^2 or F-test ²	p-value	Unadjusted Odds/Hazard Ratios (95% Confidence Intervals)		
	<u>M</u> (SE)			<u>M</u> (SE)			<u>M</u> (SE)					MRC+I vs. MRC	MRC+I vs. SRC	MRC vs. SRC
Modality first treatment														
Methadone	59.3%		64.5%		65.3%		45.5%		$\chi^2 = 3.70$	0.157	--	--	--	--
Other ³	40.7%		35.5%		34.7%		54.5%							
Days in treatment – first episode	99.19 (10.39)		124.55 (22.55)		86.14 (14.14)		94.76 (19.30)		F = 1.19	0.308	--	--	--	--
Left Treatment (%)														
No	14.2%		19.4%		8.2%		18.2%		$\chi^2 = 2.58$	0.278	--	--	--	--
Yes	85.8%		80.6%		91.8%		81.8%							
Re-enrolled in any treatment														
(%) ⁴														
No	52.6%		72.0%		35.6%		63.0%		$\chi^2 = 10.18$	0.006	4.66 (1.61-13.52)	3.08 (1.14-8.30)	0.66 (0.21-2.13)	
Yes	47.4%		28.0%		64.4%		37.0%							
Re-enrolled in methadone														
treatment (%) ⁴														
No	75.3%		88.0%		55.6%		96.3%		$\chi^2 = 17.98$	0.0001	5.87 (1.53-22.45)	20.80 (2.59-166.84)	3.55 (0.34-36.56)	
Yes	24.7%		12.0%		44.4%		3.7%							
Days in treatment – 12 months	135.42 (10.84)		149.39 (23.26)		140.82 (15.63)		114.30 (19.16)		F = 0.83	0.438	--	--	--	--

¹ MRC=Motivated Referral Condition; MRC+I=Motivated Referral Condition + Incentives; SRC=Standard Referral Condition

² F test degrees of freedom = 2, 110; χ^2 degrees of freedom = 2

³ Includes outpatient drug-free treatment and short-term detoxification

⁴ n=97 (i.e., those leaving the first treatment episode)

Table 3

Logistic regressions for re-enrollment in any treatment and methadone treatment (n = 97)

Dependent measure	Variable	Adjusted OR ¹ (95% CI ¹)	p-value
Re-enrollment in any treatment modality	Treatment modality-first episode ²	1.85 (0.73-4.69)	0.374
	Days in treatment-first episode ³	1.41 (0.54-3.65)	0.976
	Attendance to treatment re-engagement group ⁴	2.57 (0.96-6.88)	0.088
Re-enrollment in methadone treatment	Treatment modality-first episode ²	1.52 (0.49-4.69)	0.771
	Days in treatment-first episode ³	1.13 (0.35-3.62)	0.659
	Attendance to treatment re-engagement group ⁴	5.51 (1.92-15.83)	0.001

¹ OR: Odds Ratio; CI: Confidence Interval² Methadone versus other treatment modality³ ≤ 60 days versus > 60 days⁴ Any attendance versus no attendance