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Consulting in Action: A Case Study of Six Community Support Teams Sustaining Integrated Dual Disorder Treatment

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Adopting and sustaining mental health-evidence based practices (EBPs) in community mental health agencies is a challenge because it often entails making infrastructural changes, such as support for assessments and creation of new service types, with minimal financial support from state mental health authorities. Even when there is appropriate funding, oversight, and systems, ongoing training and support for staff are limited and require creative use of agency resources. EBP guides and toolkits must be supplemented by ongoing training, for example, consultation, in order to support and maintain changes in staff behavior. This paper describes the impact of an interactive, in-vivo consulting model on quality of services and consumer outcomes. This training model, in conjunction with program monitoring, supported and maintained the clinical components of one mental health EBP, integrated dual disorder treatment, for individuals with co-occurring serious mental illness and substance use disorder.

Keywords: Dissemination; Integrated dual disorders; Knowledge transfer; Mental health evidence based practices

Implementing and sustaining mental health evidence-based practices (EBPs) in the public health sector is affected by both macro- and microlevel factors, ranging from federal and state policy to individual staff attitudes and behaviors (Bond, Drake, McHugo, Rapp, & Whitley, 2009; Brunette et al., 2008; Shortell, 2004). As the National Institute of Mental Health (2006) suggests in *The Road Ahead* report,

the mental health field is currently missing critical information about how, when, by whom, and under what circumstances research evidence spreads throughout agencies and organizations and across front line workers to become incorporated into practice. As a necessary prerequisite for unpacking how information can lead to treatment or service changes, research is needed...to understand what underlies the creation, transmission, reception, and incorporation of information on EBPs (p. 17).

Although there is consensus that ongoing training and consultation are necessary for mental health staff to be able to faithfully implement and sustain EBPs (McHugo et al., 2007; Brunette et al., 2008) Hoge, Huey, & O'Connell, 2004), there are few studies that assess what kind and intensity of training is most effective for initial start-up and implementation. Additionally, few studies report on how and in what form training can be integrated into a long-standing service delivery model.

In the present study, we examined the impact of an in vivo coaching-consultant model on fidelity scores addressing staff clinical competencies and concurrent improvements in substance use outcomes for individuals receiving integrated dual disorder treatment (IDDT), a set of service guidelines to address substance use disorders and mental illness in the same setting. IDDT is a comprehensive set of wrap-around services, including stage-wise interventions to address substance use disorders (e.g., harm reduction, motivational interventions, and relapse prevention), health promotion, and psycho-pharmacological recommendations to support people in reducing and abstaining from substance use. IDDT has been reported to be one of the most difficult EBPs for mental health staff to implement and sustain with high fidelity because of the requisite clinical skills needed (Bond et al., 2009).

High fidelity refers to a rating of how closely a practice matches the model's intent. Fidelity in IDDT is measured by a 13-item, 5-point scale. The 13 items correspond to the core service components and principles of IDDT. For example, the scale includes staff requirements (an IDDT specialist must be on staff) and clinical competencies and behaviors (clinical care must target a consumer's level of engagement in services) via prescribed clinical techniques. IDDT may appear more difficult to implement than other EBPs because unlike supported employment and assertive community treatment fidelity scales, IDDT is measured not only against the existence of structural components necessary for the practice, such as a multidisciplinary team that provides housing and employment services, but also on clinical competencies such as motivational interviewing and cognitive behavioral therapy (Bond et al., 2009; Brunette et al., 2008).

Staff competency is identified as a reason for uneven implementation and mixed research results (McHugo et al., 2007; Moser, DeLuca, Rollins, & Bond, 2004; Drake et al., 2001). The majority of community mental health staff working with persons with co-occurring disorders do not receive training in IDDT, or any EBP, before they begin working in community mental health. On-the-job-training for mental health staff historically has occurred through half-day didactic trainings intended to provide continuing education units. This training model does not strongly influence how health care staff members provide services (Ager & O'May, 2001; Davis, Thomson, Oxman, & Haynes, 1995; Davis, 1998; Hoge & Morris, 2002; Hoge et al., 2004; Oxman, Thomas, Davis, & Haynes, 1995). Curry, Caplan, and Knupple (1994) estimate that only 10% to13% of taught skills are transferred to the work environment using this method. Additionally, clinical guidelines and manuals alone are similarly ineffective in changing clinician behavior (Eccles, Steen, Whitty, & Hall, 2007). Thus, didactic training and manuals alone are of limited effectiveness in teaching skills to clinicians.

Alternative training strategies have been used and proven useful in changing primary care provider behavior (O'Brien et al., 2007a; O'Brien et al., 2007b). Educational outreach, audit and feedback, and follow-up supervision are the most frequently reported training strategies used to change primary care practitioner behavior (Grimshaw et al., 2001; Grimshaw et al., 2006). For example, an audit of administrative data (i.e., number of appointments and ordered tests) with feedback about patterns to providers changed how doctors managed chronic disease (Foy, Eccles, Jamvedt, Grimshaw, Young, & Baker, 2005). The audit and feedback model was also effective in changing prescription practices for analgesics and antibiotics (Anderson, McEwan, & Hrudey, 1996; Hux, Melady, & DeBoer, 1999). Follow-up supervision in conjunction with an audit and feedback model is considered critical to sustaining behavior change, and it can reduce staff burnout (Bradshaw, Butterworth, & Mairs, 2007; Schoenwald & Hoagwood, 2001). Educational outreach, a kind of social marketing approach in which an onsite trainer relays two or three main messages to staff on an individual basis, has also been shown to change practitioner behavior in a primary care context (Jamtvedt, Young, Kristofferson, O'Brien, & Oxman, 2006; Grimshaw et al., 2006; Grimshaw et al., 2001).

Although most of the research on health care education and training has taken place within the primary care context, a handful of studies have been conducted on alternative training models for substance use and mental health providers. Follow-up trainings, frequent supervision, coaching, or a combination of all three show promise for community mental health staff treating substance use disorders (Johnson et al., 2007; Joyce & Showers, 2002; Sholomskas et al., 2005). Staff on outreach teams randomly assigned to receive training plus follow-up supervision compared favorably in knowledge and self-efficacy with those staff who received no additional training or supervision (Hughes et al., 2008). Workshop plus coaching or feedback was more effective over time than a 1-day workshop in a study comparing clinical workshop, workshop plus practice feedback, workshop plus individual coaching sessions, workshop, feedback, and coaching, or a waitlist control group of self-guided training (Miller, Yahne, Moyers, Martinez, & Pirritano,

2004). Although initial gains were made in clinical proficiency postworkshop, these gains were not maintained at 18 months. Overall gains in motivational interviewing proficiency were reported to be greatest in the workshop plus ongoing supervision condition. Training plus supervision was found to be effective in increasing confidence and improving skills for staff on outreach teams delivering IDDT (Graham et al., 2006). Finally, a qualitative study of 11 mental health centers implementing IDDT showed that an important facilitator of high fidelity was using a consultant trainer for initial and ongoing implementation (Brunette et al., 2008).

METHOD

Study Setting/Context

The study setting was a large decentralized urban psychiatric rehabilitation center that provides IDDT through 12 of its community outreach support teams and two IDDT residences. Over the course of 18 months, an embedded consultant provided in vivo training and consultation with the teams and supervisors of six outreach teams one half day per week at their locations. During this time, the IDDT trainer/consultant also facilitated monthly meetings with the team leader, program director, and agency leadership to review the implementation process with each team, discuss progress, and address implementation barriers. The embedded consultant was a master's level clinician with 8 years of experience working with people with co-occurring disorders and who had worked with the organization as a team leader for 5 years. He had not previously worked directly with any of the staff with whom he was consulting.

A coaching model guided the coach-consultant's work with the team (Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005; Jacobson, Butterhill, & Goering, 2005; Spouse, 2001). On this model, the coach supervises, teaches while engaged in the actual practice, and provides ongoing assessment and feedback as well as emotional support (Spouse). In this instance, coaching activities were adapted to include educational outreach and modeling at team meetings targeting specific fidelity items or topics that would support better implementation of fidelity items. Table 1 describes the embedded consultation goals and activities, including frequency, intensity, and duration.

		TABLE	1. Consultant a	ictivities and schedule	
	Buy-in Infrastructure Support Goals—ongoing	Fidelity Item	Training Strategy	Consultant Activity	Duration and Intensity
	Ensure top-down support	All	n/a	Consulted monthly with the team leader, program director, associate director, director of clinical practices, chief clinical officer, and director of IDDT to review	Hr per month
318	Improve supervisory structure and practices	АЛ	BO	the implementation process with each team, discuss progress, and address implementation barriers. Consulted monthly with each team's program director to enhance administrative oversight of these	Half hr per month
				assessments (i.e., supervision of team leaders and accountability of staff). Consultation focused on developing structures for effective team collaboration and providing quality	
	Goals Month 1 Establish shared training goals Introduce IDDT components via fidelity scale	Fidelity Item All	Method EO* FF*	nectovery-based set vices. Met weekly with teams at regularly scheduled team meetings.	Frequency and duration All teams: Educate on all fidelity items, with an emphasis on those with a score of 3 or lower.

	Weekly; 4hours/team																										
	Trained teams on the 5 IDDT	specific assessments	(context of use assessment,	substance use details,	Alcohol Use scale-revised,	Drug Use scale-revised,	and Substance Abuse	Treatment scale-revised).	Trained teams on how to	incorporate the information	derived from the	assessments into goal	development, and their	practice of motivational.	stage-wise approaches,	including engagement,	motivational interviewing,	assertive outreach, and	substance abuse counseling.	Shadowed one staff member	from each team every week	on visits with members in	the community to provide	feedback on conducting	substance use assessments,	goal development, and their	practice of motivational,
	EO-CO*																										
Fidelity Item	Stage-wise	intervention	Item #2	Motivational	Interventions	Item #6																					
Goals Year 1	Improve clinical assessment	Increase talk about substance	use with members.	Increase and improve use of	MI skills relevant to	assessing and discussing	substance use in a	nonjudgmental manner.	Improve staff ability to match	interventions to stage of	treatment.																

(Continued)

		E		
y-in Infrastructure pport Goals—ongoing	Fidelity Item	Training Strategy	Consultant Activity	Duration and Intensity
als Year 2			stage-wise approaches, including engagement, motivational interviewing, assertive outreach, and substance abuse counseling.	
rease IDDT specialist knowledge and skills ng-term sustainability	IDDT Specialist Item (Item 1b) MI skills Stage-wise interventions	Ő	Team leader and IDDT specialist would be able to oversee and direct the assessment of alcohol and/ or drug use, as well as stage of treatment. Provided supervisory support. Modeled how to oversee and direct a discussion of assessment data as it relates to short- and long-term clinical interventions. Team leader and IDDT specialist would be able to oversee and direct a client centered consultation soliciting input from the team.	Weekly; 2 hrs/week

Motivational interviewing, stage-based interventions, and assessments were chosen to target first because they are foundational to the rest of the practice. The embedded consultant focused on helping teams learn to do integrated mental health and substance abuse assessments, to incorporate information derived from the assessments into helping consumers set personal treatment goals, and to help staff deliver stage-based services. Particular attention was paid to how to introduce substance use in conversation with those members in the earliest stages of treatment in a nonjudgmental, collaborative manner. As a consequence, motivational interviewing skills were emphasized as a way to explore substance use and its role in a person's life in a manner that helped build rapport and the therapeutic alliance. Creating a collaborative relationship underpins interventions at every stage of treatment, including cognitive-behavioral interventions, which are most effective in the later stages.

Participants

Outreach teams using a team-based approach were eligible for embedded consultation if more than 50% of their consumers had a co-occurring disorder, and the program director and team leader both expressed interest in working with a consultant. Six teams were identified. Table 2 describes staff demographics and team characteristics, including caseload and turnover rate.

A total of 188 individuals with a substance use disorder were served by these teams, and 114 are included in the analysis as they remained on the teams for the entire time the consultant was working with them, thus receiving the highest "dose" of the embedded consultant. The majority of those receiving IDDT services were male (88%). Sixty-seven percent identified themselves as being African American (n = 80) and 31% as Caucasian (n = 37). The mean age was 47 (SD = 10.66). Most had never been married (75%, n = 90). Twenty-four percent (n = 29) had a poly-substance use diagnosis, while 39% (n = 47) had a substance abuse diagnosis, and 21%, a substance dependence diagnosis (n = 26). Ten individuals had an unspecified substance use diagnosis. Sixty seven percent (n = 80) had a schizophrenia spectrum diagnosis, 16% (n = 20) were diagnosed with bipolar disorder, and 15% (n = 17) were diagnosed with major depression. Two were psychosis unspecified.

TABLE	2. Staff demc	graphics and te	am characteristi	cs		
Team 1	Team 2	Team 3	Team 4	Team 5	Team 6	Total
(9 = 0)	(n = 6)	(n = 10)	(n = 6)	(9 = 0)	(n=6)	(n = 40)
34.3 (9.07)	39 (14)	36.3 (12.11)	29 (4.4)	32 (4.34)	32 (8.44)	34 ()
83.3%	83.3%	60%	66.6%	50.0%	66.6%	65%
16.6%	16.6%	40%	33.4%	50.0%	33.4%	35%
66.7%	66.7%	60%	83.3%	33.3%	16.6%	53%
16.6%	33.3%	30%	16.6%	50.0%	66.7%	35%
0	0	0	0	0	16.6%	.03%
0	0	10%	0	16.6%	16.6%	10%
16.6%	0	0	0	0	0	.03%
16.6%	0	0	0	16.6%	16.6%	10%
33%	66%	80%	66%	966%	966%	60%
33%	33%	33%	33%	16.6%	16.6%	30%
14.0 (6.0)	15.2 (4.5)	93.6 (6.6)	12 (7.1)	12.6 (6.7)	13.0 (6.7)	12.5 (6.2)
16.6% (n = 1)	50% (n = 3)	33.3% (n = 4)	16.6% (n = 1)	33%00 (n=2)	16.6% (n = 4)	40% n = 16
1	0	0	1	0	0	2
1:3 $(n = 17)$	1:3 $(n = 17)$	1:3 $(n = 26)$	1.2 (n = 15)	1:4 $(n = 22)$	1:4 (n = 22)	
	$\begin{array}{c} TABLI \\ Team 1 \\ (n = 6) \\ 34.3 \ (9.07) \\ 34.3 \ (9.07) \\ 83.3\% \\ 16.6\% \\ 66.7\% \\ 16.6\% \\ 0 \\ 16.6\% \\ 33\% \\ 33\% \\ 33\% \\ 14.0 \ (6.0) \\ 16.6\% \ (n = 1) \\ 1.3 \ (n = 17) \\ 1.3 \ (n = 17) \end{array}$	TABLE 2. Staff demc Team 1 Team 2 $(n = 6)$ $(n = 6)$ $34.3 (9.07)$ $39 (14)$ 38.3% 39.3% 16.6% 16.6% 16.6% 16.6% 16.6% 66.7% 0 0 0 0 16.6% 66.7% 0 0 0 0 16.6% 66.7% 33.3% 33.3% $14.0 (6.0)$ $15.2 (4.5)$ 15.6% 0 $14.0 (6.0)$ $15.2 (4.5)$ 15.3% 15.3% 13.3% 0 13.3% 0 13.3% 0 13.3% 0 13.3% 0	TABLE 2. Staff demographics and teTeam 1Team 2Team 3 $(n = 6)$ $(n = 10)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ 83.3% 83.3% 60% 16.6% 16.6% 40% 16.6% 66.7% 60% 16.6% 33.3% 90% 0 0 0 0 0 0 16.6% 66.7% 60% 16.6% 33.3% 33% 16.6% 0 0 16.6% 0 0 16.6% 0 0 16.6% 33% $14.0 (6.0)$ $15.2 (4.5)$ $93.6 (6.6)$ 16.6% $15.2 (4.5)$ $93.6 (6.6)$ 16.6% $15.2 (4.5)$ $93.6 (6.6)$ 13.3% 13.3% 0 13.3% 13.3% 0 $13.3 (n = 17)$ $11.3 (n = 17)$ $11.3 (n = 26)$	TABLE 2. Staff demographics and team characteristiTeam 1Team 2Team 3Team 4 $(n=6)$ $(n=10)$ $(n=6)$ $(n=6)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $38.3.3\%$ 83.3% 60% 66.6% 83.3% 83.3% 60% 66.6% 16.6% 16.6% 40% 66.6% 16.6% 00 0 0 0 0 0 0 16.6% 83.3% 30% 16.6% 83.3% 30% 16.6% 33.3% 30% 16.6% 33.3% $93.6 (6.6)$ $14.0 (6.0)$ $15.2 (4.5)$ $93.6 (6.6)$ $14.0 (6.0)$ $15.2 (4.5)$ $93.6 (6.6)$ 13.6% 0 0 16.6% $11.3 (n=1)$ $1.3 (n=17)$ $11.3 (n=26)$ $1.3 (n=17)$ $11.3 (n=26)$ $1.2 (n=15)$	TABLE 2. Staff demographics and team characteristicsTeam 1Team 2Team 3Team 4Team 5 $(n=6)$ $(n=10)$ $(n=6)$ $(n=6)$ $(n=6)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $32 (4.34)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $32 (4.34)$ 83.3% 83.3% 60% 66.6% 50.0% 16.6% 16.6% 33.3% 66.7% $66.\%$ 50.0% 16.6% 33.3% 100° 0° 0° 0° 0 0 0° 0° 0° 0° 16.6% 33.3% 30% 16.6% 50.0% 16.6% 33.3% 0° 0° 0° 16.6% 33.3% 0° 0° 0° 16.6% 33.3% 30% 16.6% 50.0% 16.6% 33.3% 16.6% 33.3% 16.6% 16.6% 0° 0° 0° 0° 16.6% 33.3% 33% 33% 16.6% 16.6% 33.3% 16.6% 12.71 $12.6(67)$ $14.0 (6.0)$ $15.2 (4.5)$ $93.6 (6.6)$ 12.71 $12.6 (6.7)$ 13.0% 0° 0° $11.6.6\%$ 0° 13.0% $11.0 (6.0)$ $15.2 (4.5)$ $93.6 (6.6)$ 12.71 13.0% $11.3 (n=17)$ $11.3 (n=26)$ $11.2 (n=15)$ $11.4 (n=22)$ $1.3 (n=17)$ $11.3 (n=217)$ $11.3 (n=26)$ $11.2 (n$	TABLE 2. Staff demographics and team characteristicsTeam 1Team 2Team 3Team 4Team 5Team 6 $(n=6)$ $(n=10)$ $(n=6)$ $(n=6)$ $(n=6)$ $(n=6)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $32 (4.34)$ $32 (8.44)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $32 (4.34)$ $32 (8.44)$ $34.3 (9.07)$ $39 (14)$ $36.3 (12.11)$ $29 (4.4)$ $32 (4.34)$ $32 (8.66)$ $88.3.3\%$ 60% 60% 66.6% 50.0% 66.6% 16.6% 16.6% 66.7% 60% 83.3% 50.0% 0 0 0 0 0 16.6% 16.6% 66.7% 60% 83.3% 50.0% 66.7% 0 0 0 0 0 16.6% 16.6% 16.6% 66.7% 66% 66% 66% 33% 33% 33% 16.6% 16.6% 16.6% 16.6% 0 0 0 0 0 16.6% 66% 66% 66% 66% 33% 33% 33% 16.6% 16.6% 16.6% $15.2 (4.5)$ $93.6 (6.6)$ $12 (7.1)$ $12.6 (6.7)$ $13.0 (6.7)$ $14.0 (6.0)$ $15.2 (4.5)$ $93.6 (6.6)$ $12 (7.1)$ $12.6 (6.7)$ 16.6% 13% 0 0 $12 (7.1)$ $12.6 (6.7)$ $13.0 (6.7)$ $13.0 (1 = 10)$ 0 $12 (7.1)$ $12 $

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Materials and Procedure

Fidelity to the EBP was measured using the IDDT Fidelity Scale (Wilson & Crisanti, 2009). The scale is a 13-item scale, with ratings ranging from 1 as the lowest rating to 5 as the highest. Ratings are determined by triangulating data from document review, staff and consumer interviews, and observation of clinicians. A score of 4 is considered high fidelity and 3 is adequate implementation (McHugo et al., 2007). The program level scale includes several items that measure clinical competency (e.g., IDDT specialist knowledge and competence overall, motivational interviewing, stage-wise care, and substance use counseling) in addition to the items that measure the structure of the program (e.g., multidisciplinary team, nonbrokered housing and employment services, and a dedicated IDDT specialist position). The measure has established high concurrent validity (Wilson & Crisanti, 2009) and good interrater reliability (ICC = .89) (McHugo et al., 2007).

The fidelity assessors (n = 6) worked in teams of two. All raters either received a 1-day didactic training by an experienced fidelity trainer or had attended and conducted multiple trainings on the IDDT model. More experienced raters were paired with less experienced raters. Among the experienced raters, two had conducted fidelity assessments as part of two Substance Abuse and Mental Health Services Administration-funded IDDT implementation studies. Four raters had completed numerous fidelity assessments as part of the agency's earlier effort to implement IDDT with other teams or had conducted supported employment and illness management and recovery fidelity. The fidelity assessor pairs met after conducting the assessments to discuss the item definitions and scoring guidelines as listed in the IDDT implementation kit for the purpose of making sure the ratings were consistently anchored in the scoring definitions provided in the toolkit. Fidelity visits lasted 1 day and included shadowing of and interviews with staff, interviews with three members at different stages of treatment (early, active, and relapse prevention) as measured by the Substance Abuse Treatment Scale, described below, and chart review.

Substance use was measured by the Clinician Alcohol Use scalerevised (AUS-R), and the Clinician Drug Use scale-revised (DUS-R) (Mueser et al., 2003a). The AUS-R and DUS-R are clinician-rated scales that assess severity of substance use over a prior 6-month

period. The scales are derived from the DSM IV diagnostic criteria for substance abuse and dependence. For both scales, a rank score of 1–5 corresponds to severity of use (1 = abstinent, 2 = use without impairment, 3 = abuse, 4 = dependence, 5 = dependence with institutionalization). The scales were designed to rely on multimodal data and have been found reliable and valid (Drake, Rosenberg, & Mueser, 1996). The original scales showed good test-retest reliability (Drake, Mueser, & McHugo, 1996).

Stage of substance abuse treatment was determined by the clinician-rated Substance Abuse Treatment scale–revised (SATS-R) (Mueser, Noordsy, Drake, & Fox, 2003a). The original SATS has acceptable psychometric properties and is widely used in IDDT studies (McHugo et al., 1995). The SATS-R is structured in eight successive stages: (1) preengagement, (2) engagement, (3) early persuasion, (4) late persuasion, (5) early active treatment, (6) late active treatment, (7) relapse prevention, and (8) remission or recovery; measures change in engagement by looking at behavioral indicators of investment in treatment.

The IDDT trainer/consultant provided training to the teams on how to administer the clinical ratings. The embedded consultant gave a refresher course in how to rate consumers on these scales (McHugo et al., 1995; Mueser et al., 1995).

Analysis

Descriptive statistics were conducted to report staff sociodemographic characteristics, team characteristics, and assess changes in overall fidelity scores, specific fidelity scale items, and consumer outcomes for each of the six teams over four time points—baseline, 6 months, 12 months, and 18 months. Paired sample t tests were used to compare the differences between fidelity scores and substance use assessment score means between baseline and 18-month scores by team. Pearson's r-correlation analyses were conducted to examine the relationships between (1) the overall change in team fidelity scores from baseline to 18 months and the change in substance use outcome (AUS and DUS) means between the same time points and (2) the change in the staged assessment fidelity item means and the average SATS score per team. Overall change for all scores was computed by taking the difference between 18-month and baseline mean scores by team.

RESULTS

Fidelity

During the first 12 months of the project, the average total IDDT fidelity score for each team improved and was sustained at 18 months, as displayed in Figure 1.

On average, teams improved their fidelity scores by 19.7%, and one team reached what is considered high fidelity, with a score of 4. The team that reached highest fidelity was a start-up team (n = 4), and it served fewer consumers (see Table 2). Half the team had an advanced degree and, with the exception of the team leader, less time with the agency than staff on other teams. The subscales representing areas targeted by the intervention, stage-based care, and motivational interviewing and IDDT specialist knowledge and care also showed improvement, as displayed in Tables 3, 4, and 5.

Substance Use Outcomes

Ninety-five clients completed the AUS-R., DUS-R, and SATS at 18-months. Paired *t* test comparing means of AUS-R and DUS-R at baseline and 18 months by team were not significant. Table 6



Figure 1 Fidelity scores by team. (Color figure available online.)

Team	Baseline	6 Months	12 Months	18 Months
1	1.00	3.00	3.00	1.00
2	1.00	4.00	4.00	4.00
3	1.00	3.00	4.00	4.00
4	1.00	4.00	4.00	4.00
5	1.00	4.00	4.00	4.50
6	2.00	4.00	2.00	3.50
Mean	1.17	3.67	3.50	3.50

TABLE 3. IDDT specialist item score (fidelity item 1b)

TABLE 4. Motivational interviewing subscale (fidelity item 6) scores by team

Team	Baseline	Six Months	12 Months	18 Months
1	2.00	2.00	2.00	2.00
2	2.00	2.00	2.50	3.00
3	2.00	4.00	4.00	4.00
4	2.00	3.00	3.00	3.00
5	2.00	3.00	3.50	3.50
6	2.00	2.50	2.50	3.00
Mean	2.00	2.75	3.92	3.08

TABLE 5. Stage-wise intervention (fidelity item 2) subscale scores by team

Team	Baseline	6 Months	12 Months	18 Months
1	2.00	2.00	2.00	2.00
2	2.00	3.00	3.00	3.50
3	2.00	4.00	4.00	3.00
4	2.00	3.00	3.00	3.50
5	1.00	3.00	3.00	4.00
6	1.00	2.50	2.00	3.00
Mean	1.66	2.92	2.60	3.10

shows mean SATS-R scores across four time points. Teams 5 and 6 mean scores were significantly higher from baseline to 18 months

Change in mean fidelity scores from baseline to 18 months were not significantly correlated with change in consumers' substance use ratings: SATS-R scores r (4) = -.39, p > .0;, AUS scores r (4) =.61, p > .01; or DUS scores r (4) =.41, p > .01. However, a positive significant correlation was found between change in the average SATS-R ratings and the stage-wise intervention item (Fidelity Item 2) scores of the IDDT Fidelity scale r (4) =.84, p .01.

Team	Baseline	6 months	12 months	18 months
1	5.69	6.38	6.38	5.73
2	4.06	4.06	4.17	4.39
3	3.78	4.39	3.61	3.50
4	4.33	5.13	5.00	3.54
5^b	3.75	4.10	4.25	4.93
6	3.50	4.41	4.59	3.73
Mean	4.11	4.67	4.57	4.27

TABLE 6. Substance Abuse Treatmnt scale-revised, scores $(n = 114)^a$

^{*a*}Lower scores represent decreased substance use on the AUS-R & DUS-R, while higher scores on the SATS indicate improved functioning..

^{*b*}Paired sample *t* tests compared baseline SATS means to 18-month SATS means indicate significant differences for team 5 t(13) = -3.40, p < .01) and team 6 t(14) = -1.83, p < .10).

DISCUSSION

This descriptive study shows that an in vivo embedded-consultant model, using a multifaceted approach, can target and improve fidelity items that correspond to clinician competence, while also improving overall program fidelity. Overall fidelity improved over the course of 1 year and was sustained at 18 months. Improvement in overall program fidelity, however, did not correlate with improvement in substance use outcomes. Improvement in clinician's ability to provide stage-wise interventions, as measured by the stage-wise intervention fidelity item on the IDDT fidelity scale, showed a positive relationship with the Substance Abuse Treatment Scale ratings, which includes an assessment of current use in the rating. The project also described the components and intensity of the embedded consulting model.

Several possible explanations may account for why changes in overall program fidelity scores were not associated with substance use outcomes. First, the correlation analyses included the changes in means on the fidelity scales and consumer substance use outcomes for only six teams. Future research should include additional teams to assess the relationship between fidelity scores and clinical outcomes. Second, the trainer focused on how to conduct good assessments and use assessment data to guide treatment. In this phase, he targeted nonspecific clinical skills to help clinicians initiate conversations about substance use respectful manner and sought to understand the person's substance use rather than trying

to convince the person to change his or her behavior. He focused instead on open-ended questions, affirmations-reflections, and summaries, known as OARS skills (Miller & Rollnik, 2002). Additionally, the trainer taught the identified IDDT specialists and team leaders how to supervise the OARS skills in team meetings. The trainer did not focus on more advanced MI techniques hypothesized to elicit change. It may be that the trainer needed to move beyond these skills more quickly, or that he was working on so many different levels at the same time that he could not move people along as quickly as would be desired.

Third, outreach teams serve people with intensive needs, so there may have been irregularity in the schedule on which the IDDT interventions were done as emergencies arose and planned interventions had to be delayed. One team was a full-fledged assertive community treatment team, and another team exclusively served individuals with extensive criminal justice backgrounds.

Finally, staff tenure, turnover, and enthusiasm have been reported to impact the uptake of training (Woltmann et al., 2008; Torrey et al., 2011). The team with the largest gain in IDDT fidelity score over the 18-month period had been newly formed the year before and comprised an IDDT champion team leader and inexperienced but enthusiastic staff that was very receptive to learning the IDDT practices. Although teams with more seasoned clinicians were willing to participate in IDDT implementation, the tasks may have been viewed as extra work rather than a change to services as usual. Finally, 24% of consumers served by these teams were poly-substance users. For these consumers, reductions in one substance may be reflected in the AUS or DUS scores, but would not necessarily contribute to improvement in their SATs score. Moreover, some consumers were transferred during the 18 months to step-down teams not participating in the project, while others left the agency and were thus not included in the analysis.

Study limitations include lack of a comparison group and substance use data prior to introducing the embedded consultant, which would allow for comparison of impact of the IDDT services on substance use trends. The study did not measure trainee or trainer characteristics, including attitudes or knowledge of staff or learning style preferences. Trainer credibility has been shown to make a difference in the uptake of training as has the extent to which those being trained feel a sense of ownership of the practice (Backer, David, & Soucy, 1995). Finally, the embedded consultant model may not be replicable in environments less supportive than those found in this study. Research has shown that professional behavior is dependent on the multiple contexts in which it occurs, including the organizational and policy contexts (Shortell, 2004; Torrey, et al., 2001). Top-down "buy-in" and a supportive organizational culture existed, despite reductions in state funding and structural barriers. Torrey, Tepper, and Greenwold (2011) found in the national EBP implementation studies that financial concerns led to organizations' not freeing up staff to participate in nonbillable trainings. The embedded consultant model used in this study allowed team members to take turns billing client-centered consultation when assessment and intervention discussions focused on specific consumers, and the shadowing in the community remained billable. This strategy further contributed to senior leadership buy-in.

IDDT implementation may benefit from embedded consultation as a way to capitalize on the systematic monitoring that fidelity reviews provide. The centrality of fidelity and reliance on systemic feedback in EBP implementation emerged from the recognition that establishing a new practice requires ongoing monitoring. Consultation can decrease the gap between the ideal and what is actually happening in clinical practice through ensuring a feedback loop between fidelity and program. These findings support current understanding of knowledge transfer in that it draws from the experiences of and particular concerns and needs of learners—but also in that the model takes into consideration the unique workplace systems within which practitioners work (Weiss, 1979). The latter issue is particularly important. Transferring knowledge into practice depends on being able to show practitioners a reasonable way in which new ways of doing things can work in conjunction with what might appear to be competing goals (Corrigan, McCracken, & Blaser, 2003).

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