



Published in final edited form as:

*J Subst Abuse Treat.* 2009 June ; 36(4): 376–399. doi:10.1016/j.jsat.2008.08.004.

## Research on the diffusion of evidence-based treatments within substance abuse treatment: A systematic review

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### Abstract

This article provides a comprehensive review of research studies that have examined the diffusion of evidence-based treatments (EBTs) within the field of substance abuse treatment. Sixty-five research studies were identified and were grouped into one of three major classifications: attitudes toward EBTs, adoption of EBTs, and implementation of EBTs. This review suggests significant progress has been made with regard to the advancement of the fields' knowledge about attitudes toward and the extent to which specific EBTs have been adopted in practice, as well as with regard to the identification of organizational factors related to EBT adoption. In an effort to advance the substance abuse treatment field towards evidence-based diffusion practices, recommendations are made for greater use of methodologically rigorous experimental or quasi-experimental designs, psychometrically sound instruments, and integration of quantitative and qualitative data collection.

### Keywords

technology transfer; diffusion; innovations; adoption; implementation

## 1. Introduction

In 1998 the Institute of Medicine (IOM) issued the now landmark report *Bridging the Gap Between Research and Practice: Forging Partnerships with Community-Based Drug and Alcohol Treatment* (IOM, 1998). Several tasks were charged to this committee, including the identification of promising research strategies which would help lessen the disparity between research and practice within the field of substance abuse treatment. Among the committee's recommendations to improve implementation of research-based interventions in practice was the development of an infrastructure to facilitate research within a network of community-based treatment programs and the suggestion for states and federal agencies to develop financial incentives to encourage the inclusion of evidence-based treatments (EBTs) in community-based programs.

The National Institute on Drug Abuse (NIDA) has responded to these needs in a number of ways. One method of promoting greater diffusion of EBTs was publishing treatment manuals for several different approaches including: cognitive behavioral treatment (Carroll, 1998), the community reinforcement approach plus vouchers (Budney & Higgins, 1998), and individual drug counseling (Mercer & Woody, 1999). In 1999, NIDA established the Clinical Trials Network (CTN), which now has produced several articles demonstrating the effectiveness of different substance abuse treatments in community-based treatment settings (e.g., Amass et

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al., 2004; Ling et al., 2005; Peirce et al., 2006; Petry et al., 2005). In 2001 NIDA worked with the Substance Abuse and Mental Health Services Administration (SAMHSA) to create what is called the NIDA/SAMHSA Blending Initiative. A collaboration between NIDA CTN's and SAMHSA Addiction Technology Transfer Centers (ATTCs) this initiative represents one of the most innovative efforts to date to improve the diffusion of research into practice. The general technology transfer strategy used as part of the Blending Initiative includes: 1) identification of promising CTN and/or other NIDA-funded findings that address gaps in the treatment field, 2) formation of "blending teams" (composed of representatives of the NIDA research and representatives from the ATTCs), which work closely together to develop training curricula, supervisory manuals, and strategic dissemination plans. Thus far, five different blending projects have been initiated and include: a) Short-Term Opioid Withdrawal Using Buprenorphine; b) Buprenorphine Treatment: Training for Multidisciplinary Addiction Professionals; c) Treatment Planning M.A.T.R.S.: Utilizing the Addiction Severity Index (ASI) to Make Required Data Collection Useful; d) Motivational Interviewing Assessment: Supervisory Tools for Enhancing Proficiency (MIA-STEP); and e) Promoting Awareness of Motivational Incentives (see Condon, Miner, Balmer, & Pintello, 2008 or <http://www.nida.nih.gov/Blending> for more details on each of these blending projects).

A historical overview of the federal government's role in drug abuse technology transfer over the past 30 years has been provided by Brown and Flynn (2000). In addition to concluding that in order for progress to be made technology transfer must be embraced as a major responsibility of the federal government, Brown and Flynn posited a technology transfer model which emphasized the federal role, and included four elements: technology development (i.e., development of research agenda and selection of research projects), transfer preparation (i.e., selection of research findings appropriate for transfer), transfer implementation (i.e., conduction of core tasks of technology transfer), and transfer stabilization (i.e., maintenance of implementation efforts). Similar efforts to advance the transfer of research to practice, have produced conceptual models of the diffusion process (also referred to as technology transfer) (e.g., Simpson, 2002; Thomas, Wallack, Lee, McCarty, & Swift, 2003).

Simpson (2002) proposed a program change model for transferring research to practice, which incorporated findings from several relevant literatures (e.g., Backer et al., 1986; D'Aunno & Vaughn, 1995; Klein & Sorra, 1996; Rogers, 1995). As with the Brown & Flynn's model, Simpson's program change model has four main elements. These include exposure (i.e., via training or workshops), adoption (i.e., representing an intention to try an EBT), implementation (i.e., a period of trial use), and practice (i.e., incorporation of EBT into regular use and sustaining it). Within this program change model are several factors, such as organizational climate, staff attributes, and program resources, which are believed to influence the change process and ultimately determine the extent to which changes occur. Since the evaluation and refinement of a model depends on having appropriate assessments available, Simpson and colleagues developed several useful survey instruments, including the Organizational Readiness for Change (ORC; Lehman, Greener, & Simpson, 2002) and the Program Training Needs (PTN; Rowan-Szal, Greener, Joe, & Simpson, 2007). Recently, "heuristic refinements" have been made to Simpson's (2002) program (see Simpson & Flynn, 2007) by broadening its scope to include strategic program planning and preparation and with the re-labeling of the first stage "training" rather than exposure.

As a decade has now passed since the substance abuse treatment field began its concerted effort to "bridge the gap" (IOM, 1998) it seemed appropriate to review the progress which has been made. Although important reviews related to this topic have been published previously (e.g., Fixsen, Naoom, Blasé, Friedman, & Wallace, 2005; Gotham, 2004; Miller, Sorensen, Selzer, & Brigham, 2005), this review is the first to systematically identify and review research studies focusing on the diffusion of EBTs within the field of substance abuse treatment. That is, of the

419 references included in the often cited review by Fixsen et al. (2005) less than two percent were related to substance abuse treatment. Furthermore, although the review by Gotham (2004) included several substance abuse treatment research studies, its greater emphasis on reviewing how diffusion research and theory could be applied to mental health treatment does not fully capture the state of diffusion research within the substance abuse treatment field. Finally, although Miller and colleagues (2006) provided a good review of methods for disseminating new treatment methods, the availability of new studies during the last two to three years already warrants updating. Thus, the primary purpose of this review was to systematically identify research studies within the field of substance abuse treatment which have examined: a) attitudes towards EBTs (i.e., studies which examined beliefs or attitudes regarding the effectiveness or use of EBTs), b) adoption of EBTs (i.e., studies which examined the extent to which staff and/or agencies reported having adopted specific EBTs), or c) implementation of EBTs (i.e., studies which examined the extent to which and/or the processes through which an EBT was implemented).

## 2. Methods

A systematic review of substance abuse treatment literature was conducted to identify research studies published between 1998 and July 2008 that examined diffusion of EBTs within U.S. community-based substance abuse treatment centers. In order to meet the definition of a “research study” the paper had to describe the methods and findings from a quantitative or qualitative data-based study. For the purposes of this review, EBTs included both pharmacological (e.g., naltrexone, buprenorphine) and psychosocial interventions (e.g., community reinforcement approach, contingency management) for the treatment of substance abuse or dependence. Two primary methods were used in conducting the literature search. The first, was a keyword search using the PsychINFO, Medline, and Implementation Science databases, where key search terms included: “adopting,” “adoption,” “attitudes,” “Clinical Trials Network,” “diffusion,” “disseminating,” “dissemination,” “evidence-based,” “implementing,” “implementation,” “implementation research,” “implementation science,” “substance abuse,” and “technology transfer.” The second method included searching the bibliographies of articles identified as being relevant. As a systematic review of the effectiveness of workshop training studies already has been conducted (see Walters, Matson, Baer, & Ziedonis, 2005), the current review only includes training-related articles that were not included in or were published subsequent to the Walters et al. (2005) article. Finally, articles with an emphasis on something other than substance abuse treatment (e.g., psychotherapy, mental health treatment) also were excluded from the current review.

## 3. Results

A total of 65 research studies were identified based on the methods described above. As previously noted, several articles related to EBT training (e.g., Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Morgenstern, Morgan, McCrady, Keller, & Carroll, 2001; Sholomskas et al., 2005) were excluded from the current review because they had already been reviewed by Walters and colleagues. Additionally, several articles were excluded (e.g., Carroll et al., 2002; Liddle et al., 2002; Robbins, Bachrach, & Szapocznik, 2002) because they did not meet criteria for classification as a “research study.”

Articles identified were classified into one of three major classifications including: a) attitudes towards EBTs, b) adoption of EBTs, and c) implementation of EBTs (defined previously in the introduction). Although many articles could be classified into only one of these, others could have been classified into more than one. In order to prevent tables from becoming unnecessarily long and redundant, articles were placed in the classification which appeared most relevant. Within each major classification studies have been ordered by year (and

alphabetically within year) in order to give readers a feel for how the field has progressed over time. Within each of the three major classifications, studies also have been sub-classified as being focused on: a) pharmacological EBTs only, b) psychosocial EBTs only, or c) both pharmacological and psychosocial EBTs. Membership in each sub-classification has been indicated with superscripts in the tables.

### 3.1 Attitudes toward EBTs

Twenty-five research studies (38% of all studies identified) were classified as having examined attitudes toward EBTs. As indicated by superscripts in Table 1, 12 (48%) of the studies within this classification examined attitudes towards pharmacological EBTs only, 6 (24%) examined attitudes toward psychosocial EBTs only, and 7 (28%) examined attitudes toward both types of EBTs.

**3.1.1 Attitudes toward pharmacological EBTs**—Two of the first studies identified as part of this review examined patients' attitudes towards the use of pharmacological treatment for alcoholism. The first study, conducted by Swift, Duncan, Nirenberg, and Femino (1998), assessed 127 alcoholic patients' attitudes regarding use of medications such as naltrexone, which received FDA approval in 1994 for the treatment of alcohol dependence. Results of their study indicated 14% of patients felt naltrexone was helpful, but only 6% reported having had taken naltrexone. In a similar study, Rychtarik, Connors, Dermen, & Stasiewicz (2000) assessed the attitudes of 277 members of Alcoholics Anonymous (AA) regarding use of medications to prevent relapse, as well as their experiences with the use of such medication. Results of their study indicated that 73% of members reported the use of medications to prevent relapse either "might be" or "was" a good idea. Additionally, results of the study found AA meeting attendance to be negatively related to attitudes toward use of medications. Thus, based upon these two studies, there appears to be mixed patient support for using pharmacological treatments, such as naltrexone.

In contrast to these first two studies, the majority of studies that examined attitudes toward EBTs focused on staff members, such as: physicians and/or physician assistants (Mark et al., 2003c; Roose, Kunins, Sohler, Elam, & Cunningham, 2008; West et al., 2004), program leaders (Willenbring et al., 2004), and counseling staff (e.g., Forman, Bovasso, & Woody, 2001; Knudsen, Ducharme, & Roman, 2007; Knudsen, Ducharme, Roman, & Link, 2005; McCarty et al., 2007; McGovern, Fox, Xie, & Drake, 2004; Rieckmann, Daley, Fuller, Thomas, & McCarty, 2007). The general state of attitudes toward pharmacological EBTs is best illustrated by the results of an early study conducted by Forman et al. (2001). Using a confidential survey Forman and colleagues assessed the beliefs of staff about addiction treatment prior to the initiation of the CTN research protocols, including the extent to which staff believed "new approaches" and specific medications should be used more. Results indicated although 80% of staff agreed "new approaches" should be used more, less than 40% of staff agreed medications such as naltrexone or methadone maintenance should be used more. Willenbring and colleagues (2004) similarly found although program leaders of Veteran Affairs reported generally positive beliefs about clinical practice guidelines, only 46% agreed naltrexone should be routinely recommended for alcohol dependence.

In addition to studies that assessed attitudes towards pharmacological EBTs, such as naltrexone, research also has assessed attitudes toward buprenorphine, which received FDA approval in 2002 for the treatment of opiate dependence. Early studies indicated generally low support for or knowledge regarding buprenorphine. For example, West and colleagues (2004) found that 81% of the 1,206 physician psychiatrists they surveyed were not comfortable providing buprenorphine treatment, while Knudsen, Ducharme, Roman, and Link (2004) found 86% of the 2,298 counselors surveyed from both private and public community-based

treatment programs not aware of the effectiveness of buprenorphine. Fortunately, the extant literature indicates training and involvement in a research network have been found to be associated with more positive attitudes toward pharmacological EBTs (Knudsen, Ducharme, & Roman, 2007; McCarty, Rieckmann, Green, Gallon, & Knudsen, 2004). For instance, McCarty et al (2004) used the 10-steps included in the Addiction Technology Transfer Centers (ATTC, 2000) *The Change Book* to structure the change process for the Opiate Medication Initiative for Rural Oregon Residents (OMIROR) project. Pre-post measures of attitudes indicated staff reported significantly higher attitudes and beliefs regarding buprenorphine's effectiveness, ability to save lives, impact on patients' health, and ability to block heroin cravings following the training. Similarly, Knudsen, Ducharme, and Roman (2007) found counselors who reported greater receipt of buprenorphine training were significantly more likely to also report greater ratings of buprenorphine acceptability. Knudsen et al. (2007) also found CTN-affiliated counselors reported significantly greater acceptability of buprenorphine compared to non-CTN affiliated counselors.

In addition to affiliation with a research network, such as CTN, other organizational factors have been shown to be correlated with attitudes toward pharmacological EBTs. For instance, Fuller et al. (2007) used data from 205 treatment units to examine multilevel relationships between several scales included as part of the ORC instrument and attitudes toward several treatment practices. Results indicated 3 of the 18 ORC scales (i.e., growth, internet, and program needs) were significantly related to attitudes toward medications.

**3.1.2 Attitudes toward psychosocial EBTs**—Review of the literature indicates there are generally more positive attitudes and support for psychosocial EBTs, relative to pharmacological EBTs. For instance, whereas only 46% of VA program leaders in the survey conducted by Willenbring and colleagues agreed naltrexone should be routinely recommended, 93% of respondents agreed there should be more routine recommendation of cognitive behavioral relapse prevention. Greater support for specific psychosocial EBTs also has been suggested by the findings of McGovern et al. (2004) who reported clinicians were more likely to say they were motivated to adopt twelve-step facilitation, cognitive behavioral therapy, motivation interviewing, and relapse therapy, relative to contingency management, behavioral couples therapy, or pharmacotherapies.

Treatment manuals are viewed as essential to providing guidance for the implementation of an EBT and research also has examined therapists' attitudes towards them. As part of the CSAT funded Cannabis Youth Treatment (CYT) project (see Dennis et al., 2002, 2004 for more details on CTY project) Godley, White, Diamond, Passetti, and Titus (2001) used qualitative interviews to examine staff reactions to the use of a manual guided intervention for adolescent marijuana users. Results indicated 100% of clinicians agreed the treatment manuals provided structure and consistency to their therapeutic work, however, 42% also indicated the manuals restricted their ability to respond to individual client needs to some extent. Further, the type of treatment manual (i.e., session-based, procedure-based, or principle-based) was related to how clinicians perceived that the intervention lent itself to a flexible and individualized implementation. More recently, McCarty et al. (2007) surveyed 3,698 staff from 384 treatment units within 106 CTN community treatment programs. On a scale of 1 to 5 (strongly disagree to strongly agree), the average counselor rating regarding the usefulness of treatment manuals for learning new interventions was 3.99 ( $SD = .66$ ). The average counselor rating regarding whether treatment manuals interfere with treatment was 2.20 ( $SD = .76$ ). Thus, based upon these findings, it appears there are generally positive attitudes towards treatment manuals.

Similar to the previously described study by Fuller et al. (2007), two studies (Henggeler et al., 2007; Saldana, Chapman, Henggeler, & Rowland, 2007) used the ORC instrument to examine correlates of attitudes toward psychosocial EBTs. Henggeler et al. used data from 432



substance abuse and mental health practitioners to examine predictors of voluntary attendance to a workshop on contingency management. Demographic characteristics, attitudes towards treatment manuals or evidence-based practices were not significantly associated with workshop attendance. Workshop attendance was, however, significantly higher among participants who reported greater program motivation for change, better organizational climates, and lower program resources. Based upon data from 543 community-based therapists Saldana et al. examined the association between the four ORC domains, the Evidence-Based Practice Attitude Scale (Aarons, 2004), and attitudes toward treatment manuals (Addis & Krasnow, 2000) at both the therapist and agency level. Results indicated therapist-level responses on the ORC provided better estimates of therapists attitudes toward evidence-based practices and treatment manuals and that therapist openness to evidence-based practices was significantly associated with more positive ratings on several ORC domains (i.e., Staff Attributes, Training Exposure & Utilization, and Motivational Readiness for Change).

### 3.2 Adoption of EBTs

Thirty-one research studies (48% of all studies identified) focused primarily on the adoption of EBTs. As indicated by superscripts in Table 2, 18 (58%) of the studies within the adoption of EBT classification examined adoption of pharmacological EBTs only, 9 (29%) examined adoption of psychosocial EBTs only, and 4 (13%) examined adoption of both types of EBTs.

**3.2.1 Adoption of pharmacological EBTs**—Most studies of pharmacological EBT adoption have focused on the adoption of naltrexone. Overall, rates of naltrexone adoption are varied depending on the sample used and year the survey was conducted. For example, one of the first publications of the rates of naltrexone adoption in the US was conducted by Roman and Johnson (2002). Based upon this 2000 survey of a nationally representative sample of approximately 450 treatment centers in the US, Roman and Johnson (2002) found 44% of centers reported adoption of naltrexone. Results of a 1999 survey of 1,251 clinicians (135 physicians and 1,116 nonphysicians) in three states (i.e., Massachusetts, Tennessee, and Washington) conducted by Thomas, Wallack, Lee, McCarty, and Swift (2003) found a similar rate of naltrexone adoption, with 45% of physicians reporting that they had prescribed or recommended naltrexone occasionally. In contrast, however, Fuller, Rieckmann, McCarty, Smith, and Levine (2005) found, based upon three surveys (conducted in 1997, 1999, and 2001) of over 200 outpatient substance abuse treatment centers in the northeast, naltrexone adoption rates of 14%, 17%, and 25%, respectively. A recent study by Knudsen, Ducharme, & Roman (2007a), which surveyed the largest number of substance abuse treatment centers in the U.S. thus far, probably provides the best current estimate of naltrexone adoption. Data from 403 privately funded and 363 publicly funded substance abuse treatment centers surveyed between 2002 and 2004 indicates an overall naltrexone adoption rate of 21%. However, naltrexone adoption was significantly lower for public non-profit centers (7%) compared to both for-profit and non-profit private centers (33% each). Thus, the extant literature suggests roughly 1 in 5 substance abuse treatment centers report having adopted naltrexone.

Given the eight year gap between the FDA's approval for naltrexone (approved in 1994) and buprenorphine (approved in 2002), it is not surprising that fewer research studies have been conducted on the adoption of buprenorphine. In 2003, Koch, Arfken, and Schuster (2006) examined the extent to which buprenorphine was offered in substance abuse facilities during its initial stage of availability. A survey of 13,060 facilities, revealed an overall adoption rate of 5.5%, with opiate treatment programs (OTP) being significantly more likely than non-OTP programs to offer buprenorphine (11% vs. 5%, odds ratio = 2.39). Using data collected from 576 substance abuse treatment centers (299 privately-funded and 277 publicly funded) Knudsen, Ducharme, & Roman (2006) found 6% of centers reported use of buprenorphine at

the baseline survey (conducted between 2002 and 2004), while 14% reported use at the 12-month follow-up survey (conducted between 2003 and 2005). Results also showed private treatment centers reported significantly greater rates of adoption at both time points (baseline = 10%; follow-up = 21%) compared to public treatment centers (baseline = 3%; follow-up = 7%).

Although numerous studies have examined organizational correlates of pharmacological EBT adoption the majority of these studies have been conducted by researchers at the Institute for Behavioral Research at the University of Georgia (e.g., Ducharme, Knudsen, & Roman (2006a & b; Ducharme, Knudsen, Roman, & Johnson, 2007; Knudsen, Ducharme, & Roman, 2007a; Knudsen, Ducharme, Roman, & Link, 2006; Knudsen & Roman, 2004; Knudsen, Roman, Ducharme, & Johnson, 2005). Organizational factors significantly correlated with buprenorphine adoption have included: offering detoxification services, current use of naltrexone, being a for-profit organization, and being an accredited organization. It should be noted, support for some of these factors appeared to be related to the sample and analytic method used. For example, for-profit and accreditation status were significant predictors in the final multivariate models of buprenorphine adoption by Knudsen, Ducharme, & Roman (2006). However, neither of these factors reached significance in the multivariate model of Ducharme, Knudsen, Roman, & Johnson (2007). One possible explanation for these differences may be the inclusion of a measure of direct exposure to buprenorphine (via participation in NIDA's CTN), which Ducharme and colleagues found to have the highest odds ratio among all factors.

**3.2.2 Adoption of psychosocial EBTs**—Research on the adoption of psychosocial EBTs has focused on a broad range of EBTs (e.g., behavioral couples therapy [BCT], community reinforcement approach [CRA], motivation enhancement therapy [MET]). One of the first studies was conducted by Fals-Stewart and Birchler (2001). Results of their telephone survey with 398 substance abuse treatment program administrators indicated none of the respondents used BCT. Moreover, despite results from multiple published studies demonstrating that BCT is an effective treatment for married or cohabiting alcohol-and drug-abusing patients, only 3% of the respondents reported being aware of BCT for this population. Knudsen, Johnson, Roman, and Oser (2003) compared rural (n = 67) and urban (n = 238) treatment centers with regard to the adoption of several different treatment innovations. Results of their study indicated 37% of rural and 48% of urban centers reported adoption of MET, while 55% of rural and 48% of urban centers reported adoption of CRA. However, rural and urban centers did not significantly differ with regard to their adoption of these EBTs.

Given training workshops are widely used for diffusing EBTs, Dwayne Simpson and colleagues at the Institute of Behavioral Research at Texas Christian University (TCU) have examined the extent to which staff report having adopted innovations learned in workshops. Bartholomew, Joe, Rowan-Szal, & Simpson (2007) examined relationships between workshop evaluations and 6-month post workshop follow-up assessments from over 200 counselors. Training relevance and training engagement were significant predictors of adoption of training materials, while lack of time and already using similar materials were reported as being among the top barriers to adoption of workshop training materials. Using a sample of staff and clients from approximately 60 substance abuse treatment units Simpson, Joe, and Rowan-Szal (2007) examined longitudinal interrelationships among program-level organizational measures of needs and functioning, workshop training, innovation adoption, client functioning, and follow-up changes in training needs collected at six separate time points during a two-year period. Results of their study indicated adoption of workshop training materials was significantly associated with lower perceived barriers to training assessed 12-months prior to training, as well as higher perceptions of organizational climate (e.g., Mission, Openness to Change) assessed 4-months prior to training.

Two studies used experimental methods to test strategies or interventions for impacting the adoption process. Peters et al. (2005) used a quasi-experimental design to examine the effectiveness of intensive counselor training sessions combined with peer opinion leaders relative to a standard training session with only resource materials (e.g., treatment manual) provided to counselors. Although the experimental and standard training groups did not significantly differ with regard to attitudes or the level of knowledge acquired about the treatment, counselors in the experimental group were significantly more likely to report having adopted the treatment manual relative to the standard training group (48% vs. 19%,  $p < .05$ ). More recently, Squires, Gumbley, and Storti (2008) reported the results of a study based on a change model called the Science to Service Laboratory (SSL), which is designed to increase the perceived attributes of EBTs via training and support, and is grounded on several of principles of *The Change Book* (ATTC, 2004). Out of 54 agencies that applied to participate in the SSL training, 34 (63%) completed the training. Twenty-eight agencies completed the SSL training and of these, 26 (93%) successfully adopted and implemented contingency management. Agencies with more turnover of their assigned technology transfer specialist were more likely to drop out of the training. Because of the absence of a comparison change strategy it is, however, difficult to assess if the method under study was better or worse than other approaches.

### 3.3 Implementation of EBTs

Nine research studies (14% of all studies identified) focused primarily on the implementation of EBTs (see Table 3). As indicated by superscripts in Table 3, only one study (11%) examined implementation of pharmacological EBTs only, eight studies (89%) examined implementation of psychosocial EBTs only, and none of the studies identified as part of this review examined implementation of both EBT types.

**3.3.1 Implementation of pharmacological EBTs**—In contrast to the two other major classifications of studies (attitudes toward EBTs and adoption of EBTs) few studies were identified that examined implementation of pharmacological EBTs. Amass and colleagues (2004) did include a description of their “general experience bringing buprenorphine-naloxone to community treatment programs, protocol compliance, and regulatory issues,” however, because of the lack of any quantitatively or qualitatively collected data this study did not meet the criteria for inclusion in the current review, nor did three other initially identified CTN trials (Ling et al., 2005; Peirce et al., 2006; Petry et al., 2005). Indeed, only one study was found which met the criteria for being included as a research study on the implementation of pharmacological EBTs (Kovas, McFarland, McCarty, Boverman, & Thayer, 2007). In a retrospective chart review of 200 patients outcomes with either clonidine or buprenorphine, Kovas and colleagues found clients treated with buprenorphine had significantly longer lengths of stay in treatment (5.7 vs. 3.5 days) and “completed” discharges (67% vs. 46%).

**3.3.2 Implementation of psychosocial EBTs**—Among the eight research studies that examined psychosocial EBT implementation five used qualitative interviews (Brown, 2004; Guldish, Tajima, Manser, & Jessup, 2007; Hayashi, Suzuki, Hubbard, Huang, & Cobb, 2003; Obert et al., 2005; Riley, Rieckmann, & McCarty, 2008) and three used quantitative methods (Andrzejewski, Kirby, Morral, & Iguchi, 2001; Keller & Galanter, 1999; Liddle et al., 2006). Based upon qualitative interviews with 85 clinical and research staff that had participated in CSAT’s Methamphetamine Treatment Project, both Brown (2004) and Obert et al. examined the process of implementing the manual-based Matrix model. Results from these two studies indicated that nearly everyone interviewed expressed concern about the ability to meet clients’ needs within the context of a research study and that conducting a randomized clinical trial within a research-naïve clinical setting may not be an ideal way to introduce evidence-based practices. In another qualitative study Guldish, Tajima, Manser, and



Jessup (2007) gathered data to help inform how technologies of multisite clinical trials might be modified to better support adoption of EBTs. Although Guydish and colleagues used the word adoption, this study was classified as an implementation study, as it did not assess rates of adoption, but rather the processes of adopting EBTs, which fits the definition of implementation as defined in this paper. Based upon interviews with 71 individuals representing eight organizational roles (e.g., clinic staff, clinic director, intervention designer) they identified six strategies including: 1) plan for adoption, 2) train senior staff how to deliver the EBT, 3) use a regional training model, 4) use a local supervision model, 5) bring EBT training back to the clinic, and 6) bring study findings back to clinic.

Among the studies that employed quantitative methods to examine the implementation of psychosocial EBTs, one was part of a larger investigation evaluating CM and examined the extent to which graphical feedback (i.e., bar graph representing a counselor's performance) and positive reinforcement (i.e., cash prize drawing) increased staff implementation of CM with clients (Andrzejewski, Kirby, Morral, & Iguchi 2001). One condition was introduced at a time in order to evaluate the additive influence of each component. Five of the ten counselors were exposed to the graphical feedback condition and six of the ten were exposed to the "drawing" condition. Results indicated graphical feedback increased staff implementation by 69% (from 41% to 71%), while the cash prize drawing increased staff implementation by 93% (from 41% to 81%). There was not, however, a significant difference between these two experimental conditions. In another implementation study, Liddle and colleagues (2006) examined longer-term implementation using a multiphase (i.e., 12-month baseline, 6-month training, 14-month implementation, and 18-month durability phase) interrupted time-series design to test a "technology transfer intervention," which has been described previously (Liddle et al., 2002). Several significant improvements were noted regarding the number of individual and family sessions, the content focus of sessions, and adherence to the treatment intervention. Additionally, clients reported significantly greater program control, clarity, and practical orientation during the implementation and durability phases as compared to the baseline phase. Perhaps most important, a significantly larger proportion of clients reported abstaining from drugs in the implementation and durability phases compared to those in the baseline phase.

#### 4. Discussion

This paper systematically reviewed the last decade of scientific research addressing attitudes towards, adoption of, and implementation of EBTs within the field of substance abuse treatment. Based upon this review significant progress has been made, especially with regard to the advancement of the fields' knowledge about attitudes toward EBTs and the extent to which specific EBTs are adopted in practice. However, in contrast to the 25 studies on attitudes toward EBT and the 31 research studies on EBT adoption, only nine research studies were found to have examined implementation of EBTs, which suggests the substance abuse treatment field is still in the early stages of development and knowledge regarding implementation of EBTs. Certainly numerous reasons exist for the disparate number of research studies on EBT implementation, and future research on identifying such barriers is clearly warranted. Seemingly, one of the most significant barriers to implementation research may be the lack of objective criteria for what determines when EBT implementation has or has not occurred in practice. For instance, according to Fixsen et al. (2005) implementation is defined as "a specified set of activities designed to put into practice an activity or program of known dimensions." Importantly, both the activity/program being implemented and specified set of activities are supposed to be described in enough detail to allow independent observers to assess the presence and strength of each. Although EBTs generally have associated manuals and/or treatment fidelity measures, there is typically little guidance on the extent to which modifications (desirable or undesirable) can be made and still allow the EBT to be considered implemented as planned by the treatment model developers (i.e., level of implementation tested

and shown to be effective as part of randomized clinical trials). Given such modifications or “re-invention” as labeled by Rogers (2003) is generally the rule rather than the exception in implementation efforts, it would seem to behoove the field as a whole to work towards the development of implementation criteria that would aid future studies of EBT implementation.

Considerable research to date has examined attitudes towards EBTs with the majority of studies having addressed attitudes toward pharmacological EBTs. Interestingly, the literature seems to suggest generally more positive attitudes are held towards the use of psychosocial EBTs, relative to pharmacological EBTs. In fact, a recent study by Thomas and Miller (2007) found 65% of the 84 counselors and administrators surveyed agreed pharmacologic interventions work best only if accompanied by psychosocial interventions. What appears to be one of the primary reasons why staff have less positive attitudes toward pharmacological EBTs is simply lack of knowledge about pharmacological EBTs relative to psychosocial EBTs. That is, unfortunately education and/or training about pharmacological EBTs are not provided to community-based substance abuse treatment staff and which is reflected in the fact that Knudsen et al. (2004) found 1,972 of the 2,298 (86%) substance abuse treatment counselors surveyed to report not knowing about the effectiveness of Buprenorphine. Thus, in order to improve attitudes toward pharmacological EBTs it is imperative that future initiatives target increasing counselors’ knowledge about the effectiveness of available EBTs, both psychosocial and pharmacological. Fortunately, as has been shown by McCarty and colleagues (2004) staff attitudes toward pharmacological EBTs can be improved by providing trainings on the potential benefits of using such practices.

Almost half of studies identified as part of the current review focused on adoption of EBTs with the majority of these studies focused on adoption of pharmacological EBTs such as naltrexone or buprenorphine. Despite the large number of studies conducted it was not easy to determine a single estimate of the rates of adoption, given estimates varied considerably depending on the sample surveyed and the year the survey was conducted. As noted previously, Knudsen, Ducharme, & Roman (2007a) appear to have provided the best current estimate of the rate of naltrexone adoption within US substance abuse treatment centers at 21%, which is based upon data from 766 treatment centers surveyed between 2002 and 2004. However, given less than two percent of the 194,001 Veteran Affairs outpatients diagnosed with alcoholism between October 2000 and March 2001 were prescribed naltrexone (Petrakis, Leslie, & Rosenheck, 2003) suggests that simply because a center has “adopted” a EBT does not guarantee all who may benefit from the treatment will receive it. Nevertheless, rates of naltrexone adoption do appear to be higher than the rates of buprenorphine adoption, which based upon available estimates ranges between 5.5% (Koch et al., 2006) and 14% (Knudsen, Ducharme, & Roman, 2006). Perhaps due to the wider range of available EBTs or possible the generally more positive attitudes held towards them, considerably less research to date has examined adoption of psychosocial EBTs. However, among the studies that have provide rates of adoption for psychosocial EBTs one of the highest rate of adoption was found for CRA at 49% (Knudsen et al., 2003).

Only nine of the 65 research studies (14%) identified in this review focused on implementation of an EBT. As noted above, this relative paucity of implementation research suggests the substance abuse treatment field is ripe for further research in this area. In addition to the previously noted recommendation to develop more objective implementation criteria six strategies to help encourage better EBT implementation were given by Guldish et al. (2007) with a common theme among several of these strategies being related to “training” (e.g., training senior staff how to deliver the EBT, using a regional training model, and bring EBT training back to the clinic). Two good examples of the types of implementation research studies which are needed to significantly enhance the field have been provided by Andrzejewski et al. (2001) and Liddle et al. (2006). However, this is not to say that these studies were not without

their limitations. For instance, the study by Andrzejewski and colleagues was based upon a very small sample of only ten counselors, which limits the generalizability of the findings. An important limitation of Liddle and colleagues study was the high degree of staff turnover. Given only one of the five social workers participated during all of the study phases it is not possible to conclude whether the improvements found during the implementation phase of the Liddle et al study are attributed to the training intervention or simply to having hired more competent staff. Nevertheless, this study is notable for being the only study to have examined longer-term implementation (i.e., sustainability).

Although not a primary focus of the current review, it does seem relevant to note that for the most part research studies did appropriately apply the various terminology, which represents a significant advancement within the field given previous reviews have noted the varied and inconsistent usage of terms (Gotham, 2004; Fixsen et al., 2005). Additionally, it seems relevant to note that the term “implementation science,” which was defined by Perl (2006) as “the study of principles and methods to promote the systematic adoption and implementation of scientific advances into real-world practice” was not found to be used in any of the studies identified. Indeed, using implementation science as a keyword in Psychinfo and Medline searches resulted in only 10 articles, none of which were related to substance abuse treatment. Similarly, substance abuse as keyword search in Implementation Science, which is an online journal published by BioMed Central, resulted in only six articles – none of which met inclusion criteria for the current study. Rather, it appears most common for researchers to discuss specific stages, such as adoption or implementation, or the general process of “technology transfer”, which as noted by Gotham (2004) also is sometimes referred to as diffusion of innovations. Given the theoretical basis for many conceptual frameworks is actually based upon Rogers’ (1962, 1983, 1995, 2003) diffusion of innovation theory, it may be appropriate to begin referring to the study of how innovations spread (planned or unplanned) as “diffusology.” Although, adoption, implementation, and sustainability should still be used to be more specific about which stage of the diffusion process is being examined, this broader term would be more consistent with how fields of study are typically labeled. For instance, the study of the origin and spread of diseases is referred to as epidemiology, not disease transfer.

#### 4.1 Limitations

Primary limitations of the current review are that it only includes research studies conducted within the U.S. substance abuse treatment field and published after 1998. Although beyond the scope of the current review, diffusion of EBTs is of considerable interest in other fields of research. As this is particularly true of mental health treatment (e.g., Aarons, 2004, Gotham, 2004; Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Schoenwald, Sheidow, Letourneau, & Liao, 2003) it behooves substance abuse treatment researchers and clinicians to familiarize themselves with these types of related research. Additional limitations of the findings of the current review include use of cross-sectional survey methods, low survey response rates, and heavy reliance on respondent self reports.

#### 4.2 General conclusion and future directions

As discussed previously, significant progress has been made in the advancement of knowledge regarding EBT diffusion research within substance abuse treatment. Nonetheless, there remains considerable opportunity for further study. In particular, there is a need for more experimental or quasi-experimental studies which test different methods of improving the adoption and/or implementation of EBTs. One of the best examples to date, which was previously reviewed in Walters and colleagues (2005) systematic review of the effectiveness of workshop training for psychosocial addiction treatment, was a study by Miller et al. (2004). Using a randomized design, Miller and colleagues tested four methods to help therapists learn Motivational Interviewing (MI). These conditions included 1) workshop only, 2)

workshop plus practice feedback, 3) workshop plus individual coaching, and 4) workshop, feedback, and coaching. Overall, results of their study indicated only clinicians in the full training condition (i.e., workshop, feedback, and coaching) showed significantly better client responses compared to baseline.

Related to the need for more controlled studies on methods to improve the diffusion of EBTs is the need for better measures of adoption and implementation. To date, diffusion research has relied heavily on “yes” or “no” self-reported responses, with little, if any, external verification of the validity of such reports. Although reliance on self-report remains far from perfect, such methods are at least much more suited for studies of EBT adoption than they are for studies of EBT implementation given the latter generally require more information about the extent of and/or quality of implementation (i.e., implementation fidelity). Indeed, among the studies included in this review, only a couple (Henggeler et al., 2008; Liddle et al., 2006) used an implementation measure to collect this type of information. Thus, in sum it is concluded that in order for the field of substance abuse treatment to further advance its knowledge about how to best diffuse EBTs, future research needs to develop psychometrically sound measures of adoption and implementation, and more importantly use these measures to develop and experimentally test different diffusion interventions. Additionally, future researchers are encouraged to employ mixed methods (integration of both quantitative and qualitative method), which also has been recommended by others (Dennis, Fetterman, & Sechrest, 1994; Dennis, Perl, Huebner, & McLellan, 2000). Use of methodologically rigorous experimental or quasi-experimental design, psychometrically sound instruments, and integration of quantitative and qualitative data collection should hopefully lead one day to the field having not only EBTs, but evidence-based diffusion practices.

## Acknowledgments

This work was supported by contract 270-2003-00006 with Center for Substance Abuse Treatment (CSAT), Substance Abuse and Mental Health Services Administration (SAMHSA), the National Institute on Alcohol and Alcoholism Abuse (NIAAA grant AA017625, AA10368), and the National Institute on Drug Abuse (NIDA grant DA018183). The author wishes to thank Drs. Mark and Susan Godley for their support in preparing this review, as well as for providing feedback on drafts of the manuscript. The author also wishes to acknowledge Christopher Roberts and Kelli Wright for their assistance in preparing this manuscript for submission. The opinions are those of the author and do not represent official positions of the government.

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**Table 1**

Research studies focused on attitudes toward EBTs.

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Swift, Duncan, Nirenberg, & Femino (1998) <sup>a</sup>	Alcoholic patients' experience and attitudes on pharmacotherapy for alcoholism	127 patients from three treatment settings	Assessed patient attitudes regarding use of medications for alcoholism	<ul style="list-style-type: none"> <li>* 29% felt disulfiram was helpful for alcoholics, while only 14% felt naltrexone was helpful.</li> <li>* 33% had taken disulfiram, while only 6% reported having taken naltrexone before.</li> <li>* 29% believed disulfiram was helpful for alcoholics, while only 14% believed naltrexone was helpful for alcoholics.</li> <li>* Belief that medication would be helpful was best predictor of willingness to disulfiram or naltrexone.</li> </ul>
Rychtarik, Connors, Dermen, & Stasiewicz (2000) <sup>a</sup>	Alcoholic anonymous and the use of medications to prevent relapse: An anonymous survey of member attitudes	277 members of alcoholics anonymous (AA)	Assessed attitudes of AA members toward medications to prevent relapse and their experiences with medication use	<ul style="list-style-type: none"> <li>* 73% of members reported use of medications to prevent relapse either was or might be a good idea.</li> <li>* AA meeting attendance was negatively related to attitudes toward use of medications for relapse prevention.</li> </ul>
Forman, Bovasso, & Woody (2001) <sup>c</sup>	Staff beliefs about addiction treatment	317 CTN staff members	Assessed staff beliefs about addiction treatment	<ul style="list-style-type: none"> <li>* 80% of staff agreed "new approaches" should be used more.</li> <li>* 39% of staff agreed naltrexone should be used more.</li> </ul>
Godley, White, Diamond, Passeti, & Titus (2001) <sup>b</sup>	Therapist reactions to manual-guided therapies for the treatment of adolescent marijuana users	19 clinicians (16 therapists and 3 case managers)	Examined reactions to the use of a manual guided intervention for adolescents	<ul style="list-style-type: none"> <li>* 100% of clinicians indicated that the manuals provided structure and consistency to their therapeutic work.</li> <li>* 42% of clinicians indicated that the manuals restricted their ability to respond to individual client needs.</li> </ul>
Ball et al. (2002) <sup>b</sup>	Characteristics, beliefs, and practices of community clinicians trained to provide manual-guided therapy for substance abusers	66 clinicians from 11 community treatment programs associated with the CTN network	Assessed clinicians who had volunteered to be trained in Motivational Interviewing or Motivational Enhancement Therapy prior to training	<ul style="list-style-type: none"> <li>* 65% of clinicians were female, 77% were Caucasian, and 52% had master's degree.</li> <li>* Clinicians reported not having one dominant theoretical orientation.</li> <li>* Clinicians reported beliefs and techniques generally consistent with their stated theoretical orientations and recovery status.</li> </ul>
Hubbard & Mulvey (2003) <sup>b</sup>	TIPs evaluation project retrospective study: wave 1 and 2	Substance abuse directors, supervisors, and counselors. Wave 1 (N = 3,267) and Wave 2 (N = 1,028)	Assessed knowledge, attitudes, use, and impact regarding TIPs	<ul style="list-style-type: none"> <li>* Despite 100% of Single State Agency Directors being aware of TIP series, less than 50% of other staff were aware of TIP series.</li> <li>* Despite generally positive attitudes toward TIPs, there was less positive attitudes about the ability to implement TIPs in practice.</li> </ul>



Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Mark, Kranzler, Song et al. (2003) <sup>a</sup>	Physicians' opinions about medications to treat alcoholism	1,388 substance abuse specialist physicians	Examined physicians' opinions about and use of disulfiram and naltrexone	<ul style="list-style-type: none"> <li>* Staff resistance was the most frequently cited barrier to implementing TIPs.</li> <li>* More than 66% of physicians were confident in their knowledge about naltrexone and disulfiram.</li> <li>* Significantly more physicians indicated there was strong evidence in favor of using naltrexone versus disulfiram.</li> <li>* Physicians estimated naltrexone had a small-to-medium effect size.</li> </ul>
McGovern, Fox, Xie, & Drake (2004) <sup>c</sup>	A survey of clinical practices and readiness to adopt evidence-based practices: Dissemination research in an addiction treatment system	110 staff (21 directors and 89 clinicians) from 24 public addiction programs	Assessed clinicians characteristics, current practices, as well as their knowledge and attitudes toward evidence-based practices	<ul style="list-style-type: none"> <li>* Clinicians reported being more motivated to adopt evidence-based practices, such as twelve-step facilitation, cognitive behavioral therapy, motivation interviewing, and relapse therapy, relative to others such as, contingency management, behavioral couples therapy, or pharmacotherapies.</li> </ul>
McCarty, Rieckmann, Green, Gallon, & Knusden (2004) <sup>a</sup>	Training rural practitioners to use buprenorphine: Using <i>The Change Book</i> to facilitate technology transfer	51 individuals (17 physicians, 4 pharmacists, 2 nurse practitioners, and 28 drug abuse counselors and administrators) from seven counties	Assessed the impact of using <i>The Change Book</i> to structure the change process for the Opiate Medication Initiative for Rural Oregon Residents (OMIROR) project	<ul style="list-style-type: none"> <li>* Nearly 100% of participants indicated being satisfied with the training.</li> <li>* Training significantly increased attitudes and beliefs regarding buprenorphine's effectiveness, ability to save lives, impact on patients' health, and ability to block heroin cravings.</li> </ul>
West et al. (2004) <sup>a</sup>	Challenges in increasing access to buprenorphine treatment for opiate addiction	1,203 psychiatrists	Assessed psychiatrists' comfort using office-based opiate agonist treatment (OBOT) and to identify factors associated with OBOT comfort	<ul style="list-style-type: none"> <li>* 81% of psychiatrists reported not being comfortable providing OBOT.</li> <li>* Males, addiction-certified psychiatrists, those treating substance abuse patients, and those non not treating any patients under a capitated payment arrangement were significantly more comfortable providing OBOT.</li> </ul>
Willenbring et al. (2004) <sup>c</sup>	Beliefs about evidence-based practices in addiction treatment: A survey of Veterans Administration program leaders	174 substance abuse treatment programs	Assessed program leaders knowledge, attitudes, and behaviors related to evidence-based practices practice guidelines, and barriers to implementation of practice guidelines	<ul style="list-style-type: none"> <li>* 46% agreed naltrexone should be routinely recommended.</li> <li>* 93% agreed cognitive behavioral relapse prevention should be routinely recommended.</li> <li>* Top perceived barriers to implementation were lack of administrative support, insufficient staff time, and lack of staff skills or knowledge.</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Arfken, Agius, Dickson, Anderson, & Hegedus (2005) <sup>c</sup>	Clinicians' beliefs and awareness of substance abuse treatments in research- and non-research affiliated programs	162 clinicians at 15 substance abuse treatment programs	Examined if clinicians in research and non-research affiliated programs have similar beliefs and awareness about treatment innovations	<ul style="list-style-type: none"> <li>* Research affiliated clinicians reported significantly lower beliefs that spirituality should be emphasized in addiction treatment.</li> <li>* Research affiliated clinicians reported significantly higher awareness of using buprenorphine to assist with opiate detoxification.</li> </ul>
Knudsen, Ducharme, Roman, & Link (2005) <sup>a</sup>	Buprenorphine diffusion: the attitudes of substance abuse treatment counselors	2,298 counselors in private and public community-based treatment programs	Examined the extent to which buprenorphine was adopted, as well as examined correlates of buprenorphine adoption	<ul style="list-style-type: none"> <li>* 86% of counselors were unaware of the effectiveness of buprenorphine, indicating a lack of diffusion.</li> <li>* Significant predictors of more positive attitudes toward buprenorphine included: higher education and experience, less endorsement of 12-step, and being Caucasian.</li> </ul>
Toriello et al. (2005) <sup>c</sup>	The relationship between addictions counselors' clinical orientations and their readiness to change counseling techniques	212 substance abuse clinicians and administrators	Examined the relationship between clinical orientation and readiness to change counseling techniques	<ul style="list-style-type: none"> <li>* Cluster analysis identified three types of clinical orientations (i.e., traditional, non-traditional, or multiform).</li> <li>* Clinical orientation was not found to be significantly associated with readiness to change.</li> <li>* Women and individual who were not African American reported the highest readiness for change.</li> </ul>
Kirby, Benishek, Dugosh, & Kerwin (2006) b	Substance abuse treatment providers' beliefs and objections regarding contingency management: Implications for dissemination	383 treatment providers	Determine the prevalence of specific beliefs community treatment providers hold regarding contingency management	<ul style="list-style-type: none"> <li>* Overall, a higher percentage of participants agreed with statements reflecting positive opinions than with statements reflecting objections and concerns about limitations.</li> <li>* Participants held significantly more positive beliefs about for social incentives (e.g., printed certificates, verbal complement) than tangible incentives (e.g., give certificates, retail items).</li> <li>* Both types of incentives were viewed more positively by those who had advanced degrees, were supervisors, had more addictions experience, or had experience with tangible incentives.</li> </ul>
Fuller et al. (2007) <sup>c</sup>	Organizational readiness for change and opinions toward treatment innovations	Over 2,000 staff from 205 treatment units within the CTN network	Examined multilevel relationships between several scales included as part of the ORC instrument and attitudes toward	<ul style="list-style-type: none"> <li>* 6 of the 18 ORC scales (e.g., Mission, Program Needs, Influence) were significantly related to opinions toward treatment manual/evidence-based treatments.</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
			several treatment practices	* 3 of the 18 ORC scales (i.e., Growth, Internet, and Program Needs) were significantly related to opinions toward medications.
Henggeler et al. (2007) <sup>b</sup>	If you build it, they will come: Statewide practitioner interest in contingency management for youths	432 substance abuse and mental health practitioners	Examine the extent of interest and predictors of voluntary attendance to a workshop on contingency management	* 80% of eligible participants attended the workshop. * Workshop attendance was significantly higher by participants who reported greater program motivation for change, better organizational climates, and lower program resources. * Demographic characteristics, attitudes towards treatment manuals or evidence-based practices were not significantly associated with workshop attendance.
Knudsen, Ducharme, & Roman (2007) <sup>a</sup>	Research network involvement and addiction treatment center staff: Counselor attitudes toward buprenorphine	2,306 counselors (561 CTN affiliated and 1,745 non-CTN affiliated)	Compared counselor's ratings of buprenorphine acceptability	* CTN-affiliated counselors reported significantly greater acceptability of buprenorphine compared to non-CTN affiliated counselors. * Counselors reporting greater receipt of buprenorphine training and greater use of buprenorphine at their center were significantly associated with greater ratings of buprenorphine acceptability.
McCarty et al. (2007) <sup>c</sup>	Direct care workers in the National Drug Abuse Treatment Clinical Trials Network: Characteristics, Opinions, and Beliefs	3,698 staff from 384 treatment units within 106 CTN community treatment programs	Examined characteristics and attitudes of CTN workforce who had completed an organizational, treatment unit, and workforce survey	* 66% of CTN workforce include women * 36% of CTN workforce have Masters or Doctoral Degree * Managers/supervisors were most supportive of EBTs
Rieckmann, Daley, Fuller, Thomas, & McCarty (2007) <sup>a</sup>	Client and counselor attitudes toward the use of medications for treatment of opioid dependence	376 counselors and 1,083 clients from outpatient, methadone, and residential treatment programs	Examined counselor and client attitudes, social norms, and intentions regarding methadone, buprenorphine, clonidine, and ibogaine	* Counselor and client attitudes, social norms, and intentions significantly differed across program type. * Attitudes and social norms were significant predictors of intention to use each medication, with social norms generally being the strongest predictor.
Saldana, Chapman, Henggeler, & Rowland (2007) <sup>b</sup>	The Organizational Readiness for Change scale in adolescent programs: Criterion validity	543 community-based therapists	Examined the association between the several domains of the Organizational Readiness for Change (ORC), the Evidence-Based Practice Attitude Scale (EBPAS), and Attitudes toward treatment manuals at	* Overall therapist-level responses on the ORC provided better estimates of therapists attitudes toward evidence-based practices and treatment manuals. * Therapist openness to evidence-based practices was significantly associated with more

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
			both the therapist and agency level	positive ratings on several ORC domains (i.e., Staff Attributes, Training Exposure & Utilization, and Motivational Readiness for Change).
Thomas & Miller (2007) <sup>a</sup>	Knowledge and attitudes about pharmacotherapy for alcoholism: A survey of counselors and administrators in community-based addiction treatment centers	84 staff (66 counselors and 18 administrators from six addiction treatment centers	Examined predictors of positive attitudes about adjunctive pharmacotherapies	<ul style="list-style-type: none"> <li>* 77% of staff reported that referring clients to receive medications to help control drinking urges has no effect.</li> <li>* 65% of staff agreed that pharmacologic interventions work best only if accompanied by psychosocial interventions.</li> <li>* 9% agreed pharmacologic interventions have convincingly been shown to be useful in the treatment of alcohol dependence.</li> </ul>
Roose, Kunins, Sohler, Elam, & Cunningham (2008) <sup>a</sup>	Nurse practitioner and physician assistant interest in prescribing buprenorphine	511 physicians, nurse practitioners, of interest in and physician assistants	Assessed the level prescribing buprenorphine	<ul style="list-style-type: none"> <li>* 40% indicated an interest in prescribing buprenorphine.</li> <li>* nonphysician providers and generalist physicians were significantly more likely to be interested in prescribing buprenorphine compared to infectious disease specialists.</li> </ul>
King et al. (in press) a	Implementing methadone medical maintenance in community-based clinics: Disseminating evidence-based treatment	84 staff from 5 methadone maintenance clinics	Examined the impact of seminar presentations and on-site consultation on changes in attitudes toward methadone medical maintenance (MMM) and an adaptive stepped care model to deliver it	<ul style="list-style-type: none"> <li>* Staffs post -seminar attitudes were significantly higher compared to baseline regarding that MMM schedules 1) allow patients adequate amount and frequency of counseling contact, and 2) allow more time for patients to be involved in positive rehabilitation oriented activities.</li> <li>* Staffs post -seminar attitudes were significantly higher compared to baseline regarding that patients should be assigned to the lowest intensity of counseling contact necessary to maintain good clinical functioning.</li> </ul>
Thomas, Miller, Randall, & Book (in press) <sup>a</sup>	Improving acceptance of naltrexone in community addiction treatment centers: A pilot study	84 counselors and administrators from 6 community-based addiction treatment agencies (n = 47 for control and n = 37 for intervention group)	Examine the impact of an intervention to improve knowledge and attitudes about naltrexone	<ul style="list-style-type: none"> <li>* Participants in the intervention condition reported significantly higher knowledge at follow-up compared to the control group.</li> <li>* At follow-up 50% of intervention group rated naltrexone as “essential” compared to 29% of the control group, but did not reach statistical significance.</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
				* Satisfaction with the intervention and self-reported use of the information was significantly higher among individual in the intervention group.

Note: Sub-classification are indicated by superscripts

<sup>a</sup> pharmacological EBTs only;

<sup>b</sup> psychosocial EBTs only; both pharmacological and psychosocial EBTs).



**Table 2**

Research studies focused on adoption of EBTs.

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Fals-Stewart & Birchler (2001) <sup>b</sup>	A national survey of the use of couples therapy in substance abuse treatment	Program administrators from 398 substance abuse treatment programs	Examined the extent to which Behavioral Couples Therapy (BCT) has been adopted in practice	<ul style="list-style-type: none"> <li>* None of the 398 individuals interviewed reported that their agencies used BCT.</li> <li>* 3% reported even being aware of BCT and its use with married or cohabitating substance-abusing patients.</li> <li>* 71% reported not being willing to use BCT after reviewing a primer on BCT.</li> </ul>
Roman & Johnson (2002) <sup>a</sup>	Adoption and implementation of new technologies in substance abuse treatment	400 private substance abuse treatment centers	Examined the extent to which naltrexone was adopted, as well as examined organizational correlates of naltrexone adoption	<ul style="list-style-type: none"> <li>* 44% of centers reported using naltrexone.</li> <li>* Adoption of naltrexone was significantly related to center's age, administrative leadership, percentage of center caseload that were covered by managed care or had relapsed after some formal treatment.</li> </ul>
Knudsen, Johnson, Roman, & Oser (2003) <sup>c</sup>	Rural and urban similarities and differences in private substance abuse treatment centers	303 private substance abuse treatment centers	Compared rural and urban treatment centers with regard to the adoption of treatment innovations and other services	<ul style="list-style-type: none"> <li>* 46% of Rural and 49% of Urban Centers reported adoption of Naltrexone.</li> <li>* 37% of Rural and 48% of Urban Centers reported adoption of Motivational Enhancement Therapy.</li> <li>* 55% of Rural and 48% of Urban Centers reported adoption of Community Reinforcement Approach.</li> <li>* Overall, rural and urban centers did not significantly differ with regard to their adoption of evidence-based treatments, with the exception of urban centers being more likely to adopt acupuncture.</li> </ul>
Mark, Kranzler, Poole et al. (2003) <sup>a</sup>	Barriers to the use of medications to treat alcoholism	11 physicians and 11 patients	Assessed reasons for why naltrexone has not been prescribed more widely	<ul style="list-style-type: none"> <li>* 64% of physicians prescribed naltrexone to fewer than 50% of their alcoholic patients.</li> <li>* Barriers to greater use of naltrexone included: lack of awareness, lack of evidence of efficacy in practice, side effects, time for patient management, reluctance to take medications, medication addiction concerns, AA philosophy, and cost.</li> </ul>
Mark, Kranzler, & Song (2003) <sup>a</sup>	Understanding US addiction physicians' low rate of naltrexone prescription	1,388 addiction physicians	Examined factors associated with physicians use of naltrexone	<ul style="list-style-type: none"> <li>* 63% of physicians reported having prescribed naltrexone to at least some of their patients.</li> <li>* On average, physicians prescribed naltrexone to 13% of their patients.</li> <li>* Physicians with greater exposure to information</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Petrakis, Leslie, & Rosenheck (2003) <sup>a</sup>	Use of naltrexone in the treatment of alcoholism nationally in the Department of Veteran Affairs	194,001 veterans with an alcohol use disorder	Examined the proportion of VA patients with a diagnosis of alcoholism were prescribed naltrexone	<p>about naltrexone were most likely to prescribe it.</p> <ul style="list-style-type: none"> <li>* Less than two percent of patients were prescribed naltrexone.</li> <li>* Several factors were associated with significantly higher odds of receiving naltrexone (e.g., being younger in age; Caucasian, and having major depression diagnosis).</li> </ul>
Rosenberg & Phillips (2003) <sup>a</sup>	Acceptability and availability of harm-reduction interventions for drug abuse in American substance abuse treatment agencies	222 substance abuse agencies	Assessed the acceptability, availability, and reasons for nonavailability of several interventions	<ul style="list-style-type: none"> <li>* 20% reported naltrexone as being currently available at their agencies.</li> <li>* 74% of agencies rated naltrexone as somewhat or completely acceptable.</li> <li>* Among agencies not offering naltrexone, the two most frequently listed reasons were lack of resources (i.e., money, staff) and inconsistency with agency philosophy.</li> </ul>
Thomas, Wallack, Lee, McCarty, & Swift (2003) <sup>a</sup>	Research to practice: adoption of naltrexone in alcoholism treatment	1,251 clinicians (135 physicians and 1116 nonphysicians)	Examined the extent to which naltrexone was adopted, including barriers to its adoption	<ul style="list-style-type: none"> <li>* 45% of physicians reported prescribing or recommending naltrexone occasionally compared to 23% of nonphysicians.</li> <li>* Being affiliated with a treatment program that promoted its use was significantly associated with clinician's adoption.</li> <li>* Top barriers to naltrexone adoption were financing and inadequate knowledge about naltrexone.</li> </ul>
Knudsen & Roman (2004) <sup>c</sup>	Modeling the use of innovations in private organizations: The role of absorptive capacity	322 privately funded treatment centers	Examined the relationships between several organizational measures and the extent to which different innovations were used.	<ul style="list-style-type: none"> <li>* On average, centers used only about 5 of the 15 innovations assessed.</li> <li>* Centers that reported greater use of innovations were significantly more likely to engage in more environmental scanning, be larger in size, have a higher percentage of counselors with master's degrees, be a for-profit center, be hospital-based and collect satisfaction data from referrals.</li> </ul>
Ducharme, Knudsen, & Roman (2006) <sup>a</sup>	Trends in the adoption of medications for alcohol dependence	1 sample of 252 private-sector programs and one sample of 766 substance abuse treatment centers 403 privately-funded and 363 publically funded)	Examined the prevalence and correlates of the adoption of disulfiram, naltrexone, and acamprosate	<ul style="list-style-type: none"> <li>* The proportion of programs using pharmacotherapies for alcohol dependence has significantly declined between 1995 (49%) and 2004 (42%).</li> <li>* Adoption of naltrexone was significantly higher among programs with a higher percentage of revenues from insurance, who offered integrated care for patients with co-occurring psychiatric</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Fuller, Rieckmann, McCarty, Smith, & Levine (2005) <sup>a</sup>	Adoption of naltrexone to treat alcohol dependence	Outpatient clinics who participated in at least one of three surveys (n for 1997 = 281; n for 1999 = 235; n for 2001 = 246)	Assessed organizational correlates of naltrexone adoption	disorders, and had physicians on staff. * Adoption of naltrexone increased over the five-year period (14% in 1997; 17% in 1999; and 25% in 2001). * Data from the most recent 2001 survey indicated that adoption of naltrexone was significantly higher among programs funded by managed care, that were larger in size, and had more educated staff. * Programs that provided only substance abuse treatment services were less likely to have adopted use of naltrexone.
Knudsen, Roman, Ducharme, & Johnson (2005) <sup>a</sup>	Organizational predictors of pharmacological innovation adoption: The case of disulfiram	394 privately funded substance abuse treatment centers	Examined organizational structure, workforce professionalism, and treatment philosophy as predictors of disulfiram adoption	* 49% of centers reported using disulfiram. * Hospital-based centers were significantly more likely to use disulfiram relative to freestanding centers. * Percentage of counselor's with master's degrees and the percentage of certified counselors were also significantly associated with use of disulfiram.
Peters et al. (2005) <sup>b</sup>	Use of opinion leaders and intensive training to implement evidence-based co-occurring disorders treatment in the community	73 substance abuse treatment counselors (43 in experimental group and 28 in comparison group)	Examined the effectiveness of intensive counselor training sessions and use of peer opinion leaders to monitor and supervise implementation of a manualized treatment approach	* Counselor's in the experimental group were significantly more likely to report having adopted the treatment manual relative to the comparison group (48% vs 19%). * There were no statistically significant differences between the experimental and comparison group regarding counselor's attitude or knowledge.
Rich et al. (2005) <sup>a</sup>	Attitudes and practices regarding the use of methadone in US state and federal prisons	40 medical directors	Assessed attitudes and practices regarding use of methadone both state and federal prisons within the US	* 48% used methadone. * 8% referred opiate-dependent inmates to methadone upon release. * 30% believed methadone maintenance benefits opiate-dependent inmates.
Trafton, Humphreys, Kivlahan, & Willenbring (2005) <sup>a</sup>	Barriers to implementation of an evidence-based practice: The example of methadone maintenance	174 substance abuse treatment programs	Examined the extent to which attitudes toward MMT guidelines differed by whether or not a program offered MMT	* 75% of programs did not offer MMT. * Programs which offered MMT were more likely than those that did not offer MMT to be associated with an academic medical center, have greater levels of staffing, have more research experience, and have more confidence in clinical research.

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Ducharme, Knudsen, & Roman (2006) <sup>c</sup>	Evidence-based treatment for opiate- dependent clients: Availability, variation, and organizational correlates	763 substance abuse treatment programs	Examined differences in the availability of several different evidence-based treatments between programs with and without methadone maintenance services	<ul style="list-style-type: none"> <li>* A significantly higher percentage of opiate-focused programs offered naltrexone (33%) compared to non-opiate focused programs (10%).</li> <li>* A significantly higher percentage of opiate-focused programs offered buprenorphine (17%) compared to non-opiate focused programs (8%).</li> <li>* A significantly higher percentage of opiate-focused programs offered contingency management (31%) compared to non-opiate focused programs (23%).</li> </ul>
Knudsen, Ducharme, Roman, & Link (2006) <sup>d</sup>	Early adoption of buprenorphine in substance abuse treatment centers: Data from the private and public sectors	576 substance abuse treatment centers (299 privately-funded and 277 publicly funded)	Examined organizational correlates of buprenorphine adoption at two timepoints (baseline and 12-month later).	<ul style="list-style-type: none"> <li>* 6% of centers reported use of buprenorphine at baseline and 14% reported use at the 12-month follow-up.</li> <li>* Private centers were significantly more likely to report buprenorphine adoption.</li> <li>* Several organizational characteristics were found to be significantly associated with buprenorphine adoption including: being accredited, availability of detoxification and physician services, and current use of naltrexone.</li> </ul>
Koch, Arfken, & Schuster (2006) <sup>d</sup>	Characteristics of U.S. substance abuse treatment facilities adopting buprenorphine in its initial stage of availability	13,060 substance abuse treatment facilities	Examined extent to which buprenorphine was offered in substance abuse facilities in the U.S., as well as correlates of adoption	<ul style="list-style-type: none"> <li>* Overall 5.5% of facilities reported adoption of buprenorphine.</li> <li>* Prevalence of buprenorphine adoption was higher in opioid treatment programs (11%) relative to non-opioid treatment programs (5%).</li> <li>* Currently offering naltrexone and medically supervised withdrawal were significantly associated with buprenorphine adoption.</li> </ul>
Bartholomew, Joe, Rowan-Szal, & Simpson (2007) <sup>b</sup>	Counselor assessments of training and adoption barriers	211 counselors who attended a state-sponsored training conference on dual-diagnosis or therapeutic alliance	Examined relationships between workshop evaluations and 6-month post workshop follow-up assessments regarding adoption and barriers to adoption	<ul style="list-style-type: none"> <li>* Training relevance and training engagement were significant predictors of adoption of training materials.</li> <li>* Lack of time and already using similar materials were reported as being among the top barriers to adoption of training materials.</li> </ul>
Ducharme, Knudsen, Roman, & Johnson (2007) <sup>c</sup>	Innovation adoption in substance abuse treatment: Exposure, trialability, and the	1,006 substance abuse treatment centers (766 outside CTN network and 240 within CTN network)	Examined the extent to which adoption of buprenorphine and voucher-based motivational incentives were	<ul style="list-style-type: none"> <li>* Centers within the CTN network were significantly more likely to report adoption of buprenorphine relative to those outside the CTN network (20% vs. 11%).</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
	Clinical Trials Network		associated with exposure and trialability	<ul style="list-style-type: none"> <li>* There was not a significant difference in adoption of motivational incentives between centers within or outside the CTN network (34% vs 31%).</li> <li>* Organizational characteristics associated with buprenorphine adoption included availability of physicians and offering detoxification services.</li> <li>* Organizational characteristics associated with significantly lower odds of adoption of motivational incentives were: being accredited, offering outpatient services only, being for-profit.</li> </ul>
Friedman, Taxman, & Henderson (2007) <sup>b</sup>	Evidence-based treatment practices for drug-involved adults in the criminal justice system	384 criminal justice and community-based substance abuse treatment facilities for treatment of adult offenders	Estimated the extent and organizational correlates of evidence-based practices in substance abuse treatment programs for drug-involved adult offenders	<ul style="list-style-type: none"> <li>* 65% of facilities provide 3 or fewer of the 13 possible EBTs.</li> <li>* Only 35% of the overall sample indicated the use of a treatment manual or specific evidence-based treatment orientation.</li> <li>* Organizational correlates significantly associated with reporting the use more EBTs included being community-based, having formal or informal working relationships with other non-criminal justice programs, have non-punishment attitudes, being accredited, and larger in size.</li> </ul>
Knudsen, Ducharme, & Roman (2007) <sup>a</sup>	Racial and Ethnic Disparities in SSRI availability in substance abuse treatment	665 substance abuse treatment centers (339 privately-funded and 326 publically funded)	Examined the availability of selective serotonin reuptake inhibitors (SSRIs), as well as its association with racial and ethnic composition of center's caseloads	<ul style="list-style-type: none"> <li>* 48% of centers reported using SSRIs.</li> <li>* Based upon the final model, use of SSRIs was significantly lower in centers with a higher proportion of hispanic clients, among centers in the Northeast region, who did not have a physician on staff, and were smaller in size.</li> </ul>
Knudsen, Ducharme, & Roman (2007) <sup>a</sup>	The adoption of medications in substance abuse treatment: Associations with organizational characteristics and technology clusters	766 substance abuse treatment centers (403 privately-funded and 363 publically funded)	Examined extent to which agonist medications have been adopted, as well as the extent to which certain organizational characteristics were associated with adoption	<ul style="list-style-type: none"> <li>* Rates of adoption were 49% for SSRIs, 24% for disulfiram, 21% for naltrexone, and 18% for agonist medications.</li> <li>* Results indicated that adoption significantly varied across several center types (e.g., government owned, public non-profit, private non-profit, and for-profit).</li> </ul>
Knudsen, Ducharme, & Roman (2007) <sup>a</sup>	The use of antidepressant medications in	766 substance abuse treatment centers 403	Examined extent to which selective serotonin reuptake	<ul style="list-style-type: none"> <li>* Overall, SSRIs were reported as being adopted by 50% of sample.</li> </ul>

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
	substance abuse treatment: The public- private distinction, organizational compatability, and the environment	privately-funded and 363 publically funded)	inhibitors (SSRIs) have been adopted, as well as the extent to which certain organizational and environmental characteristics were associated with adoption	* Based upon the final model, top predictors of SSRI adoption included being a for-profit center, a center with physicians on staff, and a center with a higher percentage of drug-court referrals.
Joe, Broome, Simpson, & Rowan- Szal (2007) <sup>b</sup>	Counselor perceptions of organizational factors and innovations training experience	1,047 counselors from 345 treatment programs	Identified classes of counselors and examined relationship with these classes with job engagement, as represented by prior training exposure, use and satisfaction	* Latent profile analysis identified three classes of counselors based staff attributes and perceptions of organizational climate (i.e., Isolated, Integrated, and Exceptional). * Isolated counselors reported significantly lower program- wide adoption of prior workshop ideas or techniques.
Simpson, Joe, & Rowan-Szal (2007) <sup>b</sup>	Linking the elements of change: Program and client responses to innovation	Varying sample of staff and clients from 59 substance abuse treatment units	Examined longitudinal interrelationships among program-level measures of needs and functioning, workshop training, innovation adoption, client functioning, and follow-up changes in training needs collected at six separate time points during a two-year period	* Adoption of workshop training materials was significantly associated with lower perceived barriers to training assessed 12- months prior to training, as well as higher perceptions of organizational climate (e.g., Mission, Openness to Change) assessed 4- months prior to training. * Significantly higher ratings of counselor rapport and treatment satisfaction were given by clients at programs with higher ratings of workshop training adoption.
Henggeler et al., (2008) <sup>b</sup>	Statewide adoption and initial implementation of contingency management for substance-abusing adolescents	432 substance abuse and mental health practitioners	Examined the extent of contingency management adoption and fidelity of implementation, as well a predictors of each	* Overall, 30% of the sample reported adoption of contingency management at least one client. * Among therapists who treated at least one substance-abusing client 58% reported adoption of contingency management procedures. * Therapist factors significantly associated with reported adoption of contingency management included: higher education, more years of experience, being in the mental health sector, attitude to adopt if required, and holding more positive attitudes that treatment manuals facilitate positive outcomes. * Implementation measured via therapist-reported adherence to cognitive-behavioral techniques and monitoring



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Henderson, Taxman, & Young (2008) <sup>b</sup>	A Rasch model analysis of evidence- based treatment used in the criminal justice system	748 correctional administrators and treatment directors from juvenile and adult correctional agencies	Examined the extent to which programs report adoption of different EBTs, which EBTs are more likely to be adopted, and what are some organizational correlates of adoption	<p>techniques was significantly higher in cases where contingency management was used than in cases where it was not used.</p> <p>* Approximately 60% reported use of a standardized substance abuse assessment tool.            * Approximately 15% of the sample indicated the use of a treatment manual or specific evidence-based treatment orientation.            * The reported use of certain practices clustered together (e.g., drug testing with systems integration; standardized risk assessment with use of a treatment manual or specific evidence-based treatment orientation).            * Network connectedness was the strongest organizational correlate of EBT adoption.</p>
Oser & Roman (2008) <sup>a</sup>	A categorical typology of naltrexone - adopting private substance abuse treatment centers	158 private substance abuse treatment centers	Cateorized treatment centers according to when they adopted naltrexone and examined organizational-level predictors of adopter categorization	<p>* Organizations which did not hold on-site 12 step meetings and were familiar with other treatment innovations (e.g., disulfiram, buprenorphine) were significantly more likely to be in a more innovative category.</p>
Squires, Gumbley, & Storti (2008) <sup>b</sup>	Training substance abuse treatment organizations to adopt evidence-based practices: The Addiction Technology Transfer Center of New England science to service labratory	54 community-based substance abuse treatment agencies	Assessed the impact of using an organizational change strategy to increase organization's and their employee's skills needed to adopt evidence-based practices	<p>* 63% of agencies completed the training.            * Of the agencies who completed the training, 96% successfully adopted and implemented contingency management.            * Agencies that had more turnover of their assigned technology transfer specialist were more likely to dropout of the training.</p>
Oser & Roman (in press) <sup>a</sup>	Organizational-level predictors of adoption across time: Naltrexone in private addiction treatment centers	165 private addiction treatment centers	Examined organizational predictors of naltrexone adoption	<p>* 71% of centers reported the adoption of naltrexone.            * Several organizational factors were significantly associated with adoption of naltrexone including: being accredited, being for-profit, having an employee handbook using prescription drugs, and not being based on 12-step model.</p>

Note: Sub-classification are indicated by superscripts

<sup>a</sup> pharmacological EBTs only;

<sup>b</sup> psychosocial EBTs only; both pharmacological and psychosocial EBTs.

**Table 3**

Research studies focused on implementation of EBTs.

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Keller & Galanter (1999) <sup>b</sup>	Technology transfer of Network Therapy to community-based addictions counselors	5 counselors and 30 clients	Examined client outcomes of treatment as usual (TAU) and TAU plus Network Therapy in community-based setting	* Clients who received Network Therapy in addition to TAU had significantly more negative urines compared to clients who received TAU only. * Clients who received Network Therapy in addition to TAU did not have significantly longer lengths of stay in treatment.
Andrzejewski, Kirby, Morral, & Iguchi (2001) <sup>b</sup>	Technology transfer through performance management: the effects of graphical feedback and positive reinforcement on drug treatment counselors' behavior	10 drug treatment counselors	Examined the extent to which graphical feedback and contingency management techniques (i.e., cash prize drawing) increased staff implementation	* Graphical feedback increased staff implementation by 69% (from 41% to 71%). * Cash prize drawing increased implementation by 93% (41% to 81%).
Hayashi, Suzuki, Hubbard, Huang, & Cobb (2003) <sup>b</sup>	A qualitative study of the treatment improvement protocols (TIPs): An assessment of the use of TIPs by individuals affiliated with the Addiction Technology Transfer Centers (ATTCs)	55 curriculum developers and or trainers from six ATTCs	Assessed how ATTCs incorporated TIPs into curriculum development and/or the delivery of trainings	* TIP #9: <i>Assessment and treatment of patients with coexisting mental illness and alcohol and other drug abuse</i> was reported being the most frequently used (40%). * Qualitative interviews identified several advantages (e.g., useful for target users, current and timely), as well as several directly contradictory disadvantages (e.g., not useful for targeted users, not current and timely).
Brown (2004) <sup>b</sup>	Integrating research and practice in the CSAT Methamphetamine Treatment Project	85 staff members	Assessed how participants view the integration of the manual-based Matrix Model, as well as how they characterize ideal drug treatment	* Nearly everyone interviewed expressed concern about the ability to meet clients' needs within the context of a research study. * Focus groups also discussed how research study assistants may have important implications for the integrity of research in clinical settings.
Obert et al. (2005) <sup>b</sup>	When treatment meets research: Clinical perspectives from the CSAT Methamphetamine Treatment Project	85 staff members	Assessed concerns about implementation of the manual-based Matrix Model	* Conducting a randomized clinical trial within a research-naïve clinical setting may not be an ideal way to introduce evidence-based practices.
Liddle et al. (2006) <sup>b</sup>	Changing provider practices, program environment, and improving outcomes by transporting Multidimensional Family Therapy to an adolescent drug treatment setting	10 program staff and 104 clients within one adolescent Day Treatment Program	Examined the extent to which a technology transfer intervention changed clinical practices, outcomes, and the organizational climate of an adolescent day treatment program	* Several significant improvements were found regarding the number sessions, content focus of sessions, and adherence to MDFT interventions. * Clients reported significantly greater program control, clarity, practical orientation in the implementation and durability phases compared to the baseline phase.

Author(s)/Year	Article Title	Sample	Study Aim(s)	Key Finding(s)
Guydish, Tajima, Manser, & Jessup (2007) <sup>b</sup>	Strategies to encourage adoption in multisite clinical trials	71 staff members (42 from Methamphetamine Treatment Project [MTP] and 29 from the CTN Motivational Interviewing and Motivational Enhancement Treatment [MI/MET] protocols	Assessed and described how technologies of multisite clinical trials might be modified to better support the adoption of evidence-based practices	<p>* A significantly larger proportion of client's reported abstaining from drugs in both the implementation and durability phases compared to those in the baseline phase.</p> <p>* Identified six strategies that may provide greater support for clinics in adopting tested interventions, including: 1) planning for adoption, 2) training senior staff how to deliver the EBT, 3) use a regional training model, 4) use a local supervision model, 5) bring EBT training back to the clinic, and 6) bring study findings back to clinic.</p>
Kovas, McFarland, McCarty, Boverman, & Thayer (2007) <sup>a</sup>	Buprenorphine for acute heroin detoxification: Diffusion of research into practice	200 patients treatment for opiate dependence	Examined client outcomes of heroin detoxification with buprenorphine versus clonidine.	<p>* Clients treated with buprenorphine had significantly longer lengths of stay in treatment (5.7 vs. 3.5 days), as well as "completed" discharges (67% vs. 46%).</p>
Riley, Rieckmann, & McCarty (2008) <sup>b</sup>	Implementation of MET/CBT5 for Adolescents	25 clinical and administrative directors from nine agencies within the second cohort of the Effective Adolescent Treatment (EAT) initiative	Assessed the extent of MET/CBT5 protocol implementation	<p>* Implementation of the MET/CBT5 protocol appeared to be substantially different from the protocol of the originally tested intervention given eight of the nine sites reported making adaptations to the protocol (e.g., added sessions, changed session content, used individual sessions).</p> <p>* Clinician qualifications and initial certified performance were the two most consistently implemented protocol components.</p> <p>* Protocol delivery appeared to be impacted by lack of consistent monitoring of adherence.</p>

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<sup>b</sup> psychosocial EBTs only; both pharmacological and psychosocial EBTs.