

Evidence-based treatment: Why, what, where, when, and how?

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Abstract

Research and clinical perspectives are blended in this commentary on the rapidly emerging requirement for evidence-based treatment (EBT) in substance abuse programs. Although, historically, it has not been a standard of care in behavioral health, there are sound scientific, ethical, and compassionate reasons to learn and deliver an EBT as it becomes available. This article explores a series of issues, including the following: (1) *Why* should EBTs be used in substance abuse treatment? (2) *What* kinds of treatment are EBTs, and how are they determined? (3) *Where* can EBTs be implemented—at what levels of service delivery? (4) *When* should EBTs be used? and (5) *How* do clinicians learn EBTs? Potential pitfalls in implementing EBTs are also considered. © 2005 Elsevier Inc. All rights reserved.

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1. Why use empirically supported treatments?

Suppose that you have a life-threatening illness and went for health care to a physician who told you, “I really don’t pay much attention to medical research. I’ve been treating people like you for 30 years, and I know what works. Medical research isn’t all that relevant to my practice, and, besides, I’m too busy to read journals.” Would you go back or would you find yourself another doctor?

Although we do expect primary care and specialist physicians to keep current in their field and to provide us the most current and effective treatment that science has to offer, the same standard has not been applied in behavioral health care. In treating substance use disorders, practice has been largely guided by whatever approach a provider was trained in or preferred. Because providers are inclined to believe that their services are effective, and because payment for services has not been linked to the content of

treatment, incentives to change and update one’s practice have been minimal. Third-party payers have reimbursed for generic contexts of mental health and substance abuse treatments, such as evaluation, group therapy, inpatient treatment, and case management. What goes on behind closed doors has been left to professional judgment, and practitioners have preferred it that way.

Standards of care are changing, however, with the recognition that not all “treatment works” (White, 2005). States and cities are beginning to mandate that behavioral health care providers observe the same evidence-based treatment (EBT) standards that are expected in health care more generally. Reimbursement is gradually being tied to the delivery of EBTs and even to the outcomes of treatment. The handwriting is on the wall: Those who are not providing empirically supported interventions are going to have a harder time getting paid for their services. “Anything goes” is gone.

There are good reasons for moving toward EBT. All treatments are not created equal. There is consistent evidence that the outcomes of specific approaches vary widely in treating alcohol and other drug problems (Carroll, 1998; Miller, Wilbourne, & Hettema, 2003) and that

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therapists differ significantly from one another in their effectiveness in delivering a particular form of treatment (Luborsky, McLellan, Woody, O'Brien, & Auerbach, 1985; McLellan, Woody, Luborsky, & Goehl, 1988; Najavits & Weiss, 1994; Project MATCH Research Group, 1998). Certain types of treatment are rather consistently found to produce no benefit or worse yet continue to be delivered and reimbursed (Miller et al., 2003). It makes a difference what we do in treatment and how we do it.

If that is the case, then we owe it to our clients to keep abreast of what works best for whom and to provide, as much as possible, the treatment services that are most likely to be beneficial. Courts are upholding clients' right not only to treatment but also to effective treatment. Again, this is a common expectation in medicine. Physicians who provide outdated or ineffective treatments are vulnerable to claims of malpractice. Furthermore, trends toward person-centered care highlight the right of clients to have sufficiently accurate information about their therapeutic options to allow them to make informed choices about their own treatment (Essock et al., 2003).

Finally, there are clear trends toward the integration of substance abuse treatment with mainstream health care (Miller & Weisner, 2002). People with substance use disorders frequently have concomitant mental and physical health problems as well and are best served by integrated care systems (Drake & Mueser, 1996; Gerstein & Harwood, 1990; Hubbard et al., 1989; McLellan et al., 1997, 1998). As the management of substance use disorders becomes more closely integrated with health care systems, it is inevitable that EBT will increasingly become the standard of treatment.

1.1. Systematic reviews and meta-analyses

Few clinicians have the time and expertise to analyze and integrate hundreds of clinical trials. We therefore rely on knowledgeable reviewers to summarize evidence and derive its implications for practice. Narrative reviews about what "studies show," however, involve a substantial amount of subjective judgment, and reviewers do not always show how they reached their conclusions.

Two refinements have emerged to reduce selective or otherwise biased presentations of reviews and to make reviewers' work more transparent and reproducible. The first of these is the *systematic review*, in which standard elements are examined and reported for each study and clear decision rules are specified for reaching conclusions. Thorough literature search procedures are also used to ensure that reviewers have identified most or all of the relevant published research.

The second refinement is statistical *meta-analysis*, which seeks to use a common yardstick in comparing study outcomes. In treatment outcome studies, for example, a meta-analytic review might identify for each study the best measure of substance use and use this common metric for comparison. A standard feature of meta-analyses is the computation of

effect sizes, estimates of how large treatment effects really are. Effect sizes level the playing field, being less affected by factors such as the number of clients studied. Many outcome studies, however, do not report the detail that is necessary; therefore, effect sizes must be inferred from available information. Even meta-analyses can require dozens if not hundreds of judgment calls in estimating effect sizes. A way of protecting against such bias is to show the detailed work by which studies were rated and conclusions drawn.

1.2. Efficacy versus effectiveness

A distinction is often drawn between efficacy and effectiveness. Efficacy studies evaluate the benefits of a treatment when delivered under ideal and highly controlled conditions. Interventions in efficacy trials are often delivered by highly qualified clinicians with modest caseloads who receive intensive training plus ongoing supervision and fidelity monitoring, working within a well-funded university research clinic rather than in a busy and underfunded community practice setting. The efficacy of a treatment under such conditions does not guarantee its effectiveness when implemented in real-world treatment programs. There are many fewer clinical trials on EBTs delivered under normal practice conditions in the community. The National Institute on Drug Abuse (NIDA) Clinical Trials Network (Hanson, Leshner, & Tai, 2002; <http://www.drugabuse.gov/CTN/about.html>) is addressing this issue, testing EBTs on the frontlines, in community treatment programs, with regular program staff delivering EBTs to their ordinary clients.

Furthermore, multisite trials often reveal significant site-by-treatment interactions, such that an EBT works well in one location but not in another. If this is true under the highly controlled conditions of a multisite trial, surely it is the case that the effectiveness of an EBT will vary considerably across clinical populations and programs in which it is implemented. Using an EBT is a sensible place to start, but it does not ensure effectiveness in a particular case or context. Dissemination research is exploring what it takes for a treatment shown to be effective in clinical trials to be effectively delivered in community practice (Sorensen, Rawson, Guydish, & Zweben, 2003).

2. What is an EBT?

Although most practitioners would endorse the statement, "We should offer our clients the best treatment we can," there is minimal consensus and substantial confusion as to what "best" means. The move toward EBT is shaping a new definition of what constitutes optimal treatment, one that moves beyond best practice guidelines developed by practitioner consensus. There is a test of efficacy higher than clinician judgment that can be found in scientific evidence.

What, then, constitutes evidence? Courts of law have clear standards as to what is and is not admissible evidence,

and such guidelines, although less clear cut, are emerging with regard to substance abuse treatment as well.

Broad agreement points to a hierarchy of scientific evidence, with different types constituting stronger or weaker demonstrations of efficacy. In most EBT systems, the highest level of credence is given to randomized clinical trials, the gold-standard research design of the U.S. Food and Drug Administration (FDA) for approving new pharmacotherapies. No single clinical trial is conclusive, of course, and evidence strength grows as the number of well-controlled studies increases. The FDA approves new treatments based on clinical trials that are logically capable, by design, of demonstrating efficacy, taking into account the methodological quality of each study and the relative weight of positive and negative findings.

There is good reason for higher credence given to randomized clinical trials. Few other research designs can control for the beliefs and expectancies that can substantially bias outcomes. Human beings are highly susceptible to paying selective attention to information that confirms preexisting beliefs and to ignoring conflicting information. Some clinicians assert that, “The therapy I do is more effective than any of those EBTs. I just don’t have the time and resources to study it.” Well-designed randomized trials provide a persuasive, although imperfect, correction for human self-deception.

Even in medicine, of course, many treatments that have not been validated by randomized trials are provided (Steinberg & Luce, 2005). A second tier of evidence comes from quasi-experimental studies that offer some degree of control over factors that can confound the interpretation of results but fall short of the rigor of controlled clinical trials (Shadish, Cook, & Campbell, 2002). Replication of the same pattern of behavior change across multiple cases or groups given the same treatment, for example, offers some evidence of consistency of outcomes but no basis for comparison with other treatment approaches or no treatment. Some EBT reviews include such quasi-experimental studies as sources of evidence (Finney & Moos, 2002; Hettema, Steele, & Miller, 2005).

A third tier of evidence is found in correlational studies with systematic observation across cases or programs. Although randomized trials represent a gold standard for demonstrating efficacy, there are clinically important questions for which this design is not optimal. When patients are randomly assigned to different levels of treatment intensity or duration, clinical trials typically show no main effect of more versus less treatment (Miller & Hester, 1986). Other clinical studies, however, rather consistently show a positive correlation of retention in treatment with better outcomes. The latter finding has laudably discouraged the practice of prematurely discharging people for the same reason that they were admitted (drug use) and has encouraged the search for effective motivational strategies to improve retention. Field studies have shown that clients undergoing methadone maintenance programs tend to fare better when

receiving counseling in addition to medication, and this evidence has also altered practice (Willenbring, Hagedorn, Postier, & Kenny, 2004). Similarly, studies rather consistently indicate the importance of providing for children to attract and retain women in residential or outpatient treatment. Such evidence-based practices represent a broader perspective than EBTs alone and should be considered in funding and other policy decisions.

A fourth level of evidence is found in anecdotal case reports, professional opinion, and best practice guidelines developed by clinician consensus with minimal basis in research, often because of the absence of relevant studies. The Patient Placement Criteria of the American Society of Addiction Medicine (2001), which offer decision rules for placing patients into various levels of treatment intensity, began as a professional consensus document; subsequent studies have shed light on the reliability, validity, and utility of these criteria and helped refine them (Gastfriend, 2003; Magura et al., 2003). Professional consensus is also the standard used to develop the Treatment Improvement Protocols published by the U.S. Center for Substance Abuse Treatment. Although often most persuasive to practitioners, this level of evidence is typically given least credence in designating EBTs.

When, then, does a treatment become an EBT? Various authorities have established different and sometimes conflicting standards for when there is *enough* evidence to constitute an EBT. Part of the problem here is drawing a discrete line (EBT or not) on what is actually a continuous dimension (amount, type, and strength of available evidence). Various definitions of evidence have been used to generate lists of EBTs for substance use disorders (McGovern & Carroll, 2003), including conflicting lists from the American Psychiatric Association, the American Psychological Association, Cochrane collaborations, meta-analyses, and the NIDA. It is useful to have a compilation of the strengths of evidence for (or against) different approaches to inform and demystify the dichotomous and somewhat arbitrary decision as to which treatments are evidence based and which are not.

As a starting point, we examined the conclusions of 10 reviews of EBTs from seven research groups (Berglund, Thelander, & Jonsson, 2003; Carroll, 1998; Finney & Moos, 2002; Mattick & Hall, 1993; Mattick & Jarvis, 1992; McCrady, 2000; McCrady & Ziedonis, 2001; Miller & Wilbourne, 2002; NIDA, 1999; Rawson, 1996). As shown in Table 1, some treatments are found on most lists of EBTs whereas others appear on only one or two. This illustrates the extent to which EBT lists can differ depending on the procedures and criteria one uses. A further source of variance in this list is that some reviews focused only on alcohol problems whereas others did only on illicit drug use. Given these, the amount of convergence across reviews is encouraging, albeit inconclusive. Reviewers do not work in isolation, and they read each other’s work. Some of these reviews are more transparent than others, showing their

Table 1
Convergence of 10 summaries of EBTs

| Treatment modality | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Σ |
|--|---|----|---|----|----|---|----|----|----|----|---|
| Cognitive-behavioral treatment | | + | | | ++ | + | ++ | ++ | + | | 9 |
| Community reinforcement approach | | | | ++ | + | + | + | ++ | ++ | | 9 |
| Motivational interviewing | + | + | | | + | + | + | + | ++ | + | 9 |
| Relapse prevention | + | + | + | + | + | + | + | + | | ++ | 9 |
| Social skills training | | | | ++ | | + | ++ | ++ | ++ | | 9 |
| Behavioral marital therapy | | | | | ++ | + | | ++ | ++ | | 7 |
| Brief intervention | | | | | | + | + | | ++ | ++ | 6 |
| Behavioral self-management | | | | | | + | + | | ++ | | 4 |
| Community reinforcement approach plus vouchers | + | ++ | | | | + | | | | | 4 |
| Behavior contracting | | | | | | | | + | ++ | | 3 |
| Bibliotherapy (self-change manual) | | | | | | + | | | ++ | | 3 |
| Methadone + psychosocial treatment | | ++ | + | | | | | | | | 3 |
| Twelve-step facilitation | | | | | + | + | | + | | | 3 |
| Aversion therapy | | | | | | | | + | + | | 2 |
| Covert sensitization | | | | | | | + | | + | | 2 |
| Individualized drug counseling | + | | | | + | | | | | | 2 |
| Matrix model | + | | + | | | | | | | | 2 |
| Stress management training | | | | + | | | | + | | | 2 |
| Supportive-expressive psychotherapy | + | | | | + | | | | | | 2 |
| Behavior therapy for adolescents | + | | | | | | | | | | 1 |
| Client-centered counseling | | | | | | | | | + | | 1 |
| Cue exposure | | | | | + | | | | | | 1 |
| Day treatment with abstinence, contingencies, and vouchers | + | | | | | | | | | | 1 |
| Group therapy | | | | | + | | | | | | 1 |
| Intensive case management | | | | | + | | | | | | 1 |
| Multidimensional family therapy for adolescents | + | | | | | | | | | | 1 |
| Multisystemic therapy (MST) | + | | | | | | | | | | 1 |
| Therapeutic community | | | + | | | | | | | | 1 |
| Voucher-based reinforcement therapy in methadone maintenance treatment | + | | | | | | | | | | 1 |

The reviews summarized in this table are as follows: (1) NIDA (1999); (2) Carroll (1998); (3) Mattick and Hall (1993); (4) Rawson (1996); (5) McCrady and Ziedonis (2001); (6) Berglund et al. (2003); (7) Mattick and Jarvis (1992); (8) Finney and Moos (2002); (9) Miller and Wilbourne (2002); and (10) McCrady (2000).

(+) indicates that the review identifies the treatment as evidence based; (++) the review differentiates strong evidence base for the treatment; Σ, total number of (+) ratings for the treatment across the 10 reviews.

work and clearly articulating the review procedures so that they could be replicated. Others (e.g., NIDA, 1999) simply name EBTs without specifying the criteria and processes used to arrive at the list. Some (e.g., Berglund et al., 2003) provide statistical meta-analyses to compare the absolute impact of treatments. Other summaries rely on the reviewers' subjective judgment.

Neither are treatment approaches randomly selected for testing in clinical trials. There has been concern that certain approaches (e.g., behavioral) are favored by researchers or easier to test in randomized trials and, therefore, have the opportunity to accumulate greater evidence of efficacy. We examined this within a review of published clinical trials on treatments for alcohol use disorders (Miller et al., 2003). Pharmacotherapies were tested 106 times (20%); cognitive-behavioral treatments, 231 times (43%); and other psychosocial therapies, 195 times (37%).

3. When can EBTs be implemented?

When should we use EBTs? One reasonable answer is, "Whenever possible," recognizing the limitations of avail-

able research. There are, of course, many gaps in treatment outcome research, although not as many as was the case even 10 years ago. With more than a thousand controlled clinical trials in the literature for alcohol, tobacco, and illicit drug use, it is no longer defensible to say that there is limited research from which to draw any conclusion (Ling, Farrell, & Ali, 2004). Table 1 points to treatment methods with good evidence of efficacy. Like health care more generally, substance abuse treatment can now be guided by (but not restricted to) EBTs.

So perhaps a better question is when one would *not* use an EBT. One obvious answer is, "When there is no EBT available." It is the case that there is currently insufficient research evidence to indicate a specific approach in treating certain substance use disorders. The inhalation of solvents such as glue or gasoline is clearly a serious concern, and, at present, there is not enough research evidence to guide practice with confidence. Should one then leave inhalant abuse untreated? Certainly not. The same is true for specific combinations of disorders. Treatment methods are being developed and tested for the combination of substance dependence with schizophrenia (Drake & Mueser, 1996), depression (Carroll, Nich, & Rounsaville, 1995), anxiety

disorders (Kranzler et al., 1994), posttraumatic stress disorder (Najavits, 2001), and borderline personality disorder (Linehan et al., 2002); in the meantime, a reasonable approach is to use EBTs that are indicated for each of the concomitant conditions separately.

Clinicians are often concerned that available clinical trial evidence may not apply to the population they treat. It is reasonable to question the generalizability of EBTs across groups with which they have not been tested. In the interest of internal validity, efficacy studies often exclude patients with a concomitant psychiatric diagnosis or multiple substance use or dependence, medically ill patients, and, possibly, clients less motivated for change (by virtue of self-selection into a demanding trial). In short, clinical trials may exclude a majority of the clients seen in community practice. Furthermore, very limited clinical trial evidence is available on how to treat substance use disorders in specific populations who may constitute most or all of those seen in particular agencies: HIV-positive patients, Native Americans, adolescents, Hispanics, or African Americans. Although it is unreasonable to expect all EBTs to be tested with all populations, the external validity of existing studies remains a serious concern.

What should one do in this case? In the absence of an EBT for the specific population one treats, it is reasonable to start with EBTs that have been supported in multiple trials with other groups. There is no particular reason to withhold EBTs from clients based on their racial/ethnic background, and to do so is a form of discrimination. In the nationwide Project MATCH trial, no differences were found in the responses of African Americans, Hispanics, and Non-Hispanic Whites or of women and men to the three treatments tested: 12-step facilitation therapy (Nowinski, Baker, & Carroll, 1992), cognitive-behavioral therapy (Kadden et al., 1992), and motivational enhancement therapy (Miller, Zweben, DiClemente, & Rychtarik, 1992). Native Americans, however, did show significantly better outcomes with motivational enhancement therapy (Villanueva, Tonigan, & Miller, 2005). Other studies have shown no differential response of Hispanic and Non-Hispanic clients to substance abuse treatment (Arroyo, Miller, & Tonigan, 2003).

Whereas 25 years ago there were no EBTs for substance use disorders, we are now blessed with a variety of evidence-based approaches. One reasonable policy, then, is to provide EBTs to most people seeking treatment for substance use disorders while also meeting their other needs for services (McLellan et al., 1998). If a person does not seem to be responding to one EBT, there are usually other good possibilities to try. Clients can therefore be given informed choices among good options. A public treatment program directed by the first author (W.R.M.) offered clients a menu of EBTs. New clients were given a description of the options available to them and were actively involved in choosing the treatment they preferred.

This means, of course, that providers need to learn how to deliver EBTs. Beyond the challenge of changing established practice habits, developing competence in a new treatment method may not be a simple matter. Studies clarifying effective dissemination methods are gaining momentum (Sorensen & Midkiff, 2002). It is common for practitioners and programs to rely on conferences, workshops, and in-service trainings. Yet such one-shot methods tend to be ineffective in changing practice behavior and increasing clinical skillfulness. In one study, reading about, viewing videotapes, and attending a 2-day workshop resulted in a minimal increase in skill in motivational interviewing and in no apparent change in client response, although participants believed that they had developed competence (Miller & Mount, 2001). In a subsequent trial, providing ongoing feedback and coaching significantly improved posttraining clinical proficiency in the EBT (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004).

4. Where can EBTs be implemented?

EBTs can be implemented at various levels. At the simplest level, an individual practitioner may learn and provide one or more particular EBTs as part of her or his service delivery. The use of EBTs is quite compatible with individualizing treatment to patient needs and preferences, a common value among clinicians (Drake, Rosenberg, Teague, Bartels, & Torrey, 2003). Acquiring competence in the delivery of EBTs is likely to enhance a practitioner's prospects for future employment and for referrals from funding agencies.

At a program level, an agency can make a policy decision to deliver preferentially, as much as possible, treatment or prevention interventions that are based on solid scientific evidence. This is a commitment to EBT in general, as distinguished from the provision of particular EBTs. Consider these three policy statements adopted by community treatment programs:

1. The Board of Directors of the South Central Community Mental Health Centers (SCCMHC) shall operate only those mental health treatments, services, and programs for which there exists evidence in the professional literature of their efficacy in their application under conditions and circumstances similar to those existing in the communities and populations served by the center. (Adopted in 1990 by SCCMHC, operating public mental health and substance abuse service programs for three counties in Indiana.)
2. The ChangePoint mission is to provide the most effective substance abuse, mental health, and domestic violence intervention treatments using culturally competent evidence-based approaches designed to give the best possible outcomes to clients. (Adopted

in 1998 by ChangePoint, which operates six treatment programs around Portland, Oregon.)

3. The Center on Alcoholism, Substance Abuse, and Addictions (CASAA) shall operate only those treatments, services, and programs for which there exists evidence of efficacy in the current scientific literature. Services with unproven efficacy will be designated as experimental procedures and offered only within the context of appropriately designed research to determine their efficacy. (Adopted in 1994 by the University of New Mexico CASAA, operating a large public substance abuse treatment system.)

Most EBTs are treatments and not programs; they describe specific procedures but do not prescribe the details of the many day-to-day operational decisions within a program that must be made to accommodate EBTs. Implementing EBTs may require significant changes in program philosophy, procedures, and training and hiring practices. In programs where EBTs are new, this involves a commitment to train or retrain clinicians to deliver EBTs. New hires provide a particularly important opportunity to increase a program's capability to deliver EBTs. Programs can consider specific policies for: (1) hiring, training, or retraining of clinicians to deliver EBTs; (2) determining the clients, problems, and situations for which EBTs apply and how to proceed clinically when no EBT is available; and (3) supervising and monitoring the practice of clinicians within the program to promote and ensure appropriate use of EBTs.

At a treatment system level, the complexity of EBTs is greater still. A treatment system may make a policy decision for differential provision and funding of an EBT among its multiple programs and providers. Here the vexing challenges include (1) defining which EBTs are to be provided or reimbursed; (2) defining and educating programs as to when EBTs apply, how providers are to proceed when EBTs are unavailable, and the conditions under which clinician judgment may override the use of an established EBT; and (3) determining how to monitor and audit provider practices to ensure adherence to EBT standards.

5. Perils and pitfalls of EBTs

One of the aims of this article is to represent both clinical and scientific perspectives on EBT. This involves considering not only the strengths and advantages of EBT but also the limitations and emergent problems as social policy increasingly favors EBT.

5.1. Problems with lists of EBTs

Clinical practice ought to be guided by the best science available, but there are good reasons to be cautious about blessing lists of EBTs. As is evident in Table 1, well-intentioned and qualified reviewers can and do reach quite

different conclusions depending on the range of studies examined and the methodology used to do so. Systematic review and meta-analysis necessarily invoke certain assumptions and are variable and fallible processes. Furthermore, lists of approved methods necessarily reduce quite complex information to a binary decision: EBT or not.

Suppose, however, that we could develop at least a short list of EBTs that have been shown to be more effective than no treatment or alternative treatments. There are still some reasonable grounds for concern. First, such lists can change substantially as new evidence emerges and, thus, should always be considered a work in progress. Second, it is important to remember that the absence of efficacy studies does not constitute evidence of ineffectiveness. It may be useful, then, to compile and inform practice by enumerating treatment methods for which there is strong evidence of ineffectiveness (Miller & Wilbourne, 2002). Third, there is some danger that EBT lists could ossify research and practice and, thus, stifle innovation.

Social policy regarding EBTs should take into account not only scientific evidence but also the feasibility of putting an EBT into practice. For example, although covert sensitization (verbal aversion therapy) has a positive balance of evidence for efficacy, it is an inherently unpleasant therapy for counselors and clients alike and is unlikely ever to be widely adopted in practice. Contingency management programs that pay clients for drug-free urine are reasonably effective but face substantial opposition from political and public opinion. An EBT that requires individual therapy is difficult to deliver if programs are reimbursed only for group counseling. It is wise to anticipate such obstacles before an EBT is promoted for adoption and runs into a solid wall, undermining the credibility of EBT implementation more generally. The identification of EBTs to be implemented in practice is, thus, a process that best involves both scientists with treatment research expertise and clinicians with wisdom about feasibility in community programs.

5.2. Appropriate modesty

It is true that substantial gains have been made through clinical research on substance abuse treatment. It is also important to maintain an appropriate level of humility about our current knowledge. Clinical scientists and practitioners are both susceptible to the tendency of nondepressed people to overestimate their efficacy. In general, our treatment interventions show small to moderate effects and repeated episodes of care are the norm. Substance abuse treatment yields outcomes at least comparable with those for other chronic conditions such as diabetes, asthma, and hypertension (McLellan, Lewis, O'Brien, & Kleber, 2000), and there are no magic bullets to cure addiction in one acute care episode. Studies appropriate to a comprehensive and continuing care model may yield insights about how to strengthen treatment as a whole (McLellan, McKay, Forman, Cacciola, & Kemp, in press).

5.3. Cost-effectiveness of implementing EBTs

Specific treatment methods are evaluated for the extent to which they improve outcomes, relative to the cost of delivery. Similar questions can be asked at program and system levels regarding the cost-effectiveness of adopting EBTs. Relative to current practice, how much better would client outcomes be after implementing one or more EBTs? The costs of training and supervising new EBTs, which can be substantial, must be weighed against the degree of anticipated benefit to clients.

There is a temptation for policymakers to require the delivery of EBTs without providing support for the substantial effort and costs required to convert programs and systems to new standards of practice. Comprehensive intervention at a system level, although currently underway in specific areas (Minkoff, 2001), takes time and resources to accomplish. Helping staff learn and competently deliver even a single EBT is likely to require far more than providing a treatment manual and a one-shot workshop (Miller et al., 2004; Sorensen et al., 2003). Unfunded mandates to implement EBTs are predisposed to fail.

Even with good training and support for implementation, the effectiveness of an EBT in practice is not ensured. Because the outcomes of EBTs vary across sites and populations, it is desirable to study the impact of EBTs when implemented, which converges with increased demands from funding sources for outcome monitoring. This, too, requires dedicated time and effort, and funders may fail to provide the requisite resources to collect reliable outcome data. Contract funds are frequently mandated to be spent for direct services only, without supporting an infrastructure for the quality assurance and outcome evaluation needed in systemic adoption of EBTs.

5.4. Quality assurance: How do we know if an EBT is being practiced?

It is easier to determine whether certain medical procedures (e.g., surgery) have been properly performed than to verify when a substance abuse provider is actually delivering a psychosocial EBT. The delivery of even a pharmacotherapy is in doubt without tests to verify medication blood levels. Without ongoing monitoring, individual clinicians and programs only need to report that they are delivering EBTs and indeed may incorrectly believe that they are doing so (Miller & Meyers, 1995). The first author (W.R.M.) once delivered a community lecture on EBTs for alcohol problems. The following week, a local treatment program listed in a newspaper advertisement the services that it provided—the very same list of EBTs for which, to our knowledge, they had received no training.

It is challenging to verify, from chart review alone, whether an EBT was actually delivered. Even a taped work sample of a clinician providing an EBT demonstrates only that she or he is able to deliver the treatment, not that she

or he actually does so in routine practice. It is one thing to mandate that providers deliver EBTs and quite another to determine through quality assurance that they are really doing so competently. Mandates without quality assurance are likely to have more effect on verbal reports about practice than on practice itself.

5.5. Effective until proven otherwise?

As discussed, an absence of research is not proof of ineffectiveness. This raises the conundrum of what to do about treatment practices for which limited or no scientific evidence is available. Some common interventions lack evidence of efficacy precisely because they are more challenging to study in a rigorous manner (e.g., group therapies and the use of 12-step programs). Other interventions remain unstudied because clinical scientists have not had sufficient interest in them. For example, should art therapy, for which there is no single outcome study, be a reimbursable substance abuse service unless and until it is shown to be ineffective? What about age regression hypnosis or aromatherapy (Miller & Walker, 1997)?

The FDA standard is that the burden of proof is on the purveyor of a treatment to show that it is effective before it is approved for delivery. It is an unreasonable standard that any intervention must be proven ineffective (itself a challenging task) before delivery and funding can be denied. At the same time, there are pressing everyday practice challenges with no EBTs to provide clear guidance but for which communities have developed intervention methods. Research should be encouraged to evaluate community-supported approaches that are widely practiced (e.g., within a particular population) and for which outcome knowledge is lacking (Hall, 2001).

5.6. The National Registry of Evidence-Based Programs and Practices

A variety of federal initiatives are in process or under development to address some of the issues in this article. One of the most significant is the National Registry of Evidence-Based Programs and Practices (NREPP), initiated in 1998 by the U.S. Substance Abuse and Mental Health Services Administration (SAMHSA) and currently under expansion. Originally focused on substance abuse prevention programming, it is broadening its scope to include interventions to treat substance abuse disorders and to prevent and/or treat mental illness. The vision in expanding the NREPP is that the system becomes a leading national resource for contemporary and reliable information on the scientific basis and practicality of interventions to prevent and/or treat mental and addictive disorders. Plans are underway to align technical assistance with this expansion. The SAMHSA obtained public comment on its plans for expanding the NREPP and will plan to relaunch the expanded system sometime in 2006.

As of this writing (August 2005), the NREPP policies and procedures are still being formulated, but treatment and prevention programs can apply online and achieve status as model evidence-based programs (<http://www.modelprograms.samhsa.gov>). Although we laud the effort to provide the public and funding agencies with a reliable consumer's guide to evidence-based substance abuse services, the devil is going to be in the details. First, a list of approved practices must be developed, which involves all the abovementioned complexities of deciding how much of which kinds of data constitute evidence.

To complicate matters further, programs are to be registered as actually providing evidence-based practices, apparently based on the self-report of program administrators. Even individual providers themselves are not reliable reporters of their own proficiency and delivery in practice (Miller et al., 2004). With program status and reimbursement at stake, the second-hand assurance of administrators regarding providers' adherence to evidence-based methods is unlikely to reflect actual practice. Quality assurance measures are imaginable, albeit complex, but no such checks have been proposed for the NREPP. No list at all would be preferable to a registry that provides the public with unreliable consumer information about program quality.

6. Summary

The issues discussed here are not new. More than three decades ago, Rotter (1971, p. 1) observed:

Most clinical psychologists I know would be outraged to discover that the Food and Drug Administration allowed a new drug on the market without sufficient testing, not only of its efficacy to cure or relieve symptoms, but also of its short term side effects and the long term effects of continued use. Many of these same psychologists, however, do not see anything unethical about offering services to the public...which could not conceivably meet these same criteria.

He further warned that in the absence of an evidence base for treatment, clinicians "will find themselves restrained from the outside (as are drug companies by the FDA) as a result of their own failure to do what ethical and scientific considerations require" (p. 2).

Two decades ago, Krauthammer (1985) observed prophetically in the *Washington Post*:

As long as psychotherapies resist pressure to produce scientific evidence that they work, the economic squeeze will tighten. After all, if psychotherapy is really an art, it should be supported by the National Endowment, not by Medicare. The first to face extinction will be the longer-term therapies. . .Where it ends, though, is not clear.

It makes good sense to give priority to EBTs, particularly within this era of fiscal austerity. We owe it to our clients to provide the best treatment that we can offer them within

available resources. Clinicians also benefit from access to new methods, and an evidence-based standard for practice promotes self-examination and stimulates new ways to think about care and service delivery. The introduction of new interventions may further generate new enthusiasm and diminish staff burnout.

Busy providers and program managers cannot be expected to digest the entire treatment outcome literature and come to their own conclusions about EBTs. A seemingly simple approach for encouraging or requiring the use of EBTs is to develop a list of treatments that are evidence based (and, by omission, those that are not). However, the processes and criteria for arriving at an EBT list are by no means straightforward and different review procedures yield different lists (Finney & Monahan, 1996). Neither is it clear where the responsibility and authority lie for developing such lists.

Retraining providers with established habits is considerably more challenging than shaping the practice of clinicians in training. In the new wave of enthusiasm for EBTs, surprisingly minimal attention and priority have been given to ensuring that future substance abuse treatment professionals will be prepared to competently deliver EBTs. Special attention should be given to EBTs in any training program to prepare the next generation of clinicians to work with substance use disorders.

Perhaps the proper attitude toward EBTs is one of respect but not reverence. Evaluating scientific evidence is a complex and evolving process. There is danger that funders and regulators will take action prematurely, without good understanding of the state of the evidence and the practical constraints inherent in implementing worthy goals. A solid evidence base for the treatment services we provide is perhaps the best defense against extinction, and funding agencies are understandably impatient. For the field of substance abuse treatment to move forward, there should be cooperative dialogue among the stakeholders, with EBT implementation plans developed through close collaboration.

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