

Have we evaluated addiction treatment correctly? Implications from a chronic care perspective

The excellent reviews of alcohol treatment outcomes and methods for evaluating and comparing treatment outcomes (Moyer, Finney & Swearingen 2002a; Moyer *et al.* 2002b; Miller & Wilbourne 2002) provide ample evidence of the methodological rigor and technological sophistication that have been developed in this field over the past 30 years. At the same time, these reviews have led me to question the conceptual underpinnings of addiction treatment and with it, addiction treatment outcome evaluation. In this regard, I have become interested in the analogies between addiction—both alcohol and drug addiction—and other chronic medical illnesses such as diabetes, hypertension and asthma (see O'Brien & McLellan 1996; McLellan *et al.* 2000).

Literature reviews of treatment adherence and treatment relapse rates yielded rather surprising similarities between addictive disorders and these three, well-characterized chronic medical illnesses (see McLellan *et al.* 2000). For example, in virtually all cases where patients have been prescribed medications for these chronic illnesses, less than 50% continue to take those medications as prescribed; less than 30% of patients comply with prescribed behavioral changes such as weight loss, dietary restrictions on sugars or cholesterol or exercise regimens. When 'relapse' is defined as the re-emergence of symptoms requiring treatment in a hospital or an emergency room, the published studies suggest that 40–60% of patients with hypertension, diabetes or asthma relapse every year (see McLellan *et al.* 2000).

It is important to note that all cases of addiction are *not* chronic. Many who meet diagnostic criteria for substance dependence recover completely, even without treatment. Others have long remissions following treatment. However, many of those who develop addiction disorders suffer multiple relapses following treatments and are thought to retain a continuing vulnerability to relapse for years or perhaps a lifetime. In this paper, I will continue the analogy between addiction and chronic medical illnesses, but not to further the debate on whether addiction *really is a 'disease'*. Here, I focus on the separate—and I think under-appreciated question—of whether the assumptions underlying interventions for acute conditions or those for chronic conditions are more appropriate for the treatment addiction. Without any conclusion regarding the essence of addiction—a

medical problem, a sin or a learned behavior—I offer two provocative implications that derive from thinking about addiction as a chronic condition.

IF ADDICTION IS BEST CONSIDERED A CHRONIC CONDITION, THEN WE HAVE BEEN EVALUATING THE EFFECTIVENESS OF ADDICTION TREATMENTS IN THE WRONG WAY

Any examination of the published effectiveness of treatments for chronic illnesses leads to the question of why they are considered to be so successful by the public at large. One answer is illustrated in Fig. 1. This figure shows the results of a typical trial of a new medication or a new intervention in the treatment of any chronic illness (the example here is hypertension). Severity of primary symptoms, blood pressure in this example, is measured along the *y*-axis. Pictured on the *x*-axis are measurement points prior to the start of treatment, three times during the course of the treatment and following the patient's discontinuation of treatment.

The effectiveness of the treatment evaluated in this hypothetical study is obvious. The first sign of effectiveness is the reduction in symptoms from before to during treatment. Although this treatment did not eliminate symptoms, there was a 75% improvement for the patient. There is a second way that the medical community and the public at large see effectiveness in this example: the re-emergence of symptoms following discontinuation of the treatment. Importantly, there is no expectation of cure in this evaluation: only that an effective treatment will reduce symptom severity *while it is being administered*. Indeed, the re-emergence of symptoms following discontinuation of a treatment has been used as a justification for strategies to retain patients in treatment.

Consider a similar evaluation (Fig. 2), duplicating exactly the earlier results, except that it is the evaluation of an addiction treatment. The *y*-axis again shows symptom severity, perhaps days of cocaine use or number of standard drinks of alcohol in the past week. The *x*-axis shows the same measurement points. Here again, researchers, treatment providers and policy makers would all agree that the treatment was obviously not

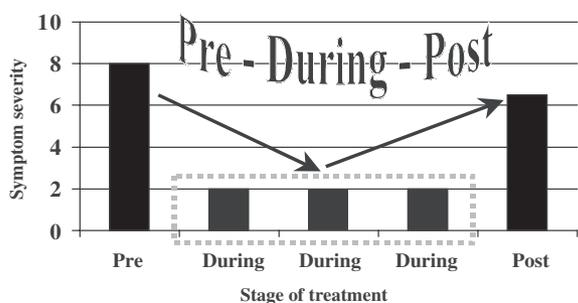


Figure 1 Evaluation of a hypothetical hypertension treatment.

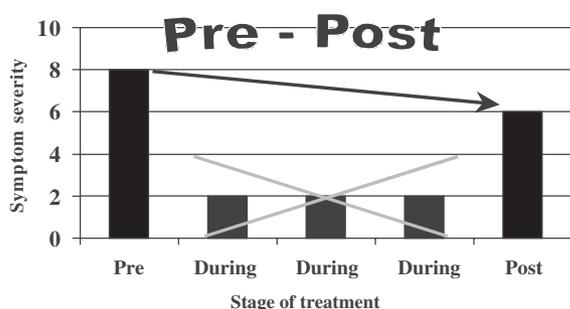


Figure 2 Evaluation of a hypothetical addiction treatment.

effective. Why? Because almost all addiction treatments (methadone maintenance and AA may be the only exceptions) are expected to produce lasting reduction in symptoms following termination of treatment. The reduction of symptoms during treatment is not adequate to the expectations underlying addiction treatment. In turn, almost all treatments have been evaluated six or 12 months following discharge from those treatments. From this perspective, the 'disappointing' return of symptoms following treatment discharge is 'evidence' of treatment failure.

It should be clear that it doesn't matter whether the essence of the intervention is the correction of some biological abnormality, the resolution of a psychological process, the teaching of some new behavior or the development of some improved social support system. If one believes that some finite combination of medications, counselling and therapy, social services and/or social support systems should be expected to effect essential change in the root causes of addiction, remove those causal factors and result in lasting benefits, then we have been evaluating the effectiveness of those interventions in the correct way.

However, if a more realistic expectation is that the interventions currently available will not correct the essence of the problem, only reduce the number and severity of the symptoms and improve personal function, as long as the patient participates in the intervention, then a pre-post evaluation of treatment effectiveness

is not appropriate. However, we have been evaluating addiction treatments that way for at least three decades. Indeed, to make this particularly pointed and personally uncomfortable, I have written that '... treatment benefits should be sustained for at least 6 months following discharge for addiction treatment to be worth it to the patient and to the society that supports that treatment' (McLellan *et al.* 1996).

Several of the articles in this issue (Moyer *et al.* 2002a, 2002b; Miller & Wilbourne 2002) argue for evaluations with outcomes measured at least 12 months following discharge, calculating effect sizes by comparison of treated and untreated controls at that point. A chronic illness perspective would suggest that these kinds of comparisons are not appropriate, because at any post-treatment evaluation point the comparison reduces to experimental patients, who are no longer in treatment, and patients from the control condition, who are also not in treatment. The expectations from this perspective would suggest rather low effect sizes regardless of the treatment; this has generally been the case (see Holder *et al.* 1991; Finney & Monahan 1996). A more 'appropriate' effect size calculation from the chronic care perspective might compare an experimental group measured during treatment and an untreated control group measured at the same time points.

There are other implications of the continuing care assumptions about addiction treatment. For example, the series of comparisons between in-patient, residential and outpatient settings of addiction treatment (e.g. Miller & Hester 1986; McKay *et al.* 1995) simply do not make sense from a continuing care perspective. Again, if treatments are expected to produce symptom reduction only as long as the patient is actively involved in that treatment, then there should be no post-treatment differences among patients assigned to any of those modalities—the common finding from these evaluations (see McLellan *et al.* 1996).

Finally, consider Project MATCH (Project MATCH 1997), the tightly controlled study of three different, time-limited therapies for alcohol dependence from a continuing care model of treatment evaluation. Although there were significant improvements in all groups, many patients returned to alcohol use following treatment. Perhaps most disappointing was the inability to predict the type of patients most likely to show differential benefits from each therapy. Continuing care practitioners in the fields of diabetes, hypertension, asthma, depression or schizophrenia would probably find these results expectable. Many patients who initiate treatments for these diseases do not show remission with their first medication. Prediction in this context is less important than simply developing an early indication of whether the target symptoms are, or are not, remitting. If not, it

is the common practice to simply switch to a different dose, combination or mode of treatment, one that may be more effective in reducing symptoms or better tolerated by the patient. Treatment practices in contemporary addiction treatments are the subject of the second implication from a continuing care approach to addiction.

IF ADDICTION IS BEST CONSIDERED A CHRONIC CONDITION, THEN WE ARE NOT PROVIDING APPROPRIATE TREATMENT FOR MANY ADDICTED PATIENTS

It may be thought that I am simply arguing for longer episodes of existing addiction treatments. But a succession of acute care episodes is not the same as a continuing care strategy. Indeed, there are obvious differences between contemporary practices in addiction treatments and what would be done in a continuing care approach.

A continuing care approach emphasizes making treatments attractive to patients. In other chronic care fields, there has been recognition that interventions will be ongoing and that success will require the patient to co-operate and partner with the health-care system to address the pertinent aspects of the illness. Health-care systems know that patients will probably not comply with treatments that have significant side-effects, that are not reimbursed by insurance and/or that intrude on their lives. There has been a realization that, in some sense, the patient is also the 'customer' and this has suggested efforts to make more treatment options and to make those options more available and more attractive (lower doses, fewer visits, tele-monitoring, etc.). Addiction treatment practitioners often see complaints that a treatment is too time consuming, too intrusive or has too many side-effects as evidence for 'lack of motivation.

A continuing care approach to treatment requires monitoring of patients. Monitoring has not been considered a reimbursable therapeutic ingredient by most US insurance plans in the context of addiction treatment. In contrast, monitoring activities are widely reimbursed in the context of treatments for chronic illnesses. In this regard, one of the most interesting findings from Project MATCH was that even brief research contacts over the telephone appear to have the ability to support abstinence and avert relapse (see Stout *et al.* 1999). There are some innovative and potentially effective monitoring efforts within the addiction treatment field, but these were typically developed as adjuncts to the research efforts with those patients, not as clinical interventions (Sobell & Sobell 1980; McKay *et al.* 1998; Stout *et al.* 1999).

Finally, a continuing care approach requires coordination and integration of the substance abuse intervention into the broader spectrum of health or social services. In theory, the primary care physician is expected to play this role within mainstream health-care. Similarly, a case manager is likely to play this role in the welfare and mental health fields. Both roles require monitoring of client status on a regular basis, early detection of potential problems, referral to appropriate care and accepting referral back to continue the monitoring and support. In contrast, treatment referrals to specialty substance abuse treatment are more likely from a probation officer than from a physician (see Weisner 1997); for various reasons, most substance abuse treatment is kept secret from the rest of social and medical care systems.

In conclusion, although I have used the analogy between addiction and chronic medical illnesses here, it was not to argue about the essence of addiction or to suggest that addiction should be treated with medications. This paper is really about the role of expectations and their effects on treatment practices and evaluation standards in addiction. I argue that almost all addiction treatments have been developed, delivered, evaluated and reimbursed under the expectation that some finite duration or intensity of intervention would produce reductions in substance use and improved personal functioning lasting well beyond the end of treatment. In fact, while many addicted individuals have achieved long-term abstinence from brief or even no treatment, it is unarguable that many others have repeatedly relapsed following a succession of acute care episodes. It is not now possible to determine whether, which or when any of the currently available treatments will produce lasting symptom remission for an individual patient.

It is at this point that the analogy with chronic medical conditions may be helpful. Many adults who develop hypertension, asthma or diabetes respond to acute care strategies involving short-term medications coupled with advice to change lifestyle (see McLellan *et al.* 2000). However, individual response is hard to predict and many do not respond to these acute interventions. In these cases, practitioners employ (and are reimbursed for) a continuing care approach that is qualitatively different from an acute care model in expectations, treatment methods and outcome standards. The invariant application of acute care expectations, methods and evaluation standards to all addicted individuals may have negative consequences for the patients and the field. As illustrated, it is possible that we may be significantly underestimating the effects of addiction treatment using an acute care evaluation perspective. More importantly for the patients, we may be missing opportunities to maximize the potential benefits of existing treatment components by delivering them in an acute care context.

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REFERENCES

- Finney, J. W. & Monahan, S. C. (1996) The cost effectiveness of treatment for alcoholism: a second approximation. *Journal of Studies on Alcohol*, **57**, 229–243.
- Holder, H., Longabough, R., Miller, W. R. & Rubonis, A. V. (1991) The cost effectiveness of treatment for alcoholism: a first approximation. *Journal of Studies on Alcohol*, **52**, 517–540.
- McKay, J. R., Alterman, A. I. & McLellan, A. T. (1995) Snider EC: inpatient versus day hospital rehabilitation for alcoholics: a comparison of experimental and naturalistic designs. *Journal of Consulting and Clinical Psychology*, **63**, 70–78.
- McKay, J. R., McLellan, A. T., Alterman, A. I., Cacciola, J. S., Rutherford, M. R. & O'Brien, C. P. (1998) Predictors of participation in aftercare sessions and self-help groups following completion of intensive outpatient treatment for substance abuse. *Journal of Studies on Alcohol*, **59**, 152–162.
- McLellan, A. T., O'Brien, C. P., Lewis, D. & Kleber, H. D. (2000) Drug addiction as a chronic medical illness: implications for treatment, insurance and evaluation. *Journal of the American Medical Association*, **284**, 1689–1695.
- McLellan, A. T., Woody, G. E., Metzger, D., McKay, J., Alterman, A. I. & O'Brien, C. P. (1996) Evaluating the effectiveness of treatments for substance use disorders: reasonable expectations, appropriate comparisons. *Milbank Quarterly*, **74**, 51–85.
- Miller, W. R. & Hester, R. K. (1986) Inpatient alcoholism treatment: who benefits? *American Psychologist*, **41**, 794–805.
- Miller, W. R. & Wilbourne, P. L. (2002) Mesa Grande: a methodological analysis of clinical trials of treatments for alcohol use disorders. *Addiction*, **97**, 265–277.
- Moyer, A., Finney, J. W. & Swearingen, C. E. (2002a) Methodological characteristics and quality of alcohol treatment outcome studies, 1970–98: an expanded evaluation. *Addiction*, **97**, 253–263.
- Moyer, A., Finney, J. W., Swearingen, C. E. & Vergun, P. (2002b) Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction*, **97**, 279–292.
- O'Brien, C. P. & McLellan, A. T. (1996) Myths about the treatment of addiction. *Lancet*, **347**, 237–240.
- Project MATCH (1997) Research group matching alcoholism treatments to client heterogeneity: project MATCH post-treatment drinking outcomes. *Journal of Studies on Alcohol*, **58**, 7–29.
- Sobell, L. C. & Sobell, M. B. (1980) Frequent follow-up as data gathering and continued care with alcoholics. *International Journal of the Addictions*, **16**, 1077–1086.
- Stout, R. L., Rubin, A., Zwick, W., Zywiak, W. & Bellino, L. (1999) Optimizing the cost effectiveness of alcohol treatment: a rationale for extended case monitoring. *Addictive Behaviors*, **24**, 17–35.
- Weisner, C. (1997) Chronic alcohol and drug abuse. In: Newcomer, R. J. & Benjamin, A. E., eds. *Indicators of Chronic Health Conditions: Monitoring Community-Level Delivery Systems*, pp. 260–301. Baltimore, MD: Johns Hopkins University Press.

