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► [Meta-analyses of seven of the National Institute on Drug Abuse's principles of drug addiction treatment.](#)

Pearson F.S., Prendergast M.L., Podus D. et al.
Journal of Substance Abuse Treatment: 2012, 43, p. 1–11.

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In this massive enterprise, analysts dissected 232 treatment-comparison studies to test the validity of the US government's principles of effective treatment for problems related to illegal drug use. Principles relating to individualising treatment were consistently supported by the North American evidence.

SUMMARY In 1999 and updated since, the US National Institute on Drug Abuse (NIDA) published a [set of 13 principles](#) for the treatment of drug addiction based on discussions among experts at a conference held in 1998. Current (as at June 2014, third edition) principles are abridged in the [panel below](#).

National Institute on Drug Abuse's principles

From the third edition of the guide. Text has been abridged. Red icons **N** indicate principles assessed in the featured review.

- 1** **Addiction is a complex but treatable disease that affects brain function and behaviour.** Drugs of abuse alter the brain, resulting in persisting changes. This may explain why drug abusers are at risk for relapse even after long periods of abstinence.
- 2** **No single treatment is appropriate for everyone.** Matching treatment settings, interventions, and services to an individual's problems and needs is critical to his or her ultimate success in returning to productive functioning.
- 3** **Treatment needs to be readily available.** Because drug-addicted individuals may be uncertain about entering treatment, taking advantage of available services the moment people are ready for treatment is critical. The earlier treatment is offered, the greater the likelihood of positive outcomes.
- 4** **Effective treatment attends to multiple needs of the individual, not just his or her drug abuse.** To be effective, treatment must address the individual's drug abuse and any associated medical, psychological, social, vocational, and legal problems.
- 5** **Remaining in treatment for an adequate period of time is critical.** Most addicted individuals need at least three months in treatment to significantly reduce or stop their drug use; the best outcomes occur with longer durations of treatment. Recovery from drug addiction is a long-term process and frequently requires multiple episodes of treatment. Programmes should include strategies to engage and keep patients in treatment.
- 6** **Behavioural therapies – including individual, family, or group counselling – are the most commonly used forms of drug abuse treatment.** Participation in group therapy and other peer support programmes during and following treatment can also help maintain abstinence.
- 7** **Medications are an important element of treatment for many patients, especially when combined with counselling and other behavioural therapies.** For example, methadone, buprenorphine, and naltrexone (including a new long-acting formulation) help individuals addicted to heroin or other opioids stabilise their lives and reduce their illicit drug use. Acamprosate, disulfiram, and naltrexone are medications approved for treating alcohol dependence.
- 8** **An individual's treatment and services plan must be assessed continually and modified as necessary to ensure that it meets his or her changing needs.** A patient may require varying combinations of services and treatment components during the course of treatment and recovery. For many a continuing care approach provides the best results, with treatment intensity varying according to changing needs.
- 9** **Many drug-addicted individuals also have other mental disorders.** Because drug abuse and addiction often co-occur with other mental illnesses, patients presenting with one condition should be assessed for the other(s). Treatment should address both (or all), including the use of medications.
- 10** **Medically assisted detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug abuse.** Detoxification alone is rarely sufficient to help addicted individuals achieve long-term abstinence. Patients should be encouraged to continue treatment following detoxification. Motivational enhancement and incentive strategies begun at intake can improve treatment engagement.
- 11** **Treatment does not need to be voluntary to be effective.** Sanctions or enticements from family, employment settings, and/or the criminal justice system can significantly increase treatment entry, retention rates, and the ultimate success of treatment.
- 12** **Drug use during treatment must be monitored continuously, as lapses during treatment do occur.** Knowing their drug use is being monitored can be a powerful incentive for patients and can help them withstand urges to use drugs. Monitoring also provides an early indication of a return to drug use, signalling a possible need to adjust treatment to better meet needs.
- 13** **Treatment programs should test patients for the presence of HIV/AIDS, hepatitis B and C, tuberculosis, and other infectious diseases as well as provide targeted risk-reduction counselling, linking patients to treatment if necessary.** Counselling focused on reducing infectious disease risk can help patients further reduce or avoid substance-related and other high-risk behaviours and help those already infected to manage their illness.

The Evidence-based Principles of Treatment (EPT) project was funded by the National Institute on Drug Abuse to assess the effectiveness of these principles in reducing drug use by amalgamating relevant research findings using [meta-analytic](#) techniques.

In all 232 studies were found which made 243 comparisons between different treatments and/or between treatment and no-treatment **control** groups. All studies had to be **mainly concerned** with users of illicit drugs in the United States or Canada and to have produced reports dated between 1965 and 2007. The interventions must have aimed (even if among other things) to reduce drug use, and the reports must have documented **substance use outcomes** in a form which could be amalgamated with results from other such studies.

Normally research syntheses amalgamate the differences found *within* each study. Especially if all the studies randomly allocated patients to the different approaches, and made sure treatments differed only in the ways being evaluated, we can be confident that the amalgamated results represent an effect of the intervention being tested. For some of the principles such an analysis could be conducted. For others, differences between studies (eg, in how long their patients stayed in treatment) were used to test the principles. In these cases other differences between the studies, the interventions and the patients make it impossible to be sure that any 'effect' was due to the application of the principle.

The meta-analytic method used in the featured review does not assume that the effectiveness of each of the principles is fixed and varies between studies only by chance; instead it allows for the possibility that the impact of applying that principle differs in different circumstances.

Main findings

Seven of the 13 principles (marked by red icons in the [Principles panel](#)) were susceptible to evaluation using the review's methods. Results summarised below.

2 Matching treatment to the client's needs. Twelve comparisons were found which focused on the degree to which clients were 'matched' to treatment programmes based on client characteristics and/or programme services. Matching created a statistically significant extra reduction in drug use amounting to an **effect size** of 0.24. However, for the four more methodologically rigorous studies this fell to 0.10, and to 0.12 for the five formally published studies.

4 Attending to the multiple needs of clients. Because most studies did not assess whether clients' needs were actually addressed, instead for each study the analysts calculated how many more of the relevant 'ancillary' services were provided to patients offered the focal treatment than to those in the comparison group. The greater this number, the greater the scope for patients in the focal treatment to receive extra services matched to their needs. Over 236 such comparisons, each additional service led to a small but statistically significant further reduction in drug use, which was not significantly affected by the rigour of the studies.

5 Completion and duration of treatment. Over 185 studies, each 10% more patients completing the focal treatments (only these were considered, not comparison or control treatments) was associated with a small extra reduction in drug use, but one which just missed being statistically significant. This finding was not significantly affected by the rigour of the studies. A similar analysis (over 230 studies) based on whether retention in the focal treatment averaged at least 12 weeks found no evidence that this was significantly or substantively associated with greater reductions in drug use. Across the more rigorous studies, exceeding this retention threshold was associated with a small extra reduction in substance use, but the reverse was the case for the other studies.

6 Behavioural/counselling therapies. To assess the effectiveness of these types of approaches the analysts focused on three examples. First was *contingency management* which entails patients being systematically rewarded (eg, with shopping vouchers) for desired behaviour, such as not using drugs. Across 42 comparisons, studies which compared this approach with another found contingency management led to an extra reduction in drug use amounting to an effect size of 0.21. A similar analysis for the 26 comparisons involving *cognitive-behavioural therapy* found this led to an extra reduction amounting to an effect size of 0.11, and for *therapeutic communities* (10 comparisons), to one amounting to 0.36. In each case the extra reduction in drug use was statistically significant and not significantly affected by the rigour of the studies.

8 Treatment plan reassessment. In just 15 studies was it possible to rate the adequacy with which both the focal treatment and the comparison approach entailed reassessing patients to check if their treatments needed to change. In just eight did focal and comparison ratings differ, each favouring the focal treatment. Across these eight studies, better reassessment was associated with a statistically significant extra reduction in drug use amounting to an effect size of 0.25, which was not significantly affected by the rigour of the studies. However, the effect was greater when assessed during treatment than at the end or (smallest of all) after treatment had ended.

12 Testing for drug use. Across 225 studies, testing for drug use during treatment was not substantively or significantly associated with greater reductions in drug use; the same was the case for more versus less frequent testing.

13 Counselling to reduce risk of HIV. Ten studies permitted a comparison between drug use outcomes in patients offered versus not offered counselling to reduce HIV risk behaviour associated with injecting. Across these, counselling was associated with a statistically significant extra reduction in drug use amounting to an effect size of 0.19, which was slightly greater (0.27) in the five most rigorous studies.

The authors' conclusions

The analysts judged five of the principles supported by the studies they analysed:

- matching treatment to the client's needs (though less impact in rigorous studies);
- attending to the multiple needs of clients (though the number of services made available was analysed, not whether clients actually received these);
- use of any one of three prominent behavioural/counselling approaches (contingency management; cognitive-behavioural therapy – marginally; therapeutic communities);
- treatment plan reassessment (provisional only because few studies, smaller impact after than during treatment, and need studies which deliberately alter reassessment procedures to securely attribute cause to effect); and
- counselling to reduce HIV risk (but few studies and unclear which type of approach is optimal).

Though individually the impacts of applying these principles may be small, implemented in concert, effects may be substantial.

Findings for the other two principles (remaining in treatment and testing for drug use) were not statistically significant and these principles may need to be more precisely specified. Note that these factors would have been confounded with *intended* durations and other differences between the studies. Within any particular type of programme, they may nevertheless be important influences on outcomes.

FINDINGS COMMENTARY This huge effort to validate treatment principles promulgated by the US government's drug abuse agency has mainly ended up supporting various forms of individualisation of treatment: matching therapy to the patient; attending to their individual needs; reassessing them to alter treatment rather than following a set plan regardless; and addressing their risks of becoming infected with HIV. Support for the remaining principle suggests services should provide behavioural therapies, and suitable patients be offered a chance to benefit from the residential setting and peer support characteristic of therapeutic communities. Two major limitations qualify these findings: they are limited to studies from the USA and Canada; they concern only drug use outcomes, not the harm-reduction or broader social benefits to be expected from applying some of the principles.

Also important are the analysts' cautions about the degree to which their methodologies can show the principles actually *caused*

extra reductions in drug use. Maximum confidence can be had in the implications of findings derived from comparisons *within* each study between the focal treatment and another approach, especially studies which deliberately allocated some patients (preferably at random) to a treatment embodying the principle, versus another similar in every way except that the principle was less evident or not at all. It seems likely that the benefits of matching treatment to the client's needs, of behavioural therapies and therapeutic communities, and of HIV counselling, were largely based on these kinds of studies.

Especially in respect of behavioural therapies and therapeutic communities, it then becomes critical to fine-grain the analysis down to what each was compared against in each study; the practice implications of 'better than doing nothing very much' are very different from 'better than just about anything else'. For example, the performance of cognitive-behavioural therapy [is much more convincing](#) when set against no treatment than when set against treatment as usual or another specific therapy; in the latter case [it seems](#) no more effective. [Residential therapeutic communities](#) do not shine when compared to similarly well structured and intensive non-residential alternatives, and are suitable and funded for a minority of patients. In respect of contingency management, the [main question](#) is over the persistence of impacts once the rewards or sanctions are no longer applied.

Confidence in causal implications weakens when findings, though also based on within-study differences, concern differences which were not the main focus of the study. These differences may be mixed up with other differences in the treatments, making it impossible to say what caused any extra reductions in drug use. It seems likely that the benefits of attending to the multiple needs of clients and of treatment plan reassessment were largely based on these kinds of studies.

Least confidence of all can be had in analyses based not on within-study comparisons, when at least the types of patients, the services, locations, and research strategies are likely to be similar, but on the degree to which focal treatments in *different* studies embody the principle being evaluated. This was the strategy in respect of completion and duration of treatment and testing for drug use. It means the conclusion that these principles were *not* supported by the evidence cannot be relied on as an indicator that they are indeed unimportant. It could just be that other differences between the studies and their patients 'swamped' their influences.

Thanks for their comments on this entry in draft to research author Frank Pearson of the National Development and Research Institutes in New York, USA. Commentators bear no responsibility for the text including the interpretations and any remaining errors.

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