DRUG & ALCOHOL FINDINGS

NTORS

The most crucial test yet for addiction treatment in Britain

The National Treatment Outcome Research Study represents a watershed for addiction treatment in Britain; no research before and perhaps none to come will be more crucial. Our expert advisers assess the study and its findings.

by **Mike Ashton**
Editor, *Drug and Alcohol Findings*

The author owes a considerable debt to the NTORS team and to the members of the FINDINGS advisory panel whose assessments of the study form the basis of this review ◤ *Acknowledgements*

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More than any other single piece of work, the future of addiction treatment in Britain depends on findings from the National Treatment Outcome Research Study (NTORS) initiated in 1995. Then and now, all the treatment types ('modalities') studied were under threat: at ministerial level, methadone prescribing was seen as perpetuating addiction; health stringencies and reorganisation were undermining expensive inpatient units; and community care reforms had left funding for residential services in the hands of cash-strapped local authorities.

A damning set of outcomes could have been used to justify radical reforms. Instead, 'treatment works' was the headline finding accepted by the Department of Health, which immediately announced extra funding. By 1997 the study's implications had been enshrined in official guidance to commissioners. Support survived the change of government, most decisively in 1998 with a £217 million allocation for drugs work, again justified largely by NTORS.

The study's impact derives partly from the lack of similar data, partly from its reception by a new breed of decision-makers ushered in by the purchaser-provider split, with little knowledge of treatment and hungry for data of the kind NTORS provides. To achieve this impact NTORS had to meet a painfully tight deadline, yet leave no room for its findings to be dismissed as based on an unrepresentative selection of treatments, services or clients.

NTORS is a starting point designed to address the fundamental issue of whether everyday drug treatment provision in the UK is associated with improvements in the clients and gains for society. In its own terms, the study's central questions are: Does it really show treatment 'works'? Does it show it works well enough to deserve further support? And what clues can it provide about how it might work better? To approach these questions, first we must understand how the study's design does or does not permit them to be answered.[2]

Plan your route

❶ First read **NTORS from the inside**, the NTORS team's own account of their findings ◤ opposite.
❷ For the most in-depth understanding of this study yet made available, read the **Commentary** ◤ starting this page.
❸ For just the bottom line about what it all might mean, skip to the section on **Practice implications** ◤ page 21.
❹ To appreciate the findings on which practice implications are based turn to the **Findings** section ◤ page 20.
❺ To assess the degree of confidence we can have in those findings, read the section on **Methodology** ◤ this page.

Methodological strengths and limitations

NTORS' research design is appropriate to its core objective. Without artificial allocation into different treatments and practically without selection, the study recruited nearly all new clients seen over five months at services representative of major strands in the UK's drug treatment provision. Services were selected from those which volunteered for the task and had to be able to quickly deliver the required number of clients, perhaps tilting the balance towards larger urban services. But the resulting client mix was varied with complex and multiple problems and the services offered a range of interventions. However, practitioners and planners need to interpret its findings pragmatically, alive to alternative explanations for the outcomes. Below we deal with some of the main methodological issues to keep in mind.

Pragmatic dissemination strategy leave gaps in the science

At the time of writing, peer-reviewed articles in scientific journals afford a comprehensive account of some of the findings up to six months after intake. Beyond that we are reliant on bulletins meant to rapidly disseminate findings to practitioners, which understandably lack numerical data, statistical test results, and precise definitions. So while the research *design* can be adequately scrutinised, the latest *findings* cannot.

Interpretation of the one and two year outcomes is further complicated by the collapse into a single 'residential' group of clients attending inpatient and rehabilitation services. Typically the former want to become drug-free, the latter to remain so. Differences in the outcomes at six months seem to confirm that like is not being combined with like. Similarly combined (into a 'community' group) are methadone

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Acknowledgments
This commentary draws on the views of several experts, each of whom was asked to focus on a particular aspect of the study but also invited to comment more broadly. Though they have enriched it, they bear no responsibility for the final text. FINDINGS thanks the following for generously giving its readers the benefit of their experience and expertise.

Methodological strengths and limitations ◤ **Professor Gerry V. Stimson** and **Dr Matthew Hickman** of the Centre for Research on Drugs and Health Behaviour in London ◤ **Dr Ambros Uchtenhagen** of the Institut für Suchtforschung in Zurich, leader of the research team evaluating the Swiss national heroin prescribing trial ◤ **Professor Christine Godfrey**, Centre for Health Economics, University of York.

Findings The NTORS team, especially **Michael Gossop**, **John Marsden** and **Duncan Stewart** ◤ the advisers listed under other sections.

Practice implications ◤ **Jerry Sutton** of Inward House, a residential drug rehabilitation service in Lancaster ◤ **Dr John Merrill**, consultant psychiatrist in drug dependence with the Mental Health Services of Salford NHS Trust ◤ **Don Lavoie** and colleagues at the Substance Misuse Advisory Service.

NTORS from the *inside*

The researchers behind NTORS summarise their findings.

by **Michael Gossop**, **John Marsden** and **Duncan Stewart**
The authors are members of the project team of the National Treatment Outcome Research Study (NTORS) which is run from the National Addiction Centre at the Maudsley Hospital in London

The National Treatment Outcome Research Study (NTORS) – the UK's largest follow-up study of treatment outcomes for drug users – was commissioned at the request of a task force set up by the Department of Health to review the effectiveness of drug treatment. Studies of this type and scale are rare; they are expensive financially and in terms of human and scientific resources and require serious and sustained commitment from many individuals and organisations. Several such US studies have shown treatment can be effective, but in many ways the drug users differ, as do the treatments provided.

NTORS is a prospective, longitudinal, cohort study of existing treatment programmes in everyday conditions. Data were collected by interview at treatment intake, and then six months, one year, two years and four to five years later. The study monitors clients recruited into one of four treatment modalities representative of the most common services in the UK: two (rehabilitation and specialist inpatient treatment) were delivered in residential settings; two (methadone maintenance and methadone reduction) in community settings. Fifty-four agencies delivering these programmes were chosen from across England and from all English NHS regions.

Gains for clients and society

From March to July 1995 the study recruited 1075 clients. Intake interviews by treatment staff revealed extensive, chronic and serious substance-related problems, most commonly long-term opiate dependence, often with polydrug and/or alcohol problems. Many clients had psychological and physical health complaints and reported high rates of criminal behaviour.

Client progress can be gauged by comparing intake measures with similar measures taken at follow up by researchers from the Office for National Statistics. One-year outcome data was obtained for 769 clients of whom 16 had died, mostly of drug-related causes. At two years a random sample of 572 clients were re-interviewed. Unless indicated otherwise, the results reported below apply to both time periods.

Every extra £1 spent on treatment gains over £3 in cost savings from crime

Given the duration and severity of prior drug use, improvements following treatment were impressive, including substantial and important reductions in the use of heroin, cocaine and other drugs. Abstinence rates for illicit opioids (heroin and non-prescribed methadone) had more than doubled. At one year the 61% of residential clients[1] injecting at intake had fallen to 33%; in methadone programmes, from 62% to 45%. Among those injecting at intake, the proportion sharing injecting equipment had more than halved.

Many clients were drinking excessively at intake; a disappointing number continued to do so. Methadone clients showed no overall gains in drinking at one year and only modest gains at two. Residential clients did better, but at two years 29% were still drinking excessively. In both settings clients evidenced improvements in physical and psychological health including (at two years) a halving in the proportion who had recently contemplated suicide.

Although clients in all four modalities showed substantial improvements, we cannot assume all would have done equally well, whatever the treatment. At intake residential clients reported the most serious problems. Rehabilitation clients in particular had the longest heroin careers and were more likely: to be regular stimulant users and heavy drinkers; to have shared injecting equipment; to have been involved in crime and arrested more frequently.

The economic costs imposed upon society by the NTORS cohort were largely due to their criminality. High rates of criminal behaviour (mostly shoplifting) were reported prior to treatment and crime costs greatly outweighed all treatment costs. After treatment there was a marked reduction in crime. We estimate that for every extra £1 spent on drug misuse treatment, there was a return of over £3 in terms of cost savings associated with the victim costs of crime and reduced demands upon the criminal justice system. The true cost savings may be even greater.

An asset worth protecting

NTORS documented substantial improvements after treatment among people with serious and long-term drug problems, results which should be widely disseminated. The benefits for the individuals, their families and friends, and for society are enormously important. The services which provided the treatments represent a powerful national asset, one deserving protection and continued support.

Why, then, have the cost savings from treatment not been used to expand treatment capacity, providing further benefits?

NTORS followed up clients entering

Residential treatments
- Rehabilitation units
- Inpatient drug dependence units (detoxification plus ancillary services)

'Community' or methadone treatments
- Methadone maintenance
- Methadone reduction (abstinence goal)

The **impact** of treatment was assessed by comparing clients at intake with their condition up to five years after treatment had started

Perhaps largely because savings mainly accrue, not to the purchasers and providers of treatment, but to services whose core remit does not include treatment, such as criminal justice and drug control agencies.

Since our study started some treatment services have closed down through lack of support, others have faced financial cuts. Residential agencies have been especially vulnerable, many being forced to curb their lengths of stay and range of services, yet NTORS shows that their clients are the most severely disturbed and make some of the greatest gains. A balanced and integrated national treatment response requires that such services continue and are supported in ways which maximise effectiveness.

Acknowledgments
We thank colleagues who have worked on NTORS including **Alex Rolfe**, **Petra Lehmann**, **Carolyn Edwards**, **Alison Wilson**, **Graham Segar**, **Max Mirza** and **Gary Stilwell**. We are grateful to the staff of the **Office for National Statistics** who worked so hard to contact and interview clients at follow up. We especially thank staff at the **54 participating agencies** and their clients, without whose active support NTORS would not have been possible.
Funding for NTORS was wholly provided by the **Department of Health**, and further funding is available up to the year 2001 for continuing follow ups. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Department of Health.

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reduction and methadone maintenance clients. This is probably a less serious conflation as in practice methadone regimes are often not clearly differentiated.

Treatments hard to pin down

Even *within* each of the four modalities, treatments might have differed substantially. Preventing this would have meant controlling the services and the clients so tightly as to make them unrepresentative of UK treatment provision. But it does leave us unsure just what is being evaluated and whether it is being evaluated against an appropriate measure. For example, 59% of clients in methadone 'reduction' programmes were still in the same treatment after six months, just 8% less than in methadone 'maintenance'. The impression that the 'cheaper' reduction option worked as well as maintenance was probably because it too was maintenance in all but name.

For the residential sample the problems were similar but more serious. The mix of drug problems and treatment aims mean we do not know how many clients with abstinence as their goal actually achieved it, the key outcome for these settings. As well as opiate addicts, many clients were primary stimulant users, groups for whom abstinence from stimulants and opiates have very different meanings. Presumably some inpatients were admitted for assessment or stabilisation rather than detoxification, and we do not know how many rehabilitation clients were detoxified during treatment or drug free on entry.

A further complicating factor is that many subjects moved between treatment modalities. NTORS rightly emphasises that the outcomes reflect a treatment career which usually started before the NTORS episode and often continued beyond it, but one has to go well beyond the headlines to appreciate that, for example, outcomes among the residential group may partly reflect the fact that at one year over a third had moved into community treatments.

What would have happened without treatment?

Here we address an issue which goes to the heart of the conclusion drawn from NTORS that 'treatment works' – that it *caused* at least the major part of the changes seen in the clients. Because this would have been impractical and unethical, *NTORS did not recruit a non-treatment control group* against which to compare the clients' progress, making it difficult to rule out alternative explanations for their improvement.

Future NTORS papers will document links between outcomes and treatment variables such as completion, retention and the nature of the programmes. If the links are positive and plausible, they will boost confidence that treatment was indeed a causal factor. Already we know that a critical retention period in residential programmes was associated with greater improvement.[3] Variability in outcomes at different services itself suggests[4] that what they do or fail to do has a substantial impact.

For the NTORS team the changes in clients are all the more impressive in view of their treatment and drug use histories. The implication is that such entrenched behaviours would not have remitted without some powerful influence having been exerted; treatment received after NTORS intake is the prime candidate.

It is inconceivable that the NTORS treatments did not help clients change. But how much they helped is an unknown quantity

Crediting treatment with a substantial impact is plausible and supported by the international literature, but by no means beyond dispute. For example, if clients entered treatment at a low point in their lives then some improvement would be expected, even without intervention (chart). A few UK studies have questioned the degree to which treatment is an active ingredient as opposed to spontaneous remission and the client's decision to change.[5, 6] Such effects would need to be subtracted from the pre–post treatment gains to estimate how much of these were attributable to treatment.

On the other hand, we cannot rule out the possibility that NTORS' clients would have *deteriorated* without treatment, in which case the impact of treatment would have been *underestimated* by a simple pre-post comparison.[7]

Most puzzling is why clients improved in the NTORS period when recent similar interventions had left three-quarters still regularly using heroin. This may be because treatment in the first NTORS year was more extensive, costing over twice as much as treatment in the previous year. Perhaps too the impact of treatment is in some cases cumulative.[8] And perhaps after an average heroin career of nearly a decade, the NTORS improvers had reached the point where the impetus for change had become irresistible. The answer is probably a variable mixture of all these and more.

To sum up, it is inconceivable that the treatments received after NTORS intake did *not* help the clients make and sustain positive changes. But how *much* they helped is an unknown quantity not necessarily equal to the difference between the clients' poor state at intake and their rather better state at follow up.

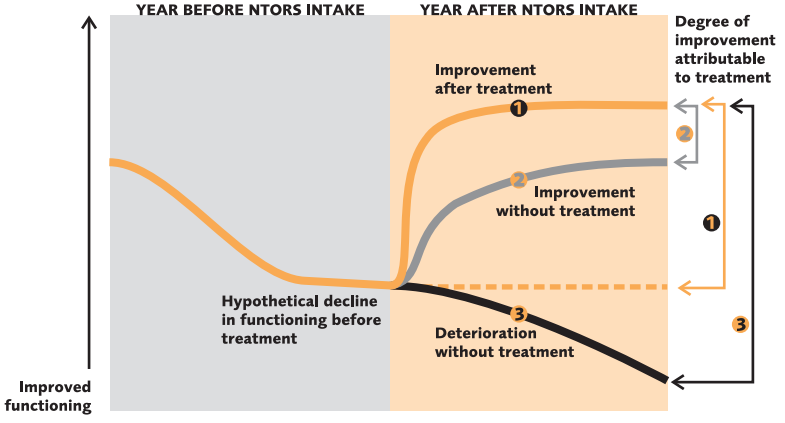
Can't say which treatment is best

NTORS cannot readily be used to determine which treatment modality is 'best' or best for which kind of client. This is because clients selected their treatments rather than being allocated at random, or in some other way which ensured that each modality was set the same challenge in terms if its clients. However, a more sophisticated analysis of the kind we may see later might allow us to address these issues, for example by comparing the progress of pairs of individuals with similar characteristics, but who chose different treatments. NTORS'

1 NTORS assumes the improvements seen after intake were largely due to treatment received ...

2 but if clients would in any event have improved, then treatment's impact may have been far less. On the other hand ...

3 if they would have further deteriorated then its impact would have been even greater.



Illustrative only. Not based on NTORS data

wide range of clients also raises the possibility of analysing who opts for, is retained by, and profits most from which treatments, providing clues about how to shape services to the client's needs.[9]

Measures reliable and valid

Recruitment of subjects and the reliability and scope of the measures taken from them are among NTORS' strongest features. The measures were in line with advanced international treatment research and drew on existing standardised instruments, though the core instrument – the *Maudsley Addiction Profile* (MAP) – was specially developed for NTORS in tests which proved it satisfactory.[10] Certainly up to the one year follow up, nearly all contacted clients completed the interview, suggesting that the questions were easy to administer.

There are some worries. At intake the major one is that we do not know how many clients who met the study's criteria refused to participate; staff found providing this information too great a burden. Why this should be so when they managed to interview clients *in* the study for up to an hour is a puzzle which adds to concern.

Intake interviews were conducted by staff of the treatment services rather than by researchers. Together with an undocumented refusal rate, this means bias in recruitment to the study cannot be ruled out. Clients questioned by staff of the agency which would treat them may also have been less than candid. Such problems will have been lessened by the care taken to train and monitor the interviewers. Urinalyses usually confirmed what they were told about drug use but no similar check was available for criminal behaviour, known to be a sensitive topic liable to under-reporting. However, if this did happen, it would have tended to make improvements in crime rates seem *less* than they actually were.

At six months clients still with the original service were interviewed by treatment staff; all other follow-up interviews were conducted by independent researchers.[11] Treatment staff – perhaps aware that the study would be crucial to the survival of their types of services – were in a position to exert an influence on the results through the treatment or the interviewing of people they knew to be in the study.

Worry over clients lost to follow up

Had NTORS been able to re-contact all its clients, we might have seen a less impressive average improvement. At the one year follow-up, data was unavailable for nearly 30% of the intake; if they tended to be the less successful clients, then the benefits of treatment could be seriously over-estimated. This makes it vital to establish whether they differed from those who *were* followed up. In fact, among the variables tested the only statistically significant difference was that clients lost to follow up used heroin more often.

At two years NTORS re-interviewed a random sample of just over half the clients. Again the more frequent heroin users (and the younger clients) tended to be lost to follow up.[12] It's also a fair guess that clients who could not be re-contacted were more likely to have left their original treatment. For methadone clients in particular, early drop out risks a return to street use.

However, the similarity of outcomes at one and two years lends confidence to both sets of findings. And the fact that those lost to follow up seem to have been the less promising clients could mean some of the benefits of treatment were *under*-estimated. This is because improvements in criminality were concentrated in the high rate offenders, who also used more heroin.[13]

Savings for society depend on what's counted in and what's counted out

NTORS' 'treatment works' message rests most of all on the estimated cost savings following treatment, in which crime is by far the biggest factor. So the study's key conclusion hinges on its measures of crime rates and its translation of these into costs and cost savings, the reason why (despite the complications) it is worth exploring queries over these in some detail.

All else being equal, there is no doubt that NTORS' savings figure is an underestimate. It takes in only the costs to the victims of crime and the costs to the criminal justice system of processing offenders, and even then excludes important elements such as the cost of implementing sentences. There are bound to be other areas of saving, such as in health and local authority resources, as well as benefits to the clients and their associates.

But, of course, all else is *not* equal. The '£3 saved for every extra £ spent' estimate derives from the one-year follow up when nearly a third of the intake were not re-interviewed. These tended (but not significantly so) to be the higher rate offenders.[14] We do not know whether they continued to offend at this rate or evidenced crime reductions on the scale seen in those who *were* followed up. If the former, then the cost savings may be less than estimated by NTORS; if the latter, more.

What society is being saved *from* is largely the cost of crimes committed by NTORS' subjects *before* treatment. The higher this was, the greater the cost savings will be for a given level of post-treatment crime. There is reason to believe that pre-treatment crime levels have been overestimated and cost savings thereby inflated. This is because crime levels over the year before treatment were grossed up from those reported for just the three months before intake. Drug users often seek help in the face of escalating difficulties,[15] so the assumption that crime levels during the whole pre-NTORS year matched those seen immediately before intake could lead to an over-estimate.

At intake nearly half the clients had recently used illicit methadone and 29% were regular users. Arguably, then, methadone treatment is creating *dis*-benefits in the form of methadone leakage,[16] but no attempt was made to account for these. The most dramatic are methadone-related deaths – 368 in England and Wales in 1997.[17]

It is an uncomfortable truism that for everyone who loses by having their property stolen, someone else gains. In the case of addicts presumed to be stealing to finance their drug use, the 'gain' is partly for the drug user and any intermediary criminal, and partly for end users who obtain property at what is probably a cut price. A decision was made to disregard such benefits because they "involve a violation of property rights". Had they been included, the cost savings estimate would probably have been substantially reduced.[18]

In calculating its cost-benefit ratio, another study similar to NTORS set benefits against the *full* cost of treatment.[19] NTORS costed in only the *extra* cost in the year after

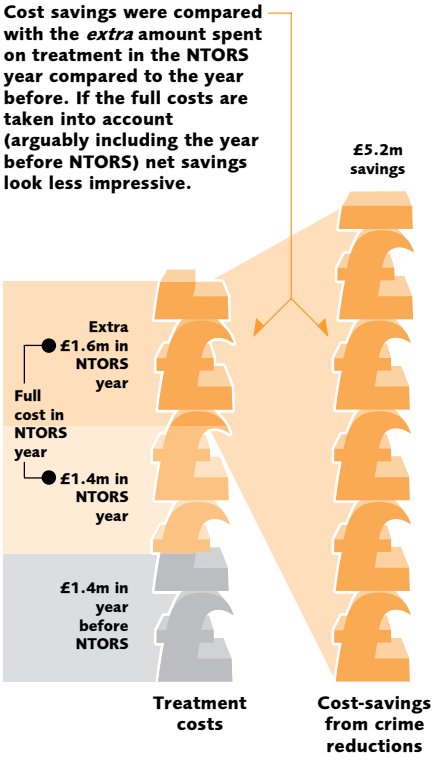
Golden Bullets

Essential practice points from this article

- **NTORS suggests that drug addiction treatment in Britain substantially reduces illicit drug use, crime, and viral transmission; health problems and excessive drinking remain of concern.**
- **Every extra £1 spent on treatment probably saves well over £3 in crime-related and other costs, though if treatment expands we can expect diminishing returns.**
- **Even established addicts previously resistant to treatment can benefit from further intervention.**
- **The findings justify increased or sustained investment in treatment, especially from the criminal justice system.**
- **The progress made by the highly problematic clients attending residential services justifies their retention until further research can assess whether cutbacks would sacrifice effectiveness.**
- **All drug services should tackle alcohol abuse in their clients.**
- **Gross variability in service performance reinforces the need for an outcome monitoring system based on a common measure which can help pinpoint what makes one service better than another of the same type.**

intake compared to the year before (◤ chart). In the NTORS year treatment for the one-year follow up sample cost £3 million and the year before £1.4 million. The difference – £1.6 million – was less than a third of the £5.2 million cost savings, leading to the conclusion that every *extra* £ spent on treatment saved over £3. The underlying assumption is that having spent £1.4 million the year before, simply spending the same amount in the NTORS year would have had no further impact on crime: all the cost savings are attributed to the *extra* £1.6 million. We simply do not know whether this assumption is valid.

Expressing cost savings in this way is appropriate to a debate about *additional* returns from *additional* treatment expenditure; if the return is favourable the message is – not that treatment works – but that *extra* treatment works. In deciding whether *treatment* works – whether society gains more than it spends – the full cost of the NTORS treatments would have to be taken into account, reducing the return to under £2 for each £ spent. Certain plausible assumptions about the cumulative impact of treatment[20, 21] would demand that previous treatments also be costed in. Then at least the £4.4 million cost of treatment in the NTORS year plus the year before would need to be set against the £5.2 million savings.



◤ The findings: highlights and queries

Having explored what the study's design permits us to conclude, we now turn to those conclusions – the findings. *NTORS from the inside* (◤ page 17) is the researchers' own account of their finding. Here our experts spotlight the findings that most impressed them, add nuances, and sometimes challenge NTORS' conclusions. But we should first emphasise the major point of agreement: the findings suggest treatment 'works' in terms of reducing crime, illicit drug use, and behaviours which transmit blood-borne viruses. Any reservations do not alter that fundamental conclusion.

Treatment work – but how well?

From the NTORS findings released to date we can be confident that Britain's treatment system is reducing opiate use and curbing crime – arguably its main objectives – and that these changes are usually accompanied by reduced use of cocaine, crack, amphetamine, and benzodiazepines. However, though improved, the physical and psychological health of clients remained poor. For health services to have wrought such middling health gains must raise questions over the quality of medical inputs.

Within NTORS it is impossible to weigh the mix of under- and over-estimations of cost savings to society from treatment. And whether one chooses to talk of *extra* benefits gained by *extra* expenditure, or simply gains for £s spent, is dependent on the type of policy decision under consideration. But the international literature supports the spirit of the way NTORS has been interpreted – that society almost certainly gains by funding addiction treatment and could gain more if more was spent. Much more work will be needed before we can delete the word 'almost' and assess with any confidence the *degree* to which we all benefit.

◤ ◤ ◤ *The message is – not that treatment works – but that extra treatment works*

There is also the issue of *for whom* treatment is cost-effective. At intake just 10% of the sample accounted for 80% of the victim costs. In the past three months the most prolific tenth had committed 75% of all acquisitive crimes; half the clients had committed none at all. The greatest reductions in crime also occurred among high rate offenders[22] and these also reduced their use of illicit opiates by more than average.[23] Given that crime was the largest element in the cost savings, these must *also* be concentrated in the 10% of prolific offenders.

Residentials: expensive but effective

Results from NTORS' residential services – the costliest option studied – have attracted considerable interest. Despite more severe problems, on several measures their clients ended up in a similar or better condition than those in methadone programmes. But the crucial issue is whether such improvements are sustained after the client has *left* treatment. Methadone *maintenance* is accepted as just that – a treatment which may need to be maintained. Residential *rehabilitation* (and to a lesser extent inpatient care) is justified in terms of a lasting reorientation of the client's life.

Only further analysis of people no longer in treatment will be able to address this issue. To date we know that 45% of residential clients were out of treatment at one year, suggestive of at least a medium-term improvement sustained without continuing drug-related care. On the other hand, a fifth (compared to just 5% of the methadone samples) were continuing or back in residential treatment at one year. Improvements in health and drug use while in such controlled environments do not necessarily mean the resident's drug problem has been turned round. Had the researchers focused on those out in the community, the apparent advantage of residential treatment might have looked less convincing.

Methadone: room for improvement

Methadone clients too made substantial gains, the proportion regularly using heroin having been cut by over a third at two years. But the residue of continued risk behaviour is worrying. At two years nearly two-thirds were using heroin and 40% were regular users. Over 40% were still injecting drugs and nearly one in eight of those injecting at intake had recently shared needles or syringes.

A far more positive impression might have been given if the *amounts* of drugs used had been reported. We know that at six months the *number* of regular heroin users had fallen by a third but that the average *amount* of heroin used had dropped by about 75%, well over twice the reduction.

Excessive drinking and abstinence from alcohol both common

The modest impacts on drinking seen in NTORS are of concern because of the risks of overdose and of aggravating hepatitis C infection. At one year among residential clients the proportion drinking over recommended levels had fallen from 33% to 19%, another outcome where residential services seemed to have the edge. However, by two years the figure had risen to 29%. We do not know whether this was a reversion to heavier drinking (some services have noted such a tendency) or an artifact of different sampling methods. Among methadone clients, at one year there had been practically no change in drinking, while at two years just 3% less (down from 24% at intake) were drinking excessively.

In both settings those who continued to drink consumed a hefty 10+ units on a typical drinking day. Otherwise drinking levels

do not seem out of line with young men (the typical NTORS client) generally, and abstinence rates seem unusually high. For example, at one year 37% of the NTORS sample had not drunk recently compared to just 11% of 25–34-year-old men generally. At two years well under 30% of the NTORS sample were drinking excessively compared to 30% of 25–44-year-old men.

Performance patchy

Even within the same modality, different services were associated with very different outcomes. At one year, heroin users attending the 'best' 25% of residential services had cut their heroin use by two thirds, while clients of the 'worst' 25% had on average not cut their use at all. Among methadone services, clients of the best performing 25% reduced heroin use by about 65%, of the worst performing, by only 25%. Unfortunately, the implications of these findings are obscured by the conflating of the services into just two groups. For example, we don't whether the variation among residential services largely reflects a difference between inpatient and rehabilitation services, or a difference between services of the same kind.

Retention in treatment is internationally recognised as a key variable. In NTORS too the poorer performing residential services tended to be those which failed to retain clients beyond a month for short stay programmes or three months for longer ones. In shorter term rehabilitation programmes, 64% of clients stayed for these critical periods, 40% in longer term programmes, and just 20% in inpatient units.[24] At six months a satisfactory 67% of methadone maintenance clients were still in their original treatments and probably well over half were still there at a year.[25]

Diminishing returns from expanded treatment?

NTORS' naturalistic design and broad sampling mean its results are likely to apply to similar services across the UK. But there are some reservations. Those stemming from the research design are mentioned above. Here it's appropriate to add that drug users who overcome the obstacles to accessing treatment in the '90s may represent the more motivated of treatment seekers. In turn these are more motivated than the broader sweep of drug users *not* seeking treatment.

The implication is that treatment gains would probably be less impressive among the wider range of clients who might be attracted by an expanded drug treatment network, or coerced into treatment via new criminal justice interventions. Each £ spent on the NTORS treatments may gain £x in benefits, but each extra £ devoted to improving access to treatment may gain slightly less than £x until the further expenditure needed to attract the least motivated creates no additional net benefit.

For more information

Technical papers

- Gossop M., Marsden J., Stewart D., *et al.* "Substance use, health and social problems of clients at 54 drug treatment agencies: intake data from the National Treatment Outcome Research Study (NTORS)." *British Journal of Psychiatry*: 1998, 173, p. 166–171.
- Healey A., Knapp M., Astin J., *et al.* "Economic burden of drug dependency. Social costs incurred by clients at intake to the National Treatment Outcome Research Study." *British Journal of Psychiatry*: 1998, 173, p. 160–165.
- Gossop M., Marsden J., Stewart D., *et al.* "The National Treatment Outcome Research Study in the United Kingdom: six month follow-up outcomes." *Psychology of Addictive Behaviours*: 1997, 11: (4), p. 324–337.

NTORS can be contacted at the National Addiction Centre, 4 Windsor Walk, London SE5 8AF or via the project's web site at http://www.ntors.org.uk

Research bulletins

- Gossop, M., Marsden, J., Stewart, D., *et al. NTORS. The National Treatment Outcome Research Study. Summary of the project, the clients, and preliminary findings.* Department of Health, 1996.
- Gossop M., Marsden J., Stewart D., *et al. NTORS. The National Treatment Outcome Research Study. Improvements in substance use problems a 6 months follow-up.* Department of Health, 1997.
- Gossop M., Marsden J., Stewart D. *NTORS at one year. The National Treatment Outcome Research Study. Changes in substance use, health and criminal behaviours at one year after intake.* Department of Health, 1998.
- Gossop M. *NTORS: two year outcomes. The National Treatment Outcome Research Study. Changes in substance use, health and crime.* Department of Health, 1999.

For copies of all papers apply ISDD, 0171 928 1211

Practice implications

Here we attempt to decipher what NTORS means for UK policy and practice. However, the study's publishing programme still has a long way to run; at this stage practice recommendations can only be interim.

Treatment *is* worth investing in

Results from NTORS enhance the case for increased or at least sustained investment in drug treatment services and strengthen the hands of local drug commissioners. All the tested modalities recorded substantial gains, providing no reason to withdraw investment from any of the four.

NTORS did not test modalities such as day treatment and counselling, nor low threshold services such as needle exchanges and drop-in centres. While needle exchanges enjoy a positive research record, the others are largely untested. But 'untested' is not the same as 'ineffective'. By validating some modalities, NTORS has not *in*validated the rest, some of which augment NTORS' modalities by acting as referral and support services.

Despite this positive verdict, it cannot be assumed that more and more treatment will deliver benefits on the scale seen in the NTORS clients. A check would have to be kept on whether drug users with a similar capacity to benefit from treatment were being caught in a widening treatment net, and whether they showed improvements of similar value.

Bridge obstructive budget divides

The structure of public finance seems the greatest impediment to expanding services. Most cost savings from treatment and many of the outcomes do not benefit the authorities which fund that treatment, reducing their motivation and ability to fund expansion. Savings are primarily due to cuts in crime; health authorities may well ask why they should shoulder the main financial burden for these when health gains are less obvious. Likewise, local authorities, despite an interest in public health and community safety, may question why they bear the brunt of funding for the rehabilitation services which help create these benefits.

We need to find a way to recycle the savings from treatment into expanding it, so that even more benefits are gained. One obvious route is to further engage criminal justice agencies in funding and commissioning. A good start has already been made, most noticeably in the recent Comprehensive Spending Review settlement and in official guidance to police forces recommending they devote about 1% of their budgets to anti-drug partnership work.

Such advances may not be enough to realise the full potential benefits of treatment. Most of the cost savings accrue to people who would otherwise have been the victims of crime, rather than *directly* saving money from enforcement or health budgets. Only purse-holders able to take a broad, non-parochial view of welfare priorities will see the force of the argument for expanding treatment, and perhaps only an overarching authority will be able to implement the funding shifts needed for expansion.

Preserve the residential option

In NTORS some of the most problematic clients self-selected residential rehabilitation and they made some of the greatest gains. The NHS and Community Care Act (1990) made local authorities the gatekeepers both to rehabilitation and to the funding to pay for it. Competing priorities have meant that in many areas, budgets have shrunk, eligibility been restricted, and cost-driven limits have been placed on lengths of stay and how often an individual can re-enter treatment. These threaten to hobble residential treatment before we have thoroughly tested whether such cutbacks lose more in outcomes than they save in costs. NTORS provides a strong basis for residential providers to aggressively market their services so they survive long enough for the research to be done.

Build in a response to alcohol

NTORS provides a strong argument for commissioners to specify that all their drug services incorporate a strong intervention on alcohol. Perhaps because they focus on opiate addiction, the scope for improvements in this regard seems greater in methadone than in residential programmes, which have the time and the settings conducive to a more holistic approach. Excessive drinking may be one symptom of a deficit in ancillary services (such as counselling and general medical support) in Britain's drug dependency units.

Suggestive evidence of reversion to heavier drinking following residential care indicates that throughcare and aftercare arrangements should include alcohol counselling for those assessed as risky drinkers.

Identify what makes one service better than another

Overall services are doing well, but could they do better? Gross disparities among the same types of services in NTORS suggest the answer must be 'Yes': a disturbingly large minority achieved no improvements in the most relevant dimensions of behaviour and health. NTORS will provide clues as to why this is the case, but not definitive answers. It should kick-start an active and much needed British research programme geared to informing purchasing decisions.

At a more routine level, there is an obligation on providers and commissioners to establish monitoring systems capable of spotting poor performing services in need of further investigation, as well as those from which others could learn. Ideally, local systems will use the same measures so it becomes possible to compare services to identify what makes one better than another. Currently, there is no such 'industry standard'. The MAP instrument seems a good basis for creating one, with the bonus that MAP data from NTORS can be used as a national benchmark against which to compare clients and services locally. Commissioners could modify service specifications to require outcome monitoring with MAP but should also be prepared to fund the systems needed to re-contact clients after they leave a service.

Whatever monitoring is undertaken, services should not automatically be blamed for poor performance. Important influences are beyond their control, such as catchment areas, the community care policies and work of local authorities, funding constraints, and local access to pre-entry and aftercare provision. These impinge perhaps most on residential services, where NTORS suggests performance varies most. For these services too, government policy may be leading to inappropriate placements because the full national range of agencies is no longer available for referral.

Pending UK findings, practice leads can be gained from overseas studies which show that well run, well resourced programmes following research-based procedures do best.[26, 27] Given the NTORS evidence of prior unsuccessful treatments and of premature drop out, retaining drug users in treatment or in a care management system should be a priority.

Intervene early but don't give up later

Beyond the issue of which services do best lies the issue of which *clients* do best. NTORS shows that even long-term addicts who have continued or relapsed into addiction despite previous treatments can benefit from further intervention. Like Project MATCH (FINDINGS issue 1), there is no justification here for diverting investment into early interventions for younger, less chaotic users on the grounds that chronic users are beyond redemption.

In fact, there is a case for arguing the opposite. Cost savings were concentrated among high rate offenders (who also tended to be more drug dependent). Certain types of arrest referral schemes selectively pick up on these offenders at well over the rate seen in NTORS.[28] *On the basis of the evidence to hand*, there seems a strong cost-effectiveness case for diverting resources *from* voluntary routes into treatment and *into* those fed by criminal justice sources, entailing a corresponding diversion of treatment resources to the most criminal addicts.

As well as being ethically suspect (focusing help on the most criminal and denying it to those who manage without crime), such a reading of the evidence would be short-sighted. Without intervention, less criminal and less dependent drug users may escalate their use and forfeit legitimate income sources to the point where they too become high-rate offenders and stay that way for many years. Also, NTORS' cost savings omit the very elements which many people feel welfare services are all about: saved lives, improved health, families kept together, children safeguarded, a better life for the drug user and all affected by them and their activities.

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1 Such terms are used as shorthand for clients recruited at intake into these types of treatments. Many later crossed into other modalities.

2 Unless indicated otherwise, references to NTORS are based on the publications in *For more information* p. 21.

3 Marsden J. NTORS Conference. London, 9 June 1999.

4 Unless this is due to different client mixes.

5 Strang J., Finch E., Hankinson L., *et al*. "Methadone treatment for opiate addiction: benefits in the first month." *Addiction Research*: 1997, 5(1), p 71–76.

6 Strang J., Bacchus L., Howes S., *et al*. "Turned away from treatment: maintenance-seeking opiate addicts at two-year follow-up." *Addiction Research*: 1997, 6(l), p. 71–81.

7 Urschel *et al*, quoted in: McLellan A.T., Woody G.E., Metzger D., *et al*. "Evaluating the effectiveness of addiction treatments: reasonable expectations, appropriate comparisons." *The Milbank Quarterly*: 1996, 74(1), p. 51–85.

8 Hser Y., Grella C., Chih-Ping C., *et al*. "Relationship between drug treatment careers and outcomes. Findings from the National Drug Abuse Treatment Outcome Study." *Evaluation Review*: 1998, 22(4), p. 496–519.

9 McLellan A.T., Grissom G.R., Zanis D., *et al*. "Problem-service 'matching' in addiction treatment: a prospective study in four programs." *Archives of General Psychiatry*: 1997, 54, p. 730–735.

10 Marsden J., Gossop M., Stewart D., *et al*. "The Maudsley Addiction Profile (MAP): a brief instrument for assessing treatment outcome." *Addiction*: 1998, 93 (12), p. 1857–1868.

11 Personal communication from Duncan Stewart of NTORS, September 1999.

12 Gossop M. NTORS Conference. London, 9 June 1999.

13 Stewart D. NTORS Conference. London, 9 June 1999.

14 It is possible to calculate that clients lost to follow up admitted to a crime rate nearly 90% higher than the follow-up sample, the difference being mainly due to drug dealing. But such differences failed to reach statistical significance due to extreme skewness in the data (personal communication from Duncan Stewart of NTORS,September 1999).

15 Tucker J.A., King M.P. "Resolving alcohol and drug problems: influences on addictive behavior change and help-seeking processes." In: Tucker J.A, Donovan D.M., Marlatt G.A., *eds*. *Changing addictive behavior*. Guilford Press, 1999, p. 97–126.

16 There is a counter-argument that to the degree to which injectable heroin is replaced by leaked oral methadone then the leakage has a therapeutic impact.

17 *Hansard*: 28 July 1998, col. 174.

18 Gerstein D.R., Johnson R.A., Harwood H.J., *et al*. *Evaluating recovery services: the California Drug and Alcohol Treatment Assessment (CALDATA)*. California Department of Alcohol and Drug Programs, 1994.

19 Gerstein D.R., *et al*, 1994, op cit.

20 That prior unsuccessful treatments provide a platform for later ones to be more effective but that not until a successful treatment episode does behaviour stay improved when out of treatment.

21 Hser Y., Grella C., Chih-Ping C., *et al*, 1998, op cit.

22 Stewart D. NTORS Conference, op cit.

23 Stewart D. NTORS Conference, op cit.

24 Marsden J. NTORS Conference, op cit.

25 If the six-month differential is retained, a retention rate of 55% for both types of methadone modalities at one year suggests a rate of 60% or better for the maintenance programmes.

26 Ball, J., Ross, A. *The effectiveness of methadone maintenance treatment*. Springer-Verlag, 1991.

27 McLellan A.T., Arndt I.O., Metzger D.S., *et al*. "The effects of psychosocial services in substance abuse treatment." *Journal of the American Medical Association*: 1993, 269, p. 1953–1959.

28 Edmunds M., May T., Hearnden I., *et al*. *Arrest referral: emerging lessons from research*. Central Drugs Prevention Unit, Home Office, 1998.