

Methadone treatment practices and outcome for opiate addicts treated in drug clinics and in general practice: results from the National Treatment Outcome Research Study

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SUMMARY

Background. General practitioners (GPs) are increasingly urged to become more involved in the care and treatment of drug misusers. Little information is available about the effectiveness of treatments delivered in primary health care or specialist settings. The impact of treatment setting is investigated as part of the National Treatment Outcome Research Study (NTORS). This is the largest study of treatment outcome for drug misusers ever conducted in the United Kingdom (UK).

Aim. This paper presents six-month treatment outcomes for patients who received community-based methadone treatment in either a specialist drug clinic or a general practice setting.

Method. A prospective, multisite follow-up study of treatment outcome was conducted with 452 opiate addicts who had been given methadone treatment in primary health care and specialist clinic settings. Outcome data are presented for substance use behaviours, health, and crime.

Results. Improvements at follow-up were found among both the GP and the clinic-treated groups in drug-related problems, health, and social functioning. Problems at intake were broadly comparable among the clinic-based and the GP patients. Similar levels and types of improvement were found for both groups at six-month follow-up.

Conclusions. Results demonstrate the feasibility of treating opiate addicts using methadone in primary health care settings, and show that treatment outcomes for such patients can be as satisfactory as for patients in specialist drug clinics. The GPs in our study are unrepresentative in their willingness to be actively involved with problem drug users; moreover, several services treated relatively large numbers of drug users. Issues surrounding the growth of 'GP specialists' are discussed.

Keywords: methadone; drug addiction treatment; outcome measures; drug clinics; general practice.

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Introduction

THE general practitioner has played an important role in the 'British System' of treating drug problems.^{1,2} During the 1960s, the establishment of the drug clinics gave responsibility for the treatment of addiction problems to specialist services³ and marginalized the role of the GP.⁴ The rapid expansion in the number of heroin users in the UK during the 1980s, and the subsequent increase in the number of addicts approaching treatment services, increased the pressure to re-engage GPs in the treatment and management of problem drug users. Somewhat reluctantly, it was accepted that there was 'a possible role for some doctors outside the specialist services', provided 'strict safeguards' were in place.⁵ More enthusiasm was shown by the 1984 Medical Working Group on Drug Dependence,⁶ which proposed a major role for GPs. The Department of Health also saw GPs as playing 'a major part in the care and treatment of drug misusers'.⁷

General practitioners now have a substantial involvement with drug misusers.⁸ A recommended form of GP response is shared care involving 'the joint participation of specialists and GPs ... in the planned delivery of care for patients with a drug misuse problem This may include prescribing substitute drugs under appropriate circumstances.'⁹ In a recent UK survey, GPs issued more than 40% of methadone prescriptions given to addicts and dispensed by retail pharmacists.¹⁰

Treatment of drug problems is provided by specialists in dedicated treatment services, and by generalists. It is provided in medical, in psychiatric, and in a variety of non-medical settings. It is also delivered in both residential and community settings. The important question of how treatment outcome is related to treatment setting has only recently attracted attention.¹¹ This paper presents findings from NTORS¹² which relate to methadone treatment practices and outcome for patients receiving treatment in specialist drug clinics or in general practice settings.

Method

Patients and treatment agencies

The sample was drawn from clients consecutively recruited to NTORS between March and July, 1995, and consisted of 452 patients receiving methadone from specialist drug clinics ($n = 297$) or from GPs ($n = 155$). The clinic sample was drawn from eight community drug teams. The GP sample was taken from seven agencies. Five of these were coordinating shared care services with 35 general practices; two were general practices providing methadone maintenance treatment to much larger numbers. NTORS agencies were purposely (not randomly) chosen for participation. Criteria for agency participation in NTORS were location (agencies were chosen throughout England), and capacity to recruit a sufficient number of cases within the time available.

Measures and procedure

Data on drug and alcohol use, health risk behaviour, physical health problems, psychological health problems, criminal behav-

our, and treatment history were collected by structured interviews. Urine samples were collected from clients selected on a one-in-two sampling basis for screening at intake and at follow-up.

Research design and statistical analyses

NTORS uses a longitudinal, prospective cohort design.¹³⁻¹⁵ Data for this report were collected at admission and six months after treatment intake. Intake interviews, and further interviews after six months for patients still in treatment, were conducted by agency staff. All follow-up interviews on clients who had left treatment were carried out by independent professional interviewers from the Office for National Statistics. Intake/follow-up comparisons for clients are presented using paired data sets. Changes for categorical data were assessed with the McNemar test. A repeated measures analysis of variance was carried out on outcome measures, subject to covariate adjustment by intake scores (ANCOVA). Substance use and crime frequency variables were positively skewed, and were logarithmically transformed to reduce the influence of extreme scores. Given multiple non-independent statistical testing of measures, a Bonferonni type adjustment was made with α set at $P < 0.002$.

Results

Subject characteristics of GP and clinic samples at intake

Most patients were men (73.5%, $n = 332$), with an average age of 29 years (range 16 to 50 years). The two treatment groups were comparable in their use of heroin, illicit methadone, cocaine, and alcohol during the three months prior to intake (see Table 1). No differences were found between the two groups in rates of drug injecting and the sharing of injecting equipment. More of the clinic patients had been using amphetamines, and these patients reported more extensive general health problems.

Treatments provided

The mean initial methadone dose was 51 mg (SD = 18.7) for GP patients and 48 mg (SD = 19.1) for clinic patients ($t_{[450]} = 1.34$, ns). The modal starting dose was 50 mg for GP patients and 40 mg for clinic patients. There was a statistically significant difference between the forms of methadone prescribed by GPs and by

clinics. Almost all clinic patients (98%, $n = 290$) received oral liquid methadone. Only 2% ($n = 7$) of the clinic attenders received methadone tablets. These patients were attending four different agencies. Among the GP patients, 17% ($n = 27$) received methadone in tablet form ($\chi^2_{[1]} = 33.2$, $P < 0.0001$).

At the programme level, differences were found in the manner in which methadone was dispensed. Fewer of the seven GP agencies (57%) than of the eight clinics (75%) prescribed methadone to be dispensed on a daily basis. Also, six of the eight clinics used supervised dispensing procedures, either on site or supervised by a retail pharmacist. Supervision (to be provided at retail pharmacies) was used less often by GP agencies, with only 14% prescribing methadone to be consumed under supervision.

Treatment retention was similar in both groups, with 87% of GP patients still in treatment after one month compared with 82% of clinic patients ($\chi^2_{[1]} = 2.07$, ns). Six months after starting treatment, 66% of the GP patients were still in treatment compared with 60% of the clinic patients ($\chi^2_{[1]} = 1.66$, ns).

Treatment outcomes for GP and clinic samples

Six-month follow-up data were collected for 343 patients. The contacted sample represents a follow-up rate of 76% of the study sample. Contacted and non-contacted patients were compared for age, sex, use of target drugs, and injecting. There were differences between the contacted and non-contacted groups in terms of age (Wald_[1] = 6.01, $P = 0.014$) and heroin use (Wald_[1] = 17.82, $P = 0.0001$). The non-contacted patients were younger ($t_{[450]} = 4.07$, $P < 0.0001$) and using heroin more frequently at intake ($t_{[450]} = 5.28$, $P < 0.0001$). Age and frequency of heroin use were significantly correlated ($r = -0.33$, $P < 0.0001$). There were no differences between contacted and non-contacted patients in terms of sex, use of other target illicit drugs, injecting behaviour, and use of alcohol.

Significant overall reductions in the frequency of heroin use occurred among both the GP and the clinic samples (Table 2); frequency of heroin use fell to less than half of the intake levels. Significant reductions were also found in the frequency of use of cocaine, illicit methadone, amphetamines and benzodiazepines. There were no differences in the rate of improvement on the drug

Table 1. Pre-treatment characteristics and problems of methadone patients treated in a general practice or a clinic.

Variable (% unless otherwise stated)	GP sample (n = 117)	Clinic sample (n = 226)	t/c ² test statistic values
Men	73.5	73.4	0.0
Mean age (years)	28.9	29.5	0.96
Mean heroin career (years)	8.8	8.8	0.10
Heroin ^a	94.2	91.2	1.24
Illicit methadone	56.1	52.2	0.64
Benzodiazepines	45.2	30.0	10.31
Cocaine (all forms)	46.5	42.1	0.79
Crack	39.4	36.4	0.39
Amphetamines	11.6	26.6	13.57 ^d
Alcohol	65.2	67.7	0.29
Injecting	55.5	65.0	3.89
Sharing	7.7	12.8	2.64
Previous addiction treatment	76.2	78.6	0.22
Previous substitution treatment	74.3	76.6	0.20
Crime (non-drug related)	52.5	52.5	0.00
Drug selling	29.7	25.9	0.72
Mean health problem score ^b	14.2	17.7	4.25 ^e
Mean anxiety score ^c	2.2	2.2	0.06
Mean depression score ^c	2.3	2.3	0.06

^aSubstance use measures are rates of use in the 90 days before intake; ^bhealth problems measured by a 49 item checklist from the Opiate Treatment Index;¹⁶ ^cgeneral anxiety and depression symptoms measured from subscales of the Brief Symptom Inventory¹⁷ (scale range = 0-4);

^d $P < 0.001$; ^e $P < 0.0001$.

use outcome measures between the GP patients and the clinic-treated patients. For alcohol, there was no significant change in the number of days of use among either the GP or the clinic patients.

Significant reductions in drug injecting were found among patients treated by GPs (from 53% to 41%, McNemar test, binomial $P < 0.01$) and among patients in the clinics (from 66% to 53%, McNemar test, $\chi^2_{[1]} = 14.79$, $P < 0.0001$). Rates for sharing of injecting equipment fell in both the GP and clinic groups (from 6% to 4% among patients in the GP group, and from 14% to 6% among patients in the clinic group). The reduction in rates of sharing was statistically significant only for the clinic-treated group ($\chi^2_{[1]} = 10.45$, $P < 0.01$).

The GP and clinic samples both reported improved physical health, reduced levels of depression, and fewer drug selling crimes at follow-up, with no difference between rates of change for the two treatment groups. There were also statistically significant reductions in anxiety and non-drug related crime (all crime excluding drug possession and drug selling) at follow-up, with greater reductions being found for patients who had been treated by the GPs.

Urinalysis and self-reported drug use

Urine samples were taken from 273/452 patients at intake and from 200/343 patients at follow-up. For heroin, the urine/self-report concordance was 94%; for cocaine, 94%; and for amphetamines, 96%.

Discussion

The patients who received methadone treatment from GPs or from clinics were similar in their demographics, in their substance use behaviours, and in other presenting problems at intake. The main problem drug for both groups was heroin. Most patients presented with a long history of dependent heroin use. Illicit methadone was also widely used. Multiple drug use was typical, and many patients were heavy users of alcohol. Injecting drug use was common among both the GP and clinic-treated patients.

The results of this study show substantial treatment gains among patients treated in GP primary care settings and in specialist clinic services. Their use of heroin was more than halved, and improvements were also found in their use of stimulants such as cocaine. Drug injecting was lower at follow-up as was the sharing of injecting equipment. Fewer psychological and

physical health problems were found at follow-up, and involvement in crime was greatly reduced. These improvements are consistent with findings from other studies of methadone treatments.^{13,14-18} Although the six-month data represents a relatively short-term outcome within the lifetime drug-taking career of addicts, the levels and types of change should still be regarded as important, especially given the extent and severity of problems at intake.

The methadone treatments delivered to the two groups were broadly similar in terms of initial dose levels and treatment retention rates. However, the GPs were more likely to prescribe methadone in forms other than oral liquid; about one in six of the GP patients was prescribed methadone in tablet form. This form of prescribing carries a number of risks. Department of Health guidelines state that 'drugs ... in tablet form carry a great risk of being dangerously abused by the patient or sold on the black market. They should not be prescribed to drug misusers.'¹⁹ The GPs were also less likely to require the methadone to be consumed under supervision. The dispensing of methadone and other substitute drugs to be taken without supervision has been a characteristic of the British treatment response since the establishment of the drug clinic system, and for many years was uncritically accepted. Recently, doubts have been voiced about it, and policy guidelines are being prepared that will reconsider the ways in which substitute drugs are prescribed within the UK.

The important potential role of GPs in the detection and treatment of problem drug use has been repeatedly emphasized in the UK, and policy makers and planners have placed great reliance upon the presumed willingness of GPs to become actively involved.¹⁹⁻²¹ This policy trend has not been matched by the willingness of most British GPs to become involved in practice. Policy makers may have underestimated the reluctance of GPs to take on the treatment of opiate addicts, especially when this requires long-term care.^{22,23} Groves *et al*²⁴ found that although many London GPs had recent contact with problem drug users, most were being seen by a small number of doctors. Other studies have found that GPs are only minimally involved with problem drug users, and have no wish to become involved in this work.²⁵

Many GPs fear attracting too many addicts to their surgery; they are concerned that these sometimes difficult patients may upset their staff or other patients, and are perhaps anxious that the methadone they prescribe could be diverted to the black market.²⁴ As a result, the involvement of GPs in the treatment of drug problems in the UK has been patchy.²⁶ One way of encour-

Table 2. Mean scores (SDs in brackets) and comparisons for patients in GP and clinic samples.

Measure	GP clients (n = 117)		Clinic clients (n = 226)		F _[1,388] for change ^b	F _[1,388] for change by setting
	Intake	Six months	Intake	Six months		
Heroin ^a	19.6 (12.0)	7.8 (8.7)	19.5 (12.1)	9.0 (10.7)	206.61 ^d	0.75
Cocaine	3.1 (7.4)	1.6 (4.7)	2.4 (5.9)	2.0 (5.8)	20.48 ^d	1.42
Illicit methadone	4.2 (7.6)	1.2 (3.9)	4.1 (7.8)	2.8 (7.2)	53.14 ^d	1.57
Amphetamines	0.5 (2.1)	0.4 (2.8)	1.5 (4.6)	0.5 (3.0)	33.53 ^d	0.06
Benzodiazepines	10.3 (12.9)	2.7 (7.4)	6.4 (10.6)	2.8 (6.5)	80.90 ^d	1.17
Alcohol	6.5 (9.5)	5.0 (8.0)	8.7 (11.2)	8.5 (11.3)	3.50	2.77
Physical health problems	14.4 (8.0)	12.4 (7.6)	16.9 (7.9)	12.7 (7.7)	60.36 ^d	0.54
Depression	1.9 (1.0)	1.2 (0.9)	1.9 (1.0)	1.4 (1.0)	82.54 ^d	4.45
Anxiety	1.7 (1.0)	1.0 (0.8)	1.6 (1.0)	1.3 (1.0)	83.62 ^d	11.3 ^c
Crime (non-drug related)	10.1 (32.4)	2.4 (8.0)	9.6 (31.3)	6.2 (22.4)	26.40 ^d	14.23 ^d
Drug selling	3.24 (16.1)	0.8 (5.8)	11.0 (47.0)	3.7 (22.8)	28.86 ^d	4.71

^aSubstance use variables show number of days used within the previous 30; ^boverall $\alpha = 0.022$; $\alpha = 1 - [1 - 0.002]$; ^c $P < 0.001$; ^d $P < 0.0001$.

aging greater involvement by GPs has been to pay them for treating drug users.²⁷ However, Deehan *et al*²⁵ found that most GPs did not consider it appropriate to treat problem drug users in primary care, and stated that they would not be greatly influenced in these matters by the provision of additional training, nor by the offer of financial incentives.

This study demonstrates the feasibility of treating opiate addicts in general practice and shows that satisfactory treatment outcomes can be obtained. However, the GPs in this study are unrepresentative in their willingness to be actively involved with problem drug users. Further, many of the GP patients were taken from services that were involved with relatively large numbers of drug users. Considerable doubts remain about the extent to which the national treatment response to problem drug use can make proper use of the general practice network. Certainly, the development of 'GP specialists' in the UK who provide treatment for substantial numbers of problem drug users constitutes a form of service very different from traditional GP responses, in which treatment is intentionally limited to a small number of problem drug users.²⁸ The growth of such GP specialists also raises questions about the extent to which this development either attempts to or ought to re-create conventional drug clinic services in a limited number of general practice settings.

References

1. Spear B. The early years of the 'British System' in practice. In: Strang J, Gossop M (eds). *Heroin addiction and drug policy: The British system*. Oxford: Oxford University Press, 1994.
2. Strang J, Gossop M. The 'British System': Visionary anticipation or masterly inactivity. In: Strang J, Gossop M (eds). *Heroin addiction and drug policy: The British system*. Oxford: Oxford University Press, 1994.
3. Connell PH, Strang J. The creation of the clinics: clinical demand and the formation of policy. In: Strang J, Gossop M (eds). *Heroin addiction and drug policy: The British system*. Oxford: Oxford University Press, 1994.
4. Glanz A. The fall and rise of the general practitioner. In: Strang J, Gossop M (eds). *Heroin addiction and drug policy: The British system*. Oxford: Oxford University Press, 1994.
5. Advisory Council on the Misuse of Drugs. *Treatment and rehabilitation*. London: HMSO, 1982.
6. Medical Working Group on Drug Dependence. *Guidelines for good clinical practice in the treatment of drug misuse*. London: HMSO 1984.
7. Department of Health. *Health service development. Services for drug misusers*. Health Circular HC(86)3. London: DoH, 1986.
8. Glanz A, Taylor C. Findings of a national survey of the role of general practitioners in the treatment of opiate misuse: extent of contact with opiate misusers. *BMJ* 1986; **293**: 427-430.
9. Department of Health. *The task force to review services for drug misusers: report of an independent review of drug treatment services in England*. London: Department of Health, 1995.
10. Strang J, Sheridan J, Barber N. Prescribing injectable and oral methadone to opiate addicts: results from the 1995 national postal survey of community pharmacists in England and Wales. *BMJ* 1996; **313**: 270-274.
11. Strang J, Marks I, Dawe S, *et al*. Type of hospital setting and treatment outcome with heroin addicts. Results from a randomized trial. *Br J Psych* 1997; **171**: 335-339.
12. 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 Behaviors* 1997; **11**: 324-337.
13. Hubbard RL, Marsden ME, Rachal JV, *et al*. *Drug abuse treatment: a national study of effectiveness*. Chapel Hill: University of North Carolina Press, 1989.
14. Ball J, Ross A. *The effectiveness of methadone maintenance treatment*. New York: Springer, 1991.
15. Flynn PM, Craddock SG, Hubbard RL, *et al*. Methodological overview and research design for the Drug Abuse Treatment Outcome Study (DATOS). *Psychol Addict Behav* 1997; **11**: 230-243.
16. Darke S, Ward J, Zador D, Swift G. A scale for estimating the health status of opioid users. *British Journal of Addiction* 1991; **86**: 1317-1322.
17. Derogatis LR. *Brief Symptom Inventory*. Baltimore: Clinical Psychometric Research, 1975.
18. Ward J, Mattick RP, Hall W. *Key issues in methadone maintenance treatment*. Sydney: New South Wales University Press, 1992.
19. Department of Health. *Drug misuse and dependence: Guidelines on clinical management*. London: HMSO, 1991.
20. Advisory Council on the Misuse of Drugs. *AIDS and drug misuse: part 1*. London: HMSO, 1988.
21. Royal College of General Practitioners. *Alcohol - a balanced view*. London: RCGP, 1986.
22. McKeganey N, Boddy FA. General practitioners and opiate abusing patients. *J R Coll Gen Pract* 1998; **38**: 73-75.
23. Martin E. Managing drug addiction in general practice - the reality behind the guidelines. [Discussion paper.] *J R Soc Med* 1987; **80**: 305-307.
24. Groves P, Heuston J, Durand MA, *et al*. The identification and management of substance misuse problems by general practitioners. *J Mental Health* 1996; **5**: 183-193.
25. Deehan A, Taylor C, Strang J. The general practitioner, the drug misuser, and the alcohol misuser: major differences in general practitioner activity, therapeutic commitment, and 'shared care' proposals. *Br J Gen Pract* 1997; **47**: 705-709.
26. Waller T. A GP's role: past, present and future. In: Beaumont B (ed.). *Care of drug users in general practice: a harm minimization approach*. Oxford: Radcliffe Medical Press, 1997.
27. Scott RT, Gruer LD, Wilson P, Wood SH. Glasgow has an innovative scheme for encouraging GPs to manage drug misusers. [Letter.] *BMJ* 1995; **310**: 464-465.
28. Bury J. (1997). Methadone prescribing. In: Beaumont B (ed.). *Care of drug users in general practice: a harm minimization approach*. Oxford: Radcliffe Medical Press, 1997.

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