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Heroin Add & Rel Clin Probl 2002; 4(1): 37-45 **Research report**

Treatment characteristics and retention in methadone maintenance: High and stable retention rates in a Swedish two-phase programme

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Summary

From 1967 to 1990, the Swedish methadone maintenance programme treated 345 heroin addicts, using a two-phase treatment model described in this paper. The retention rates remained remarkably stable throughout these 23 years, when measured as 1-year and as 3-year retention of newly admitted patients (mean 1-year retention was 86%, mean 3-year retention 73%) and 1-year retention of all patients in treatment (mean 89%). It is hypothesized that these high and stable retention rates might be associated with the high rates of social and vocational rehabilitation (between 71% and 81%) achieved during these years in the Swedish programme.

Key words: Methadone Maintenance - Retention rate - Predictors of outcome

Introduction

There are two broad treatment philosophies of methadone maintenance. One of these views opioid dependence as a manifestation of underlying social and psychological problems. Methadone can be used as a carrot, to entice patients into treatment, but the ultimate goal is abstinence from all drugs, including methadone. The other approach is primarily medically oriented and views opioid dependence as a chronic disease, with or without psychological components, but with drug craving as the main obstacle to rehabilitation efforts. The goal of treatment within this framework is, by blocking or reducing craving, to enable drug-dependent persons to achieve a new life-style. The resulting different treatment programmes are based on short-term or long-term maintenance philosophies [12].

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Caplehorn et al [2], using a somewhat different terminology, described a highly structured, paternalistic treatment, which is contrasted with an adaptive, libertarian system, each system with different effects on patient retention (Table 1).

Table 1. Programme characteristics, staff attitudes and retantion in two different types of methadone maintenance, essentially according to Caplehorn et al. (1993)

	Highly structured	*Adaptive*
Staff attitudes	**Paternalism, surveillance, control**	**Acceptance, support, encouragement**
Ultimate treatment goal	**Abstinence (including withdrawal of methadone)**	**Reduction or cessation of craving and drug abuse**
Programme characteristics	• **Reform and change oriented** • **We-they-feeling** • **Strict policy of involuntary discharge for programme violations** • **Mandatory counselling** • **Urinary drug monitoring**	• **Adaptive** • **Empathy** • **Laissez-faire** • **Libertarian** • **No drug monitoring**
Retention rate	**Low**	**High**

Common to all descriptions of the impact of treatment characteristics on retention in methadone maintenance is the assumption that only one treatment system is applied. In contrast, the National Swedish programme during its 23 years of existence from 1967 to 1990, applied a succession of the two treatment paradigms: a highly structured one followed by an adaptive. This combined, or two-phase treatment appeared to be compatible with a steady, high retention rate. After the Swedish methadone system had been split into 4 different programmes, a change which took place gradually, beginning in 1988, the prevalent programme in the capital, Stockholm, switched into a mono-phase, highly structured and confrontational system, with a rising rate of exclusion of patients and a rise in mortality rate above the nearly normalized mortality [6] existing before 1990. This development will be reported in a forthcoming study. Here we describe the stable, high retention achieved using our two-phase paradigm.

Methods

Treatment system: Heroin addicts referred to our clinic as candidates for methadone treatment were admitted to a 12-bed research ward, where their urine was regularly monitored 3 times weekly for drugs of dependence. There was initially a withdrawal phase lasting 1-2 weeks, where clonidine was administered to reduce heroin withdrawal distress. Before admission, patients had to fulfil the acceptance criteria of our programme: at least 20 years of age, a history of at least 4 years of compulsive heroin abuse as verified by earlier hospital records, at least 3 experiences of drug-free treatment programmes, patients should not be undergoing compulsory treatment, have been arrested or serving sentence [5]. Following heroin withdrawal, negotiations took place between the patient, hospital doctor and/or clinical social worker in order to decide a suitable vocation for

the patient after discharge. Failure to reach an agreement could prolong the drug-free phase. The patients soon learned what was expected of them and after a while newly admitted patients proclaimed on the very first day what would become their new vocation. For instance, they declared that they wanted to become a plumber, nurse's aid or an electrician. Induction of methadone took place as soon as these preliminaries were concluded. Patients were then taught how to behave and how to look to increase their chance of being accepted by an employer and, while still in hospital, they began to apply for work. Ideally, they were discharged after they had received a job, a place to live and with a daily methadone dose between 30 and 130 mg/day (mean 80 mg/day). The optimum dose was monitored, using mass spectrometric determinations of steady-state plasma levels of methadone [8]. Clinical social workers were generally involved in the finding of jobs and kept up contact with most of the employers. When problems arose, the hospital staff often got a patient's permission to discuss his or her difficulties with the employers and/or co-workers. In this way many jobs were saved and patients brought back to work after they had left in frustration. Work and studies were regularly monitored by university trained counsellors. A special group for outpatient treatment and follow-up was set up in 1972. To prove that they still had the job, patients sent in their monthly pay-check stubs. Their take-home privileges depended on that registration.

Retention measurements: Retention in treatment was measured in three different ways.

1. The 1-year and 3-year retention of newly admitted patients was recorded during the first 23 years of operation of this national programme.
2. In addition the yearly percentage of all patients who stayed throughout each year (irrespective of their time in treatment) was recorded.
3. Finally, the long-term retention was recorded for the first 10 years in treatment. Long-term retention rates were calculated as the ratio (expressed as percentage):

$$\frac{\textit{Number of subjects transferred to next year x 100}}{\textit{Subjects admitted before the beginning of a treatment year}}$$

Results

Altogether, 345 patients were admitted to our methadone maintenance programme during the first 23 years of its existence. Fig. 1 illustrates the yearly 1-year and 3-year retention rates for newly admitted patients. The mean 1-year retention during these years was 86% (range 60%-100%). The mean 3-year retention of newly admitted subjects was 73% (range 35%-100%).

Fig. 2 shows yearly retention rates, based on all subjects in treatment. The mean yearly retention rate was 88.8% (range 60-99%).

The lowest retention rate was recorded during the first treatment year, 1967, when only 5 patients were discharged to outpatient treatment and 3 (60%) stayed throughout the year. Table 2 shows both the yearly retention rates for each treatment year and the cumulative retention rates. A majority of the involuntary discharges occurred during the

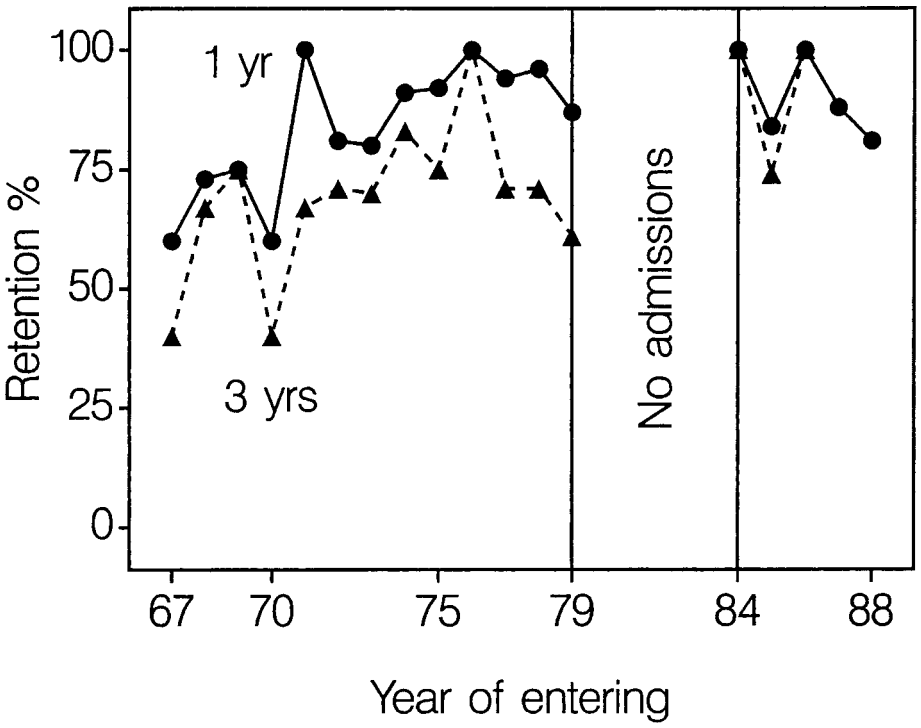

Figure 1. 1-year and 3-year retention rates among yearly cohorts of new admissions 1967-1990. For 5 years, 1979-1984, there was a temporary stop in new admissions, due to political tensions

first three treatment years (median 1.7 years). The voluntary discharges occurred later, after a median 5.0 years. The cumulative retention figures show that after 9 years 35% were still in treatment and after 10 years 29% (Table 2).

Most of the 46 voluntarily discharged patients managed to stay drug-free, continued working and had a continuously low mortality rate [6]. The most common reason for involuntary exclusion was repeated poly-substance abuse (Table 3). When patients had been admitted to an emergency ward for an overdose of hypnotics, they were warned that another such incident would result in exclusion, due to the increased risk of a fatal outcome from this drug combination. As a rule these overdoses occurred among patients who failed to follow several instructions in this programme. Patients who were imprisoned during treatment knew that they could reapply for treatment following their release. Patients excluded for programme violations were told when they could reapply for treatment. Those who were considered to be manageable had to stay outside for at least 6 months, while the rest could not reapply before 2 years had passed.

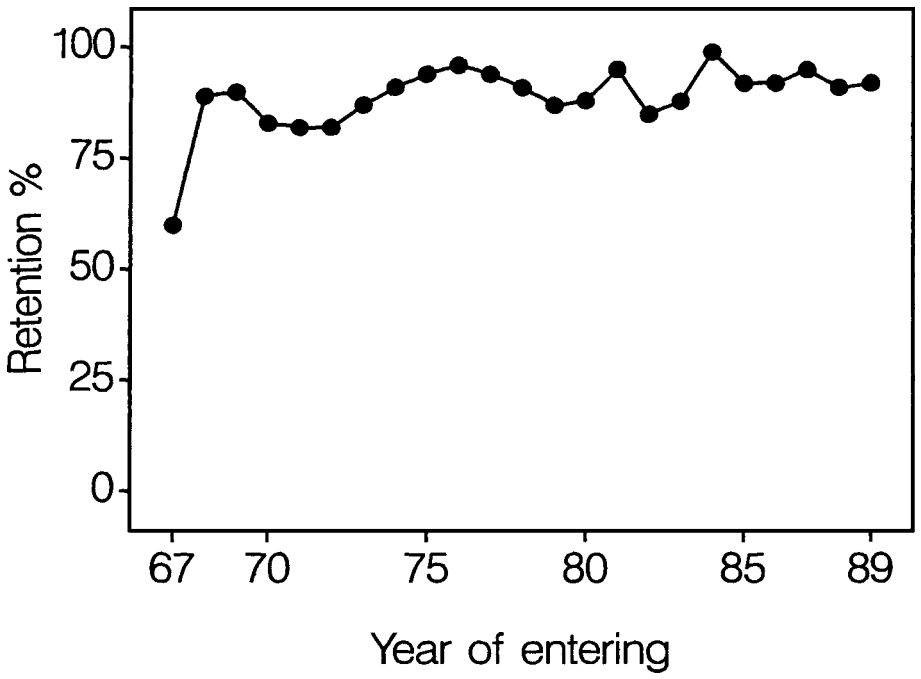

Figure 2. Percent patients remaining in treatment each year, from 1 January to 31 December during 1967-1990

Fig. 3 shows the percentage working or studying full-time the year before entering treatment and during the first 5 years of treatment. During the third to fifth year of treatment the percentage employed or studying varied between 71% and 81%. Forty-four patients (13%) had a job before entering treatment and 1% were studying.

Discussion

In the early American methadone maintenance programmes of the 1960s, high retention rates were, for instance, reported by Gearing [4], who found a yearly retention of 81% among the 2,325 patients admitted during the first four years. In their review of the first ten years' experience with methadone maintenance, Dole and Nyswander [3] expressed their concern about diminishing retention rates during the seventies. In the first five years, 1965-69, there had been a sensational 98% who continued to remain in treatment for at least one year; but between 1970 and 1973 the one-year retention rate dropped to 61%, and later to 59%.

Bayer and Koenigsberg [1] also reported a marked decline in 6-month retention during the period 1964-1976, when 78,498 first admissions were studied in New York

Table 2. Percentage long-term retention during the first 10 years of treatment

Methadone treatment (n=345)				*Voluntary discharge (n=46)*			*Involuntary discharge (n=96)*			
Treatment year	**Transferred to next year**	**Adm. before this year**	**Died this year**	**Alive. Not in MT**	**Re-admitted**	**Dead**	**Alive. Not in MT**	**Re-admitted**	**Dead**	**Long-term retention %**
1	278	323	2	3	0	1	24	2	14	86
2	207	254	0	4	1	0	5	0	7	81
3	155	211	2	3	0	0	9	2	2	73
4	118	194	6	6	1	1	2	1	3	61
5	100	174	2	2	0	1	0	0	0	57
6	88	174	0	2	2	1	4	1	2	51
7	79	174	2	2	0	1	1	0	3	45
8	63	169	2	3	4	0	2	0	0	37
9	59	169	1	1	1	0	0	0	1	35
10	49	169	2	2	1	0	4	0	1	29
11-23	0	---	2	2	1	0	4	1	1	--

Table 3. Reasons for discharge from methadone maintenance

Reasons for discharge	**Male**	**Female**	**Total**	**Percent**
1. Voluntary	**36**	**10**	**46**	**13.3**
2. Imprisonment	**34**	**2**	**36**	**10.4**
Heroin smuggling	***2***	***1***		
Cannabis smuggling	***2***	***0***		
Drug trafficking	***8***	***1***		
Burglary	***16***	***0***		
Drunken driving	***2***	***0***		
Weapon theft	***2***	***0***		
Violence	***2***	***0***		
3. Programme violations	**42**	**18**	**60**	**17.4**
Repeated poly-substance abuse	***40***	***17***		
Repeated cheating with urine tests	***2***	***1***		

City. During this period the retention rate of each successive admission cohort dropped markedly. Until 1970 an average 91% of all admissions remained in treatment for 6 months, but in 1975-76, the 6-month retention had dropped to 62%. When a couple of studies were carried out in the Nineties, comparing methadone and buprenorphine maintenance treatment, 6-month retention rates of 68% [10] and 52% [11] were reported in treatment groups receiving adequate methadone doses. Obviously, the yearly

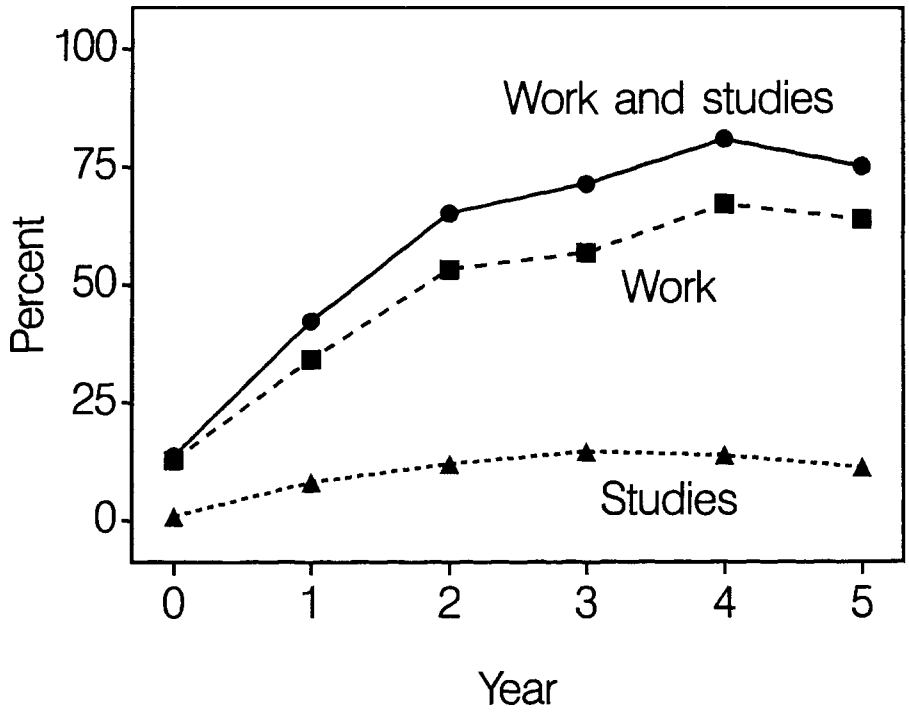

Figure 3. Percentage employed or studiying during the first 5 years of treatment. Time point 0 shows the percentage employed (13%) and studying the year before entering treatment

retention rates must have been lower.

With this background, the stability of a high yearly retention within the Swedish methadone maintenance programme for 23 years is remarkable. This encouraging result may have to do with our unusually high rate of vocational rehabilitation. A selection of patients willing to abandon their drug habits and take up work may have turned to our treatment programme, and this high social and vocational rehabilitation rate also seems to have been stable over the years. Between 71 and 81 per cent of our patients acquired regular work, relief work or began studying full-time within 3-5 years of treatment initiation, with similar results for men and women [7]. The year before methadone induction, 13% were working and 1% studing; during the Eighties the yearly percentage of those employed or studying full-time varied between 59% and 81%.

The initial, temporary application of a highly structured and paternalistic program (but with no recommended time limit for methadone maintenance), obviously did not cause a great reduction of retention time, as predicted by Caplehorn et al. [2]. The strong focus on vocational rehabilitation in the Swedish two-phase treatment design seems to have enabled our successful patients to feel pride and hope, and accept responsibility.

In contrast, in our neighbouring Scandinavian country, Denmark, nearly all methadone maintenance patients (around 5,000) were granted an early retirement pension, sufficient to support the individual without working for an income [9]. After some years the Danish methadone maintenance patients were found to have taken up new kinds of abuse, including alcohol, amphetamine, cocaine and hypnotics. Later still there was an outbreak of suicides among the Danish patients. Obviously, a permissive attitude had not promoted an efficient rehabilitation, and although perceived as benevolent it may in fact have been more patronising than a treatment ideology requiring patients to take responsibility for supporting themselves. In Sweden, drug abuse remained low among our patients [7], and there was no endemic outbreak of suicides.

Thus, a succession of an initially highly structured and controlled treatment paradigm, followed by an adaptive model supporting a gradual increase in patient autonomy, appears to have been a successful design for many years. The political decision to discontinue the Swedish National Programme appears to have been unfortunate.

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Received December, 20, 2001 - Accepted March, 15, 2002