

Preliminary evaluation of the NSW stimulant treatment program

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June 2008

Acknowledgements

We would like to acknowledge the contribution made by patients of the STP clinics. We thank STP staff for their contribution: B Crosby, S Flanders, C Greer, J Gregory, J Humphreys, V Hunt, V Jepson, L Knock, S Myers, W Robertson, B Robinson, R Squirchuck, C Stuble, R Tierney, J Villamor. We also thank staff of the Mental Health and Drug & Alcohol Office, NSW Health: B Batey, C Shipway, K Williamson, J Barry, C McDonnell.

Editorial assistance: Craig Bingham.

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Executive summary

The Stimulant Treatment Program (STP) commenced in New South Wales (NSW) in 2006 with a trial of two stand-alone stimulant treatment clinics based in Darlinghurst, St Vincent's Hospital (SVH) and Newcastle, Hunter New England Area Health Service (HNE). The STP is funded by the NSW Department of Health (NSW Health) and was established to provide treatment for stimulant users, primarily methamphetamine users.

The STP aims to:

- assist people using stimulants who want to reduce or cease use
- help people who are abstinent avoid relapsing into use
- establish ongoing clinical interventions for people with co-morbid mental health and stimulant drug-related problems
- reduce the health, social and legal costs associated with stimulant use
- improve the health and social outcomes of people who use stimulant drugs.

This evaluation of the STP took place during the first six months of operation, from November 2006 to May 2007. The purpose of the evaluation was to:

- examine the feasibility of conducting the STP at the two clinics
- measure the effectiveness and impact of clinical interventions for stimulant users delivered at the clinics
- identify key issues relating to service delivery
- provide evidence-based research to support the further development and potential expansion of the STP to other sites in NSW.

Intake

During the first six months of operation of the clinics, 214 patients or family members made contact with the STP across the two sites. Almost all stimulant users were methamphetamine users (98%). Patients were self-referred (52%), referred by medical practitioners and other clinical services (28%) and/or referred by family members and friends (20%). A total of 196 patients were triaged for further treatment. Of these, 115 patients completed a comprehensive assessment for treatment; 87 then participated in ongoing treatment.

Treatment

The STP clinics provide a range of services to stimulant users within a stepped care framework. The primary treatment provided at the STP was psychosocial, applying a number of counselling approaches including cognitive behavioural therapy, motivational interviewing and narrative therapy. On average, patients attended for four treatment sessions (range 1 to 22).

Treatment delivered at the clinics also included pharmacotherapy for a very small group of patients who had engaged in a minimum of four counselling sessions and for whom pharmacotherapy was considered to be of benefit according to the STP eligibility criteria. Three patients participated in dexamphetamine substitution at St Vincent's Hospital. All patients stabilised rapidly in substitution treatment, demonstrated improvements in health and social functioning, and reported decreased illicit methamphetamine use. These patients adhered to dexamphetamine treatment regimens, including being required to attend twice daily for dosing with dexamphetamine, and attended regular counselling support.

Follow-up

Patients in the clinics were followed up three months after first commencing treatment. Because resources were limited, only 24 of the 115 people who were assessed at baseline participated in follow-up interviews, a follow-up rate of 21%.

As a result of the low follow-up rates, the preliminary evaluation was not able to demonstrate the effectiveness of the treatment model, and caution should be exercised in generalising these results.

Within these limitations, the preliminary evaluation shows that the initial outcomes of the STP are promising:

- Of the 24 patients who did attend follow up, significant and clinically important reductions were seen in drug use, severity of dependence, distress, mental health problems and crime, together with significant improvements in social functioning.
- All except one patient said that they had experienced 'good' to 'excellent' changes in their life (23/24, 96%). No patients reported any adverse effects of the STP.

- Nineteen of 24 patients had reduced their stimulant use to nil or once weekly at follow-up (at baseline, mean use was 16.5 days per month with many being daily users).
- Patients who were followed up reported substantial improvements in their overall functioning, and generally linked these changes to their treatment in the STP.

Demographics and patterns of use

Patients seen at the STP were predominantly male (69%), in their fourth decade (average age 37, range 20 to 55), unemployed (62%), used stimulants by injection (66%) or smoking (27%) and had been using stimulants for approximately one decade (average, 9.6 years, range 1 to 25).

There were differences between the patients seen at the two sites. Patients at SVH were more likely to be male (SVH 81%, HNE 59%). Patients at HNE were more likely to be unemployed (HNE 75%, SVH 46%). Smoking methamphetamine was a more common mode of practice in patients seen at SVH (SVH 40%, HNE 16%) while injecting methamphetamine was more common in HNE (HNE 76%, SVH 54%). However, in other regards the populations of stimulant users across the two clinics were similar.

Mental health

Most patients attending the STP had a history of one or more mental health problems (80%). Depression was very common (70%), while anxiety (39%) and drug-related psychosis (35%) were also common. Patients also reported relatively high levels of distress on entering treatment including hostility (83%), suspiciousness (83%) and hallucinations (58%).

Specific needs for the program

Almost half of all patients attending the clinics had not previously sought any formal treatment for their drug use.

At follow-up, all patients said it was either 'very' (25%) or 'extremely important' (75%) to them that the STP related specifically to stimulant drugs rather than illicit drugs in general.

The STP has been successful in attracting and retaining people who need treatment but are often reluctant to present at mainstream drug and alcohol services.

Recommendation 1

The evaluation of the STP should continue for at least a further two years

The preliminary evaluation was able to demonstrate that the STP model of treatment was feasible, and was able to attract amphetamine users experiencing mental health problems to enter into treatment. In particular, the STP has been successful in attracting and retaining people who need treatment but are reluctant to present at mainstream drug and alcohol services. The evaluation also provided important information in relation to the progress of the STP clinics, the demographics of amphetamine users and patterns of use.

However, the preliminary evaluation was not able to demonstrate the effectiveness of the treatment model, due to the low participation in follow-up interviews. Due to the limitations of the evaluation, it is recommended that the evaluation of the STP continue over the next two years to:

- determine if this approach of providing targeted clinical services has an impact in attracting methamphetamine users to treatment
- test the effectiveness of the treatment provided
- provide more detailed data on this model of service delivery for stimulant users.

Recommendation 2

Promotion of STP clinics

Despite the limitations of the evaluation, consideration should be given to the development of a coordinated approach to the promotion of STP clinics in NSW.

The key findings of the evaluation provide a basis for promoting and expanding the STP to other locations where there is a high prevalence of stimulant use and or related harms. This could lead to the establishment of similar clinics elsewhere or the development of stimulant specific clinics operating from outpatient settings.

Recommendation 3

Identify and adopt methods to improve follow-up rates

The rate of patient participation in follow-up interviews was low. A range of strategies need to be explored and implemented to improve the follow-up rate and enhance data collection, including:

- The STP Steering Committee and Research Subcommittee should review and reconsider evaluation tools and research instruments currently being used. This should include a review of the instruments used during baseline assessment.
- Evaluation tools and instruments should be standardised across both sites.
- New strategies to enhance the follow-up rate should be explored: for instance, providing remuneration for patient participation in attending follow-up interviews.
- The capacity of both clinics to facilitate follow-up interviews should be enhanced, including increasing the staff levels at the STP clinics to enable both clinical sites to facilitate follow-up interviews.

Recommendation 4

The continuation of the evaluation should be informed by the development of evidence-based research

The continuation of the evaluation should be informed by evidence-based research, including evidence about treatment outcomes, evidence arising from research literature and from information about emerging treatments.

This should include evidence-based research into the most effective pharmacological and non-pharmacological treatments for the treatment of amphetamine dependence.

The use of dexamphetamine substitution at the St Vincent's clinic has demonstrated that replacement treatment can feasibly be implemented as part of the STP. However, further research should include an exploration of the appropriate role of pharmacotherapies, the most effective means to administer pharmacotherapies, dosages, alternatives including Take-Safe devices, and the form of dexamphetamine (for example, longer-acting preparations may further benefit patients attending for treatment).

There is a growing body of international research that suggests contingency management may be an effective treatment option for amphetamine users. The feasibility of this approach to treatment has not been demonstrated in Australian treatment settings. Medications development is likely to continue, particularly through research conducted by the National Institute against Drug Abuse in the USA. In this context, Australian research may be required to assess the role of pharmacological and non-pharmacological interventions in local settings.

1 Introduction: the New South Wales stimulant treatment program

1.1 Background

The term 'stimulants' refers to psychoactive substances producing a stimulant effect. Most stimulants used in Australia are amphetamines (predominantly methamphetamine) and cocaine. Stimulants have been used for many decades in Australia and their use is rapidly rising in many countries across Asia, causing significant and increasing problems.

Since the onset of the heroin shortage in 2000, stimulant use has increased across Australia, including New South Wales (NSW). According to the National Drug Strategy Household Survey, amphetamine is now the second most commonly used illicit drug after cannabis (AIHW 2005). Almost one in ten Australians aged 14 years and older (1.5 million people) have tried methamphetamine, and one in 30 Australians (3.3%) report having used methamphetamine for non-medical purposes in the 12 months before participating in the national survey. Research conducted by the National Drug and Alcohol Research Centre (NDARC) found that there are approximately 103,000 regular methamphetamine users in Australia, of which 73,000 (0.7% of the population aged 15–49 years) were dependent (McKetin et al 2005).

Methamphetamine is taken by a wide variety of people with a range of use patterns. Increases in the purity and availability of methamphetamine and changing patterns of consumption (an increase in the frequency of smoking or injecting due to the rapid absorption and onset of intoxication with these forms of administration) have contributed to a corresponding increase in health, social, welfare and legal problems experienced by amphetamine users. This has resulted in a significant increase in the number of people with acute amphetamine-related problems presenting to emergency departments, mental health services and drug and alcohol services.

While methamphetamine users often experience a range of substantial health consequences, no specialised treatment service was available before 2006. These people have largely been managed by alcohol and drug services, mental health services and the criminal justice and social welfare systems.

In 2006, the NSW Government committed \$2.45 million over four years through Council of Australian Governments funding as part of the Co-Morbidity Package to establish and develop a stimulant treatment program. Two clinics were established, one at St Vincent's Hospital (Rankin Court) and one in the Hunter New England Area Health Service (at Royal Newcastle Hospital).¹ The aims of the STP are to:

- assist people using stimulants who want to reduce or cease stimulant use
- help previous users remain abstinent
- reduce the health, social and legal costs associated with stimulant use and crime.

1.2 Service development and delivery

The STP clinics commenced in November 2006 as specialised services providing ongoing clinical interventions for people with co-morbid mental health and stimulant drug-related problems within a stepped care approach to treatment. A stepped care approach grades the clinical response to the severity of the problem presented by the patient. If less intense therapy fails to achieve a good outcome, then a more intense therapy is offered.

The service model for the two sites was to provide an accessible outpatient clinical service for stimulant users. Both clinics are located near other drug and alcohol services and hospital services with discreet entrances.

¹ The STP clinic in Newcastle was relocated from the Royal Newcastle Hospital to a shopfront clinic in Newcastle West in July 2007. St Vincent's Hospital Drug and Alcohol Services are in the process of relocating their STP, due to occur in 2008/09.

1.3 Eligibility

Eligibility for the STP included the following criteria:

- the patient must identify stimulant drugs as the main drug of concern
- the patient must be 18 years of age or older
- the patient must not be currently enrolled in an opioid substitution program (ie, methadone or buprenorphine maintenance).

1.4 Referral

The program provides clinical support for patients presenting to mental health, accident and emergency services and general practitioners. Patients also contacted the STP services directly (ie, by self-referral) or by referral from other people such as family members or friends.

1.5 Treatment

The program structure was standardised across both sites using a clinical treatment manual developed for cognitive behavioural therapy for amphetamine users (Baker et al 2003) and a stimulant drug intervention piloted successfully by Amanda Baker and colleagues in 2004 in Newcastle, NSW and Brisbane (Baker et al 2005).

The key focus areas of the STP are assessment, counselling interventions, treatment, education, prevention and support for patients and families or carers.

The primary components of treatment at the STP are provided within a psychosocial stepped care framework and include a number of counselling approaches including cognitive behavioural therapy and motivational interviewing. Some clinicians at St Vincent's Hospital incorporated aspects of narrative therapy (White and Epton 1989) into their therapeutic work within the STP clinic.

An individual course of treatment was decided at an initial assessment. Some patients were referred to other services for treatment. In general, assessment was followed by two to four sessions of individual counselling, relating to the patient's particular situation and needs. The patient's treatment was then reviewed, leading to additional counselling sessions and/or referral to other services where indicated. STP clinicians then assertively maintained contact with the patient to monitor their progress and needs.

Treatment was developed to be flexible, allowing for a range of patient goals including abstinence and harm reduction strategies, and was able to be accessed by patients who were continuing amphetamine use and those who had ceased their drug use but were at risk of relapse.

Dexamphetamine treatment was conducted at St Vincent's Hospital. Criteria were developed to determine which patients were eligible for dexamphetamine treatment (Adam and Wodak 2007). Treatment was reserved for patients who had engaged in a minimum of four counselling sessions and for whom pharmacotherapy was considered to be of benefit according to the STP eligibility criteria.

The protocol for dexamphetamine treatment was approved by the St Vincent's Hospital Bioethics Committee. Dexamphetamine treatment used dexamphetamine 5 mg tablets (Sigma Pharmaceuticals). The maximum dose prescribed was 80 mg dexamphetamine daily. Doses were dispensed twice daily through Rankin Court at St Vincent's Hospital. Administration of dexamphetamine doses was supervised. Patients who had been stable for at least one month were able to have their second dose of the day delivered using the Take-Safe² dispensing device.

² Take-Safe is a locked dispensing box programmed to open only during certain periods of the day and/or days of the week.

The STP is the first integrated and collaborative treatment program to deal systematically with patients with stimulant-related problems. Both clinics are staffed with skilled clinicians who have extensive experience in drug and alcohol treatment, counselling and case management. Each clinic has a manager or service coordinator (0.4 full time equivalent [FTE] position) and two clinician/counsellors (0.8 FTE), as well as addiction specialists and psychiatrists or psychiatric registrars attending on a sessional basis. In addition, the clinic in Newcastle has a part-time administrative assistant (0.6 FTE). A research officer (0.6 FTE) with particular knowledge of stimulant drug effects, culture and treatments conducted evaluation activities for both sites and was funded separately. Clinicians received training in cognitive behavioural therapy for stimulant users.

1.6 Promotion

Information about the STP clinics was sent to health service providers in the areas surrounding St Vincent's Hospital and Newcastle during the development of the clinical services (ie, late 2006 and early 2007). These service providers included local general practitioners, hospitals, drug and alcohol treatment services and non-government aid agencies (eg, the AIDS Council of New South Wales). Written advertising material such as brochures, cards and posters and information sessions were also provided.

2 Evaluation

The NSW Mental Health and Drug & Alcohol Office committed funding for a preliminary evaluation of the STP at Hunter New England Area Health Service and St Vincent's Hospital in Sydney during the first six months of operation of the clinics. The aims of the preliminary evaluation were to:

- evaluate the feasibility of conducting the stimulant treatment program at the two sites
- identify issues relating to service delivery and effectiveness in metropolitan and regional areas of NSW before expanding the service to other locations
- evaluate the models of intervention for stimulant users.

2.1 Method

The preliminary evaluation involved baseline assessment, follow-up assessment and data analysis.

Several measures were used for the preliminary evaluation of the STP at baseline (intake) and at follow-up (three to six months after commencing treatment). The evaluation assessment tools are summarised in Table 1.

Table 1: STP evaluation measures

		Baseline	Follow up
Demographics	Age, gender, accommodation, income	Minimum data set	
Service utilisation	Referrals to and from STP units Number of treatment sessions attended	Referrals	Review of patient files
Drug use history	Previous drug use Prior drug treatment	Drug use and treatment history	
Current drug usage	Current drug use (past month) Injecting practices (past month)	OTI-methamphetamine use OTI-injecting behaviour	OTI-methamphetamine use OTI-injecting behaviour
Dependence	Dependence on stimulants (past month)	SDS	SDS
Physical health	Drug-related health problems Health impairment (past month)	SF12	SF12
Mental health	Distress (past month) Hostility, suspiciousness, hallucinations, unusual thoughts (past month) Quality of life (past month)	K10 BPRS SF12	K10 BPRS SF12
Crime	Crime (past month)	OTI-crime	OTI-crime
Personal response	Verbal feedback		Follow-up interview

OTI: Opiate Treatment Index; SDS: Severity of Dependence Scale; K10: Kessler 10 Distress Scale; SF12: the Short Form Mental Health Scale; BPRS: Brief Psychiatric Rating Scale.

During their first meeting, clinicians asked each patient if they wanted to take part in the evaluation research program, explaining that this involved additional questions during assessment and follow-up interviews with the research officer. Participation in the evaluation was voluntary. STP clinicians administered the baseline evaluation measures during their initial contact with the patient. On average, the evaluation questions took an extra 50 to 60 minutes to complete, leading to a doubling the time taken for each initial interview.

For participating patients, the initial interview began with a clinical assessment of the person's drug-use history, recent drug use and mental health history, to appropriately plan and commence treatment. Then data required for the program evaluation were collected. These measures included the Opiate Treatment Index for methamphetamine use, injecting practices and crime (OTI-meth, OTI-injecting, OTI-crime), the Severity of Dependence Scale (SDS), Kessler 10 Distress Scale (K10), the Short Form Mental Health Scale (SF12) and the Brief Psychiatric Rating Scale (BPRS) scales for hostility, suspiciousness, hallucinations and unusual thought content.

Clinicians conducted all baseline interviews. The evaluation questionnaires were re-administered at a follow-up interview, three to six months after the patient had commenced treatment. The evaluation researcher conducted all follow-up interviews.

2.2 Evaluation procedures

After written consent was obtained, patients completed the baseline evaluation with the STP clinicians (Table 1). During follow-up interviews patients were asked to repeat the initial evaluation (OTI-meth, OTI-injecting, OTI-crime, SDS, K10, SF12 and BPRS). They were also asked semi-structured questions about any changes that had occurred in their life since commencing treatment and if the STP had played a part in facilitating any changes.

Data from both sites were compiled and entered into a SPSS database. All data were stored securely in locked or electronically encrypted files and de-identified. The data were analysed using SPSS statistical software version 14. *T*-tests were used for differences of means; χ^2 tests were used for differences of proportions. Standard levels of significance were used ($P < 0.05$).

3 Results

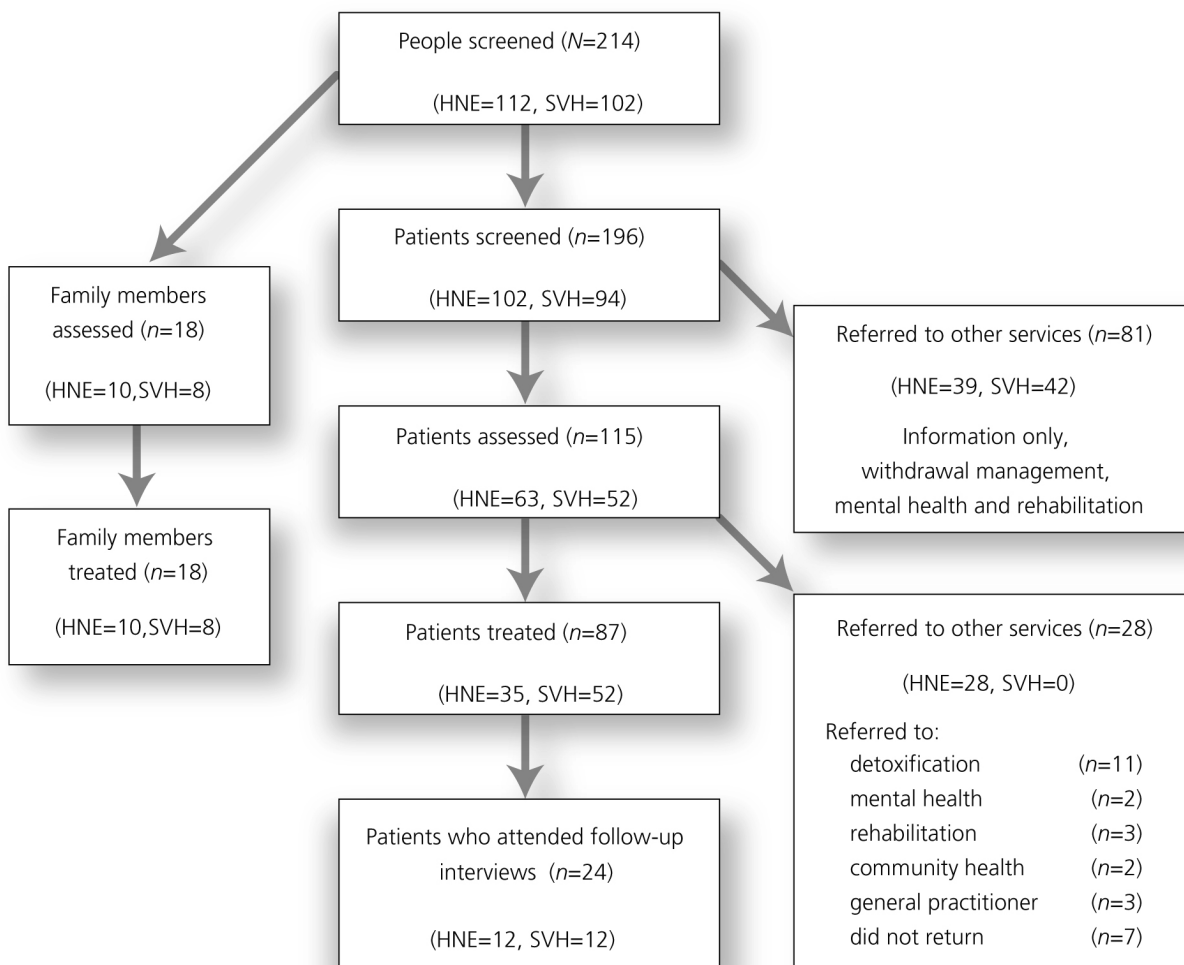
3.1 Study population

Recruitment and treatment

The number of patients who progressed to treatment is shown below in Figure 1.

During the first six months of operation, 214 persons contacted the pilot STP units (HNE = 112, SVH = 102). One hundred and ninety-six patients sought help for personal stimulant-use problems (HNE = 102, SVH = 94), of whom 115 proceeded to assessment. Most patients were self-referred (52%), referred by family members (21/115, 18%) or by general medical practitioners (12/115, 10%). Some patients were referred from community drug and alcohol services (7/115, 6%), residential withdrawal management centres (6/115, 5%) and mental health services (4/115, 3%). One patient at Newcastle was referred by an employee assistance program (1%). Referral sources were similar at both STP sites.

Figure 1: Recruitment and attrition profile for pilot STP clinics



Patients could be referred through use of a local telephone number at both clinics or through the use of a 1800 number. The time from initial phone intake to assessment was short (average 3 days, range 1–8 days). Many patients were assessed the following day (46/115, 40%). Some patients requested an appointment one week after their initial contact when it suited them (35/115, 30%). Similarly, the time-span from initial assessment to first treatment session was often one week (41/87, 47%) or less (32/87, 37%), tailored to the needs of the patient.

Most intakes were completed by telephone, although a small number were conducted face to face at HNE (8/112, 7%). A significant proportion of patients were referred to other services at intake (81/196, 41%). Some patients were referred to residential rehabilitation or managed withdrawal (detoxification) programs. Other patients did not want to receive treatment and requested information only. These patients were given a number of patient information booklets about amphetamines, including literature on the risks of ongoing use of amphetamines. In all, over half of the patients who contacted STP clinics proceeded to assessment (115/196, 59%). Eighteen family members were treated (mostly parents; 18/214, [8%]; HNE = 10, SVH = 8).

The process by which STP patients were referred to other services differed between sites. At SVH, patients who required other treatment services (eg, withdrawal management, residential rehabilitation) were referred elsewhere during the intake process (ie, before initial assessment). At HNE, patients were referred to other treatment services at two stages: either at intake or after assessment. Eighty-seven of the 115 patients who were assessed by STP clinicians returned for further treatment (76%) at the two pilot STP clinics.

The two STP clinics conducted 146 assessment sessions in the first six months (Table 2). Patients at SVH were assessed in a single session, whereas about half of patients at HNE were assessed over two or more sessions (30/63, 48%). The clinics provided 352 treatment sessions in the first six months (Table 2). The number of treatment sessions provided to each patient varied considerably (range 1–22, HNE = 1–12, SVH = 1–22) depending on the needs of the patient.

Table 2: Number of STP assessment and treatment sessions provided in six months

	SVH	HNE	Total
Assessment sessions (patients)	52 (52)	94 (63)	146 (115)
Treatment sessions (patients)	222 (52)	130 (35)	352 (87)

More patients at Newcastle were assessed and referred elsewhere for treatment (HNE = 28, SVH = 0). Overall, the number of treatment sessions provided per patient was similar at both STP sites (HNE = 3.7, SVH = 4.5, $P < 0.05$). On average, four treatment sessions were provided to each patient. At the end of treatment, a higher proportion of patients at HNE were referred elsewhere (10/35, 30%) than at SVH (5/52, 10%). At Newcastle, 34 treatment sessions were provided to 10 family members over the first six months.

Demographic details (Table 3)

The profile of patients attending STP clinics at SVH and HNE (Table 3) was similar to that obtained by previous Australian researchers who have examined amphetamine users in Australia (Hando et al 1997; Baker et al 2005; McKetin and Kelly 2007). Patients were typically male (69%) and young to middle-aged (mean age = 35 years). Patients at HNE were generally younger (mean age = 32.5 ± 6.6 years) than patients at SVH (mean age = 37.3 ± 8.6 years).

A significantly higher proportion of male patients attended the SVH clinic (42/52, 81%) than the HNE clinic (37/63, 59%).

A higher proportion of patients at SVH were employed (28/52, 54%) than at HNE (16/63, 24%). A higher proportion of patients at HNE were unemployed and reliant upon welfare payments (unemployed = 47/63, 75%) than patients at SVH (unemployed = 24/52).

Drug use and treatment history (Table 4)

Consistent with the selection criteria of the program, all STP patients said that stimulants were their main drug of concern. These were almost entirely methamphetamines (eg, speed and ice) although two patients at SVH said cocaine was their main drug of concern. Overall, about two-thirds of patients injected stimulants (66%), a quarter smoked (27%) and the remainder sniffed (5%) or swallowed (2%) stimulants. A significantly higher proportion of STP patients at HNE injected stimulants (48/63, 76%) than at SVH (28/52, 54%). Conversely, more patients at SVH smoked stimulants (21/52, 40%) than at Newcastle (HNE = 10/63, 16%).

Most patients reported using psychoactive substances for a substantial period. The mean duration of drug-use (any drug) was 17.6 (± 7.0) years. For stimulant drugs, it was 9.58 (± 6.9) years. In many cases, patients reported having used drugs for most of their adult life (43/69, 62%).

Use of a range of illicit drugs, in addition to stimulants, was quite common. Differences occurred between sites in reported levels of non-stimulant drug use. For example, nearly half of patients at HNE reported also using (and being concerned about) their use of tobacco (48%) and cannabis (44%). However, at SVH, less than 10% of patients reported similar drug-use concerns (tobacco 8% and cannabis 10%). This anomaly probably resulted from data recording differences between the sites.

Table 3: Patient demographic details at initial assessment

	SVH (n = 52)	HNE (n = 63)	Total (n = 115)	
Gender				
Males	42 (81%)	37 (59%)	79 (69%)	$\chi^2(df1) = 6.43, P < 0.001$
Females	10 (19%)	26 (41%)	36 (31%)	
Age (mean \pm standard deviation)	37.3 ± 8.6	32.5 ± 6.6	34.7 ± 7.9	$F(1, 113) = 11.16, P < 0.001$
Employment				
Full time	21 (40%)	11 (18%)	32 (28%)	
Part time	7 (14%)	5 (8%)	12 (10%)	
Unemployed	24 (46%)	47 (75%)	71 (62%)	$\chi^2(df2) = 9.95, P < 0.05$

Table 4: Patient drug use details at initial assessment

	SVH (<i>n</i> = 52)	HNE (<i>n</i> = 63)	Total (<i>n</i> = 115)	
Drug of concern				
Methamphetamine	50 (96%)	63 (100%)	113 (98%)	
Cocaine	2 (4%)	0	2 (2%)	
Mode of use				
Inject	28 (54%)	48 (76%)	76 (66%)	$\chi^2[\text{df}3]=10.21, P < 0.05$
Smoke	21 (40%)	10 (16%)	31 (27%)	
Sniff	3 (6%)	3 (5%)	6 (5%)	
Swallow	0	2 (3%)	2 (2%)	
Years of use*				
Any drug (mean \pm standard deviation)	(<i>n</i> = 9) 13.8 \pm 9.4	(<i>n</i> = 62) 18.1 \pm 6.5	(<i>n</i> = 71) 17.6 \pm 7.0	$P < 0.05$
Stimulants	4.9 \pm 5.2s	10.7 \pm 6.9	9.58 \pm 6.9	$F[1,72]=8.65, P < 0.05$
Other drugs concern				
Tobacco	(<i>n</i> = 51) 4 (8%)	(<i>n</i> = 63) 30 (48%)	(<i>n</i> = 114) 34 (30%)	
Cannabis	5 (10%)	28 (44%)	33 (30%)	
Alcohol	9 (18%)	15 (24%)	24 (21%)	
Prior treatment*				
Nil	(<i>n</i> = 51) 22 (43%)	(<i>n</i> = 59) 32 (54%)	(<i>n</i> = 110) 54 (49%)	No significant difference
Counselling	21 (41%)	14 (24%)	35 (32%)	
Managed withdrawal	3 (6%)	7 (12%)	10 (9%)	
Rehabilitation	5 (10%)	6 (10%)	11 (10%)	

*Missing data: Patient numbers vary as not all patients provided complete data on all evaluation measures.

Stimulant use and dependence (Table 5)

On average, STP patients reported using stimulants on around 15 days during the previous month. The mean OTI-meth score was 1.64 ± 1.50 . This indicates that on average, STP patients used about one and a half doses of stimulant drugs each day.

The most commonly occurring (modal) SDS score was 12 out of a maximum of 15.

Almost all patients reported being dependent on stimulant drugs (HNE = 62/63, 98%; SVH = 50/52, 96%). The criterion for dependence was a score of 4 or more (out of 15) on the five-item SDS (Topp and Mattick 1997). The mean SDS drug dependence score was 10 ± 3.15 . The most frequent score on the SDS at HNE was 12 and at SVH was 14, indicative of pronounced drug-dependence.

Half the patients had not received treatment before (54/110, 49%). A third of patients had received counselling previously (32%), though not specifically for stimulant use. The remainder had participated in more intensive programs (eg, rehabilitation 10% and withdrawal management 9%).

Table 5: Patient stimulant use scores at initial assessment (pre-treatment)

	SVH (n = 52)	HNE (n = 63)	Total (n = 115)	
Stimulant use				
Mean days/month	14.3 ± 9.6	16.2 ± 8.6	15.4 ± 9.1	No significant difference
0–6 days/month	12 (26%)	12 (19%)	24 (22%)	
7–15 days/month	11 (24%)	20 (32%)	31 (28%)	
16–21 days/month	13 (29%)	12 (19%)	25 (23%)	
22–28 days/month	10 (22%)	19 (30%)	29 (27%)	No significant difference
OTI-meth score	1.69 ± 1.74	1.59 ± 1.28	1.64 ± 1.50	No significant difference
Injecting risk				
	(n = 40)	(n = 39)	(n = 79)	
	3.08 ± 4.38	4.97 ± 4.83	4.01 ± 4.67	<i>P</i> < 0.05
SDS dependence				
SDS 0–3	2 (4%)	1 (2%)	3 (2%)	
SDS 4–10	19 (38%)	36 (57%)	55 (49%)	
SDS 11–15	29 (58%)	26 (41%)	55 (49%)	No significant difference

OTI-meth: Opiate Treatment Index methamphetamine use; SDS: Severity of Dependence Scale.

Mental health (Table 6)

Patients' mental health scores at baseline were similar for the two sites.

Three-quarters of patients reported pre-existing mental health problems. Most reported a history of two or more different mental disorders (66/112, 57%), mainly depression, (70%), anxiety (40%) and/or drug-induced psychosis (35%). Histories of schizophrenia, bipolar mood disorder and/or attention deficit hyperactivity disorder were less common (about 5% each).

Table 6: Patient mental health scores at initial assessment (pre-treatment)

	SVH (n = 52)	HNE (n = 63)	Total (n = 115)	
History of mental illness				
0 Nil	10 (20%)	13 (21%)	23 (20%)	
1 mental health problem	12 (25%)	11 (18%)	23 (20%)	
2–3 mental health problems	23 (47%)	34 (54%)	57 (51%)	
4+ mental health problems	4 (8%)	5 (8%)	9 (8%)	No significant difference
History of:				
	(n = 49)	(n = 63)	(n = 112)	
Depression	34 (70%)	45 (71%)	79 (70%)	
Anxiety	20 (41%)	24 (38%)	44 (39%)	
Drug psychosis	15 (31%)	24 (38%)	39 (35%)	No significant difference
K10				
	(n = 36)	(n = 54)	(n = 90)	
Total mean	29.22 ± 6.78	30.19 ± 8.81	29.80 ± 8.04	No significant difference
K10 1–19 low	4 (11%)	9 (17%)	13 (14%)	
K10 20–24 mild	2 (6%)	6 (11%)	8 (9%)	
K10 25–29 moderate	15 (42%)	9 (17%)	24 (27%)	
K10 30+ severe	15 (42%)	30 (56%)	45 (50%)	No significant difference
SF12				
	(n = 38)	(n = 54)	(n = 92)	
Total mean	39.69 ± 12.00	38.82 ± 14.36	39.17 ± 13.37	No significant difference
SF12 1–35 low	11 (29%)	13 (24%)	24 (26%)	
SF12 36–45 moderate	14 (37%)	23 (43%)	37 (40%)	
SF12 46+ high	13 (34%)	18 (33%)	31 (34%)	No significant difference
BPRS				
	(n = 24)	(n = 24)	(n = 24)	
Total mean	14.00 ± 3.54	18.42 ± 2.96	16.21 ± 3.92	
Hostility 4+	8 (67%)	12 (100%)	20 (83%)	
Suspiciousness 4+	8 (67%)	12 (100%)	20 (83%)	
Hallucinations 4+	5 (42%)	9 (75%)	14 (58%)	
Unusual thoughts 4+	3 (25%)	6 (50%)	9 (38%)	

K10: Kessler 10 Distress Scale; SF12: the Short Form Mental Health Scale; BPRS: Brief Psychiatric Rating Scale.

Recent mental health problems were also commonly reported. Three quarters of STP patients reported experiencing substantial distress (77% had a K10 score of 25+) and impaired quality of life (74% had a SF12 score of 36+) during the month before baseline assessment.

The mean K10 score of psychological distress was approximately 30 ± 8.0 . A score of 30 on the K10 is indicative of severe distress and warrants urgent medical attention. Half the patients at both sites scored in the highest possible range on the K10 at baseline. A further quarter of STP patients reported 'moderate' levels of distress at baseline (K10 score of 25–29). Only 14% of the total sample scored in the low range of the K10 (score of 1 to 19), in which people are considered 'likely to be well'.

Patients' initial assessment scores on the Short Form Mental Health Scale (SF12) were also elevated. The SF12 measures the extent to which a person feels physically and emotionally unwell and is limited in their ability to function in daily life. Three quarters of patients scored in a range where they were likely to experience major functional restriction and substantially impaired quality of life (SF12 total of 36+). Only a quarter of STP patients scored in the 'slightly limited' range (SF12 total of less than 35).

On the Brief Psychiatric Rating scale (BPRS), 83% of patients reported pronounced hostility and paranoia at baseline assessment (BPRS score of 4+). Nearly half of all patients reported experiencing recent hallucinations and/or unusual thoughts in the previous month (BPRS scores of 4+). These scores suggest that many patients had experienced psychotic symptoms (possibly drug-induced) in the month before treatment. This is consistent with the finding that a third of all patients reported having been diagnosed by a medical officer as having experienced drug-induced psychosis at some time in the past (39/112, 35%).

Crime (Table 7)

About a third of patients reported having committed crime in the month before their initial assessment (23/76, 30%). However, self-reported crime differed greatly between the two sites. At HNE, nearly half of patients reported having committed crime (of any type) during the month before initial assessment (17/40, 43%). However, at SVH, only 17% of STP patients reported committing crime (6/36). Drug-selling was reported three times more often by Newcastle patients (35%) than those in Sydney (11%).

Accordingly, the mean OTI-crime score was significantly lower for SVH (0.58 ± 1.65) than for HNE (1.43 ± 1.91). However, this difference may reflect reporting differences between sites and the difficulty of obtaining accurate self-report data regarding crime. Clinicians at both sites reported that patients were often very reluctant to discuss matters that could jeopardise them legally.

Patients often seemed more comfortable to discuss previous criminal behaviour during follow-up interviews. When asked if they had been committing crime when they first contacted the STP service, many patients said yes, although at the time of the initial assessment, they denied this. This suggests that much of the self-report crime data may not be valid.

Table 7: Patient Opioid Treatment Index (OTI) crime scores at initial assessment (pre-treatment)

Crime (past month)	SVH (n = 36)	HNE (n = 40)	Total (n = 76)	
Total mean OTI scores (/7)	0.58 ± 1.65	1.43 ± 1.91	1.03 ± 1.83	$F(df1,74) = 4.20, P < 0.05$
Any crime	6 (17%)	17 (43%)	23 (30%)	
Drug selling	4 (11%)	14 (35%)	18 (24%)	

3.2 Follow-up group

Follow-up interviews were conducted between June and August 2007. The aim was to re-assess all patients who had been assessed up to the end of May 2007. This represented about six months since the services opened (November 2006). Treatment details for the follow-up group are summarised in Table 8.

Fifteen of the 24 patients in the follow-up group received about four or five months of treatment at STP clinics. A quarter had been in treatment for two to three months. No statistically significant differences occurred between sites. Patients from both sites received a similar number of STP treatment sessions. Only one patient at HNE had ceased attending STP treatment on a regular basis, although contact was being maintained. The patient was referred to a local residential rehabilitation service. All other patients were still in treatment in the STP clinics at follow-up.

Table 8: Treatment received by patients who were followed-up

	SVH (n = 12)	HNE (n = 12)	Total (n = 24)
Months since assessment	4.08 ± 1.08	4.67 ± 1.37	4.38 ± 1.25
2–3 months treatment	3 (25%)	3 (25%)	6 (25%)
4–5 months treatment	8 (67%)	7 (58%)	15 (63%)
6 months treatment	1 (8%)	2 (17%)	3 (13%)
Patients ended STP treatment (referred on)	0	1 (8%)	1 (4%)
Mean sessions attended	7.17 ± 5.01	4.82 ± 1.23	5.92 ± 4.31
1 session	0	1 (8%)	1 (4%)
2–3 sessions	2 (17%)	3 (25%)	5 (21%)
4–5 sessions	3 (25%)	4 (33%)	7 (29%)
6+ sessions	7 (58%)	4 (33%)	11 (45%)

There were no statistically significant differences between the SVH and HNE groups.

Follow-up group compared with total patient group

Unfortunately, relatively few patients participated in follow-up research interviews. The large number of patients unable to be followed up meant that it was impossible to conduct an 'intention to treat' analysis. A comparison of the baseline data for the follow-up group ($n = 24$) with baseline data for all patients ($n = 115$) showed that on all key baseline demographics and measures of substance use, the follow-up group differed very little from the larger group at baseline (Table 9).

However, there were significant differences between the total sample and followed up group in the following domains: K10 30+ severe scores, BPRS total mean score and all sub scores, the crime total mean and 'any crime' scores. Overall, the group who were followed up had higher scores at baseline on these measures than the total population, suggesting this group may have had more significant mental health problems and greater criminal involvement.

Table 9: Baseline evaluation scores for all patients and patients who participated in follow-up

	All patients ($n = 115$)	Follow-up patients ($n = 24$)		All patients ($n = 115$)	Follow-up patients ($n = 24$)
Demographics			Years used drugs (any)	17.55 ± 7.02 ($n = 69$)	17.87 ± 8.65
Males	79 (69%)	20 (83%)	Years used drugs (meth)	9.15 ± 6.90 ($n = 74$)	8.44 ± 6.73
Females	36 (31%)	4 (17%)	Number of drugs used in past	3.92 ± 2.22 ($n = 113$)	4.32 ± 2.47
Age	34.66 ± 7.94	33.46 ± 9.48	History of mental health problems (total)	1.72 ± 1.21 ($n = 112$)	1.92 ± 1.50
Employed	44 (38%)	10 (42%)	K10 Total mean	29.80 ± 8.04	34.33 ± 7.28
Drug use			K10 30+ severe*	45 (50%)	18 (75%)
Mean days per month	15.39 ± 9.07	16.54 ± 8.78	SF12 Total mean	39.92 ± 11.63 ($n = 92$)	43.46 ± 11.63
Inject stimulants	76 (66%)	13 (54%)	SF12 46+ high	31 (34%)	10 (42%)
Smoke stimulants	31 (27%)	9 (38%)	BPRS Total mean*	10.25 ± 6.16 ($n = 67$)	16.21 ± 3.91 ($n = 24$)
Daily users	29 (27%)	6 (25%)	Hostility 4+*	27 (40%)	20 (83%)
Mean OTI meth score	1.65 ± 1.50	1.52 ± 1.39	Suspiciousness 4+*	23 (34%)	20 (83%)
OTI score 1+	56 (49%)	11 (46%)	Hallucinations 4+*	17 (25%)	14 (58%)
SDS total mean	10.05 ± 3.15 ($n = 113$)	10.83 ± 2.80	Unusual thoughts 4+*	10 (15%)	9 (38%)
SDS 0–3	3 (2%)	0 (0%)	Crime total mean (max = 7)*	1.03 ± 1.83 ($n = 76$)	2.02 ± 2.40
SDS 4–10	55 (49%)	8 (33%)	Any crime*	23 (30%)	12 (50%)
SDS 11–15	55 (49%)	16 (67%)			

*Statistically significant differences: K10 30+ (severe), χ^2 [df2], $P < 0.001$; BPRS total mean, 2-sample t test, $P < 0.001$; Hostility 4+, χ^2 [df2], $P < 0.001$; Suspiciousness 4+, χ^2 [df2], $P < 0.001$; Hallucinations 4+, χ^2 [df2], $P < 0.001$; Unusual thoughts 4+, χ^2 [df2], $P < 0.001$; Crime total, 2-sample t test, $P < 0.05$; Any crime, χ^2 [df2], $P < 0.05$.

Outcomes of treatment

Evaluation scores for the follow-up group at initial assessment were compared with scores at first follow-up (Table 10).

A series of paired-sample *t*-tests were conducted on mean evaluation scores. The follow-up group showed highly significant improvements on nearly all measures ($P < 0.001$).

Self-reported stimulant use reduced significantly after treatment. Before initial assessment, no patients reported being abstinent from stimulant use in the previous month. However, at follow-up, half of patients had abstained from using stimulants for at least one month. Mean stimulant use dropped from 16 days per month on average to only 3.5 days per month. Nineteen of the 24 follow-up patients (79%) reduced their stimulant use to nil or once weekly in the month before follow-up. Only two patients reported no reduction in drug-use at all. Mean dependence scores dropped from an average of 10.8 to just under the threshold for dependence (3.3 ± 3.6). Sixteen of the 24 patients (67%) reported being no longer dependent on stimulant drugs at follow-up.

Table 10: Baseline evaluation scores compared with follow-up scores for patients who participated in follow-up

	Baseline (<i>n</i> = 24)	Follow-up (<i>n</i> = 24)	
Stimulant use			
Mean days/month	16.54 ± 8.78	3.58 ± 6.69	<i>t</i> (df:23)= 5.95, $P < 0.001$
0 days/month	0 (0%)	16 (67%)	
1–6 days/month	4 (17%)	3 (12%)	
7–15 days/month	6 (25%)	4 (17%)	
16–21 days/month	8 (33%)	0 (0%)	
22–28 days/month	6 (25%)	1 (4%)	
OTI-meth	1.52 ± 1.39	0.27 ± 0.51	<i>t</i> (df:23)= 4.93, $P < 0.001$
Injecting health-risk	1.67 ± 1.86	0.62 ± 1.17	<i>t</i> (df:23)= 3.73, $P < 0.001$
SDS dependence			
Total mean	10.83 ± 2.79	3.33 ± 3.63	<i>t</i> (df:23)= 9.21, $P < 0.001$
SDS 0–3	0 (0%)	16 (67%)	
SDS 4–10	8 (33%)	7 (29%)	
SDS 11–15	16 (67%)	1 (4%)	
K10 Distress			
Total mean	34.33 ± 7.28	20.92 ± 6.32	<i>t</i> (df:23)= 8.35, $P < 0.001$
K10 1–19 low	1 (4%)	12 (50%)	
K10 20–24 mild	1 (4%)	6 (25%)	
K10 25–29 mod	4 (17%)	4 (17%)	
K10 30+ severe	18 (75%)	2 (8%)	
SF12 Limitation			
Total mean	43.46 ± 9.42	18.63 ± 11.21	<i>t</i> (df:23)= 9.85, $P < 0.001$
SF12 1–35 low	4 (17%)	22 (92%)	
SF12 36–45 mod	10 (42%)	1 (4%)	
SF12 46+ high	10 (42%)	1 (4%)	
BPRS			
Total mean (max=28)	16.21 ± 3.91	7.79 ± 4.30	<i>t</i> (df:23)= 7.88, $P < 0.001$
Hostility mean	4.58 ± 1.25	2.46 ± 1.32	<i>t</i> (df:23)= 7.16, $P < 0.001$
Suspiciousness mean	4.88 ± 1.23	2.21 ± 1.10	<i>t</i> (df:23)= 7.64, $P < 0.001$
Hallucinations mean	3.58 ± 1.64	1.38 ± 1.17	<i>t</i> (df:23)= 6.03, $P < 0.001$
Unusual thoughts mean	3.17 ± 1.49	4.58 ± 1.25	<i>t</i> (df:23)= 4.72, $P < 0.001$
Hostility 4+	20 (83%)	2 (8%)	
Suspiciousness 4+	20 (83%)	3 (13%)	
Hallucinations 4+	14 (58%)	2 (8%)	
Unusual thoughts 4+	9 (38%)	3 (13%)	
Crime past month			
Total mean (max=7)	2.01 ± 2.40	0.17 ± 0.82	<i>t</i> (df:23)= 3.95, $P = 0.001$
Any crime	12 (50%)	1 (4%)	
Drug selling	10 (42%)	0 (0%)	

Mental health scores also improved. Patient scores on the Kessler 10 Distress Scale nearly halved at follow-up (K10 mean = 20.92 ± 6.32) compared to baseline (K10 mean = 34.33 ± 7.28). This difference was highly significant ($t[df:23] = 8.35, P < 0.001$). At baseline, all except one patient in the follow-up group reported elevated distress on the K10 (K10 total score = 20+). Only one patient was rated as 'likely to be well'. At follow-up, half of follow-up patients reported low levels of distress. A quarter of patients were only mildly distressed after treatment.

Results for the Short-Form Mental Health Scale (SF12) were similar. Mean SF12 scores showed a significant reduction from baseline (43.46 ± 9.42) to follow-up (18.63 ± 11.21). As baseline, 84% of the follow-up group reported being moderately or highly impaired (SF12 total = 36+). At three month follow-up, only two patients were in the same category (8%). Twenty-two of the 24 patients reported substantially improved quality of life after receiving treatment.

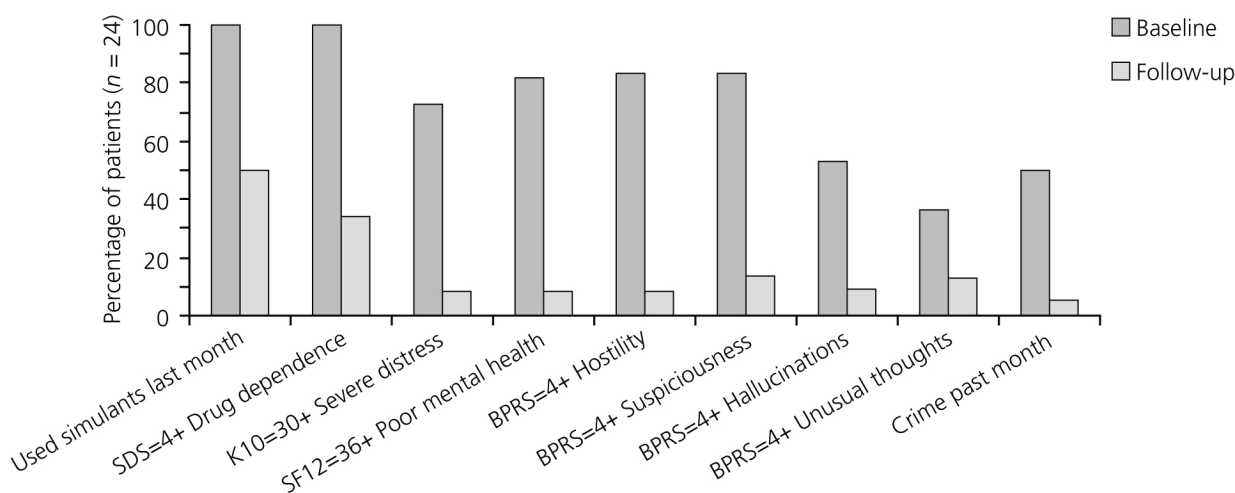
Improvements were also shown on the Brief Psychiatric Rating Scale (BPRS). Total BPRS scores halved from baseline (BPRS mean = 16.21 ± 3.91) to follow-up (mean = 7.79 ± 4.30). This difference was highly significant ($t[df:23] = 7.88, P < 0.001$). At initial assessment, all except four patients in the follow-up group reported experiencing substantial hostility and suspiciousness during the previous month (BPRS score 4+). Hallucinations and unusual thoughts and beliefs were also commonly reported. At follow-up, all except three patients had improved, with scores in the non-clinical range (BPRS score 1–3).

However, it is possible that measurement differences occurred here. As with patients' self-report on crime, BPRS ratings made by the follow-up group retrospectively (ie, looking back on their condition before treatment) were consistently higher than their self-report at baseline.

The follow-up group reported substantial reductions in crime after treatment. Mean OTI-crime scores reduced significantly from baseline (2.01 ± 2.40) to follow-up (0.17 ± 0.82). At baseline assessment, half the patients reported committing crime in the previous month. Drug selling was the most commonly reported crime (10/24, 42%). However, at follow-up, all except one patient in the follow-up group (96%) had stopped committing crime. All patients said they had ceased selling drugs.

A summary of the changes in the key outcomes measures is presented in Figure 2.

Figure 2: Percentage of patients reporting drug use, mental health problems and crime at baseline and after treatment



At follow-up, patients were asked 'since you visited the STP have you noticed any changes in your life, either for good or bad? (ie, changes in general). They were then asked about particular areas of their experience such as thinking, mood and relationships. Patients were asked to rate their life changes on a five-point scale labelled 1 'very bad', 2 'slightly bad', 3 'okay', 4 'good' and 5 'excellent'. Results are summarised in Table 11.

Patients reported a wide range of benefits from STP treatment. All except one patient said that they had experienced 'good' to 'excellent' changes in their life. In response to the question 'what type of changes have you experienced?' patients reported major improvements in clarity of thinking, perspective, stability of mood and quality of relationships. Improvements to quality of life were also often reported, such as being able to relax, sit in a park and enjoy life. Fourteen of the 24 follow-up patients rated life changes, since receiving STP treatment, as excellent. Reported positive changes for 'health' (eg, sleep, appetite and energy levels) and 'work/finances' were less common (9 and 5 patients respectively).

Overall, 80% to 90% of patients at follow-up said that they had experienced substantial improvements in their life since receiving STP treatment (ie, 'good' to 'excellent' life changes). No patients reported any adverse effects from receiving STP treatment.

Table 11: Life changes reported by 24 patients at follow-up

Changes	OK	Good	Excellent
Changes in general	1 (4%)	9 (38%)	14 (58%)
Thinking	3 (13%)	7 (29%)	14 (58%)
Mood	4 (17%)	8 (33%)	12 (50%)
Relationships	3 (13%)	8 (33%)	13 (54%)
Quality of life	5 (21%)	7 (29%)	12 (50%)
Health	5 (21%)	10 (42%)	9 (38%)
Time-usage	4 (17%)	9 (38%)	11 (46%)
Work	9 (38%)	10 (42%)	5 (21%)
No patients reported life changes in the 'very bad' or 'slightly bad' range.			

Patients were then asked 'what do you think caused these changes in your life? Their responses were written down in (free-text) summary form. Patients were then asked to rate how much the STP had caused changes for them. They were also asked to rate 'how important the STP has been' for them and 'how effective STP treatment had been for them so far'. A five-point rating scale was used ranging from 1 'nil', 2 'very slightly', 3 'some', 4 'very' and 5 'extremely'. Results are summarised in Table 12.

Seventeen of the 24 patients (71%) rated the STP as being either 'mainly' or 'almost entirely' responsible for causing positive changes in their lives. Six patients rated the STP as being 'slightly' responsible for life changes. Often, other factors had also been important, including 'myself', 'making a decision to quit', 'my mum', 'my family', 'my partner', a 'supportive flat-mate' and the 'Personal Support Program at CentreLink'.

Three patients at SVH said that the dexamphetamine program was also very important for their treatment. Almost all patients said that the STP had been either 'very' or 'extremely important' (22/24, 92%). Only two patients rated the STP as not being effective.

Eighteen patients said it was 'extremely important' to them that the STP service related specifically to stimulant drugs rather than illicit drugs in general, and the other 6 patients said it was 'very important'. Thirteen patients rated urgent access as 'extremely important' and another 9 said it was 'very important'.

Table 12: Role of the STP in changing patients' lives

	Nil	Slightly	Very	Extremely
STP as a cause of life changes	1 (4%)	6 (25%)	7 (29%)	10 (42%)
STP important to me	1 (4%)	1 (4%)	9 (38%)	13 (54%)
STP effective for me	2 (8%)	3 (13%)	8 (33%)	11 (46%)
How important was rapid access	1 (4%)	1 (4%)	9 (38%)	13 (54%)
How important that STP was stimulant-specific	0 (0%)	0 (0%)	6 (25%)	18 (75%)

3.3 Dexamphetamine treatment

Three patients began dexamphetamine treatment as part of the STP at St Vincent's Hospital. The criteria for dexamphetamine substitution are listed in the prescribing policy (Adam and Wodak 2007). Dexamphetamine substitution was offered to patients who had engaged in counselling and when, after extensive assessment, it was deemed of to be most benefit. An addictions specialist assessed patients after consultation with the multidisciplinary clinical team who had assessed and managed the patient.

Patients were prescribed dexamphetamine using dexamphetamine 5 mg tablets. Dosing was supervised and patients were clinically assessed before dosing. Doses were commenced at 20–30 mg total dose and increased where clinically indicated to a maximum of 80 mg of dexamphetamine daily. Dexamphetamine was dispensed through the pharmacy at Rankin Court, on a twice-daily basis.

Patients who had demonstrated stability by ceasing amphetamine use and attending for doses as required were able to have their second dose of the day not directly supervised, using the Take-Safe device. Take-Safe is a programmable dosing device that opens only at a programmed time, and is a method of limiting patients' access to doses that have already been dispensed. This is done to reduce the risks of non-adherence, diversion or abuse of the medication dispensed. The device cannot be easily tampered with to gain access to doses outside the scheduled dosing times. The device was programmed at Rankin Court and allowed to open once daily for the second dose of the day.

The three cases of dexamphetamine treatment are described below.

Case 1

Mr R is a man in his 40s, who had been diagnosed with attention deficit hyperactivity disorder as a child and received medication for this. He experienced significant physical, sexual and emotional abuse throughout his childhood and has post traumatic stress disorder following a sexual assault where he also contracted HIV. During this same time he was carer for a close friend who passed away. Mr R had no family or other supports. These episodes resulted in long periods of severe depression with a number of serious suicide attempts where he was hospitalised for lengthy periods.

Mr R had been a regular amphetamine user for the past six years, with no prior treatment experience. He engaged in counselling with the STP clinic and was making progress, but was unable to significantly reduce his methamphetamine use. In accordance with the stepped care approach to treatment, Mr R was stabilised on 80 mg dexamphetamine daily.

Within three weeks of commencing dexamphetamine, Mr R had ceased illicit amphetamine use and was more able to address his mental health problems through psychiatric support and counselling with the STP. He is now receiving coordinated treatment, involving a psychiatrist, general practitioner and HIV specialist services, with care being overseen by the STP. He describes feeling more positive, less fearful and says that his future has a positive outlook. He has been maintained on dexamphetamine for 18 weeks (ie, to end September 2007), attending for 241 of 246 scheduled doses (a 98% attendance rate).

Case 2

Ms S is a 48-year-old mother of two teenage children, employed previously as a successful writer. She had not held legitimate employment for three years and was becoming increasingly isolated. Ms S had been using amphetamines on a regular basis for the previous 15 years, injecting up to 2 grams in eight injections per day before commencing treatment. Due to her escalating amphetamine dependence, she commenced making amphetamines. Before entering treatment, Ms S experienced psychotic episodes and increasing self-harm. She commenced counselling and dexamphetamine treatment, stabilising on 80 mg dexamphetamine daily. She ceased illicit amphetamine use, recommenced employment and has significantly improved mental health.

Case 3

Mr T is a 43-year-old man with a three-year history of heavy methamphetamine use. He had been prosecuted for trafficking amphetamines and was on parole, but he describes the large quantities he had in his possession as for his own use. He related his methamphetamine use to trying to cope with the loss of his partner through HIV. Mr T is HIV and HCV positive. His methamphetamine use was leading to significant depression and anxiety. Mr T attempted to resolve his methamphetamine use by previous attempts at managed withdrawal and generalist drug counselling services, but with no success. He commenced regular counselling at the STP clinic, which reduced his methamphetamine use, but the amount he continued to use was having a huge impact on his mental and physical health, and so he was prescribed dexamphetamine some three months later. His mental state and physical health have improved, and he is no longer at risk of breaching parole conditions. Mr T has been maintained on 80 mg dexamphetamine for 11 weeks (ie, to end September 07), attending for 130 of 154 scheduled doses (an 87% attendance rate).

4 Discussion

4.1 Access

While the preliminary evaluation was not able to demonstrate the effectiveness of the treatment model, due to the low participation in follow-up interviews, it was able to demonstrate that the STP model of treatment was feasible and was able to attract the target population of amphetamine users experiencing mental health problems into treatment. Two hundred and fourteen people, mostly stimulant users, contacted the pilot program during the first six months. Most patients were self-referred, referred by family members or by medical practitioners. Community drug and alcohol services, residential withdrawal centres and mental health services referred some patients.

4.2 Patient retention

The preliminary evaluation was able to demonstrate that the STP has been successful in attracting and retaining people who need treatment but are often reluctant to present at mainstream drug and alcohol services.

Both STP sites provided ongoing treatment to patients and family members over the evaluation period. About three quarters of patients who were assessed by STP clinicians returned for further treatment. On average, four treatment sessions were provided to patients. This is consistent with the model proposed for the STP clinics. Some patients required longer periods of treatment. Patients attending the STP clinic at SVH remained in treatment for slightly longer periods than at HNE. This may have been related to the fact that SVH also provides other services such as a dexamphetamine program and self-help treatment (SMART recovery group¹) that required regular patient visits.

Brief treatment may have been effective for some patients. It is possible that some patients were satisfied with the assistance or information they gained during the assessment phase. Baker et al (2005) found that control-group subjects who received information only and periodic interviews benefited nearly as much as patients who received brief intensive treatment (over 2 or 4 sessions). It may be that some 'assessment-only' patients received all the help they needed for the time being (they may choose to contact the service again in the future). Many stimulant-affected patients are very suspicious and cautious when seeking help.

The burden of additional evaluation instruments completed during initial assessments may have contributed to patient attrition. During follow-up interviews, several patients said that the initial assessment seemed unnecessarily long, repetitive and intrusive (eg, questions about crime). It seems that the two sites varied in their capacity to administer the evaluation questions in detail at assessment phase. Subsequent lengthier initial assessments may have discouraged some patients from returning for further treatment. However, it should be noted that clinicians used several strategies to alleviate the impact of assessment questions on their patients and to promote therapeutic benefit. Clinicians at HNE spread assessment over several sessions so as not to 'overload' patients at the start.

4.3 Behaviour change

Because of the very low follow-up rates, we cannot assume that the positive impact of the STP clinics on the follow-up group represented the outcome for the total patient group. An intention-to-treat analysis (the conventional approach to testing effectiveness) would have shown no overall effect from the STP clinics, as most follow-up data are missing and, when imputed from baseline data, would have shown no effects of clinic attendance. However, given the large amount of imputed data, this approach is not valid. The subgroup that was followed up appeared to be similar to the total group on baseline measures. It is not possible to determine whether their course was similar to the larger group lost to follow-up.

¹ SMART; Self-Management And Recovery Training is a treatment group for stimulant drug users.

Patients who were able to be followed up typically showed very positive effects of participation in the STP clinics. When evaluation data were analysed for the 24 follow-up patients only, highly significant differences were seen between baseline and follow-up scores on all of the evaluation measures, indicating that the STP clinics were highly effective in treating this group of patients.

Consistent with findings from earlier studies of cognitive behavioural therapy by Baker et al (2001; 2005), patients who received treatment benefitted in several ways. This included abstinence from stimulants and other drugs, reduced health risk behaviours, improved mental health and reduced crime. At baseline all patients in the follow-up group reported having used stimulant drugs in the month before treatment; at follow-up half the group reported being abstinent for at least one month. A further quarter of patients reported having reduced their stimulant use to less than six times per month. Only one patient continued to use stimulants every day. Overall measures of methamphetamine use and dependence reduced substantially across the follow-up group. Blood-borne virus risks decreased significantly.

Substantial improvements in mental health were also seen in the follow up group. While at baseline three quarters of patients reported being severely distressed, less than one tenth of patients in the follow-up group retained the same level of distress. After treatment most patients obtained scores in the 'likely to be well' range. Significant reductions in hostility, suspiciousness, hallucinations and unusual thoughts and beliefs were seen in the follow-up group; only three patients continued to experience pronounced symptoms of mental illness; two of these continued high level amphetamine or cannabis use.

While the validity of self reported crime data is unclear, at baseline over a third of patients in the follow-up group reported selling drugs to help pay for their own stimulant use, and all had stopped this after treatment. The STP was effective at changing patients' behaviour in the follow-up group.

4.4 Limitations

The low follow-up rates make it unclear if improvements were likely to have occurred across the wider population seen at the STP clinics. The group that were followed up may have been more highly motivated than many other patients who failed to attend further treatment and/or follow-up interviews. However, it is difficult to determine (or even speculate) what, if any, uniquely positive features these patients may possess. In future, it will be important to improve the patient retention and follow-rates at both STP clinics if representative data are to be obtained.

A criticism of drug treatment programs is that it is difficult to demonstrate a treatment effect after patient attendance in treatment has ceased. Most patients in the current follow-up sample had been in treatment for only three to four months. It will be important to see how many patients continue to make further progress.

Several problems were encountered with the evaluation measures used. Some were inadequately completed due to practical requirements of conducting therapy. It is important to note that the current evaluation program does not have the scientific rigour of a clinical trial. STP clinicians are not trained experts in clinical interviews (eg, for the BPRS). Many patients are not willing to give valid self-reports of crime or mental health symptoms. Further, patients may not be willing to disclose details that they fear could impact on their treatment (eg, criminal histories). Caution should therefore be used interpreting these results. The importance of factors other than the STP in patients' lives was also reinforced during follow-up interviews, which showed that the patient's attitude, abilities and support network also played a part in behaviour changes. Nonetheless, attendance at the STP appeared to be crucial to effective behaviour change in this group.

4.5 Issues raised in the evaluation

4.5.1 Improving follow-up rates

It is recommended that considerable effort be made to improve the follow-up rate at both sites. As the operation of the STP will continue for another three years, a high quality data set could be obtained regarding the effectiveness of the STP clinics. Options include:

- reimbursing patients for their time and travel costs to attend (eg, \$20–\$30 per interview)
- locating a research assistant at both sites to assist with evaluation-related activities and enhance data collection
- collecting additional contact information when patients attend for baseline interviews
- continuing to locate patients during their period of treatment (regular telephone contact, emails, return addressed envelopes)
- investigating other methods of improving follow up rates.

Enhanced follow-up rates are crucial to determine if the STP clinics are effective.

4.5.2 Initial set-up

It should be noted that in most part, the pilot STP was established in a relatively short period in late 2006. Considerable time and effort was required for this task, including developing policies and programs for the operation of the clinics. In an ideal situation, planning of an evaluation would occur before the clinic began. This was not possible due to the imperative to commence clinical services for stimulant users in late 2006.

4.5.3 Evaluation tools

The current evaluation tools contain some errors and there were some inconsistencies across sites. Typically, research relies on trained research staff to administer research instruments such as the instruments used in the evaluation. Due to resource issues, clinicians recorded baseline interviews for the STP evaluation. This may have affected the quality of the data recorded, and certainly did create issues for clinicians when they had to determine a priority in treatment: was collecting research data more or less important than collecting clinical data? This issue was addressed regularly during the implementation of the clinics, but it may well have affected the quality of some of the data.

For a continuing evaluation of the program, the evaluation tools should be revised, finalised and standardised across sites as soon as possible to enhance the quality and accuracy of research data recorded. In particular, the accuracy of data regarding drug use histories, age on first and regular drug use, stage of change and sexual risk practices should be reviewed.

Data regarding patients' non-stimulant drug use was not accurately recorded. Clinicians may have opted for obtaining detailed information from patients about their use of stimulant drugs and paid less attention to gathering data on non-stimulant drug use. Often, this was a matter of competing priorities and time constraints.

4.5.4 Dexamphetamine substitution program, pharmacological and other treatments

The use of dexamphetamine substitution at the SVH clinic has demonstrated that replacement treatment can feasibly be implemented as part of the STP. However, further research should include an exploration of the appropriate role of pharmacotherapies, the most effective means to administer pharmacotherapies, dosages, alternatives including Take-Safe devices, and the form of dexamphetamine (for example, longer-acting preparations may further benefit patients attending for treatment).

There is a growing body of international research that suggests contingency management may be an effective treatment option for amphetamine users. The feasibility of this approach to treatment has not been demonstrated in Australian treatment settings. Medications development is likely to continue, particularly through research conducted by the National Institute against Drug Abuse in the USA. In this context, Australian research may be required to assess the role of pharmacological and non-pharmacological interventions in local settings.

Other medications including modafinil (Shearer 2007) have been the subject of research for amphetamine using populations. A number of other medications are currently being trialed internationally (Elkashef 2007). Further clinical research will be required to demonstrate the appropriate roles for pharmacological approaches to the treatment of amphetamine dependence.

The model of treatment for the STP presents an ideal opportunity for ongoing clinical research into the use of both pharmacological and non-pharmacological approaches to the treatment of amphetamine dependence.

4.5.5 Stimulant-specific service

About half of all patients attending the STP had not accessed previous drug and alcohol treatment. Contrasted with this is the relatively high level of amphetamine dependence and mental health problems reported by those who attended. This suggests the STP have been effective in attracting a group of amphetamine users into treatment who may not be willing to access other forms of treatment not targeted specifically at stimulant users.

4.5.6 Sex risks

St Vincent's Hospital is located near a gay community in Sydney. Given international experience with methamphetamine use in groups of gay men and related HIV risk behaviour, the capacity for the STP clinics to engage this population in treatment should be the subject of future evaluations. More detailed data should be obtained on participants' sexual risk practices. Interventions to reduce sexual risk practices should be considered.

4.5.7 Further evaluation

This evaluation has been able to assess key components of the pilot stimulant treatment program at SVH and HNE. A more definitive assessment of the impacts of the STP will require ongoing funding. In terms of ongoing evaluation the following recommendations are made:

- Evaluation of the STP clinics should continue for at least 2 financial years.
- There should be continuing liaison between the clinics to ensure that both provide a similar style of service.

4.5.8 Development of clinical resources

While the preliminary evaluation has not been able to demonstrate long term impacts of the clinics, the burden of disease related to amphetamine use and the effectiveness of attracting the target population into treatment suggests early consideration should be given to the further development of the STP. In areas with significant prevalence of amphetamine use and or harms, further STP clinics could be developed. In areas with a lower prevalence of amphetamine use, clinicians with skills and experience in stimulant treatment could be located in drug and alcohol services. This could include STP workers being placed in community drug and alcohol agencies and hospital outpatient departments (linked to hospital emergency departments).

The expertise gained through treating primary amphetamine dependence may have a role in providing treatment to other drug users (eg, opioid users on opioid substitution treatment). Links between STP and other forms of treatment should be considered. Amphetamine users have high rates of attendance to primary health care providers, so it may be effective to base STP clinicians in community settings where they could provide treatment and referral at an early point of contact.

5 Recommendations

Recommendation 1

The evaluation of the STP should continue for at least a further two years

The preliminary evaluation was able to demonstrate that the STP model of treatment was feasible, and was able to attract amphetamine users experiencing mental health problems to enter into treatment. In particular, the STP has been successful in attracting and retaining people who need treatment but are reluctant to present at mainstream drug and alcohol services. The evaluation also provided important information in relation to the progress of the STP clinics, the demographics of amphetamine users and patterns of use.

However, the preliminary evaluation was not able to demonstrate the effectiveness of the treatment model, due to the low participation in follow-up interviews. Due to the limitations of the evaluation, it is recommended that the evaluation of the STP continue over the next two years to:

- determine if this approach of providing targeted clinical services has an impact in attracting methamphetamine users to treatment
- test the effectiveness of the treatment provided
- provide more detailed data on this model of service delivery for stimulant users.

Recommendation 2

Promotion of STP clinics

Despite the limitations of the evaluation, consideration should be given to the development of a coordinated approach to the promotion of STP clinics in NSW.

The key findings of the evaluation provide a basis for promoting and expanding the STP to other locations where there is a high prevalence of stimulant use and or related harms. This could lead to the establishment of similar clinics elsewhere or the development of stimulant specific clinics operating from outpatient settings.

Recommendation 3

Identify and adopt methods to improve follow-up rates

The rate of patient participation in follow-up interviews was low. A range of strategies need to be explored and implemented to improve the follow-up rate and enhance data collection, including:

- The STP Steering Committee and Research Subcommittee should review and reconsider evaluation tools and research instruments currently being used. This should include a review of the instruments used during baseline assessment.
- The evaluation tools and instruments should be standardised across both sites.
- New strategies to enhance the follow-up rate should be explored: for instance, providing remuneration for patient participation in attending follow-up interviews.
- The capacity of both clinics to facilitate follow-up interviews should be enhanced, including increasing the staff levels at the STP clinics to enable both clinical sites to facilitate follow-up interviews.

Recommendation 4

The continuation of the evaluation should be informed by the development of evidence-based research

The continuation of the evaluation should be informed by evidence-based research, including evidence about treatment outcomes, evidence arising from research literature and from information about emerging treatments.

This should include evidence-based research into the most effective pharmacological and non-pharmacological treatments for the treatment of amphetamine dependence.

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