

Chapter 5: Treatment and Service Provision

5.1 Amphetamine-type stimulant treatment presentations

As indicated in Chapter 3, there are a number of adverse consequences arising from use of amphetamine-type stimulants (ATS). However, as noted in a review by Baker and colleagues (2004), many amphetamine users do not seek treatment and often have a weak relationship with treatment services in that retention rates are low. Earlier reviews observed that this was to some extent because the services were not perceived as being oriented to ATS users' needs and offered little in the way of specific treatment for ATS related problems. Rather, they were largely designed to provide treatment to alcohol and opioid problems (e.g., Kamieniecki et al., 1998; Vincent et al., 1999).

While the last decade has seen improvements in the knowledge base to guide interventions, and many services have mobilised to respond to the challenges set by increased ATS use, the clinical evidence base continues to lag behind that which exists for treating other drug problems, such as tobacco, alcohol and opioid dependence, and treatment links with people affected by ATS use remain tenuous. With this in mind, it is also pertinent to point out that many of the approaches used to engage and treat other drug dependent clients are relevant to working with ATS dependent individuals (e.g., building a therapeutic alliance; good assessment; identification of underlying and co-existing conditions; integrated as opposed to disaggregated care for co-existing problems).

Discussions focused on treatment were dominant throughout the consultation process. Some general observations included the need:

- To seek the input of drug users to determine what works;
- For specific ATS treatments versus blindly applying what works for other drugs;
- For more research to define a typology of different presentations matched to best practice in treatment;
- To adopt a holistic approach that addresses the broader socioeconomic issues rather than just the immediate presentation;
- To build the evidence-base to inform treatment; and
- To provide better support, resources and improved access in relation to treatment in rural and remote areas.

While acknowledging the observation that there is more limited use of treatment, recent Australian national data suggest that many ATS users do access treatment. The 'Alcohol and Other Drugs Treatment Services in Australia 2004-05: Report on the National Minimum Data Set' (Australian Institute of Health and Welfare, 2006a) is the fifth report in the series of annual publications that provides information about clients using treatment services in Australia by the principal drug of concern. Data contained in the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS-NMDS) refer to 'closed treatment

episodes', which defines the period of contact from commencement to cessation between client and treatment agency. The latest data available from the AODTS-NMDS 2004-05 report that there were 135,202 closed treatment episodes for clients seeking treatment for drug use (Australian Institute of Health and Welfare, 2006a). Amphetamine was the fourth most common principal drug of concern, accounting for 11% (n=14,780) of treatment episodes after alcohol, cannabis and opioids. It is important to note that ecstasy accounted for only 0.4% of treatment episodes during this period, reinforcing the observation that few people access treatment services in relation to their ecstasy use.

Of the total closed treatment episodes, 52% (70,068) involved at least one other drug of concern (Australian Institute of Health and Welfare, 2006a). Where the principal drug of concern was amphetamine, 66% included at least one other drug of concern – in other words, polydrug use was relatively common among treatment seekers. When all drugs of concern are considered, 22% of treatment episodes included amphetamine as one of the drugs of concern. No differences in rates were found according to gender or Indigenous status. With regards to jurisdictional differences, amphetamine was the second most common drug of concern in Western Australia (26%) and South Australia (18%). For closed treatment episodes where the client reported amphetamine as their principal drug of concern, 82% reported being current or past injectors. This was second to heroin, reported by 91%.

With regards to the type of service accessed, The AODTS-NMDS 2004-05 indicated that counselling accounted for the highest proportion of closed treatment episodes (42%) where amphetamine was the principal drug of concern (Australian Institute of Health and Welfare, 2006a). This was followed by assessment only (16%), rehabilitation (15%) and withdrawal management/detoxification (13%). The median number of treatment days within a treatment episode was 20 days for amphetamine.

The Ecstasy and Related Drugs Reporting System (EDRS) includes data on regular ecstasy users' (REU) utilisation of health and medical services specifically in relation to their use of ecstasy and other drugs. In the 2006 EDRS, 22% of the national sample reported accessing medical or health services in relation to their drug use in the last six months (Dunn et al., 2007). Of these, the majority reported seeing a general practitioner (50%), followed by a counsellor (29%), and a drug and alcohol worker (24%). Smaller proportions reported attending an emergency department (16%) and a hospital (10%). Ecstasy was the drug most commonly reported as the main drug for which help was sought (EDRS samples regular ecstasy users), followed by crystal methamphetamine. For those who saw a GP, 31% reported accessing the service for ecstasy and 12% for crystal methamphetamine.

5.2 Initial engagement

Many people affected by ATS use do not initially attend specialist drug treatment services, but are identified by, or present to, frontline services. These include needle and syringe programs (NSPs), police, ambulance paramedics and hospital emergency departments (EDs). As the first point of contact for many people affected by drug use, these services are in a unique position to identify use and problems and offer assistance. However, they are also confronted with several challenges and risks. With regards to ATS use, perhaps the greatest risks relate

to the occurrence of amphetamine related agitation and amphetamine-induced psychosis, which can be accompanied by hostility and violent behaviour (see Chapter 3).

From 1999/2000 to 2003/04, amphetamine accounted for the largest proportion of all drug-induced psychosis separations, ranging from 41% in 1999/00 to 55% in 2003/04 (Degenhardt et al., 2007). In 2003/04, the total number of bed-days for amphetamine was 8068. The number of hospital presentations for amphetamine psychosis increased in a recent five year period, from 1028 in 1999/00 to 1626 in 2003/04 (Australian Institute of Health and Welfare, 2006a).

As indicated above, behaviours related to psychosis can be difficult to manage and pose a risk to the safety of police, ambulance and emergency health staff. Written feedback from a health worker at one of the consultations stated that:

it is frightening for doctors and nurses to have to deal with a psychotic (drug-induced) patient – the violence level is so tremendous and we do not have manpower to (manage) a psychotic person.

National guidelines have been developed specifically for police, ambulance staff, emergency departments and general practitioners on the emergency management of psychostimulant toxicity (see Jenner et al., 2004a; 2004b; 2006a; 2006b). In addition, guidelines specifically for the medical management of psychosis have been developed by the Drug and Alcohol Services Council of South Australia (DASSA): 'Guidelines for the Medical Management of Acute Methamphetamine-induced Psychosis' (McIver et al., 2006). The guidelines were prepared in order to aid emergency, general, medical and psychiatric staff in providing treatment in the emergency setting. The guidelines are based on the national and international literature, on clinical experience with methamphetamine-induced psychosis patients in Australia, and developed in consultation with and guided by experts from the fields of drug and alcohol treatment, emergency medicine and psychiatry. A stepped care approach is recommended, with guidelines covering assessment, medication and follow-up.

With regards to pharmacological interventions, these guidelines promote the use of benzodiazepines over antipsychotics. This is supported by recent research into the use of haloperidol in such cases. This has suggested a link of haloperidol use with the development of hyperkinetic movement disorders and seizures (Hatzipetros et al., 2007).

ATS-related presentations may not just involve psychotic symptoms, but the burden on frontline services remains high. A recent report by Gray and colleagues (2007) attempted to estimate the impact of amphetamine use on an inner city hospital. The authors found that amphetamine-related presentations accounted for 1.2% of all admissions. Of these, over half were habitual drug users, the majority were male, and the average age was 28 years. Presentations were of high-acuity, patients were often aggressive, required prolonged emergency department admission and extensive resources. Thus, emergency situations related to high levels of agitation and sometimes psychosis, present a challenge for law enforcement, ambulance staff, emergency departments and mental health services. This was noted in the written submission received from the National Drug and Alcohol Research Centre (NDARC):

Psychiatric emergencies associated with methamphetamine use are a particular concern. Guidelines for the management of psychostimulant toxicity have been developed for emergency medical services, frontline health workers and law enforcement personnel (Jenner et al., 2004a, 2004b, 2006a, 2006b). Such protocols are important for the maintenance of staff occupational health and safety in this context. Continued efforts to improve the management of psychiatric emergencies associated with methamphetamine use are required. Adequate resources also need to be provided to emergency services to ensure that these situations are managed safely and efficiently.

The issues for frontline workers depend somewhat on the service they provide. The main issues identified for ambulance workers related to the education of paramedics, responding to personal risk, sedation of patients (used for behavioural management for those experiencing psychosis), and total care time. For police, issues focus around the management of unplanned withdrawal of ATS-intoxicated persons in custody, and appropriate diversion to health services. With specific regard to NSPs, such services can generally provide brief interventions, health promotion and service access, but have, perhaps, historically been oriented toward heroin and other opiate users and ATS dependent clients may be more chaotic. Thus, there may be a need to implement some workforce development strategies to enhance responses specific to people affected by ATS use, including skills to engage clients during binge-crash cycles.

Currently, some provisions are in place in a number of jurisdictions to meet the needs of ATS presentations to frontline services. For example, Psychiatric Emergency Care Centres (PECC) and the Mental Health Emergency Care (MHEC) program are operating in NSW. PECC provide a 24-hour brief admission service within the emergency departments of select hospitals. PECC operate according to care pathways related to: self harm/suicide; early psychosis; drug-induced psychosis; depression/anxiety; mental and physical illness; and, relapse of serious mental illness. Similarly, the MHEC program aims to provide for people presenting to hospital emergency departments with acute mental illness or disorders which contribute to people being at risk of behavioural disturbance and/or drug related problems. There are currently 4 centres in NSW, which provide an opportunity for mental health triage, assessment and behavioural management within the ED for up to 48 hours.

Much discussion during the consultations related to the burden of ATS presentations on frontline services and the associated harms. This in part related to the need for improved workforce development, particularly regarding the management of aggressive and violent behaviour and methamphetamine-induced psychosis. While there was some debate about the prevalence of such presentations and the impact the media has had in propagating this image, it was agreed that when such presentations do occur, there was a need for protocols about responding to the patient and ensuring staff safety.

Related to this was the suggestion that dealing with increased violence had an impact on the levels staff tolerance for people affected by ATS use. It was suggested that some staff exhibit prejudice toward ATS users, as mentioned earlier. It was recommended that more education was needed to counteract attitudes and behaviour that contributed to poor engagement and treatment outcomes.

In relation to the need for specific training around ATS, in the written submission from the Australian Injecting and Illicit Drug Users League (AIVL) it was noted that:

Frontline service workers need training in defusing potentially difficult situations; communication skills to engage chaotic users; awareness of comorbid mental health issues; and available treatment options.

One of the major issues raised in all consultations related to the lack of integrated care between services. It was argued that there is a need for referral pathways to be established among all the relevant service providers (e.g., law enforcement; emergency departments, community health, drug specialist and mental health services etc.).

It was also noted in the consultations that law enforcement services are often the first point of contact for many ATS users and it was considered important to enhance behavioural management of ATS-affected people, to ensure safety for police and offenders. But there was also an identified need to build referral pathways, especially out-of-hours, when service provision was limited and when, paradoxically, ATS intoxication-related problems might be most likely expressed. Some law enforcement staff suggested that medical support is needed in the custodial environment, for example through having drug and alcohol nurses available to assist with the management and appropriate referral of ATS affected individuals. It was observed that one such initiative has been implemented in South Australia where nurses employed by DASSA have been placed at the Adelaide City Watch House.

Emergency departments were also a key initial point of contact with ATS affected patients. It was argued that emergency departments were not the best location for most presentations. A number of participants suggested that there was a need to establish an independent facility, in close proximity or adjacent to the emergency departments, that could provide a safe and supportive environment to manage intoxication and withdrawal. A number of consumers suggested that such an option was preferable to emergency departments or police lock-ups.

Managing acute ATS toxicity

As noted in Chapter 3, acute ATS toxicity can result in a range of adverse outcomes, including cardiovascular and cerebrovascular emergencies, behavioural problems, serotonin toxicity and psychosis. Such problems, usually dose dependent, can occur in relatively naive as well as regular users (Dean & Whyte, 2004). Effective management requires staff to be able to accurately assess and diagnose the condition, and needs access to a safe environment (which in some, more severe, cases may require medical management), monitoring and, in cases of severe behavioural problems and psychosis, possible sedation. Pharmacological management may be complicated by polydrug use (e.g., co-existing alcohol intoxication). Although some research on managing cocaine toxicity may be relevant, unfortunately, the evidence to guide clinical practice is limited:

... studies related specifically to the management of amphetamine and MDMA toxicity are few. (Dean & Whyte, 2004, p.100).

As described earlier, despite the paucity of specific evidence, the challenges posed by ATS toxicity and evidence regarding general management of the various conditions prompted

the development of management guidelines for emergency health services, frontline health workers and law enforcement staff (Jenner et al., 2004a; 2004b; 2006a; 2006b). The effectiveness of their dissemination and adoption remains to be determined. Other guidelines have also been developed including the NSW publications, 'Amphetamines and Other Psychostimulants – A Guide to the Management of Users' and 'Clinical Guidelines for Assessment and Management of Psychostimulant Users', and the WA Drug and Alcohol Office (DAO) publication, 'Clinical Guidelines: Management of Acute Amphetamine Related Problems'. More recently, Turning Point developed treatment guidelines for methamphetamine dependence, which included management of acute toxicity (Lee et al., 2007). The recommended steps were: observation of clinical signs of toxicity, monitoring of vital signs, verbal de-escalation of situation if necessary, sedation as required and regular hydration and observation.

5.3 Treatment access and retention

The evidence indicates that ATS users represent a relatively 'volatile group' in respect to both access to, and retention in, treatment. A number of studies (e.g., Klee et al., 2001; Hando et al., 1997; Vincent et al., 1999) have indicated that traditional drug services have not been attractive to ATS users and there remain some reasons to believe that treatment engagement of people affected by ATS use is low compared to the number of people in need. For example, Kelly and colleagues (2005) estimated that only 10% of regular amphetamine users received formal treatment in any given year. Poor engagement and retention limits the ability of treatment to have impact (McKetin & Kelly, 2007).

Recent reports indicate that the problems of limited treatment engagement and retention are still issues (e.g., Shearer, 2007). Access to treatment does not appear to be randomly distributed among those who might be affected by ATS use. For example, research investigating characteristics of amphetamine users accessing treatment in NSW during 2002-03 reported that the majority of clients were English speaking, of low socioeconomic status, unemployed and were injecting drug users (McKetin et al., 2004). Research with dependent methamphetamine users in Sydney explored socio-demographic factors associated with receiving treatment (McKetin & Kelly, 2007). After adjusting for severity of methamphetamine dependence, factors predictive of not receiving treatment included being female, being born outside Australia and being in full-time employment. Methamphetamine smokers were also less likely to receive treatment than those who consumed the drug via other methods of administration. Similarly, Hillhouse and colleagues (2007) examined individual drug use and treatment characteristics as predictors of in-treatment performance and post-treatment outcomes over a 1-year period. A sample of 420 participants, from the Methamphetamine Treatment Project (MTP), was interviewed. Poor treatment engagement was associated with being female, more frequent use of methamphetamine, shorter history of methamphetamine use, smoking as the route of administration, and baseline depression. Poor treatment retention was associated with more frequent methamphetamine use, injecting drug use history, and use of methamphetamine during treatment. Non-completion of treatment was associated with shorter history of methamphetamine use, smoking or injecting methamphetamine, and methamphetamine use during treatment.

These studies replicate earlier reports. For example, Maglione and colleagues (2000) reported on treatment retention of over 2000 methamphetamine users in public outpatient services in California from 1994-1997 (a 45 month period). Overall, only 23% completed treatment, and drop out rates were higher for males. It should be noted that the treatment programs were lengthy (drop out was defined as not completing 180 days of treatment) and thus, this may be an indication of the fact that long term treatments are unattractive.

Luchansky and colleagues (2007) found completion rates for methamphetamine users in treatment compared well to users of other drugs. This study investigated a total sample of 12,726 adults and 2,715 youths receiving treatment for substance abuse in Washington State. Participants were compared according to primary drug, defined as alcohol, marijuana, methamphetamine, or 'other hard drugs' (cocaine, heroin, other opiates) and tracked for 1-year following discharge from a residential or outpatient treatment. Outcomes relating to completion of and readmission to treatment, and employment and criminal activity after treatment were measured. The general finding for both adults and youth was that outcomes for methamphetamine users were similar to those of users of 'other hard drugs', but not as positive as those of users of alcohol or marijuana. The one exception was in regards to completion of treatment, with adult methamphetamine users found to be significantly more likely to complete treatment than users of either alcohol or 'other hard drugs'. However, alcohol users were less likely to be readmitted to treatment than methamphetamine users.

A current Australia-wide project, led by NDARC with collaboration from Turning Point, DASSA, University of Melbourne, Queensland Alcohol and Drug Research Centre (QADREC), Griffith University and the National Centre for HIV Epidemiology and Clinical Research, is aimed at further enhancing understanding of treatment characteristics and issues for ATS users. The project will follow a cohort of dependent methamphetamine users in order to examine the characteristics of those entering treatment, differences to those not seeking treatment, factors predictive of abstinence, psychiatric morbidity, criminal involvement and contact with the health and criminal justice systems.

Some research has suggested that the patterns of ATS use may influence decisions to seek and remain in treatment. The lifestyle of those who engage in 'binge patterns' of use may disincline them to attend services, especially if it is believed that the treatment goal will be unattractive (e.g., abstinence). Baker and colleagues (2001a) found that few regular amphetamine users interviewed in their study wished to reduce or abstain from drug use, which has led some to conclude that a harm reduction focus should be an important element of treatment approaches.

Attracting and retaining ATS users in treatment has been a feature of a number of studies. For example, in relation to amphetamine, Wright and colleagues (1999) suggested that better information about treatment options should be communicated to users, resources specific to amphetamine should be available to staff, drop-in centres should provide advice and a link to treatment, workforce development strategies should be implemented to enhance staff skills and partnerships should be developed between general and drug specialist services. They also noted the importance of interventions targeting families. Others (e.g., Vincent et al., 1999) have made similar recommendations, including emphasising the need to build partnerships between drug specialist services and GPs, particularly because a number of studies (e.g., Hando et al., 1997; Vincent et al., 1999)

indicated that GPs were a preferred source of support for many people affected by ATS use. These various researchers and others have noted that ATS use can severely impact on relationships (e.g., impact of agitation, aggression, paranoia – see chapter on ‘Effects of ATS’) and this includes relationships with treatment services and the individuals in those services. The ability to establish a safe therapeutic alliance is central to any clinical endeavour – with people affected by ATS use, this assumes a greater importance (e.g., see Baker et al., 2004; Vincent et al., 1999; Wright, Klee & Reid, 1999; Wright & Klee, 2001). In addition, interventions need to be based on the factors that influence and underlie ATS use and the functions they perform (e.g., social functions; losing weight; self-medication of mental health problems).

One suggested option is the development of clinics that specifically provide treatment for ATS users. Turning Point Alcohol and Drug Centre in Melbourne is currently trialing two SMaRT Clinics, which are specialist methamphetamine treatment and research clinics. The clinics aim to build collaborative care relationships with a range of services to ensure smooth pathways into and out of ATS treatment, act as a training ground for alcohol and other drug (AOD) and mental health staff, and demonstrate a range of best practice interventions for ATS users. The project aims to use consumer consultation in the process of establishing the clinics which are to be staffed by community nurses, psychologists, addiction medicine specialists/GPs and psychiatrists. It is intended to conduct a detailed evaluation of the services.

Similar trials are being conducted in NSW with the Stimulant Treatment Programme established at St Vincent’s Hospital in Darlinghurst (Sydney) and in the Hunter New England region. The program provides a brief psychosocial intervention (8 sessions) within a stepped care framework. Preliminary data report 83 clients across the two sites who are predominantly male (75%) and aged 20-37 years (65%) (Dunlop & Tulloch, 2007). Three quarters of the clients at the New Hunter site and half the clients at the Sydney site are unemployed, and 55% across the sites are self-referred. The most common route of administration reported is injecting (70%), followed by smoking (24%). The majority of the clients are polydrug users, with cannabis (61%) and alcohol (59%) the most commonly reported drugs also used. Three quarters of clients had a mental health disorder, including 65% with depression, 36% drug-induced psychosis and 33% anxiety. Anecdotal reports from clients found that they were attracted to the service due to its stimulant-specific focus and perceived more generic AOD services as not understanding their particular issues and concerns.

During the consultations, a common theme related to the challenges of accessing treatment services for ATS users. It was suggested that this was due to limited treatment options and long treatment waiting periods. Concern was particularly expressed about limited access to withdrawal management and rehabilitation programs. Limited access to treatment was a particular concern for those located in rural and remote regions, an issue that was more evident for many Indigenous communities. The written submission from the National Indigenous Drug and Alcohol Committee (NIDAC) indicated that there was a specific need to enhance access to culturally secure drug treatment services for Indigenous people particularly in remote and regional areas. This would include providing locally accessible treatment and rehabilitation services and involve strategies that

addressed not only the drug user but the broader family unit and the provision of post-treatment aftercare and support. It was proposed that a critical component of any effective approach would involve building an Indigenous workforce that could prevent and respond to ATS use amongst Indigenous people.

5.4 Withdrawal management

The nature of ATS dependence, and coincidentally the nature of a withdrawal syndrome, has been debated until relatively recently. This has contributed to a situation where:

The literature pertaining to psychostimulant withdrawal is inconsistent and of mixed quality. ... no studies that describe the natural history of methamphetamine withdrawal among dependent individuals could be located and as a result that particular process is still poorly understood (Jenner & Saunders, 2004, p.103).

Although there have been some advances since this conclusion, there is still a dearth of information. What is known is that ATS withdrawal is distinguished from that which occurs with central nervous system depressant drugs such as alcohol or the opioids. The latter drug withdrawal syndromes generally result in symptoms that are the opposite of the drug effects, whereas for ATS, the symptoms might be similar to symptoms of intoxication, including for example agitation and arousal (Jenner & Saunders, 2004). The amphetamine withdrawal syndrome appears to consist of three primary symptom clusters: hyperarousal symptoms, composed of drug craving, agitation, and vivid/unpleasant dreams; reversed vegetative symptoms, consisting of decreased energy, increased appetite and craving for sleep; and anxiety-related symptoms, comprising anxiety, slowing of movement, and loss of interest or pleasure (Srisurapanon et al., 2001). A prospective study of methamphetamine withdrawal syndrome found moderate levels of depression during the first several days of abstinence, with minimal levels thereafter. The most prominent symptoms were anhedonia (inability to experience pleasure from normally pleasurable experiences), irritability and poor concentration (Newton et al., 2004).

More recently, McGregor and colleagues (2005) conceptualised the methamphetamine withdrawal syndrome as comprised of two phases: an acute phase lasting 7-10 days and a subacute phase lasting at least a further 2 weeks. The acute phase was characterised by increased sleeping and eating, a cluster of depression-related symptoms and less severe anxiety and craving-related symptoms (McGregor et al., 2005). Symptoms of mood lability, irritability, sleeping difficulties and cognitive deficits may persist for several months (Volkow et al., 2001).

From their review of the literature, Grabowski and colleagues (2004) concluded that there was a lack of clear protocols for appropriate withdrawal management of methamphetamine users. This was largely due to differing opinions among medical practitioners as to the most effective regimens and available research not supporting one medication over another. The role of pharmacotherapy in withdrawal management is outlined in a subsequent section.

An important clinical challenge has been to differentiate the symptoms of 'crash' (or the immediate 'come down' effects of ATS) from withdrawal. The former, not inconsistent with the 'hangover effects' of drugs, such as alcohol, occurs in the ensuing few days after

intoxication – the latter tend to commence towards the end of this period and are more enduring. The experience of withdrawal is generally related to the frequency and duration of ATS use, potency of drugs consumed, mode of use, severity of dependence and co-existence of physical and psychiatric conditions (e.g., see Jenner & Saunders, 2004). Symptoms include, in order of most frequently reported, irritability, aches and pains, depressed mood, and impaired social functioning (Cantwell & McBride, 1998). Symptoms can be protracted over several days to several weeks.

Jenner and Saunders (2004) suggested that ATS withdrawal:

- Can generally be managed on an outpatient basis (except where unsuitable home conditions or co-existing health concerns exist);
- Provision of safe psychosocial support in a non-threatening environment; and
- Can involve pharmacological symptom relief.

These authors also suggested a range of assessment protocols for assessing the potential risks of withdrawal to inform treatment planning and protocols to monitor and respond to the withdrawal syndrome. However, as with other researchers and clinicians, they note that there is a lack of a good evidence base to guide withdrawal management, and in particular, despite a range of current studies, their counsel that there is limited evidence about indicated pharmacotherapies still stands:

Recommendations for psychostimulant detoxification and withdrawal management ... tend to be based on clinical opinion and therefore management strategies may vary from setting to setting. The role of pharmacotherapies is currently limited, however benzodiazepines, antipsychotics and antidepressants if necessary are currently considered by clinicians to be the major components of a medicated psychostimulant withdrawal program (Jenner & Saunders, 2004, p.117).

These and other researchers (e.g., Vincent et al., 1999) also note that a significant proportion of people dependent on ATS may also be dependent on other drugs (e.g., alcohol, opioids), and therefore, the more established withdrawal management strategies for these drugs could be employed.

5.5 Psychosocial interventions

Psychosocial treatment modalities have most commonly been used to treat ATS users, in part because of the absence of a strong evidence base demonstrating the effectiveness of pharmacotherapies. Kamieniecki and colleagues (1998) reported that the following non-pharmacological interventions had been used with psychostimulant users: inpatient programs, therapeutic communities, 12-step programs, peer interventions, behavioural strategies, cognitive-behavioural interventions, multimodal treatment packages, and non-traditional methods such as acupuncture. Those which demonstrated the most efficacy were relapse prevention, cue exposure/response prevention, and multifaceted behavioural treatment. However, it was noted that many of the interventions had not been properly evaluated.

Research conducted in the subsequent decade suggests that cognitive behavioural therapy is the recommended psychosocial treatment for methamphetamine dependence in Australia (Baker et al., 2005). While this is supported by evidence from controlled studies, comparisons have not been conducted to test the efficacy of other psychotherapeutic approaches. Thus, evidence-based recommendations for psychosocial interventions must be considered in the context of limited research. As noted in the written submission from NDARC, new approaches are currently being explored, including mindfulness therapy (based on meditation techniques) narrative therapy (NT; based on an examination and reconstruction of a client's life history) and Acceptance and Commitment Therapy (ACT; combines mindfulness strategies with behaviour change strategies). NT is currently being investigated in addition to mirtazepine in a trial being conducted in WA and NSW, with preliminary findings suggesting that NT attendance is a significant predictor of treatment retention (Cruickshank et al., unpublished). A randomised controlled trial of psychotherapy for amphetamine use, comparing relapse prevention skills training with ACT is currently underway in South Australia. It has been noted that given the cognitive deficits experienced as a result of sustained methamphetamine use, such therapies that rely less on cognitive processes may prove beneficial in treating dependent methamphetamine users.

A review of treatment was recently reported by Shearer (2007) who identified 43 unique and original reports of randomised controlled trials of psychosocial interventions primarily targeted toward psychostimulant use, and 10 reports from clinical trials and long-term cohort studies. Interventions included behavioural (contingency management, cue exposure), cognitive (motivational interviewing, relapse prevention, cognitive behaviour therapy), psychotherapy, and abstinence-oriented (detoxification, residential rehabilitation, 12-step programs). It is important to note that most of these studies were conducted among cocaine users in the United States, which may limit the relevance for treatment of ATS users in Australia. It was also noted that the evidence base for psychosocial interventions for psychostimulant dependence is still limited, given there are insufficient controlled trials supporting one intervention over another. In this context, the following discussion is an overview of the most common interventions.

Brief interventions

Brief interventions (BI) are usually considered pre-treatment tools or secondary prevention techniques with the broad goal of reducing or eliminating drug use to avoid or minimise associated problems:

Brief interventions aim to investigate a potential problem and motivate an individual to begin to do something about their substance use. The primary goal of a brief intervention is to reduce the risk of harm that could result from continued substance use. Brief interventions on their own can promote behaviour change, or can act as the first stage of more intense treatment (Baker, Lee & Jenner, 2004, p.68).

Recent adaptations include brief cognitive-behavioural interventions (BCBIs), which commonly consist of a motivational interview and skills training in the avoidance of high-risk situations, coping with cravings, and relapse prevention (Srisurapanont et al., 2007). Given that the efficacy of BI is largely contingent on the client's level of motivation, this intervention is usually considered most effective for people with no or low levels of dependence, unless

used to divert more severely dependent individuals into more intensive treatment. While the bulk of the evidence for BI relates to drugs such as tobacco and alcohol, they have increasingly been applied to illicit drug problems, including ATS use.

Srisurapanont and colleagues (2007) conducted a study aimed at evaluating the short-term benefits of BI for methamphetamine use disorders. A randomised controlled trial of BI compared to psychoeducation was investigated in youth aged 14-19 years old who met DSM criteria for methamphetamine dependence or abuse. Participants were students living in urban or suburban areas of Chiang Mai, selected due to the prevalence of methamphetamine use in Thai youth. The BI adopted was similar to that used in Australian studies (see Baker et al., 2001b, 2005), with the exception of the component of cognitive-behavioural therapy. The study found that while the frequency and amount of methamphetamine use decreased significantly in both groups, frequency of use for those in the BI group was significantly less than those in the psychoeducation group.

As noted, research conducted in Australia by Baker and colleagues (e.g., 2001b) has investigated the efficacy of BI in treating amphetamine users. This research has resulted in the development of a treatment guide for a brief cognitive behavioural intervention with regular amphetamine users (Baker et al., 2003). The intervention may comprise two or four sessions, with the four-session intervention consisting of motivational interviewing, coping with cravings and lapses, controlling thoughts about amphetamine use and pleasurable activities, and amphetamine refusal skills and preparation for future high-risk situations (Baker et al., 2003). Investigation of the effectiveness of the intervention was conducted in a randomised controlled trial with 214 regular amphetamine users in the Greater Brisbane Region of Queensland and Newcastle in NSW (Baker et al., 2005). The study found that there was a marked reduction in amphetamine use among the sample over time, and a significant increase in the likelihood of abstinence from amphetamine for those receiving two or more sessions (Baker et al., 2005).

While research has shown that BI can be effective with meth/amphetamine use, Baker and colleagues (2004) observed that, as many ecstasy users do not come into contact with treatment services, it may be appropriate to develop and evaluate the impact of specific brief and opportunistic interventions. These might be delivered in emergency departments, at events such as dance parties, in primary health care settings, in law enforcement setting and through computer/Internet media for remote/anonymous access.

Cognitive behaviour therapy

As indicated, research into the efficacy of psychosocial interventions for people affected by ATS use is in its early stages, but support has been found for cognitive behaviour therapy (CBT). Such interventions usually progress through stages of motivational interviewing, instruction in cognitive-behavioural coping strategies and relapse prevention.

As discussed in the brief intervention section, Baker and colleagues (2001b) found brief CBT (in durations of either two or four sessions), superior in treatment outcome compared to participants who had been provided with self-help material. Both groups reduced amphetamine use, but greater rates of abstinence were achieved over the 6 month follow up in the CBT group. Other studies have demonstrated the value of CBT with cocaine

users, data that may be generalisable to ATS use (e.g., Crits-Cristoph et al., 1999). Brief CBT may also be effective in reducing psychological distress among amphetamine users. Feeney and colleagues (2006) found that a program consisting of refusal self-efficacy, improved coping, improved problem solving and planning for relapse prevention resulted in significantly improved scores on measures of somatic symptoms, anxiety, social dysfunction and depression among an Australian sample of 168 amphetamine users.

Baker and colleagues (2005) recommended that a stepped-care approach should be adopted. This involves the provision of intervention tailored to individual needs, with the employment of more intensive interventions as indicated by the degree of dependence and severity of problems experienced by the individual. Thus, those presenting at non-treatment settings may be involved in a structured assessment of amphetamine use and related problems, provided with self-help materials, and their use and harms regularly monitored. Those presenting to treatment settings may be offered two or more sessions of CBT, depending on extent of use and co-existing problems (e.g., depression).

Contingency management

Contingency management (CM) is based on principles of reinforcement by decreasing the appeal of the drug via delivery of a reward for behaviour change/abstinence. Thus, clients receive incentives upon reaching therapeutic goals. In the United States, contingency management has been proposed as 'best treatment practice' for psychostimulant problems (Rawson, 1999; Shoptaw et al., 2006), largely based on research with cocaine users, although there has also been application to methamphetamine dependence. The most often cited reasons for not employing such techniques are the perceived cost and complexity, and doubt over whether it promotes enduring behaviour change (Kirby et al., 2006).

As part of the multi-site trial of the NIDA National Drug Abuse Treatment Clinical Trials Network, Roll and colleagues (2006) evaluated a contingency management intervention in which methamphetamine abusers submitting drug-free urine samples earned draws for chances to win prizes. No differences were found between this group and those in standard treatment for number of counselling sessions attended or retention in treatment. However, significant differences were found for more drug-free urine samples collected and longer period of continuous abstinence.

In a recent review of the literature on contingency management, Roll (2007) identified one laboratory study and four clinical assessments of the efficacy of CM in treating methamphetamine use disorders, and the most common method was voucher-based reinforcement therapy (VBRT). Roll concluded that adding such methods to other treatment strategies would increase in-treatment abstinence in many methamphetamine treatment settings. However, Roll cautioned against using CM in isolation to address methamphetamine use due to high levels of co-occurring problems.

The results discussed in this manuscript suggest that adding CM to many treatment strategies would increase in-treatment abstinence in many methamphetamine treatment settings. Given the relatively high levels of psychiatric comorbidity, medical comorbidity and criminal activity associated with methamphetamine use, I believe it would be unwise to treat this disorder with only CM. Instead, I recommend that CM be a component of

a holistic treatment strategy that addresses the psychosocial, medical, psychiatric and criminal justice issues that often co-occur with methamphetamine use disorders (Roll, 2007, pp.118-119).

The Matrix Model

The Centre for Substance Abuse Treatment (CSAT) has been involved in developing and implementing a multimodal approach to methamphetamine dependence. The US Methamphetamine Treatment Project (MTP) appears to be the largest randomised clinical trial of psychosocial treatments for methamphetamine dependence to date. The Matrix Model utilised in the project is a manualised 16-week outpatient treatment approach combining approaches and resources developed within cognitive-behavioural principles, including positive reinforcement, family education, relapse prevention and 12-step program participation. The program also includes breath testing and urine screening for drug use. Rawson and colleagues (2004) evaluated the model in comparison to 'treatment as usual' with methamphetamine dependent patients. This resource-intensive intervention was found to result in some positive outcomes. 38% of participants were more likely to stay in treatment, 27% were more likely to complete treatment, and 31% were more likely to have negative methamphetamine urine test results. However, the Matrix Model did not produce superior outcomes at discharge or follow-up.

5.6 Pharmacotherapy

Various drug treatments, or pharmacotherapies, are used in relation to ATS dependence, to aid in withdrawal, to block drug effects, as replacement or substitution therapy, and/or to treat co-occurring and related psychological disorders. In reviewing the literature, Shearer and Gowing (2004) found the following pharmacotherapies had been used in response to psychostimulant use:

- Antidepressants;
- Dopamine agonists and antagonists;
- Disulfiram;
- Central nervous system stimulants;
- Modafinil;
- Vaccines;
- Calcium blockers; and
- Opioid agonists and antagonists.

Despite this diverse range of options, clinical studies of pharmacotherapies for ATS are sparse and controlled studies are rare. However, research is ongoing and a number of trials are currently being conducted to determine the utility of a range of medications. Vocci and Appel (2007) provide an overview of the approaches currently being used to develop medications for the treatment of methamphetamine dependence. This includes medications

that limit brain exposure to methamphetamine; modify the effects of methamphetamine at vesicular monoamine transporter-2 (VMAT-2); or act on dopaminergic, serotonergic, GABAergic, and/or glutamatergic neurological pathways that play a role in the reinforcing effects of methamphetamine. Vocci and Appel (2007) conclude that there is evidence to support the rationale that pharmacotherapies to decrease methamphetamine use or reduce cravings following cessation of use may be developed by:

...altering the pharmacokinetics and pharmacodynamics of methamphetamine or its effects on appetitive systems in the brain (p.96).

Following is a brief summary of some of this research with a focus on the main areas of investigation.

Managing withdrawal

As already noted, there is limited evidence about pharmacotherapies to manage withdrawal. Given the presentation of acute toxicity (outlined above), symptoms related to mood and sleep require management. Antidepressants have been used to alleviate mood-related symptoms of withdrawal with mixed results. There is some suggestion that fluoxetine could decrease cravings in the short-term, and imipramine may increase duration of adherence to treatment in the medium-term, however, the evidence is limited (Shearer & Gowing, 2004). It has also been suggested that diazepam be used to treat anxiety and temazepam for insomnia (Dyer & Cruickshank, 2005). Finally, mirtazepine (medication that helps promote sleep and alleviate depression) has also been implicated in withdrawal management. Preliminary results from a joint investigation in Western Australia and NSW found no evidence that mirtazepine improved treatment retention, alleviated withdrawal symptoms, improved sleep or reduced methamphetamine use (Cruickshank et al., unpublished).

Modafinil, an agent used to treat narcolepsy, has also been suggested as having some utility in withdrawal management. The medication enhances wakefulness, vigilance and alertness, and may therefore alleviate withdrawal symptoms such as hypersomnia, poor concentration and low mood (Shearer & Gowing, 2004). A number of studies are underway, in Australia and overseas, to investigate the potential of this drug and others in managing ATS withdrawal. For example, DASSA is currently investigating the safety and efficacy of mirtazepine, modafinil and bupropion (antidepressant shown to be effective as a nicotine cessation aid) in the treatment of withdrawal symptoms following cessation of amphetamine use among dependent users. There are a number of other studies currently underway: the WA DAO and NSW Langton Centre are currently testing the efficacy of mirtazepine in the treatment of amphetamine withdrawal and narrative therapy as an adjunctive treatment; Turning Point in collaboration with DASWest, Hunter Area Health Service and University of Queensland are currently conducting a pilot randomised placebo controlled trial of Modafinil as an aid for methamphetamine withdrawal and entry into further treatment. Assessed outcomes include drug use, mental health, cognitive functioning and withdrawal symptomatology.

Substitution therapy

Substitution therapy for ATS has most commonly involved prescribing central nervous system stimulants, in particular, dexamphetamine, especially to patients for whom other interventions have not been effective.

Substitution therapies aim to replace harmful drug use with safer modes of drug use in terms of dose, route of administration and adverse effects. Effective substitutes may allow patients to stabilise on doses that prevent withdrawal and craving and to reduce the harms associated with illicit drug use. (Shearer & Gowing, 2004, p.125).

The potential benefits of substitution therapy for amphetamine users were outlined by Fleming (1998) and include:

- Attracting and engaging amphetamine users into treatment, particularly those who would not otherwise seek out help;
- Engaging users in treatment provides a valuable opportunity to provide harm reduction information, health care interventions, and referral;
- Substitution acknowledges that there are problems associated with amphetamine use and thus, conveys messages about the potential harms of amphetamine use;
- By reducing amphetamine use through substitution, related harms are also reduced; and
- Potential short-term risks of prescribing substitutes may outweigh the potential long-term harms of continued illicit amphetamine use.

It has been suggested that substitution may be indicated for individuals who are dependent and for whom other attempts at abstinence have failed and maintenance is considered to be less risky than continued illicit use (Mattick & Darke 1995). However, it is noted that substitution therapy is not without risks, and may include the risk of relapse to psychotic episodes, risk of cardiovascular problems, risk of diversion of therapeutic doses and continued use of prescribed and illicit amphetamine (Shearer et al., 2002).

In the United Kingdom, dexamphetamine has been used to treat ATS dependence since the 1990s. Despite a number of relatively large clinical trials, there is little scientific evidence to support this treatment, but rather, self-report or case note studies (Bradbeer et al., 1998). White (2000) conducted a retrospective study of 220 amphetamine users receiving dexamphetamine prescriptions in the UK and found it had an immediate effect in reducing amphetamine use, but less impact on treatment retention (White, 2000). In this study, oral and intravenous amphetamine users had similar outcomes, although intravenous users made more overall gains in treatment.

The first randomised controlled trial of dexamphetamine as a substitute for methamphetamine dependence was conducted in Sydney (Shearer et al., 2001). This study compared 21 long-term dependent users receiving 60mg dexamphetamine daily to a control group of 20 similar users. Both groups received standard drug counselling and both were found to respond positively to intervention. Reductions were found in injecting behaviour, methamphetamine-positive urine samples and severity of dependence. The

only significant difference was in the uptake of counselling, which was greater in the dexamphetamine group. The most serious adverse consequence of dexamphetamine cited has been the potential development of psychotic symptoms, particularly for those who have experienced amphetamine-induced psychosis. Another potential risk is the diversion of prescribed amphetamine (Shearer et al., 2002). On the other hand, some clinical trials have reported that such risks do not necessarily eventuate in adverse outcomes (e.g., Carnwath et al., 2002). Further research is currently underway, in South Australia, which involves a randomised double blind placebo controlled trial of dexamphetamine as maintenance treatment for amphetamine dependence.

Aside from dexamphetamine, more recently both methylphenidate (e.g., Ritalin) and the antidepressant bupropion (e.g., Zyban) have been studied as potential amphetamine substitutes. Tiihonen and colleagues (2007) compared aripiprazole, a partial dopamine agonist, oral methylphenidate and a placebo among a sample of intravenous meth/amphetamine users. They reported that while aripiprazole was associated with significantly more amphetamine-positive urine samples, methylphenidate was associated with significantly fewer such samples. Bupropion is currently being trialled through several phases and has been shown to decrease subjective effects of methamphetamine and reduce cravings (Newton et al., 2006).

At present, evaluations suggest that ATS users find services offering substitution therapy attractive when offered in addition to advice and counselling, and results from international trials indicate that pharmacological treatment is most effective when used in conjunction with psychosocial intervention (Mattick & Darke, 1995). Thus, from both the perspective of the consumer and as indicated by the research, safe and effective medication potentially represents a valuable adjunct to psychosocial interventions that may enhance both participation and retention. However, as noted in the written submission from NDARC:

NDARC, in collaboration with St Vincents' Hospital and the Kirketon Road Centre, conducted the first randomised controlled trial of dexamphetamine as a substitute for methamphetamine dependence (Shearer et al., 2001). This trial found modest benefits from dexamphetamine treatment which needed to be confirmed in larger trials. ... Overall, existing evidence suggests that modest benefits from dexamphetamine substitution are outweighed by problems associated with this treatment, including diversion and side-effects from interactions with concurrent illicit drug use (Mattick & Darke, 1995).

Antidepressants

Depression is commonly associated with ATS use, sometimes predating use, and also emerging as a consequence of use. As noted by Shearer and Gowing (2004):

Antidepressants have been investigated in the treatment of comorbid depression, depressive symptomatology associated with psychostimulant withdrawal, or for their dopamine agonist properties (p.121).

The range of trials, with various agents, has provided equivocal results. One interpretation of the data is that those with pre-existing affective disorders may be responsive to antidepressant treatment, whereas those with symptoms that emerge as a consequence

of ATS use may be less responsive. Some evidence exists to suggest this differential responsiveness (e.g., Donovan & Nunes, 1998). A final concern is the combined effect of using SSRIs (selective serotonin reuptake inhibitors) with people who are using ATS. Research suggests that the SSRI fluoxetine may potentiate acute toxic effects of MDMA in susceptible individuals (e.g., Hegadoren et al., 1999) and thus, more research is needed to investigate the interaction of SSRIs and MDMA and its potential contribution to serotonin toxicity. This all suggests the need for more research, particularly research identifying subgroups with whom antidepressants may be indicated and contraindicated.

Shearer and Gowing (2004) have observed that in fact the evidence for pharmacotherapies is generally limited, except for managing co-existing dependence on other drugs (such as using evidence-based pharmacotherapies for opioid dependence) or managing co-existing conditions (such as attention deficit hyperactivity disorder (ADHD) or affective disorders). These researchers provide a succinct and useful summary of the pharmacotherapy research:

...with the exception of pharmacotherapies targeted towards accurately and appropriately diagnosed comorbid conditions such as affective disorders, psychotic disorders, attention deficit disorders and opioid dependence, the use of pharmacotherapies for the promotion or maintenance of psychostimulant abstinence or the management of psychostimulant withdrawal continues to be experimental. The inherent risks of pharmacotherapy may suggest that the use of pharmacotherapeutic agents should be limited to users diagnosed with more severe dependence who experience the greatest burden of psychostimulant-related harms (Shearer & Gowing, 2004, p.130).

The potential role of pharmacotherapy in treatment for ATS abuse was repeatedly raised during the consultation process. There were many appeals for more research into substitution therapy in recognition that, at present, there is no strong evidence base for pharmacotherapy for ATS related problems. Furthermore, it was suggested that substitution therapy could make treatment more appealing, at least to some ATS users. However, the view that substitution therapy was problematic and only served to replace one form of dependence with another was also expressed. Thus, it was argued, use of substitution in the long term needs to be carefully considered on a case-by-case basis.

It was also recognised that pharmacotherapy may be more beneficial when used in conjunction with other forms of treatment, such as psychosocial interventions. In particular, the initial role of pharmacotherapy in crisis management was acknowledged, but that there was a need for this to be followed by helping clients to cope with the underlying psychosocial issues. Thus, the need for better relations and collaboration between services and treatment options was again emphasised.

Finally, pharmacotherapies were discussed in relation to the management of psychotic presentations, detoxification and withdrawal. In relation to the former, it was suggested that there was a need for improved protocols due to the risks associated with administering antipsychotics to those with methamphetamine-induced psychosis, as opposed to psychosis unrelated to drug use. The appropriateness of sedation regimes for those in heightened arousal due to a combination of amphetamine use and alcohol consumption was also questioned due to pre-existing levels of intoxication. Medically-assisted detoxification

through the use of antipsychotics and antidepressants was also raised. Issues of managing withdrawal were also seen as an issue for detention centre staff who were usually not medically trained.

5.7 Other interventions

12-Step Programs

Donovan and Wells (2007) performed a review of the available literature on the role of 12-step mutual support groups in the recovery process for consumers of methamphetamine. Few, if any, data were found on methamphetamine dependent clients and their use of these programs. However, the evidence with alcohol- and cocaine-dependent individuals was associated with improved outcomes. The researchers concluded that actively integrating 12-step programs into the treatment process may provide low- or no-cost options for methamphetamine consumers and increase the capacity for providing treatment.

Residential treatment

There is some evidence that the residential treatment outcomes for ATS dependent clients is similar to other drug dependent groups (e.g., Hawke et al., 2000). However, it is a relatively expensive treatment option, and it may be appropriate to target it to particular patients. For example, Taylor and Gold (1990) suggested that residential treatment for people affected by ATS use may be appropriate when there is polydrug dependence; severe withdrawal; medical complications; psychiatric comorbidity; inadequate living conditions; and absence of social supports.

Community based interventions

Community-based treatment programs in California, comprised of 12 residential and 20 out-patient programs, were recently evaluated in a longitudinal study examining treatment outcomes among 1,073 methamphetamine consumers (Hser et al., 2005). Data were collected at intake (baseline measures), and at 3 and 9 months following admission, with significant improvements found at 9-month follow-up in all key life areas (except for medical severity for males) as measured by the composite scores of the Addiction Severity Index. Gender differences were observed with women demonstrating greater improvements in family relationships and medical problems, but more likely to be unemployed, have childcare responsibilities and report more psychiatric symptoms.

5.8 Managing co-occurring mental health and amphetamine-type stimulant problems

Consideration of the co-occurrence of ATS use and mental health problems, as outlined in Chapter 3, has many implications for treatment. Differential diagnosis depends on the temporal and possible causal relationship between the issues and can be challenging for clinicians (Baker & Dawe, 2005). It is often easier to create the categories than it is to accurately identify the temporal relationship. ATS use may contribute to the development of mental health problems, or be a means of managing a pre-existing psychological difficulty,

or the two problems may have common underlying causes. Thus, people can experience both drug-induced and drug-independent psychological issues (Bakken, Landheim & Vaglum, 2003).

It is worth considering some of the co-existing mental health problems. Amphetamine users have higher rates of affective disorders such as anxiety and depression, psychosis, self-mutilation and self-harm, paranoia, hostility, agitation and aggression (Baker, Lee & Jenner 2004). To illustrate, Hall and colleagues (1996) interviewed a sample of 301 regular amphetamine users about their experiences of psychological symptoms prior to, and subsequent to, initiation of amphetamine use. Psychological morbidity was implicated in 44% of the sample according to scores on the General Health Questionnaire. The most commonly reported symptoms were depression (79%), anxiety (76%) and paranoia (52%), with all these symptoms increasing in prevalence after the onset of amphetamine use.

In their review of the literature, Baker and Dawe (2005) identified only a small number of studies that investigated co-occurring psychological problems among amphetamine users. The research to date suggested that anxiety disorders were more likely to follow the onset of amphetamine use than to precede it, but the evidence was less clear in regards to the temporal sequence of depressive symptoms. Again they found that depression and anxiety are the most common co-occurring psychological problems found in amphetamine users (Baker & Dawe, 2005). Determination as to whether these conditions are distinct from ATS use is complicated by the frequent presence of agitation and anxiety during amphetamine intoxication, and low mood, sleep difficulties and psychomotor retardation during amphetamine withdrawal (American Psychiatric Association, 2000). Dawe and McKetin (2004) suggested that diagnosis of amphetamine-induced anxiety disorder or amphetamine-induced affective disorder involves identification of the occurrence of symptoms following a substantial period of amphetamine use and remittance after 2 weeks.

Dyer and Cruickshank (2005) conducted a series of studies investigating the prevalence of depression and other psychological problems among patients receiving treatment for methamphetamine dependence. A study of individuals entering the inpatient treatment unit found that 46% had been previously diagnosed with an Axis I disorder, with depression diagnosed in 35% of patients. A second study administering the Beck Depression Inventory-II found that the average score for methamphetamine dependent patients was in the moderate range of depression and similar to that of psychiatric outpatients with clinical depression.

More recently, Gonsalves and colleagues (2007) collected data from a Midwestern dual diagnosis substance abuse facility in the United States to determine if predictors of methamphetamine use could be identified. The total sample of 281 admissions included 93 participants who met criteria for methamphetamine abuse or dependence and were only using methamphetamine. Of these participants, 18% had a diagnosed anxiety disorder, 12% a depressive disorder and 6.5% a psychotic disorder. Fourteen possible predictors were analysed and nine were found to be significant associated with primary methamphetamine use: gender, age, race, legal status, anxiety diagnosis, previous treatment, emotional abuse, level of care and program completion.

Given the prevalence of a range of co-occurring psychological problems, there is a need for clinical staff to be adequately trained and skilled to manage such presentations. The need

to develop the capacity of the workforce in this regard was noted in the written submission received from NDARC:

Both paranoia and other psychiatric conditions (e.g., depression, personality disorders) are common among dependent methamphetamine users seeking drug treatment. High levels of depression impede positive drug treatment outcomes, while agitation and paranoia can impede treatment progress. Continued training of health workers in the accurate assessment and diagnosis of such comorbidity among methamphetamine users attending treatment is essential. Likewise, the provision of an integrated model of care, addressing mental health and substance use issues, is critical to ensure adequate care for dependent methamphetamine users.

A number of researchers have found that integrating treatment for mental health and drug problems has better outcomes than more disaggregated approaches (e.g., see Barrowclough et al., 2001). In a recent review McKetin (2004) suggested the principles described in Teesson and Burns (2001) be used to integrate treatment provision. These included the need for treatment services to respond to diverse co-morbid conditions, the need to build more effective strategies to engage and retain people in treatment, and the need to adequately resource services (mental health and drug specialist) to work effectively in case management, referral, liaison and collaboration. However, McKetin (2004) also noted:

...there is a paucity of research on the effectiveness of diagnosing and treating comorbid conditions among psychostimulant users and ... Consequently it is not possible to recommend any specific interventions for comorbid conditions at this point, although a general recommendation would be to encourage diagnosis and integrated treatment of comorbid conditions among psychostimulant users (p.168).

Largely due to the paucity of research, Baker and Dawe (2005) observed that although integrated treatment is the treatment of choice in people with severe psychiatric illness, among people with anxiety and depression and co-occurring alcohol and other drug problems, the situation is less clear. Given the high levels of comorbidity indicated in the research, a collaborative and integrated approach between alcohol and other drug services and mental health services may be implicated as best practice for treatment of ATS use and related problems. The specifics of such treatment may be less clear, other than to use evidence based treatments for each kind of problem.

The Victorian Government recently released the Dual Diagnosis: Key Directions and Priorities for Service Development. This policy is designed to improve Alcohol and Other Drug (AOD) and Mental Health Services recognition of and effective responses to co-occurring substance use and mental health disorders. The policy is based on outcomes from the Dual Diagnosis Forum that brought together specialist mental health and drug and alcohol service providers and stakeholders, consumers and carers. The policy incorporates the following key issues: dual diagnosis and assessment is a 'core business' within specialist mental health and drug and alcohol services; relationships need to be systematically developed within and across sectors to improve outcomes; and, a 'no wrong door' service system be developed for consumers with co-occurring disorders.

Projects currently underway in Australia to address issues of comorbidity include:

- Trials of stepped care approach and computer-based CBT for ATS users with co-morbid depression currently being conducted in Newcastle;
- NSW Health has planned new initiatives that include funding to address issues of comorbidity. It aims for better integration of mental health services with drug and alcohol services and trialling new interventions, including a trial of methamphetamine treatments;
- Queensland Health's Mental Health Services has funded 13 new dual diagnosis positions to increase the capacity of both mental health and alcohol and drug services to respond to people with dual diagnosis; and
- A trial of an integrated intervention for methamphetamine users with symptoms of depression is being conducted by researchers at Turning Point, University of Newcastle, National Drug Research Institute (NDRI) and NDARC.

5.9 Workforce development

One issue that was consistently raised during consultations was the need for education and training for workers, and improved integration of client care. It was largely agreed that staff need to be up-skilled in management protocols, including managing acute presentations and providing ongoing care. Turnover of staff due to burnout and safety concerns was raised, as was concerns about attitudes towards ATS users on the part of staff. It was suggested that some staff have negative attitudes to this client group and are consequently judgmental. Furthermore, clients may be seen by several services in different contexts with minimal communication between them. This also impacts on accessing services as consumers are reluctant to have to attend a variety of services. Suggestions included developing Memoranda of Understanding (MOUs), local liaison teams across services providing care from acute inpatient to outpatient, training specialist AOD mental health workers, establishing dual diagnosis units, and inhabiting a common working environment.

The need for training and collaboration was particularly noted in relation to the alcohol and drug sector and mental health. It was suggested that the knowledge of many working in the health and support services is deficient, making it difficult for them to identify the nature of presenting conditions, and whether it is a mental health problem or a drug induced condition. One respondent stated that there was a need for:

... a better working relationship between mental health and drug and alcohol services. Dual diagnosis needs to be taken apart and re-addressed – too many times each 'side' feel that the cause of the problem is the other. No one can absolutely state categorically whether the drugs and alcohol cause the mental health issues or the mental health issues are exacerbated by the drug and alcohol use. These teams should work together, not apart – a diagnosis is not the main issue – making the client safe and working towards their future is the main importance.

It was also suggested that links are weak because services use different practice guidelines and models of care.

A variety of guidelines to manage ATS problems have been developed. Among these are clinical treatment guidelines, developed by Turning Point specifically for methamphetamine dependence. These guidelines, which include a focus on management of acute presentations and interventions for methamphetamine use and dependence, are similarly based on a stepped care approach, defined as:

Stepped care involves the provision of a series of interventions, from the least to the most intensive, with each incremental step made available on the basis of the client's response to the previous one (Lee et al., 2007, p.13).

The manual outlines a step-by-step approach to managing methamphetamine-related presentations, illustrated with use of a decision tree (see Figure 1, p. 16 of the manual). Guidelines are provided for managing acute toxicity, managing aggressive or agitated behaviour, managing acute psychotic symptoms, various assessments (e.g., dependence, co-morbid psychological problems), managing withdrawal, harm reduction approaches, brief interventions, and longer interventions based on CBT.

However, as noted in their submission, Turning Point observed that guideline development is not sufficient:

Multiple guidelines are now available for frontline workers and health workers. Dissemination is a major impediment to their uptake and significant funding is required to translate these very useful guidelines into practice.

The potential role of psychologists was also discussed, particularly in combination with GP care. One suggestion was to adopt a case management approach between GPs and psychologists in order to provide both pharmacological and psychosocial support and assistance. However, as noted in the submission from the Australian Psychological Society (APS), there will be a need to accompany such approaches with workforce development:

Psychologists and other practitioners working with those using or affected by ATS need up-skilling to improve their understanding of new forms of amphetamines, in addition to information about the symptoms and problems associated with ATS.

In addition to improving training within and coordination across different health services (e.g., alcohol and drug workers and mental health services), this was also needed across sectors, such as between health services and criminal justice. For example, the written submission from the WA Department of the Attorney General stated:

There is a need for further education of judicial officers, lawyers, police, other prosecuting agencies and community corrections officers to increase their understanding of ATS and best practice when dealing with users. Interventions and effective cross-agency working relationships would be improved if education were extended to better ensure that training for treatment and support service providers includes improved understanding of the total case processing requirements of courts and other justice agencies within the criminal justice system.

The APS, and other submissions, particularly emphasized the need for more coordinated and collaborative responses among services. This included improving pathways between services, establishing effective referral systems and a unified case management approach. In their submission, Headspace not only emphasized the need to ensure a coordinated approach, but noted the need to facilitate multiple entry points into care:

the strategy should emphasise an integrated and coordinated service response between mental health services, AOD services, general welfare and youth services and dual diagnosis services. There should be '*no wrong door*' for ATS users who are seeking information, support and treatment.

5.10 Summary

Treatment for ATS use and associated problems is impeded by relatively low rates of access by ATS users and tenuous links with services. Research suggests that those least likely to receive treatment are females, persons born outside Australia and those in full-time employment. Furthermore, poor treatment retention is associated with frequent use, injecting and use during treatment. Nevertheless, recent Australian national data suggest that approximately 11% of those seeking treatment for drug use reported amphetamine as the principal drug of concern. Of this group, the most common form of treatment was counselling.

The first point of contact for many ATS users is with frontline services, often due to intoxication or related problems including violence and psychotic behaviours. The high burden on frontline services posed by ATS use, particularly methamphetamine, is largely due to the nature of the presentations rather than the actual numbers of ATS-related presentations. As a result, national guidelines have been developed for police, ambulance staff, emergency departments and general practitioners in managing psychostimulant users, including pharmacological management of toxicity. The extent of dissemination and utilisation of these guidelines remains unclear.

A related issue is that of withdrawal management for ATS. Current research suggests the amphetamine withdrawal syndrome is comprised of hyperarousal symptoms, reversed vegetative symptoms and anxiety-related symptoms. Symptoms of depression have also been found during the first several days of withdrawal. At present there appears to be a lack of clear protocols for appropriate withdrawal management for dependent meth/amphetamine users. Pharmacotherapies currently being trialled include various antidepressants, mirtazepine and modafinil.

Several psychosocial interventions have been used in treatment for ATS users. These include brief interventions, inpatient programs, therapeutic communities, 12-step programs, peer interventions, contingency management, behavioural strategies, cognitive-behavioural interventions, multimodal packages (such as the Matrix Model used in the United States) and non-traditional methods such as acupuncture. Research to date suggests that cognitive behavioural therapy (CBT) applied in a stepped care approach is the treatment of best practice for ATS use. CBT is typically comprised of motivational interviewing, instruction in cognitive-behavioural coping strategies and relapse prevention. However, there is a limited evidence base and consideration of what is best practice may be confirmed or change

as new evidence emerges. New psychological approaches to treatment currently being investigated in Australia for ATS use include mindfulness therapy, narrative therapy and acceptance and commitment therapy.

Pharmacotherapy has also been used in treatment of ATS use. In addition to its role in withdrawal management, it has also been investigated as substitution therapy. This typically involves the use of prescribed dexamphetamine, particularly for those users for which other interventions have not been effective. More recently, methylphenidate and bupropion have been studied as potential amphetamine substitutes. Although there may be risks associated with substitution therapy, it is viewed by users as an attractive incentive into treatment and clinical trials show it may be effective when used in conjunction with psychosocial intervention. There may also be some adverse outcomes that compromise the value of substitution therapies, at least for some patients. Unfortunately, the evidence base is limited.

An issue to consider in treatment for ATS use is co-occurring mental health problems. Co-morbidity of alcohol and drug use and psychological difficulties is common, and ATS use is no exception. While the research is limited, depression, anxiety and psychosis have all been identified as associated with ATS use. Given this, an integrated approach to treatment that involves coordination and collaboration across sectors is indicated. In addition, health professionals need education, training and supervision specific to the issues of ATS use. The research and opinion at consultations indicates that dissemination of existing guidelines and development of further professional resources is needed.