

# UnitingCare ReGen

## Residential Methamphetamine Withdrawal

### Program Report

August 16, 2013

## 1. Introduction

UnitingCare ReGen is committed to the provision of high quality evidence based clinical practice. The organisation has an established Clinical Governance Framework that comprises a Clinical Governance Committee, a daily client Clinical Review process and a Clinical Leadership Group with the flexibility to establish time-limited working groups to address specific issues. In the context of this framework, clinical practice is informed by research, clinical expertise, client preferences and local conditions (eg. available financial and other resources). Practice effectiveness is also monitored through various audit processes and changes made accordingly.

This paper gives a brief account of UnitingCare ReGen's experience of providing residential withdrawal services for people experiencing serious problems associated with their methamphetamine use. Withdrawal management is provided at Curran Place, Heidelberg. This is a 12-bed statewide facility for adults withdrawing from alcohol and a range of other drugs. A similar service is provided, although to smaller numbers, at the ReGen youth withdrawal service, Williams House. This report refers to the practices at Curran Place.

Although the withdrawal program had been operating successfully for alcohol, opioids and other drugs, it appeared to be less successful in meeting methamphetamine withdrawal goals. Issues such as poor program retention, poor program participation and aggressive client-staff interactions were causing concern. This prompted some initial program changes recommended by a working group of the Clinical Leadership Group and a six-month clinical practice audit. The audit process was essentially a reassessment of the program goals and strategies designed to achieve them. It included an audit of clinical files and examination of program alignment with the research and clinical literature. Consistent with evidence-based practice, a balance was sought between the research evidence, clinical practice wisdom and the preferences of the client group. The backdrop was the need to provide the program within the available resources.

## 2. Summary of key messages

- Methamphetamine use in Australia is widespread and increasing; this drug type is easy to acquire: and recent Victorian seizures indicate that purity is rising. There are reports that use is a growing problem among young people in Indigenous communities in Victoria.
- Multiple and complex physical, mental health and social problems can arise from regular use.
- Many organisations are not well prepared to offer services to this group of users – they lack confidence and express pessimism about treatment outcomes.
- The rate at which people present for treatment in the specialist service system is low and one of the reasons cited for this by methamphetamine users is a lack of confidence in what the services can offer.
- Specific withdrawal treatment medications are not yet available and psychological treatments such as cognitive behavioural therapy (CBT), motivational enhancement therapy (MET) and contingency management (CM) have not been tested during the early phases of withdrawal and are only moderately effective in later stages of treatment.
- In the absence of a body of rigorous research, ReGen is reliant on clinical experience and reflective practice to evolve the program to meet the needs of clients.
- Residential rather than non-residential withdrawal treatment is indicated for those methamphetamine users who are severely dependent, with serious and complex physical, mental health and social problems.
- ReGen is one of the few organisations providing residential withdrawal services for this group. The percentage of methamphetamine admissions increased from 6% in 2010/11 to 12% in 2011/12.
- Participation in a group-based withdrawal program is often problematic due to drug withdrawal related issues (fatigue, disturbed sleep, depression, anxiety, hostility and psychotic symptoms) that can impact negatively on client and staff interactions.
- The ReGen program has encountered a number of problems that raised doubts about the extent to which program goals were being met. This included unsatisfactory program retention, poor program participation and hostility that impacted on client-staff relationships leading to safety concerns and some staff stress, strain and frustration. Program completion (48%) contrasted with 90% completion for methamphetamine users admitted to Williams House. Although it is unclear what factors were contributing to this difference, it was felt that less pressure to participate in a structured program during the 'crash' phase may have been one that required further investigation.
- Program changes that were implemented on 01/01/13 and monitored over a six-month period mainly concerned the lowering of program participation expectations (group participation) in the first 48 hours (up to 72 hours if clinically indicated) post admission and active support of the "crash" phase by allowing clients to rest in bed with close monitoring and support.
- Evidence from a clinical practice audit at the end of the trial period showed that: program retention had increased from 48 to 60%; relationships between clients and staff were less hostile and stressful; and the number and severity of incidents declined in the final 3 months of the 6 month trial period.
- The most unexpected finding of the clinical practice audit was that for the group of 24 methamphetamine users (for which complete data was available), withdrawal symptoms as measured by the Amphetamine Cessation Symptom Assessment (ACSA) tool had increased for 50% of the clients at the conclusion of the withdrawal episode (day 7 of the withdrawal).

All clients on discharge (planned or unplanned) were still experiencing low-moderate levels of withdrawal.

- These findings indicate that more needs to be done to improve the methamphetamine withdrawal experience, including:
  - Further research to assist the development of withdrawal service models and treatment strategies to better address the needs of this client group. A ReGen - university partnership is suggested.
  - Extended withdrawal duration (up to 28 days) for some, based on clinical need. This would require some flexibility in episode of care funding. It would also require a different program and cordoned-off beds in the residential facility.
  - Trial of a well-resourced stepped model of care. (GP and non-residential nurse in the home during the 'crash' – residential – non-residential care. Or variations of this model based on need).
  - Establish a post-withdrawal 28-day program specifically for this client group (allowing a seamless link between withdrawal and post-withdrawal rehabilitation).
  - Develop a partnership arrangement to ensure capacity to provide suitable services to meet the treatment and support needs of Indigenous clients.
  - Ongoing professional development to improve knowledge and skills to treat this client group

### 3. Patterns of methamphetamine use and treatment seeking

Australia has one of the highest rates of methamphetamine use, and injecting in the world (1). The 2010 National Drug Strategy Household Survey indicated that 7% of Australians aged 14 and over had used methamphetamines for non-medical purposes at some stage in their lifetime. Two per cent indicated that they had used them in the previous 12 months, compared to 4% in 2008. However a recently released report on Victorian ambulance call-outs in 2011-2012 showed a 109% increase in attendances for crystal methamphetamine ('Ice') in metropolitan Melbourne compared to the previous 12-month period (2). Recent newspaper reports have quoted Victorian Aboriginal leaders who report that 'Ice' is a growing concern for young, vulnerable members of their communities (*The Age*, 31/7/13). There is also evidence of recent increases in methamphetamine detection among police detainees in Australia (3). Survey findings highlight that methamphetamines are easy or very easy to obtain in Australia (4). The purity of recent methamphetamine seizures in Victoria has also increased substantially (5). This pattern of widespread and escalating use and associated problems may increase treatment demand and create pressure on a treatment system that is already struggling to cope.

Treatment access for people dependent on methamphetamines in Australia is poor, with estimates showing that less than one third of dependent users receive treatment (6). In 2010-2011, 9% of all specialist alcohol and drug treatment episodes were provided for people who nominated methamphetamines as their principle drug of concern. This was a slight increase from the 7% recorded in 2009-2010. Half

the episodes were associated with injecting in 2010-2011, which is a decrease from 61% reported in 2009-2010 but still high by world standards (7). It is also worth noting that methamphetamines are used by around 20% of people presenting for treatment, but not listed as the principle drug of concern (8). ReGen has seen an increase in amphetamine presentations from 6% in 2010/11 to 12% in 2011/12, which was sustained in 2012/13. However, in the last quarter of 2012/13, amphetamines were 14% of presentations.

#### **4. Methamphetamine effects and related problems**

The psychoactive properties of methamphetamines include increased euphoria and energy, enhanced mood and self-esteem and alleviation of fatigue. Based on estimates of the dependence potential of other stimulants, it is likely that around 20% of those who commence methamphetamine use will transition to dependent chronic use (9). This repeated use could be associated with a wide range of physical, mental health and social problems. These include cardio and cerebrovascular pathology, blood-borne virus transmission, depression and suicidal behaviour, anxiety, violent behaviour and drug induced psychosis (featuring anxiety, increased motor activity, suspicion, delusions of persecution and auditory hallucinations) (10, 11). One study of regular methamphetamine users found the prevalence of psychosis to be eleven times higher than for the general population (12).

#### **5. General methamphetamine treatment options**

There is widespread agreement that specific evidence for treating methamphetamine withdrawal is very limited (13, 14). Trials have been conducted on a small number of withdrawal medications but none have been found to be more effective than any other (7, 14, 15). See Brensilver and colleagues (2013) for a review of medication trials (16). Psychological treatments such as cognitive behavioural therapy (CBT) and contingency management (CM) (such as providing rewards by using vouchers – an approach not common in Australia) have been demonstrated to be at least moderately effective (1, 7). CBT has also been demonstrated to be an effective strategy for treating co-occurring depression (17). Motivational interviewing (MI) has been demonstrated to reduce use, at least in the short-term (7, 18). It should be noted that there have been no studies of the efficacy of psychological interventions for methamphetamines during the early withdrawal phase of a treatment episode (19). It is also the case that CBT strategies are less effective for those that have complex needs and are acutely disadvantaged (7).

Methamphetamine treatment course completion is one of the lowest for all drug types and it is understandable that alcohol and drug service providers in Australia are unclear and generally pessimistic about the best way to treat this group (20). As treatment services do not cater well for this group, this places demand pressure on the small number that do. This is particularly the case for residential treatment, which

is indicated for people who are acutely disadvantaged with unmet complex health and welfare needs (21). This includes people requiring medical management or closer monitoring for potentially serious medical and psychological complications (including suicidal ideation). It also includes people experiencing serious social instability due to homelessness; living in a heavy drug using or violent situation; or people lacking family or community support (7, 22, 23).

There is no evidence that methamphetamine withdrawal alone is effective, whereas withdrawal followed by community-based residential or other rehabilitation may produce a decrease in methamphetamine use and other positive treatment outcomes (1, 24). This reinforces what is commonly known – withdrawal is not a treatment in its own right and needs to be considered as the first, necessary part of a treatment process.

### **5.1. Methamphetamine withdrawal syndrome**

The methamphetamine withdrawal syndrome can be best understood in terms of an acute phase, peaking in the first 24 hours and continuing for 7-10 days, and a sub-acute phase that persists for at least another two weeks (25, 26). The acute withdrawal phase is characterized by fatigue, sleep (although often disturbed by vivid, unpleasant dreams), restlessness, a cluster of depression-related symptoms, anxiety and craving-related symptoms. One Australian study of people presenting for methamphetamine treatment in specialist services found that 40% had experienced a major depressive episode in the previous year and a further 44% had equally severe and disabling substance-induced depressive symptoms (27). As mentioned earlier, experience of mild psychotic symptoms such as visual illusions, fleeting hallucinations and odd thoughts are fairly common (10, 28). Some users also experience clinically significant psychotic symptoms including persecutory delusions and paranoia (25, 29). Clinically significant hostility co-occurs with psychotic symptoms in around one-quarter of methamphetamine users who experience psychosis, and it is more common with severe psychotic symptoms that persist for longer than two days (30). Cognitive impairments (attention/psychomotor speed, learning and memory, and executive functioning) are commonly experienced by methamphetamine users in withdrawal and may limit the effectiveness of psychosocial interventions that are commenced during early withdrawal (31).

### **5.2 The course of methamphetamine withdrawal**

Depression, anxiety and psychotic symptoms associated with methamphetamine use and acute withdrawal usually resolve to a large extent in the 1-2 weeks post-cessation (26). During this period, symptomatic medications may need to be prescribed to reduce anxiety, restlessness, insomnia, depression and psychotic symptoms (32). In the sub-acute phase (weeks 2 & 3 post cessation) most withdrawal symptoms have reduced or remain stable at low levels. Craving can initially be intense but usually reduces over 1-2 weeks, although sometimes persisting

for up to five weeks (26, 33). Considerable cognitive gains may take up to one month of abstinence or longer and therefore this should be considered when planning interventions that rely on cognitive behavioural approaches (31). Some neuropsychological functioning and improvement in affective distress may require up to 12 months abstinence (20, 34, 35).

## **6. Research summary**

By world standards methamphetamine use, and in particular injecting use, in Australia is high and increasing. Although dependence liability and other methamphetamine-related problems are high, the number accessing treatment is fairly low. In addition to the usual reasons why people don't present for AOD treatment (such as stigma), there is a perception held by methamphetamine users that the specialist system is 'opiate-centric' and doesn't currently have a lot to offer (36). Surveys of Australian service providers confirm that there is confusion and pessimism regarding treatment for this group (20). This is exacerbated by the absence of rigorous research to guide withdrawal management practice. At this stage, effective withdrawal medications are not available. Psychological treatments including CBT, CM and MI currently represent best practice, but may have limited effectiveness, particularly in the first weeks post drug use cessation when issues such as depression, anxiety, cognitive impairment, psychotic symptomatology and craving often feature.

### **6.1. Clinical implications of the limited research evidence**

Adopting best clinical practice is a function of being aware of the scientific literature (including making judgements about quality and relevance to local circumstances); and being willing and able to adjust clinical practice accordingly. As outlined above, the research is very limited and lacks rigour. The clinical literature on which a practice consensus could be formed is also sparse. Resources for trialling new, more flexible approaches are also very limited. Therefore, while ReGen has demonstrated a willingness to implement evidence-based models and strategies, there are currently serious barriers to doing so with this client group.

The literature does highlight the following issues for service delivery. Easy access and widespread use of amphetamines (as primary or secondary drug of choice) will result in drug-related problems and treatment seeking. Residential withdrawal will continue to be necessary for some with serious dependence, health problems or psychosocial instability. Many treatment providers are ill equipped to provide quality services and pessimistic about outcomes – so choose not to. This places greater demand on organisations that do provide such services. Duration of a withdrawal management episode is important. It would seem that 7-10 days should be considered the minimum for most and a longer duration (up to a further 2 weeks) necessary for some. A residential-non-residential step-down model may be appropriate for some after the acute withdrawal phase has passed. Retention in any

program will be an issue for this client group and they will need to be supported by family, peers and program staff using motivational strategies. This support will be critical in the acute phases of the withdrawal when craving may be intense and other, often transient mental health issues may be prominent. The level of cognitive impairment typically seen during the early withdrawal phase would suggest that program activities should be low-key and focussed on basic needs rather than the CBT strategies that may be appropriate in the sub-acute phase of withdrawal or in post-withdrawal therapeutic programs. Monitoring mental health status during the withdrawal phase is critical. Ongoing psychological distress and hostility frequently experienced by this group are known to adversely affect interactions with treatment staff (26). As with any drug withdrawal episode, it should only be offered in the context of a robust, evidence-informed treatment and support plan. In the absence of good treatment technologies, we need to be realistic about treatment outcomes. We also need to appreciate the challenges associated with treatment provision and give emphasis to the physical and psychological safety of the client, other clients, family and staff.

### 7. ReGen residential withdrawal program

The ReGen residential withdrawal service (Curran Place, Heidelberg) provides a 24-hour service that is monitored by experienced general medical and nursing staff. Staff members are experienced in tailoring treatment to meet needs and developing strong therapeutic rapport. This rapport is important in that it is associated with better levels of client self-esteem, lower levels of depression and anxiety and better social integration (37). A structured psychosocial program is provided to address basic issues such as sleep and nutrition and a range of other issues associated with drug use such as such as craving, depression and anxiety. There is evidence that for many this type of structured program can enhance retention and improve subsequent treatment entry and long-term recovery (23, 38-40). A key clinical question is - when is a client ready to commence psychological therapies? Cognitive behavioural approaches will be of little benefit if someone is severely depressed, confused or experiencing psychotic symptoms. At this stage of the withdrawal process it is more important to employ behavioural strategies to address issues such as sleep disturbance, restlessness or poor nutritional state (41) and enhance motivation to deal with cravings and remain in treatment. The ReGen program has been structured to address withdrawal issues associated with a wide range of drug types (often polydrug use), rather than specifically addressing methamphetamine withdrawal. The program provides opportunities to learn new information and skills and to strengthen internal resources to complete withdrawal and also places great emphasis on planning for post-withdrawal treatment and longer-term recovery. The program is structured over a 2-week cycle, incorporating education sessions on topics such as sleep, nutrition, managing finances, anxiety and depression; recreation activities such as walking, swimming and yoga; and peer



support meetings (AA & NA). It also includes sessions on goal setting and ongoing treatment and recovery planning.

The broad goals of residential withdrawal are:

- Successful neuro-adaptation reversal
- Improvement in physical and mental health and
- Development of post withdrawal treatment plans.

### **7.1. Program suitability for methamphetamine users**

As the number of methamphetamine users admitted for a residential withdrawal increased, clinical staff raised a number of concerns. Staff observed that:

- Participation in the program was poor and encouragement to do so was often met with a hostile response. Participation was often under duress.
- Serious incidents involving aggression, threats and property damage, although fairly rare - were on the rise
- Retention in the program was poor with 48% not completing the withdrawal episode. This retention was lower than that experienced for younger methamphetamine users at ReGen's youth residential withdrawal facility (Williams House) where non-completion rate was 10%. (Note: Although program participation expectations in the first few days after admission were lower than that at Curran Place, there may be other factors contributing to the different retention rates).
- Clients often self-discharged or were discharged in an agitated state by staff. Early discharge did not appear to be associated with withdrawal severity.
- Staff stress and frustration were issues that needed to be addressed.

It was clear that the withdrawal experience for many was not therapeutic, with few if any program goals being met.

### **8. Program adjustment and practice audit outcomes**

Changes were made in response to what was considered to be a program that was proving to be of limited therapeutic benefit for many and the cause of considerable angst for clients directly involved, others in the withdrawal program and staff. These changes were made in the context of the ReGen Clinical Governance Framework. Responsibility was given to a working group (the Amphetamines Working Group) that was established as a sub-group of the Clinical Services Leadership Group. This group met with Curran Place staff in November 2012 and recommended a number of program changes to commence on 01/01/13 and to be monitored for a six-month period.

The approach taken was to relax expectations of program participation for the first 48 hours (or up to 72 hours for higher withdrawal severity) after admission. This included group participation, contributing to residential chores and getting up for morning meetings and medications. Clients were given the opportunity to rest in bed with close monitoring and active support if they chose.

During this period the emphasis was on the provision of good withdrawal support for this group that included minimising stimulation, ensuring a safe environment, providing support and reassurance, and avoiding confrontations. It also included nursing functions such as monitoring vital signs, mental state, cravings, fluid intake and sleep duration and quality. Symptomatic medications were provided for issues such as agitation/anxiety and sleep disturbance as required.

Clients were closely monitored in terms of their withdrawal state using the Amphetamine Cessation Symptom Assessment (ACSA) tool (42). This is a self-administered tool that measures the subjective experience of withdrawal over the previous 24 hour period. The tool has 16 items and three distinct symptom clusters associated with methamphetamine withdrawal – anxiety and craving; hypersomnia; and depression. Self-rated withdrawal severity allowed scoring of: 0 – not at all; 1 – a little; 2 – moderately; 3 – quite a lot; and 4 – extremely. This gave a possible score range of 0-64. The ACSA was administered on a daily basis for all clients over the six month trial period. There were 24 clients in total (M- 18; F-6). Male average age was 31 years (range 22–47). Female average age was 27 years (range 22-37). At the conclusion of the trial, a retrospective client file audit was conducted. Over this period incident reports and staff well-being were also monitored. This combined data is based on small numbers and is not offered as rigorous research. However it does provide insights into the experience of clients, program staff and the operation of the program. It also raises a number of research questions that require closer examination.

In summary the analysis of the practice audit data (client file audit and other measures) showed that:

- Program retention for methamphetamine clients increased from 48% to 60% after the program changes were made.
- Staff well-being was measured on two occasions during the trial but incomplete data meant that changes could not be measured. In a multi-drug residential withdrawal program it is also not possible to attribute measures of well-being specifically to methamphetamine related withdrawal issues. However there were indications that although staff members reported stresses and strains, they did not feel that this put them under too much pressure to do their job effectively. Nor did most feel that work performance expectations were too high. There were anecdotal reports that client-staff relationships were less stressful due to relaxed program participation expectations and the resulting lower levels of staff-client conflict.

- The number of serious, aggressive incidents, although low at base-line fluctuated. There was a slight increase in the first 3 months of the trial compared to the previous 3-month period and then a marked decline (to below baseline levels) in the second 3-month period.
- When expectations about program participation were relaxed some clients seemed to find it more desirable to attend.

One unexpected finding from the client file audit was that ACSA-measured withdrawal symptoms experienced by 50% of clients (n – 6) who completed the 7-day program had increased from their day of admission. The expectation was that there would be a downward trend for all (or the vast majority of) clients over the seven-day period. All those who experienced symptom reductions by day seven still reported low-moderate withdrawal symptoms. For those who did not complete the 7 day period (n-18), subjective experience of withdrawal severity was high or had increased for some but for others it was low or had decreased. In other words there was no consistent relationship between high or increasing ACSA scores and early treatment termination.

A subsequent literature review puts these findings into context. The ReGen seven day withdrawal program may be insufficient for many clients given the evidence that the acute phase may extend for 7 -10 days and a sub-acute phase continuing for a further two weeks (25). The increase in withdrawal severity for some clients over this short withdrawal time period, albeit based on very small numbers is interesting and warrants further investigation. From a clinical perspective it highlights the need for close symptom monitoring and psychological and medication management.

Conclusions reached were that it was important to allow this client group to 'crash' for the first few days. Allowing more rest and reducing demands on these clients in those first few days served to reduce the negative interactions between clients and staff. While clinical experience suggests that early involvement in a structured program does have benefits, it is likely to be less so for this client group. The effects of methamphetamine cessation and the drug/withdrawal effects means that is highly unlikely that clients would benefit from such involvement and nor would other clients and program staff. This is consistent with the experience of other service providers (41).

## 9. Recommendations

These findings indicate that more needs to be done to improve the methamphetamine withdrawal experience, including:

- Further research to assist the development of withdrawal service models and treatment strategies to better address the needs of this client group. A ReGen - university partnership is suggested.

- Extended withdrawal duration (up to 28 days) for some, based on clinical need. This would require some flexibility in episode of care funding. It would also require a different program and cordoned-off beds in the residential facility.
- Trial of a well-resourced stepped model of care. (eg. GP and non-residential nurse support in the home during the 'crash' – residential – non-residential care). Or variations of this model based on need.
- Establish a post-withdrawal 28-day program specifically for this client group (allowing a seamless link between withdrawal and post-withdrawal rehabilitation).
- Develop a partnership arrangement to ensure capacity to provide suitable services (such as the 28-day program above) to meet the treatment and support needs of Indigenous clients.
- Ongoing professional development to improve knowledge and skills to treat this client group.

## 10. References

1. Lee NK, Rawson RA. A systematic review of cognitive and behavioural therapies for methamphetamine dependence. *Drug and alcohol review*. 2008 May;27(3):309-17.
2. Lloyd B. Trends in alcohol and drug related ambulance attendances in Victoria: 2011/12. Turning Point Alcohol and Drug Centre. Melbourne 2013.
3. Macgregor S, Payne J. Increase in use of methamphetamine: Australian Institute of Criminology. Canberra. 2011.
4. AIHW. 2010 National Drug Strategy Household Survey report. Drug statistics series no. 25. AIHW, editor. Canberra 2011.
5. Nguyen P, Dietze P, Lloyd B. Victorian Trends in Ecstasy and Related Drug Markets 2011: Findings from the Ecstasy and Related Drugs Reporting System (EDRS): National Drug and Alcohol Research Centre, University of New South Wales; 2012.
6. McKetin R, Kelly E. Socio-demographic factors associated with methamphetamine treatment contact among dependent methamphetamine users in Sydney, Australia. *Drug and alcohol review*. 2007 Mar;26(2):161-8.
7. Ciketic S, Hayatbakhsh MR, Doran CM, Najman JM, McKetin R. A review of psychological and pharmacological treatment options for methamphetamine dependence. *Journal of Substance Use*. 2012;17(4):363-83.
8. AIHW. Alcohol and other drug treatment services in Australia 2010-11: report on the National Minimum Data Set. Canberra 2012.
9. Wagner FA, Anthony JC. From first drug use to drug dependence; developmental periods of risk for dependence upon marijuana, cocaine, and alcohol. *Neuropsychopharmacology*: 2002 Apr;26(4):479-88.
10. Bramness JG, Gundersen OH, Guterstam J, Rognli EB, Konstenius M, Loberg EM, et al. Amphetamine-induced psychosis—a separate diagnostic entity or primary psychosis triggered in the vulnerable? *BMC psychiatry*. 2012;12:221.
11. Darke S, Kaye S, McKetin R, Duflou J. Major physical and psychological harms of methamphetamine use. *Drug and alcohol review*. 2008 May;27(3):253-62.
12. McKetin R, McLaren J, Lubman DI, Hides L. The prevalence of psychotic symptoms among methamphetamine users. *Addiction (Abingdon, England)*. 2006 Oct;101(10):1473-8.
13. Srisurapanont M, Jarusuraisin N, Kittirattanapaiboon P. Treatment for amphetamine withdrawal (Review). 2009.
14. Pennay AE, Lee NK. Putting the call out for more research: the poor evidence base for treating methamphetamine withdrawal. *Drug and alcohol review*. 2011 Mar;30(2):216-22.
15. Shoptaw SJ, Kao U, Heinzerling K, Ling W. Treatment for amphetamine withdrawal. *Cochrane Database Syst Rev*. 2009 (2):CD003021.
16. Brensilver M, Heinzerling KG, Shoptaw S. Pharmacotherapy of amphetamine-type stimulant dependence: An update. *Drug and alcohol review*. 2013 Apr 25.
17. Hollon SD, DeRubeis RJ, Shelton RC, Amsterdam JD, Salomon RM, O'Reardon JP, et al. Prevention of relapse following cognitive therapy vs medications in moderate to severe depression. *Archives of general psychiatry*. 2005 Apr;62(4):417-22.
18. Baker A, Lee NK. A review of psychosocial interventions for amphetamine use. *Drug and alcohol review*. 2003 Sep;22(3):323-35.
19. Lee N, Jenner L. Clinical responses to amphetamine-type stimulant problems. In: Allsop S, Lee N, editors. *Perspectives on amphetamine-type stimulants*. Melbourne: IP Communications; 2012.

20. Pennay AE, Lee NK. Barriers to methamphetamine withdrawal treatment in Australia: findings from a survey of AOD service providers. *Drug and alcohol review*. 2009 Nov;28(6):636-40.
21. Kenny P, Swan A, Berends L, Jenner L, Hunter B, Magavin J. Alcohol and drug withdrawal - practice guidelines. Turning Point Alcohol and Drug Centre. Melbourne: 2009. 1-206 p.
22. Silins E, Sannibale C, Larney S, Wodak A, Mattick R. Residential detoxification: essential for marginalised, severely alcohol- and drug-dependent individuals. *Drug and alcohol review*. 2008 Jul;27(4):414-9.
23. Book SW, Thomas SE, Smith JP, Miller PM. Severity of anxiety in mental health versus addiction treatment settings when social anxiety and substance abuse are comorbid. *Addictive behaviors*. 2012 Oct;37(10):1158-61.
24. McKetin R, Najman JM, Baker AL, Lubman DI, Dawe S, Ali R, et al. Evaluating the impact of community-based treatment options on methamphetamine use: findings from the Methamphetamine Treatment Evaluation Study (MATES). *Addiction (Abingdon, England)*. 2012 Nov;107(11):1998-2008.
25. McGregor C, Srisurapanont M, Jittiwutikarn J, Laobhripatr S, Wongtan T, White JM. The nature, time course and severity of methamphetamine withdrawal. *Addiction (Abingdon, England)*. 2005 Sep;100(9):1320-9.
26. Zorick T, Nestor L, Miotto K, Sugar C, Hellemann G, Scanlon G, et al. Withdrawal symptoms in abstinent methamphetamine-dependent subjects. *Addiction (Abingdon, England)*. 2010 Oct;105(10):1809-18.
27. McKetin R, Lubman DI, Lee NM, Ross JE, Slade TN. Major depression among methamphetamine users entering drug treatment programs. *The Medical journal of Australia*. 2011 Aug 1;195(3):S51-5.
28. Dawe S, McKetin R. The psychiatric comorbidity of psychostimulant use. 2004.
29. Cruickshank CC, Dyer KR. A review of the clinical pharmacology of methamphetamine. *Addiction (Abingdon, England)*. 2009;104(7):1085-99.
30. McKetin R, McLaren J, Lubman DI, Hides L. Hostility among methamphetamine users experiencing psychotic symptoms. *The American journal on addictions / American Academy of Psychiatrists in Alcoholism and Addictions*. 2008 May-Jun;17(3):235-40.
31. Simon SL, Dean AC, Cordova X, Monterosso JR, London ED. Methamphetamine dependence and neuropsychological functioning: evaluating change during early abstinence. *Journal of studies on alcohol and drugs*. 2010 May;71(3):335-44.
32. Dore G, Juckes L. Engaging methamphetamine users in treatment and managing the challenges. In: Allsop S, Lee N, editors. *Perspectives on amphetamine-type stimulants*. Melbourne: IP Communications; 2012.
33. Mancino MJ, Gentry BW, Feldman Z, Mendelson J, Oliveto A. Characterizing methamphetamine withdrawal in recently abstinent methamphetamine users: a pilot field study. *The American journal of drug and alcohol abuse*. 2011 Mar;37(2):131-6.
34. Ludicello JE, Woods SP, Vigil O, Scott JC, Cherner M, Heaton RK, et al. Longer term improvement in neurocognitive functioning and affective distress among methamphetamine users who achieve stable abstinence. *Journal of clinical and experimental neuropsychology*. 2010 Aug;32(7):704-18.
35. Cruickshank CC, Dyer KR. A review of the clinical pharmacology of methamphetamine. *Addiction (Abingdon, England)*. 2009 Jul;104(7):1085-99.

36. Kenny P, Harney A, Lee NK, Pennay A. Treatment utilization and barriers to treatment: Results of a survey of dependent methamphetamine users. *Subst Abuse Treat Prev Policy*. 2011;6(3):1-7.
37. Lehman WE, Simpson DD, Knight DK, Flynn PM. Integration of treatment innovation planning and implementation: strategic process models and organizational challenges. *Psychology of addictive behaviors : Journal of the Society of Psychologists in Addictive Behaviors*. 2011 Jun;25(2):252-61.
38. Amato L, Minozzi S, Davoli M, Vecchi S. Psychosocial and pharmacological treatments versus pharmacological treatments for opioid detoxification. *The Cochrane database of systematic reviews*. 2011 (9):CD005031.
39. Odenwald M, Semrau P. Reducing dropout among traumatized alcohol patients in detoxification treatment: a pilot intervention study. *European addiction research*. 2012;18(2):54-63.
40. Silverman K, Defulio A, Sigurdsson SO. Maintenance of reinforcement to address the chronic nature of drug addiction. *Preventive medicine*. 2012 Nov;55 Suppl:S46-53.
41. Juckes L. Working with people affected by co-occurring amphetamine-type stimulant and mental health problems. In: Allsop S, Lee N, editors. *Perspectives on amphetamine-type stimulants*. Melbourne: IP Communications; 2012.
42. McGregor C, Srisurapanont M, Mitchell A, Longo MC, Cahill S, White JM. Psychometric evaluation of the Amphetamine Cessation Symptom Assessment. *Journal of substance abuse treatment*. 2008 Jun;34(4):443-9.