



Guidelines for the Management of Methamphetamine Use Disorders in Myanmar

Department of Medical Services Ministry of Health and Sports The Republic of the Union of Myanmar October 2017

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About these guidelines

The Department of Medical Services, Ministry of Health and Sports requested the World Health Organization Myanmar Country Office to assist in the development of a guideline for the management of disorders due to the use of amphetamine-type stimulants (ATS), with a specific focus on methamphetamine dependence and treatment. Methamphetamine is the primary ATS used in Myanmar and there is growing evidence that use of this illicit substance is on the rise. These guidelines are a synthesis of available literature and informed from various international guides, monographs, manuals and various publications. A number of topics were suggested to be explored and incorporated into this guideline with an acknowldgement that a broad ranging understanding of ATS, primarily methampethamine, the adverse physical and psychological effects, and suggested treatment options was not widely understood within Myanmar. These 'Guidelines for the Management of Methamphetamine Use Disorders in Myanmar' will be useful for various professional practitioners such as doctors, nurses, drug treatment workers and all those working with various national agencies and the non-governmental organizations that service the needs of people who use drugs. This Guide conveys practical information as well as covering some theoretical advances to improve insights about the growing concern of methamphetamine use in Myanmar.

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Acronyms and abbreviations

AIDS	acquired immune deficiency syndrome
ATS	amphetamine-type stimulants
СВТ	cognitive behavioural therapy
СМ	contingency management
CNS	central nervous system
HIV	human immunodeficiency virus
ICD	International Classification of Diseases
M/A	methamphetamines or amphetamines
MDMA	3,4-methylenedioxymethamphetamine
MG	milligram
MI	motivational interviewing
RR	residential rehabilitation
STI	sexually transmitted infections
WHO	World Health Organization

Glossary

Amphetamines	synthetic group of drugs that includes amphetamine and dexamphetamine, methamphetamine and MDMA.
Arrhythmia	variation or irregularity of the rhythm of the heart.
Base methamphetamine	a high potency, low purity paste.
Binge use	irregular heavy drug use.
Cognitive behaviour therapy	a talking therapy that seeks to modify dysfunctional or distorted thoughts and beliefs.
Comorbidity	the co-occurrence of any two or more disorders for example methamphetamine use disorders and mental health disorders.
Crystalline methamphetamine	a high potency, high purity salt form of amphetamine, crystals or course powder.
Depression	a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration.
Detoxification	the planned cessation of drug use in someone who is drug dependent.
Delirium	the temporary incapacity of the higher functions of the brain (awareness of time and space, capacity to distinguish real from imagined).
Delusions	person holds fixed, false beliefs that do not shift even when faced with logical evidence to the contrary. For example, a person might believe their thoughts are being controlled by external forces.
Disorganised behavior	person will respond to strange thoughts or unusual sensory experiences by changing their behaviour to adapt to their beliefs or perceptions.
Dopamine	controls movement, attention and memory, and purposeful behaviour. It is the main neurotransmitter involved in feelings of pleasure and euphoria such as eating, drinking, and sexual

	activity. Dopamine encourages these behaviours by making people feel good so they are motivated to repeat them. Dopamine is also linked to cravings to use all drugs.
Euphoria	subjectively pleasant feeling of wellbeing.
Hallucinations	person experience sensations that have no basis in reality such as hearing 'voices' (auditory hallucinations), 'feeling' things on the skin or in their body (tactile hallucinations), or seeing things that others cannot (visual hallucinations).
Harm reduction	refers to policies, programmes and practices that aim to reduce the harms associated with the use of use of legal and illegal psychoactive drugs in people unable or unwilling to stop. Harm reduction compliments approaches that seek to prevent or reduce the overall level of drug consumption, and reduce HIV infections.
Insomnia	inability to fall or remain asleep.
Methamphetamine	amphetamines with the addition of a methyl group on the molecular chain, which are typically more potent in effect (can include salt and base forms).
Motivational interviewing	a non-confrontational cognitive behavioural style of interviewing used to assist clients to recognise and address their health concerns leading to behaviour change.
Noradrenaline	prepares individuals to either run away from, or stand and fight against, perceived threats (commonly known as the 'fight or flight' response). It stimulates the central nervous system, and is involved in heart function, blood circulation, concentration, attention, learning and memory.
Paranoia	mental disorder characterised by delusions of persecution.
Potency	relating to the level of effect from a specific dose of the drug.
Psychoactive	any substance that activates brain neurotransmitters.
Psychosis	a mental health disorder characterised by a separation from reality, may include symptoms such as delusions, hallucinations, disorientation and confusion.

Psychostimulants	a group of central nervous system stimulants, which act to increase the activity of dopamine, noradrenaline and serotonin.
Regular use	recurring, routine pattern of drug use.
Residential rehabilitation	medium to long-term treatment option offered in a home-like or institutional setting.
Serotonin	neurotransmitter involved in complex behaviours such as mood, appetite, sleep, cognition, perception, motor activity, temperature regulation, pain control, sexual behaviour and hormone secretion.
Substitution therapy	prescription of an agonist or partial agonist drug, which aims to reduce the harms associated with illicit drug use (also known as agonist maintenance treatment).
Toxicity	capacity of a substance to produce toxic or poisonous effects.
Withdrawal	the progress and time-course of detoxification.

Section one:

Scale and patterns of use; short and long-term effects; risks and harms of use and; measuring dependence

1. Background

1.1 Overview of amphetamine type-stimulants: global and Asia

ATS are the second most commonly used illicit drug type worldwide, after cannabis. In 2015, it was estimated that globally 37 million people (aged 15-64) had used amphetamines (includes both amphetamines and methamphetamines) and prescription stimulants, and 22 million people had used ecstasy. ¹ Since 2010 major and regular ATS seizures point to a rapid expansion of the global market, with total ATS seizures rising dramatically. In 2015, the global quantities of ATS seized was 132 tons of methamphetamines, 52 tons of amphetamines and 6 tons of ecstasy.² Methamphetamine or amphetamine use or dependence has been found in 181 countries of the world, with many countries located in Asia. ³

In 2014 manufacturing, trafficking and use of methamphetamine continues to dominate the ATS market in East and South-East Asia, Oceania and the Pacific.⁴ In 2012. UNODC estimated East and South-East Asia and Oceania together had the largest number of ATS users worldwide at almost 9.5 million users, with the largest number of "ecstasy" users at another 3.9 million. ⁵ Generally, methamphetamines can be manufactured in almost any geographic location, under clandestine and sometimes mobile settings, and for comparatively less cost than the agriculturally based investments associated with opium cultivation. This factor has likely contributed towards increased availability and consumption of methamphetamine in Cambodia, China, Japan, Lao People's Democratic Republic (PDR), the Philippines, Myanmar, the Republic of Korea, Thailand and Viet Nam in 2012/2013. ⁶

With a rise in the use of ATS, primarily methamphetamine, people seeking drug treatment for ATS, mostly methamphetamine use, has also increased in recent years in various countries of Asia.

Country	% of those seeking drug treatment linked to ATS use, primarily methamphetamine
China (2012) 7	19%
Cambodia (2012) ⁸	86%
Thailand (2012) ⁹	88%
Laos PDR (2012) 10	>50%
Indonesia (2012) 11	36%
Philippines (2012) ¹²	63%

Most global seizures of ATS since 2009 take place in North America and East and South-East Asia. The quantities of methamphetamine seized in East and South-East Asia has almost quadrupled between 2009-2014.¹³

1.2 Situation of amphetamine type-stimulants in Myanmar

In Myanmar, the first-ever reported seizure of methamphetamine pills was in1996. In 2012 approximately 18.2 million methamphetamine pills were seized in Myanmar, representing more than a three-fold increase from the 5.9 million pills seized in 2011. ¹⁴ By 2015, seizures of both methamphetamine tablet and crystalline form had reached a record high: in 2015 approximately 50 million methamphetamine tablets were seized by national authorities. ¹⁵

While there is very limited information in Myanmar on the prevalence of ATS use, specifically methamphetamines, (there are no known estimates on the number of ATS users in the country) experts believe the important indicators of seizure, arrests and treatment data indicate use of methamphetamine pills in Myanmar is rising. Available data show methamphetamine use has become increasingly common across the country, particularly in major cities, and is gaining popularity among young people that use drugs, and mostly among males. ¹⁶

In 2011, the Central Committee for Drug Abuse Control (CCDAC) conducted a study of methamphetamine users (N = 698) coming into contact with drug treatment services. It was found 58% of users reported occasional methamphetamine use while 42% reported regular methamphetamine use. The majority was found to be poly-drug users, most smoked their methamphetamines, while 0.6% injected methamphetamines (injecting of methamphetamines was first reported in 2011).¹⁷ In other research, one study on ATS use among high school students in Myitkyina, in Kachin State, in 2011, found that methamphetamine was the most used drug with a life time prevalence of 1.5 per cent and an annual prevalence of 0.8 per cent.¹⁸

The number of people receiving treatment for ATS use in Myanmar remains low compared to total number of people receiving treatment for opioid use. However, treatment related to methamphetamine use has increased for six successive years. In 2015, 359 methamphetamine users received treatment and this accounted for 4.7 per cent of all persons who received treatment during that year.¹⁹

Commonly used street names for methamphetamine pills in Myanmar include: *yama seik kwya say*, and *myin say*.

1.3 Understanding amphetamine-type stimulants

ATS are drugs that stimulate the central nervous system, increasing activity in a number of brain pathways and variously affecting the behavior of the user. Amphetamines are synthetic stimulants (unlike the stimulant cocaine which is derived from the leaves of the coca plant), and similar to the naturally occurring stimulant ephedrine and hormone adrenalin. ²⁰ There are two main chemical forms of amphetamines: the base form (which is produced by adding acid to the base) or the salt form (which is usually a water-soluble powder). ²¹

Globally methamphetamine and amphetamine are the most widely consumed synthetic stimulants. There are various suggested reasons for increased popularity and use of ATS:

• It is perceived as enhancing performance and communication

- It is perceived to reflect contemporary and fashionable lifestyles
- It is affordable, widely available and accessible
- It provides a mental and physical energy boost and associated euphoria.
- It is perceived as less harmful than other drugs as the health risks can be underestimated. ²²

In the early 20th century ATS were initially synthesized from ephedrine. Amphetamines were mostly legal, accepted in medical practice and commonly used for performance enhancement for the military in World War II. Over time ATS were prescribed for weight control, treatment of attention deficit disorders and as a stimulant for narcolepsy. However, from the 1970 onwards ATS started to be manufactured for non- medical and recreational purposes. Due to potential for widespread misuse amphetamines soon became a Schedule 2 controlled drug following the 1971 Convention on Psychotropic Substances. ²³

How does methamphetamine work?

Methamphetamine disrupts the brain's chemical messengers known as 'neurotransmitters'. Major neurotransmitters disrupted are **dopamine**, **noradrenaline and serotonin** which have a broad range of important functions.²⁴ (see glossary for definitions)

Difference between methamphetamine and amphetamine

The key difference between methamphetamine and amphetamine is the manufacturing process and potency. Methamphetamine is more quickly absorbed by the body than non-methylated amphetamine and is considerably more potent. ^{25 26 27}

1.4 Patterns of methamphetamine use

Experimental use

Generally, found among those in late adolescence/early adulthood and use is typically short lived. Experimenting is often motivated by curiosity to experience new feelings, moods or associated with peer pressure.

Recreational use

Usually occurs in a social setting. The amount and duration of use may vary depending on the occasion. The use is commonly perceived as enjoyable with few negative consequences or effects on social functioning. Use is often limited to the weekend or special occasions.

Circumstantial use

Occurs when specific tasks have to be performed which may require special degrees

of alertness or endurance. This can be for example long distance driving, studying for exams or night shift work. Use may also serve a specific function, such as suppressing appetite and promoting weight loss.

Intermittent or 'binge' use

Use occurs intensively for several days (typically from two to ten days). Commonly there are significant breaks in between these intense periods of use.

Regular use

This pattern is characterised by frequent, habitual use and is often accompanied by or leads to dependent use. For people who use regularly, methamphetamine plays a significant role in their day-to-day life and may impair or negatively impact on physical health, psychological or occupational functioning. While other drugs such as alcohol, cannabis, heroin or ecstasy may also be used, they are not central to the day-to-day life of the user in the same way.

Poly-drug use

This is when a variety of drugs are being used in combination with methamphetamine. The other drugs can be used as it may enhance or prolong the effects of methamphetamine, or alleviate unpleasant side effects. No one drug is central to the day-to-day life of the user, and different drugs are used in this way.^{28 29 30 31}

Harmful use

This occurs when there is evidence that drug use is directly responsible or has substantially contributed towards physical or psychological harm which may result in disability or adverse consequences for social and interpersonal relationships. The duration of drug use has existed for at least one month or shown to be a repeated behaviour within a 12-month period. Harmful use does not fall under the criteria for any other mental or behavioural disorder related to the same drug in the same time period - except for acute intoxication. ³²

Dependence syndrome

Refer to 1.5: diagnosing methamphetamine dependence

1.5 Diagnosing methamphetamine dependence

Prolonged use of methamphetamine may lead to an increase in tolerance and dependence. Methamphetamine dependence leads to clinically significant impairment or distress to the user. As with all other drugs, dependence on methamphetamines can be psychological, physical, or both. People who are dependent on methamphetamines find that using the drug becomes far more important than other activities in their life. ³³ A cluster of physiological, behavioural, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value. A central descriptive characteristic of the dependence syndrome is the desire (often strong, sometimes overpowering) to take psychoactive drugs (which may or may not have been medically prescribed), alcohol, or tobacco. There may be evidence that return to substance use after a period of abstinence leads to a more rapid reappearance of other features of the syndrome than occurs with nondependent individuals

ICD-10 Diagnostic guidelines

A definite diagnosis of dependence should usually be made only if three or more of the following have been present together at some time during the previous year:

- A strong desire or sense of compulsion to take the substance;
- Difficulties in controlling substance-taking behaviour in terms of its onset, termination, or levels of use;
- A physiological withdrawal state when substance use has ceased or have been reduced, as evidenced by: the characteristic withdrawal syndrome for the substance; or use of the same (or closely related) substance with the intention of relieving or avoiding withdrawal symptoms;
- Evidence of tolerance, such that increased doses of the psychoactive substance are required in order to achieve effects originally produced by lower doses (clear examples of this are found in alcohol- and opiate-dependent individuals who may take daily doses sufficient to incapacitate or kill nontolerant users);
- Progressive neglect of alternative pleasures or interests because of psychoactive substance use, increased amount of time necessary to obtain or take the substance or to recover from its effects;
- Persisting with substance use despite clear evidence of overtly harmful consequences, such as harm to the liver through excessive drinking, depressive mood states consequent to periods of heavy substance use, or drug-related impairment of cognitive functioning; efforts should be made to determine that the user was actually, or could be expected to be, aware of the nature and extent of the harm.

Degree and severity of dependence is influenced by a range of factors including the quantity and duration of methamphetamine use, as well as individual vulnerabilities. Other factors include:

- the type and potency of methamphetamine being used. Use of crystal methamphetamine which is usually more potent, may lead to dependence more quickly than methamphetamine base or powder.
- mode of administration such as the injecting of methamphetamine may lead to higher levels or dependence than with other forms of administration such as snorting or ingesting.

Methamphetamine users who use several times per week are considered to be heavy users and are likely to manifest at least some symptoms of dependence. Dependence on methamphetamine has been associated with poor nutrition, poor sleep and susceptibility to illness, including mental health problems such as delusions, paranoia, depression and anxiety. ³⁵ Severity of Dependence Scale can be found in Appendix 1.

Methamphetamine users mostly swallow, smoke or snort the drug. The majority does not inject and are not dependent, and as a consequence many are not requiring drug treatment.

1.6 Effects of ATS use: short and long term

The effects of any drug (including methamphetamines and amphetamines) vary from person to person. How methamphetamines affect a person depends on various factors including the weight and health of the person, and also if the person is developing a tolerance to using such a drug. The effects of methamphetamine can last anywhere from seven to 24 hours. Depending on route of administration the effects may be felt immediately (through injecting or smoking) or within 30 minutes (if snorted or swallowed). ³⁶ The short and long term physical and psychological effects of methamphetamine, as well as dose related effects are broad ranging.

Short term effects of methamphetamine may include:

- Euphoria and rush
- Sense of wellbeing
- Alertness
- Increased energy
- Wakefulness
- Confidence
- Heightened awareness
- Hyperthermia
- Increased concentration
- Increased respiration
- Increased libido (sex drive)
- Reduced appetite. ^{37 38}

Long term effects of methamphetamine may include:

- Weight loss and malnutrition
- Neurological changes including memory loss and dizziness

- Mood disturbance
- > Arrhythmias or myocardial infarction or stroke leading to potential death
- Menstrual problems including pain, irregular periods or absent periods
- Severe dental problems
- Aggressive and violent behaviour
- Seizures
- Dependence
- Poor cognitive functioning in dependent users
- Memory loss and poor concentration
- Anxiety and paranoia
- Delirium and depression
- Psychotic symptoms, including perceptual distortions, hallucinations, delusions and chronic sleeping problems ^{39 40}

Dose related effects of methamphetamines

It is important to note that individuals react differently to the dose of methamphetamine based on the following:

- persons' size, weight and health
- whether the person is use to taking the drug
- whether other drugs are taken around the same time
- the amount taken and; the strength of the drug (this can vary from batch to batch with any illegally produced drug).⁴¹

The following table can only be used as a suggested guide for dose related effects of methamphetamines. It is important to emphasize that the physical and psychological effects can vary from individual to individual.⁴²

	Low dose	High dose
Physical	 Increases in systolic and diastolic blood pressure Sweating Increased heart rate Chest pain Shortness of breath Headache Tremor Hot and cold flushes Increases in body temperature Reduced appetite 	 High blood pressure Palpitations or arrhythmias Seizures Cerebral haemorrhage Jaw clenching and teeth- grinding Nausea, vomiting Overdose Cardiac arrest
Psychological	 Euphoria Elevated mood Sense of wellbeing Increased alertness and concentration Reduced fatigue Increased talkativeness Improved physical performance 	 Confusion Anxiety and agitation Performance of repetitive motor activity Impaired cognitive and motor performance Aggressiveness, hostility and violent behavior Paranoia including paranoid hallucinations Common delusions such as being monitored with a hidden electrical device, and preoccupation with 'bugs 'on the skin

1.7 Combinations of methamphetamine with other drugs

The effects of methamphetamine use may vary when it is taken in combination with alcohol, cocaine or opiates:

- Use of alcohol and methamphetamine increases blood pressure, placing a greater burden on the heart. Methamphetamine can also disguise the effects of alcohol, which may increase the risk of alcohol poisoning and accidents due to a false sense of feeling sober and in control when they are drunk.
- Use of cannabis and methamphetamine can increase the risk of experiencing mental health problems, including psychotic symptoms in some individuals, particularly those with schizophrenia. This may manifest more so among those with previous mental health problems.

- Heroin and methamphetamine can worsen respiratory depression and induce cardiac failure. Methamphetamine can also increase the risk of heroin overdose.
- Cocaine is also a psychostimulant, combining one stimulant with another increases the stimulant effects, risk of overdose, and increased sexual risk behaviours. ^{43 44 45 46}

For methamphetamine and possible interactions with other drugs see Annex 2.

1.8 HIV risks and harms associated with injecting methamphetamines

While methamphetamine is mainly smoked, snorted or swallowed, earlier research found 60 countries reported the injecting of methamphetamines or amphetamines (M/A)⁴⁷ Research show M/A injectors are at risk of HIV and other blood borne infections, such as viral hepatitis B and C as a result of unsafe injecting practices.

There are conflicting findings that surround the association of M/A injecting and HIV infection, because of concurrent sexual HIV risks. ⁴⁸ Research has shown an association with the injecting of M/A and HIV: a study among Russian M/A drug injectors was independently associated with HIV seroconversion. ⁴⁹ Other studies have shown that compared with heroin injectors, ATS injectors were more likely to both lend and borrow used needles, and commonly inject many more times per day than people who inject opioids. ^{50 51} Interventions required to encourage safer use of methamphetamines need to address misconceptions that injecting is more economical and healthy and to emphasize the vascular problems and the HIV risk factors associated with injecting.⁵²

1.9 Methamphetamine use and sexual risk behaviors

Methamphetamine use is associated with a culture of risky sexual behaviour, both among men who have sex with men and heterosexual populations. Elevated rates of sexually transmitted infections such as chlamydia, gonorrhoea and syphilis have been associated with methamphetamine use, which also serve as co-factors of HIV transmission. ^{53 54} This link may be due to the fact that methamphetamine increases libido.⁵⁵ Various studies have shown methamphetamine use to be associated independently with the following:

- having multiple sexual partners
- unprotected anal intercourse
- decreased condom use
- drug use during sex
- history of sexually transmitted infections (STI)
- testing HIV-positive. ^{56 57 58 59 60}

1.10 Methamphetamine use: potential effect on thinking, behavior and HIV treatment

- Methamphetamine use may impair the ability or desire to be safe. This can be both sexually or when injecting drugs. Impairment may lead to experimentation with riskier behaviors in general.
- Methamphetamine may dry mucosa, which may lead to more chafing and abrasions, which could provide an entry for HIV during sexual activity.
- Methamphetamine use is associated with sexual practices that may increase the likelihood of HIV and other STI transmission (for example long duration of sex that may lead to chafing or sores; multiple partners; lack of inhibition and; low level of condom use).
- Methamphetamine use may impair the ability to take medications that have been prescribed for HIV infection or other conditions.
- People using methamphetamines have poorer HIV treatment adherence than those who do not use methamphetamines. However, with additional support, they should be able to achieve improved adherence and good treatment outcome.
- The prevalence of drug resistance genotypes among methamphetamine users with HIV remains unknown ^{61 62 63 64 65 66}

1.11 Mental health problems associated with methamphetamine use

1.11.1 Methamphetamine-induced mood disorder

Methamphetamine-induced mood disorder can be identified by persistent disturbance in mood, commonly developed during or within one month of methamphetamine intoxication or withdrawal. Features of mood disorder can be depression, irritability, or a markedly diminished interest or pleasure in most activities. ⁶⁷ Studies have shown that among methamphetamine users lifetime prevalence of depression was widely reported as high, ^{68 69} and that being diagnosed with depression at some point in their lives was common. ⁷⁰

Methamphetamine-induced anxiety commonly appear as panic attacks, obsessions or compulsive behaviours, which compromise usual occupational, social or other important areas of functioning. Anxiety disorder can develop anytime within one month of methamphetamine intoxication or withdrawal. Methamphetamine users who have a pre-existing mood or anxiety disorder may require a longer-term mental health intervention.⁷¹

From an assessment perspective, it is important to determine if the individual has

a pre-existing mood or anxiety disorder which has influenced their methamphetamine use, (for example does the person use methamphetamines during period of depression) or whether the mood or anxiety disorder occurs as a result of methamphetamine use. Assessing potential interactions between methamphetamine and mood or anxiety disorders is essential in treatment planning and relapse prevention.⁷²

Some risk factors among methamphetamine users are characterized by frequency of use, injecting rather than swallowing or snorting, and pre-existing psychological symptoms. Other risk factors can include a family history of mood or anxiety disorders.⁷³

Methamphetamine-induced anxiety disorder is defined by anxiety, panic attacks, obsessions or compulsive behaviours, which compromise usual occupational, social or other important areas of functioning. Higher potency of methamphetamine increases the potential risks associated with use.

1.11.2 Psychosis and delirium

Delirium following methamphetamine intoxication is common. Psychosis is more likely to occur among those using methamphetamines regularly. It has been reported that prevalence of psychosis is estimated to be 11 times higher among regular ATS users than among the general population, and 23% of regular ATS users will experience symptoms of psychosis within a given year.⁷⁴

Methamphetamine –induced delirium and psychosis commonly resolve after the acute effects of the drug have subsided, cessation of using methamphetamines, and after sleep. The time frame for recovery is usually in a matter of hours or sometimes days. ⁷⁵

Signs of an impending psychotic episode can include:

- increasing agitation
- > insomnia not related to the use of psychostimulants
- > anxiety
- ➤ fear
- suspiciousness
- paranoia
- erratic behavior ⁷⁶

Features of methamphetamine-induced psychosis can include prominent hallucinations or delusions. Delusions of grandeur or paranoia can be experienced and auditory, visual or tactile hallucinations have been associated with methamphetamine-induced psychosis. ⁷⁷ ⁷⁸ (refer to glossary for specific conditions related to methamphetamine-induced psychosis)

Symptoms of hallucinations or delusions can develop within one month of methamphetamine intoxication or withdrawal. Psychotic symptoms can be induced in individuals who have no history of psychotic illness and psychotic relapse can be triggered in individuals with schizophrenia. Methamphetamine use may trigger a psychotic illness such as schizophrenia in predisposed individuals. Key risk factors for development of a psychotic illness include a family history of schizophrenia or past experiences of psychotic episodes.

While methamphetamine-induced psychotic symptoms do resolve rapidly for most people, proportion of individuals can experience protracted psychotic symptoms and may require antipsychotic medication to resolve their symptoms. It is important to note that the *majority* of methamphetamine users who experience psychotic symptoms after taking these drugs have no known history of schizophrenia or other chronic psychotic disorders. ^{79 80}

Methamphetamine –induced delirium and psychosis commonly resolves after the acute effects of the drug have subsided and been excreted, usually within hours or it may take some days.

1.12 Methamphetamine withdrawal

Methamphetamine withdrawal syndrome is mostly characterised by psychological symptoms, such as extreme fatigue and irritability. According to the ICD – 10 ⁸¹ withdrawal from stimulants (including methamphetamine) would include any of the two following:

- ➤ Lethargy and fatigue
- Psychomotor agitation
- Craving for stimulant drugs
- Increased appetite
- Insomnia
- Vivid bizarre or unpleasant dreams

Withdrawal symptoms can also include drug cravings, paranoid or suspicious and thoughts of feeling angry, aggressive or emotional.⁸²

ATS withdrawal has three phases when using the suggested terms of 'Crash', "Withdrawal' and 'Extinction'.⁸³

Phase	Time since last stimulant use	Common signs and symptoms
"Crash"	Typically commences 12–24 hours after last amphetamine use and subsides by 2–4 days	 Exhaustion, fatigue, agitation and irritability, depression, muscle ache Sleep disturbances (typically increased sleep, although insomnia or restless sleep may occur)
"Withdrawal"	Typically commences 2–4 days after last use, peaks in severity over 7–10 days and then subsides over 2–4 weeks	 Strong cravings Fluctuating mood and energy levels, alternating between irritability, restlessness, anxiety and agitation Fatigue, lack of energy
"Extinction"	Weeks to months	 Gradual resumption of normal mood with episodic fluctuations in mood and energy levels, alternating between irritability, restlessness, anxiety, agitation, fatigue, lack of energy Episodic craving Disturbed sleep

Duration and severity of a typical withdrawal syndrome for methamphetamine remains unclear but can be influenced by:

- > Age (older and more dependent users may experience a more severe withdrawal)
- ➢ General health
- Mode of administration (smoking and injecting has more intense withdrawal compared to swallowing and snorting)
- > Quantity and purity of methamphetamine being used prior to cessation of drug
- Polydrug use ⁸⁴

Majority of symptoms resolve within a week of ceasing methamphetamine use. Sleep and appetite related symptoms are likely to persist for an additional one to two weeks. Withdrawal from methamphetamine is relatively safe, generally not medically hazardous and fatalities directly attributable to withdrawal are rare, provided there are no additional factors involved such as polydrug use or co-existing mental or medical health conditions.⁸⁵

Antidepressant medication may sometimes be indicated for a period of three to four weeks after cessation of ATS use, after which time the symptoms generally disappear.⁸⁶

Withdrawal from methamphetamine is relatively safe, provided there are no additional factors involved such as polydrug use or co-existing mental or medical health conditions.

1.13 Reducing the risks and harms of methamphetamine use

A harm reduction approach [refer to glossary] should be taken with all methamphetamine users, as well as all other problematic substance users. It is important to note whether a person using methamphetamine is experimental, recreational, circumstantial, intermittent (or binge use), regular or a poly-drug user, as various harm reduction interventions are always needed.

Many methamphetamine users rarely use some of the more 'traditional' harm reduction services (such as needle and syringe programmes and opioid substitution therapy), largely because they do not identify themselves with opioid users, commonly belong to different networks of drug users, and do not perceive harm reduction services as relevant to them to meet their needs. As a rule, harm reduction responses should vary in accordance with the nature and severity of a person's use of methamphetamine use.

There are no recommended safe limits for methamphetamine or amphetamine use as the use of any drug always carries some risk. As previously highlighted use of any ATS will affect everyone differently due to factors of a persons' size, weight and health; tolerance; use of other drugs at the same time; amount used and the strength of the drug.

Harm reduction measures and interventions should be as follows:

- encourage people to stop injecting and move to other routes of administration as a first step (majority of methamphetamine users do not inject the drug but transition from swallowing and smoking to injecting does occur)
- distributing condoms and lubricants (methamphetamine use commonly increases sexual arousal and unsafe sexual activity)
- provide needle and syringe programmes for those that inject
- provide information, education and communication materials for people who use drugs, their sexual partners and their families about methamphetamines
- increase awareness of the risk of developing tolerance and dependence with increased frequency of use
- highlighting the risks arising from poly drug use
- encouraging contact with substance use treatment and other health care facilities
- advise to reduce frequency and quantity of use
- advise not to mix with other substances

Apart from the usual safer injecting and safer sexual practices advice, there are some other harm reduction strategies that can be considered and encouraged by health service providers targeted towards methamphetamine users. These include the following: ^{87 88}

Diet and fluid intake

- Drink plenty of water keep a water bottle nearby and take frequent sips as people tend to forget to drink when they are intoxicated and can easily become dehydrated.
- Eat a balanced diet including, when available, dairy products, meat and fish, fruit, vegetables, rice, grains, nuts, etc.

Rest sufficiently

- Get adequate rest. More than two nights without sleep is not healthy. Encourage regular users to have regular non-using days each week when they can rest and sleep undisturbed for several days to relax.
- Get into regular patterns of eating, drinking and resting as detailed above. Even if the user does not feel hungry, a little food and good hydration helps.

Understand the actions and effects of methamphetamine

- Understand how methamphetamine works and of the physical and psychological short and long-term effects.
- Be clear and aware of individual signs and symptoms of psychosis. If psychotic symptoms are experienced, the person should be encouraged to immediately stop using methamphetamines and seek professional help.
- Call on friends or family who are known to provide stability and support to the user if the person is feeling scared, paranoid or panicky. Support people can often help the person to calm down or can call for help if needed.
- > Be clear about signs and symptoms and methamphetamine toxicity.

Attend to other health and lifestyle issues

- Increase attention to dental hygiene as dental health can suffer due to a lack of bacteria-fighting saliva in the mouth when taking methamphetamines
- Consider if the person is doing things that they would not normally do to get money to buy methamphetamines
- Avoid driving when intoxicated or 'coming down' from methamphetamines, particularly if alcohol has also been consumed. Driving under the influence of alcohol should always be avoided.

Section two:

Managing methamphetamine toxicity; managing aggressive or agitated behavior; managing methamphetamine psychosis and; managing methamphetamine withdrawal

2. Managing Adverse Effects of Methamphetamines

2.1 Managing acute methamphetamine toxicity and overdose

When any person experiencing adverse effects of methamphetamines and arrives to a hospital, an emergency department, a drug treatment centre or a drop-in centre, it is important to address the needs of drug users by adhering to the following observations and steps:

Step one: observe clinical signs of toxicity 89 90

During this stage observing signs of toxicity have higher priority than trying to determine the methamphetamine dose consumed. Explore with the person the amount of methamphetamine used during an assessment of toxicity signs. Note that some individuals may experience toxicity symptoms after relatively low doses of methamphetamine.

Symptoms which may alert clinicians to potential toxicity and overdose include:

- Chest pain
- Rapid increase in body temperature
- Psychotic features (such as hallucinations, paranoia or delusions)
- Behavioural disturbances which may put the individual or others at risk
- Seizures
- Uncontrolled hypertension

Step two: monitor vital signs

• Check pulse, blood pressure and temperature

Step three: attempt verbal calming of the situation if required

- Talk quietly and calmly to the patient
- Do not raise voice or become agitated
- Take the person to a quiet place where there are no distractions or potential weapons
- If acute behavioural disturbance is a feature of toxicity, using a physical restraint is not recommended as it may worsen the situation.

Step four: sedation if necessary

A titrated dose of a short acting benzodiazepine is recommended until acute behavioural disturbance is controlled. Patient should not be sedated to the point where they are unconscious.

Step five: regular hydration and observation

For significantly elevated vital signs, more intensive intervention may be required, including intravenous hydration line and cardiac monitoring.

For mild cases of serotonin toxicity, supportive care, regular observation and consideration of sedation with a benzodiazepine or antipsychotic may be required. For more serious serotonin toxicity, supportive care in an emergency department setting with an emergency medicine specialist is advised. ⁹¹

A methamphetamine intoxicated person has impaired judgment and anyone caring for this person need to understand about this behavior change.

2.2 Managing aggressive or agitated behaviour and delirium

Some methamphetamine users experience an increase in aggressive behaviour as a consequence of their methamphetamine use. Clinicians and service providers (hospital, emergency department drug treatment centre or drop-in centres working closely with drug users) must be aware and informed about the safety procedures and appropriate response to manage patients who present in an agitated or aggressive condition. Encouraging training opportunities about methamphetamines and adverse effects (including role plays about how to manage aggressive behaviour), can be invaluable in effectively responding to these situations and ensuring the safety of the patient, and staff.

Behaviours associated with aggression and agitation which may become a concern include:

- Pacing
- Being unsettled
- Paranoia/suspiciousness
- Delusions (persecutory or grandiose)
- Argumentative with little or no provocation
- Easily upset over trivial things
- Threatening others
- Dissatisfied with everyone
- Offering unwarranted criticism
- Criticising surroundings
- Condemning staff of inadequate sensitivity, training or qualifications
- Claiming that everyone is out to make things difficult for them

Feeling unsupported

When responding to difficult behaviours be aware that the person's judgement may be impaired and the person may in fact be experiencing psychotic behaviour that may make them a risk to themselves or others.

What you should do:

- Keep your voice low and controlled
- ✤ Listen to the person
- ✤ Avoid insincerity, ridicule or smiling
- Explain to the person what is happening, what you are doing and why you are doing it
- Avoid movements or actions which may be perceived as threatening, such as quick movements or moving towards the person suddenly
- Consider your own occupational health and safety at all times
- ✤ Advise others if you are about to enter a high-risk situation.

What you should not do

- Do not argue with the person and avoid using 'no' messages. If you cannot provide what they are asking for, be clear about what you can provide.
- Do not take the person's behaviour or any criticisms personally.
- Do not ask a lot of questions ask only what is necessary to respond to the situation, as the person will have low tolerance for frustration or questioning. Avoid setting ultimatums or threatening actions that you are not intending to follow-up
- Do not undertake a lengthy interview or try to counsel the person if the person has presented for assessment or counselling, inform the person you cannot continue during intoxication and agree to make a future appointment.^{92 93}

In the case of extreme agitation or aggression, the escalating threat of physical injury to the client, yourself or others it will likely be that more immediate action will be required. Follow protocols appropriate to your organisation and request others within your organization to assist if appropriate. If protocols have not yet been developed within your organization or health setting the suggested sedatives could be used to manage difficult behaviours. [refer to suggested sedatives below]

Condition	Treatment
Mild arousal: person is alert, may be irritable but cooperative, able to engage in assessment, normal vital signs.	If the person is completely cooperative when undertaking an assessment, it is likely no sedatives will be required. However, if the person is showing signs of increasing irritability providing sedatives will require consideration.
	Sedate by oral medication – diazepam 5-10 mg or clonazepam 0.5-2 mg or lorazepam 1-2.5 mg, repeating after 30-60 min if necessary.
Moderate arousal: person is restless, hostile and uncooperative, raised vital signs.	Sedate with intramuscular medication if oral medication is refused – midazolam 5-10 mg or clonazepam 1-2mg, repeating after 30-60 min if necessary.
High arousal : person is distressed, highly agitated, uncooperative and potentially violent.	Sedate with oral or intramuscular medication - diazepam 5-10 mg, repeating in 5mg increments until adequately sedated. This should be accompanied with frequent monitoring of the patient. Escalate to haloperidol 2.5-5mg or midazolam 2.5-5mg if no effect.
	Intravenous (IV) use of benzodiazapines should be reserved for <i>epileptic seizures</i> . Resuscitation equipment should be available for reversal of respiratory depression due to risk from administration of IV sedation.

Suggested sedatives to manage difficult behavior ⁹⁴

Others have suggested simply using only diazepam for those experiencing uncontrolled agitation or aggressive as a consequence of withdrawal symptoms, and particularly if the person is causing no serious harm to clinicians or service providers. Administer 10-20mg of diazepam (oral if possible) every 30 minutes until the patient is lightly sedated. Do not provide more than 120mg of diazepam in a 24-hour period without the capacity for continuous monitoring. Closely observe the person during sedation. Do not administer any more diazepam if signs of respiratory depression are observed.⁹⁵

2.3 Managing methamphetamine/amphetamine - induced acute psychotic symptoms (psychosis)

A person presenting with methamphetamine psychosis can closely resemble those of paranoid schizophrenia and can also closely mimic a mania episode. If there is evidence that the person has recently taken ATS and is still experiencing the stimulant effects of ATS (such as raised pulse and blood pressure, sweating, agitation and rapid movements), then the first line of treatment should be benzodiazepines. In other cases, antipsychotics should be used. Olanzapine (or similar anti-psychotic medication) may be a better treatment option (if costs are not a major priority) than haloperidol in light of an inducing few to no extrapyramidal symptoms, although the medication costs substantially more than haloperidol.

Olanzapine and Haloperidol dosage

Olanzapine

- Initial dose: 10 or 15 mg orally once a day
- Dose adjustments: If indicated, dose adjustments should occur at intervals of at least 24 hours in 5 mg increments/decrements
- Maintenance dose: 5 to 20 mg orally once a day
- Maximum dose: 20 mg orally once a day

Haloperidol

Oral

- Initial dose: 0.5 to 5 mg orally 2 to 3 times a day.
- Maintenance dose: 1 to 30 mg/day in 2 to 3 divided doses.

Parenteral:

Haloperidol lactate:

- 2 to 5 mg IM or IV for prompt control.
- May repeat every 4 to 8 hours.
- Doses up to 8 to 10 mg may be given intramuscularly.
- Acutely agitated patients may require hourly injections.

The following medicines haloperidol, olanzapine, risperidone, quetiapine and benzodiazepine have been reportedly used in response to methamphetamine or amphetamine -induced psychosis. ^{96 97 98 99 100}

2.4 Managing methamphetamine withdrawal

There is no standard pharmacotherapy treatment for the management of methamphetamine withdrawal to date. Managing withdrawal from methamphetamine consists primarily of psychosocial interventions, which may be supplemented with medications, such as (short acting) benzodiazepines (for example diazepam), to reduce symptoms of insomnia and anxiety during the first few days. However, others have found no evidence for the use of benzodiazepines or other medicines for the management of sleep disturbance or agitation among ATS users in withdrawal. This is despite such medicines commonly recommended in various international clinical guidelines.¹⁰¹

2.4.1 Medication treatment options for amphetamine-type stimulant withdrawal

The use of medications should be determined on an individual basis according to what symptoms are prominent.

Methamphetamine withdrawal is relatively safe and most commonly can occur as an outpatient or home detoxification. However, treatment completion rates as an outpatient or during home detoxification remain poor and rates of relapse immediately after withdrawal are high. For a person with evidence of significant polydrug use, psychotic symptoms, severe depression, or potential medical complications, than an in-patient setting may be more appropriate, but will depend upon a comprehensive assessment. ¹⁰²

2.4.2 Treatment planning

Planning helps the person prepare for methamphetamine withdrawal by discussing:

- Previous attempts to withdraw from methamphetamine, identifying what was and was not helpful.
- The likely course of methamphetamine withdrawal, (including symptoms, duration and severity). Withdrawal typically commences 2–4 days after last use, peaks in severity over 7–10 days, and then subsides over 2–4 weeks. ¹⁰³
- Dependence on other psychoactive drugs.
- The environment the client will be in during withdrawal (home or inpatient supervised detoxification).
- Type of support from friends and family who may provide assistance.
- Ways of maintaining motivation.
- The role of withdrawal medication if appropriate and referrals to other medical doctors or specialist in drug use issues for assessment.
- Any additional factors that may need consideration during withdrawal, such as psychiatric or other health issues (symptoms of psychosis, depression and anxiety or behavioural problems such as agitation or aggression which may worsen during the course of methamphetamine withdrawal).

• Potential treatment options following withdrawal (which may reduce the risk of relapse and provide an opportunity to engage clients in ongoing treatment.

Further research is needed but it has been reported that methamphetamine withdrawal can be longer and more protracted than withdrawal from other drugs (such as alcohol and opioids). ¹⁰⁴ Environment and support provided play key roles in the client's ability to maintain motivation for change and complete withdrawal.

Clinicians should also normalise the experience of prolonged anxiety and depression as a result of a protracted recovery period and provide support and assistance in managing these feelings. Clinicians should regularly monitor the progress of their client's withdrawal. Providing a withdrawal scale so clients can monitor and review their progress may be a useful adjunct to psychosocial supports.

A time course for methamphetamine and ATS withdrawal is outlined in Appendix 3

Section three:

Assessment and interventions

3. Undertaking an assessment

An assessment is primarily undertaken for those with occasional use as well as problematic and highly dependent users who present seeking treatment for dependence or among those concerned about potential dependence. Many people that use methamphetamines are reluctant to approach service providers (hospitals, drug treatment centres or sometimes drop-in centres that specifically attract people who inject drugs) so it is vital that assessments should be offered in the context of a safe, reassuring, supportive, non-judgmental environment to enhance a person's engagement with the service. A thorough assessment and follow-up by those working to assist drug users can help some users to reduce or stop using methamphetamine.

An assessment should help the methamphetamine user to identify their particular individual treatment goals (for example to cut down or stop using; resume or gain employment; improve a strained relationship with family and friends). The information provided during the assessment will help strengthen engagement and assist in the development of a treatment plan. The drug treatment worker and those seeking assistance can determine collaboratively the progress of treatment against the identified goals. It is important to know the goals can sometimes change during the course of treatment. Initial assessment guide suggested in Appendix 4.

A comprehensive assessment for treatment should include examining the following areas:

- ✓ current and past methamphetamine use
- ✓ other drug use or previously used
- ✓ dependence on each drug
- ✓ physical and psychological health
- ✓ previous methamphetamine withdrawal
- ✓ social factors and any trauma history
- ✓ readiness and sense of willingness to change.

3.1 Assessing current and past methamphetamine use

History of current and past methamphetamine use should include the following:

- age at first use
- age at first regular use
- type of methamphetamine currently used (crystal, base, powder, pills)
- route of administration (How do you usually use methamphetamine?)
- quantity used (How much are you using? How much do you usually spend?)
- frequency of use (How often are you using?)

- when the person last used (Have you used today?)
- effects of methamphetamine use on the individual (How does it make you feel?, Are there any effects that are causing difficulties for you?)
- Potency of methamphetamine used (How long does the effect usually last?).¹⁰⁵

3.1.1 Assessing other drugs used

Using the questions mentioned above for methamphetamine use, drug treatment workers should question clients about the use of other drugs (for example heroin or alcohol use).

3.1.2 Physical health and psychological health

Drug treatment workers should ask about the user's physical and psychological health. It is important to enquire about health in general, about any illnesses or injuries or the taking of any prescribed medication. It is also important to ask about issues of mental health and the following questions can be useful. If the person answers yes to any question, a detailed psychological or psychiatric assessment should be undertaken, if such services are able available and accessible:

- Have you ever had emotional problems or problems with your 'nerves'/anxiety/worries?
- Have you ever been given medication for emotional problems or problems with your 'nerves'/anxieties/worries?
- Have you ever seen psychiatrist?
- Have you ever been told that you have a mental health problem?
- Have you ever been in hospital for mental health treatment?
- Do you take medication?
- Do you feel down, sad or emotionally down?
- Has the thought of harming yourself ever been on your mind?
- Are you more anxious than usual?
- Do you see or hear things that other people say they can't? ¹⁰⁶

3.1.3 Previous methamphetamine withdrawal or treatment

Workers should ask about the user's previous history of withdrawal or treatment, including its effectiveness and triggers for relapse (Have you ever received drug treatment before? What prompted you to start using again?).

3.1.4 Social factors

Various social factors should be included, such as information about relationships, finances, legal issues, accommodation; social supports (Please tell me about your life in general. What about friends and family? Are you in contact with your family? Are they supportive? Are you able to manage on the income you receive?).

3.1.5 Readiness to change

Treatment of methamphetamine use disorders should be matched to a person's stage of readiness to change. These are categorised as follows:

- Precontemplation: person is not considering change
- Contemplation: person has not yet cut down or quit, but is considering change
- Preparation stage: person has made a firm commitment to quit or cut down
- ✤ Action stage: person has recently cut down or quit
- Maintenance stage: person has cut down or quit for some time
- Relapse: person has started to use again.¹⁰⁷

For those considering change, motivational enhancement, education and counseling can be beneficial. Those in the preparation or action stage can benefit from structured counselling, and those in relapse can benefit from motivational approaches and skills building. [details of readiness to change and motivational interviewing found in Section 3)

3.2 Therapeutic interventions

3.2.1 Brief interventions:

Brief interventions can be as short as five minutes in a drop- in centre through to a series of hour long counselling sessions in an outpatient treatment setting. The major aim of brief interventions is to explore a potential problem and motivate an individual to begin to do something about their substance use. A major goal is to reduce the risk of harm that could result from continued use. Brief interventions are known to encourage behaviour change and can assist a person towards a shift for more intense treatment if required or requested.

Brief interventions followed by a comprehensive assessment will assist to determine the most appropriate and potentially effective treatment intervention for the client. Baseline information will allow for clinically relevant suggestions to be developed and offered to the patient. ¹⁰⁸

3.2.2 Stepped care model

Following a comprehensive assessment, information gathered provides an opportunity to introduce a series of interventions, treatment methods and services to suit the individual based on what is termed a 'stepped care model'. ¹⁰⁹ Interventions and treatment models are either "stepped up" or "stepped down" in intensity depending on the needs of the user seeking or receiving support to reduce or cease use, as well as to lessen the social, health and legal problems associated with continued use.

Stepped care services include the following:

- Community-based prevention and health promotion
- Creating awareness that there are help/treatment options for ATS users
- Self-help and mutual support groups
- Brief interventions of motivational interviewing
- Cognitive–behavioural therapy
- Intensive individual counselling
- Detoxification and withdrawal management services
- Crisis interventions and emergency care (such as addressing issues of psychosis)
- Long term rehabilitation and reintegration services such a vocational education programs

3.2.3 Recommended stepped care model interventions for ATS users depending on level of use.

The extent of a person's problematic use of ATS will determine the implementation of different interventions and of referrals to different services as follows:

Step one: Occasional ATS users believed to be at relatively low risk	Personal care activities: Self/family care in reducing/stopping drug use. Self-help groups, informal community based care
	NGO activities: Information about the risks of drug use, brief counselling, peer outreach and education, drop-in centres, skills and vocational training, rehabilitation and reintegration services

Step two: "Problem" ATS users	Drug services in primary health-care settings: assessment, brief counselling, harm reduction information, needle and syringe programmes, referral to specialist services if required, assistance with basic symptomatic detoxification and withdrawal. Referral back to the community for support, rehabilitation and reintegration services and/or to expert care
Step three: Heavy / dependent ATS users	Specialized, voluntary drug dependence clinical care: Assessment of dependence, pharmacologically assisted withdrawal, harm reduction, needle and syringe programmes (if injecting), outpatient and/or inpatient or residential treatment and specialized counselling, referral to rehabilitation and reintegration services, and back to the community for support. ¹¹⁹

Steps one and two interventions in the community and in primary health-care settings offer wide ranging benefits including:

- ✓ Reduces stigma and discrimination as ATS users are not singled out
- ✓ ATS users have opportunity to access community-based psychosocial interventions as appropriate, without necessarily providing a specific therapeutic approach
- ✓ Knowledge of community resources is available making referral easier to specialized drug treatment facilities.
- ✓ Drug users are likely to return if referred to specialist care
- ✓ Most cost-effective option for ATS users are the transportation costs are lower to health facilities and associated costs of referral to other standard health services such as HIV, AIDS and tuberculosis are kept to a minimum¹¹¹

3.3 Psychosocial interventions

A review of the different psychosocial interventions for the management of stimulant dependence was conducted for the recent update of the mhGAP guidelines (<u>http://www.who.</u> <u>int/mental health/mhgap/evidence/substance abuse/q5/en/</u>). The review found evidence in support of several psychotherapeutic approaches including contingency management,

community reinforcement approach, family therapy, psychodynamic therapy, behavioural couples therapy, cognitive behavioural therapy and vocational therapy.

3.3.1 Cognitive behavioural therapy

Cognitive behavioural therapy (CBT) approaches are the most extensively evaluated of the counselling styles with research showing that when implemented in a stepped-care approach have demonstrated effectiveness in the treatment of stimulant dependence. ¹¹² Cognitive behavioural approaches are short-term, focused **talking therapies** that aim to identify and address common errors in thinking and subsequent behaviours that lead to, and maintain, problematic drug use. ¹¹³

Primary focus of CBT:

- encourage and reinforce behaviour change
- recognize and learn to avoid high-risk settings
- improve coping skills managing and avoiding trigger situations associated with druguse behaviours
- learn to deal with drug craving. ¹¹⁴

Psychiatrists, counsellors, psychologists and therapists who have been trained in CBT can provide this service either in one-on-one therapy sessions or as small groups.

3.3.2 Motivational interviewing

People can change their thinking and behaviour according to a series of identifiable stages, and it is possible to influence the natural change process with "motivational" interviewing (MI) techniques. ¹¹⁵ Psychiatrists, counsellors, psychologists and therapists who have been trained in motivational interviewing can provide this service either in one-on-one therapy sessions or as small groups. Key concepts of MI include establishing a "therapeutic alliance" showing empathy, providing feedback, helping the client to reframe his/her behaviour and thus reinforcing change. ^{116 117 118} The five basic stages of change are: pre-contemplation, contemplation, determination, action and maintenance stages.



With pre-contemplators (people who have not even thought about changing their ATS use)

- Provide feedback from the assessment, checking with the person that they understand the feedback. Ask the person does it seem a fair summary.
- Explain the reasons that it would be useful to go ahead with treatment. It is important to emphasize that any changes in behaviour is up to the person.
- Always provide realistic information about risks involved in ATS use and offer specific harm reduction advice. As ATS users may not return for further consultation it is preferred that all information be given in writing for those that are literate.
- Provide appropriate goals for pre-contemplators and contemplators. This may be highlighting specific harm reduction behaviours or monitoring their use of ATS over time.

With contemplators (people who have been thinking about and weighing up the impact of their ATS use)

- Enquiry from the person what impact the use of methamphetamine is having on their life – both positive and the negative.
- It is suggested that clinicians prompt and lead the discussion, using their knowledge
 of the possible negative effects of methamphetamine. The rational is those that use
 methamphetamine may not understand that some events happening in their lives are
 potentially associated with their drug use.
- Start the discussion with the person as to what they consider the good things and not so good things about using methamphetamine. The person weighs up these factors to make what becomes an informed decision.

With people at the preparation, action and maintenance stages of change (people who have made the decision to change, actually made changes and are sticking to it)

- Staff member offering services explores the negative use of methamphetamine upon the persons' life.
- Discuss and reinforce the potential adverse health risks of using methamphetamine.
- Have a discussion about the social and financial implications and impact of using methamphetamines.
- Ask the person to describe their life before using methamphetamine. Ask them to reflect by looking forward about what their future life would be if still maintain using methamphetamine (consider social, health and economic factors).
- Start the discussion about the discrepancy between their self -image of themselves and the role they play (father/mother/son/ daughter/etc) and the reality of a person that uses methamphetamine.

Strengthening commitment

- Provide a summary of previous conversations that highlight dissatisfaction with how their life is now.
- Encourage and allow the person to state their need for change: for example 'What would you like to be different in your life?'
- Give further emphasise that it is their choice to make any changes and provide suggestions how they go about it to reach their goal.
- Explore with the person the potential fear of change and the possible losses or negative consequences that might arise with a new situation without using methamphetamine.
- Help the person develop goals for behavioural change. Always ensure that they are realistic and achievable.¹²⁰

(Primarily used in high income more so than middle and low-income nations due to financial implications of extensive treatment and stronger health systems)

Contingency management (CM)	A systematic application of reinforcement and conditioning principles acting on the assumption that behaviour can be controlled using reinforcement procedures. Programs provide rewards such as a voucher that can be swapped for goods or providing verbal support when engaged with successful desirable behaviours such as cessation or reduction of ATS use. The approach appears to be useful in the short term to help people stop using, and it is sometimes used in conjunction with CBT to help people maintain abstinence. The principle of providing positive feedback about a user's progress and encouraging family member involvement to do the same is applied. Risk of relapse is high if the individual feels that no improvements have been made. Short-term goals that can signal progress can strengthen retention in treatment. ¹²¹
Community Reinforcement Approach (CRA)	CRA integrates several treatment components: building motivation to quit drug use, help to assess a drug use pattern, increase positive reinforcement, learning new coping behaviours, and involving significant others (such as family and trusted friends) in the recovery process. CRA involves a collaboration between doctors, nurses, counsellors, and the drug user to identify specific individual goals by examining behaviours and the consequences that are negative and positive. Analysis focuses on taking a close look at the function served by using various substances, and comparing this with analysis of pro-social behaviors such as sober activities. The aim of CRA is to assist people to discover and adopt a pleasurable and healthy lifestyle that is more rewarding than a lifestyle dominated by the use of substances that commonly cause health, social and economic harm. ¹²² ¹²³ ¹²⁴

3.4 Longer interventions

3.4.1 Residential rehabilitation

Residential rehabilitation (RR) treatment can be effective for:

- those suffering from multiple problems (these can include drug dependency, medical and mental health problems)
- ➢ those dependent upon multiple substances

- those with repeated failed attempts to cease methamphetamine use in the community
- those whose social functioning is impaired.

Entering a residential rehabilitation (RR) program should be voluntary with informed consent of people who use drugs or their legal guardian. Residential rehabilitation is based on the principle that a structured, longer term, residential setting provides an appropriate environment in which to address the underlying causes of problematic drug use.

Commonly RR programs usually emphasise abstinence from all drugs as a treatment goal, may involve individual and group counselling sessions; and many are based on a 12-step approach. Various treatment approaches are commonly offered and continued use of prescribed medications for mental health symptoms is allowed. ^{125 126}

3.4.2 Mutual help and support groups, and the 12- step approach

Most mutual help and support groups are based on the 12-step approach of alcoholics anonymous or narcotics anonymous, which promotes a disease concept that implies recovery from, rather than a cure for, substance dependence. This approach is based on the '12 steps' to recovery and plays a key role in relapse prevention by offering mutual support. The approach includes making a personal inventory of the user's life, assisting and supporting others through disclosure of personal stories at meetings, personal help to other users in recovery. It also emphasizes a spiritual component or 'higher power'. Research demonstrates that some people can do well with the 12-step approach although dropout rates are high. It is important to note that research outcomes specifically for methamphetamine users have not yet been determined.^{127 128}

3.5 Pharmacotherapy treatment options

Numerous pharmacotherapy approaches have been trialed for the use stimulant dependence, including anti-depressants, anti-psychotics, anti-epileptics, opioid antagonists, stimulant medication, modafenil and disulfiram, and these have been reviewed in the recent mhGAP guideline update.

It is important to note that until further research is conducted *these medicines cannot be considered as routine treatment for those dependent on methamphetamines*

Appendix 1: Severity of dependence scale

1.	Have you ever thought your methamphetamine use is out of control?			
	Never (0)	Sometimes (1)	Often (2)	Always (3)
2.	Has the thought of not being able to get any methamphetamine really stressed you			
	Never (0)	Sometimes (1)	Often (2)	Always (3)
3.	Have you worried about your methamphetamine use?			
	Never (0)	Sometimes (1)	Often (2)	Always (3)
4.	Have you wished that you could stop?			
	Never (0)	Sometimes (1)	Often (2)	Always (3)
5.	How difficult would you find it to stop or go without?			
	Not difficult (0)	Quite difficult (1)	Very difficult (2)	Impossible (3)

Total Score:_____

Note: A cutoff score of greater than 4 indicates severe amphetamine dependence ¹²⁹

Appendix 2: Possible drug interactions with methamphetamine

Drug Type	Possible interaction effects ¹³⁰	
Alcohol	Possible depressed heart and breathing functions, arrhythmias	
Antidepressants	Possible dangerous rise in blood pressure and body temperature leading to strokes, seizures or heart failure; not to be used within the same two-week period	
Antipsychotic medications	Possible reduced effectiveness of medication, increased risk of seizures	
Benzodiazepines	Increased risk of accident and injury and benzodiazepine dependence if taken regularly or in large quantities, risk of sedation	
Blood pressure medications	Can reduce the effectiveness of medication and increase blood pressure	
Cannabis	Linked to worsening of psychotic symptoms in people with psychotic disorders	
HIV medications which inhibit ATS metabolism (i.e. drug dose adjustment of ART medication, especially with ritonavir-boosted ART in HIV-1-infected individuals who use methamphetamine) ¹³¹	Increases risk of methamphetamine toxicity (overdose)	
Opiates (eg heroin)	Increased risk of opiate overdose	
Psychostimulants (ecstasy, cocaine)	Increased risk of heart attack and strokes	
Tobacco	Increased risk of lung and heart disease, and cancer	

Appendix 3: Time course of methamphetamine and ATS withdrawal

Days since last use	Symptoms
1–3 Days Common to most people who use methamphetamine and ATS	Crash exhaustion many hours sleeping low mood/depression
2–10 Days Common	Withdrawal strong urges to use – cravings mood swings, anxiety, irritability, feeling flat, drained agitation tearfulness sleep problems poor concentration diarrhoea aches, pains and headaches hunger
	hallucinations
7–28 Days	Physical and neurological recovery mood swings depression sleep problems cravings
One to three months, sometimes longer, especially if person has used heavily for a long time	Protracted sleep patterns improve energy levels get better mood settles slowly resolving anhedonia (being unable to feel pleasure) ¹³²

Appendix 4: Suggested initial assessment guide

[1] CLIENT EXPECTATIONS.

For example: What are you hoping to get out of coming to see me? or asking family members what concerns they have if a family member has brought the patient

Things to look for:

- Information about drug effects
- Information about harm reduction
- Someone to listen and clarify thinking
- Treatment for a comorbid psychological problem
- Strategies to cope with cravings
- Strategies to deal more effectively with other people
- Relative importance of reducing/ceasing use as a goal

[2] CLIENT GOALS

For example: 'What changes if any, are you hoping to make to your meth use?' Follow-up: 'How long have you wanted to make these changes?' 'Why now?' (or if family has brought patient then good to clarify both family and client expectations and goals)

Things to look for

- Prevent relapse
- Cease use
- Reduce use
- Reduce harm from use
- Change behavior when using
- Importance of changing use
- Confidence in changing use

[3] CURRENT METHAMPHETAMINE USE

For example: 'When was the last time you had some meth?' ' How much did you have?' 'When was the time before that?' 'How much did you have?' ' How do you use it?' Reflect back typical use pattern

Things to look for

- Last use
- Typical quantity and frequency over last three months
- Route of administration (ROA)
- Pattern of use (distribution of occasions of use across week/ fortnight)

[4] OTHER DRUG USE

Repeat relevant aspects of [3] to assess: Alcohol, benzodiazepines, cannabis, cocaine, MDMA, opioid and tobacco use and enquire whether any other drugs are being used (for example: hallucinogens, inhalants).

Things to look for

- Last use
- Typical quantity and frequency over last three months
- Route of administration
- Pattern of use (distribution of occasions of use across week/ fortnight)
- Relationship to methamphetamine use: antecedents, accompaniments, consequences
- Need for inpatient detoxification

[5] PAST ATTEMPTS TO CUT DOWN OR REDUCE METHAMPHETAMINE USE OR OTHER DRUG USE

[5a] Explore episodes of success. For example: 'What is the longest period you've gone without using meth?' 'How did that start and end?' 'In the last three months, what is the longest period you've gone without using meth?' 'How did that start and end?' 'Have you given up or cut down any other drugs before?'

Things to look for

- Longest period of abstinence achieved
- Most recent periods of abstinence or reduction in use
- Successful transitions to lower risk
- Successful cessation of any drug
- Substituting one drug for another
- Changes in social networks
- Changes in occupation
- Effective cognitive or behavioural strategies

[5b] Explore effectiveness of previous strategies to quit or reduce For example: 'What have you tried to do to control or limit your use of meth/other drugs?' 'How did that work?' 'In the short term?' 'In the longer term?'

Things to look for

- Strategies effective in the short-term that increased drug use in the long-term
- Attempts to avoid harm from drug use while continuing to use
- Experiences where acceptance of discomfort facilitated reduction or cessation in drug use

[6] SOCIAL CONTEXT OF USE

For example: 'Who are the most important people in your life right now?' 'How do they respond to your meth use?' 'How do you usually spend your time during the week?' 'Do you have any legal problems?' 'Do you have any debts?' Is ATS use linked to work/employment?

Things to look for

- Social networks that support drug use
- Friends who do not use
- Pressure to abstain
- Legal problems
- Poverty/debt
- Boredom/under activity
- Unemployment/ underemployment/risk of job loss

[7] MEDICAL

For example: 'How do you sleep?' 'What are your eating patterns like?' 'Are you on any prescribed medications?' 'Have you been to hospital in the last 12 months?' 'Do you have any general medical conditions?' 'Do you have any blood borne viruses?' 'When were you last tested?'

Things to look for

- Insomnia
- Anorexia
- Blood borne viruses
- Problems with veins
- Cardiac problems
- Malnutrition

- Prescribed medications
- General medical conditions

[8 PSYCHOLOGICAL

For example: 'How do you feel most of the time?' 'Have you ever thought about hurting yourself?' 'Have you ever done so?' 'Does that happen only when you use meth?' 'Have you thought about hurting anyone else?' 'Have you done so?' 'Have you ever become paranoid or thought someone was after you while using?' 'What was that like?'

Things to look for

- Suicidal
- Depression
- Anxiety
- Irritability
- Aggression
- Paranoia

[9] EXPECTATIONS / COMMITMENT TO TREATMENT

For example: 'How much involvement in therapy did you have in mind?' 'Some people attend once, others attend for a small number of focused sessions and others are looking for an open-ended program...what about you?'

Things to look for

- Resistance to coming back
- Anxiety about being able to keep appointments

Suggested assessment guide sourced from Smout M. Psychotherapy for methamphetamine dependence. Drug and Alcohol Services, South Australia, Government of South Australia. 2008. Used with permission.

Appendix 5: Useful key documents adapted for this guide

This guide has been adapted and sourced from the following key documents:

Australian General Practice Network. Management of patients with psychostimulant use problems – Guidelines for general practitioners. Canberra. Australian Government Department of Health and Ageing. 2007.

Baker, A., Lee, N.K. and Jenner, L. Models of intervention and care for psychostimulant users. 2nd Edition. National Drug Strategy. Monograph Series No 51. Canberra: Australian Government Department of Health and Ageing. 2004.

California Department of Alcohol and Drug Programs. Methamphetamine Treatment: A Practitioner's Reference. United States. 2007.

Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra: 2008.

Lee N, Johns L, Jenkinson R, Johnston J, Connolly K, Hall K. and Cash, R. Clinical Treatment Guidelines for Alcohol and Drug Clinicians. No 14: Methamphetamine dependence and treatment. Fitzroy, Victoria: Turning Point Alcohol and Drug Centre Inc. 2007

Lee Jenn Health Consultants. Medication treatment options for amphetamine-type stimulant users. A discussion paper prepared for the Australian National Council on Drugs. 2014.

Matua Raki. Interventions and Treatment for Problematic Use of Methamphetamine and Other Amphetamine-Type Stimulants. Wellington: Ministry of Health. New Zealand. 2010.

Smout M. Psychotherapy for methamphetamine dependence. Drug and Alcohol Services, South Australia, Government of South Australia. 2008.

World Health Organization. Technical Briefs. Amphetamine –type stimulants (ATS): Patterns and consequences of the use of ATS. WHO: Western Pacific; 2011

References

(Endnotes)

- 1 United Nations Office on Drugs and Crime (UNODC). World Drug Report. Vienna; 2017
- 2 Ibid.
- 3 Degenhardta L, Baxterc A, Lee Y, Halle W, Sara G *et al* The global epidemiology and burden of psychostimulant dependence: Findings from the Global Burden of Disease Study 2010. Drug and Alcohol Dependence. 2014: 137; 36–47.
- 4 Ibid.
- 5 UNODC. The Challenge of Synthetic Drugs in East and South-East Asia and Oceania. Bangkok. 2015.
- 6 UNODC. Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.
- 7 Drug Abuse Information Network for Asia and the Pacific (DAINAP). 2014.
- 8 Ibid
- 9 Ibid
- 10 UNODC. Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.
- 11 UNODC. Annual Report Questionnaire for Indonesia; 2011.
- 12 UNODC. Annual Report Questionnaire for the Philippines; 2012.
- 13 UNODC. World Drug Report, Vienna, 2016.
- 14 UNODC. Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific 2013A Report from the Global SMART Programme: Bangkok and Vienna; 2013.
- 15 UNODC. The Challenge of Synthetic Drugs in East and South-East Asia: Trends and Patterns of Amphetamine-type Stimulants and New Psychoactive Substances. A Report from the Global SMART Programme June 2017. Bangkok, Thailand.
- 16 Ibid
- 17 Central Committee for Drug Abuse Control (CCDAC) 'Treatment data collection and forensic capacity building in Myanmar', Central Committee for Drug Abuse Control (CCDAC), presented at the Global SMART Programme Regional Workshop, Phnom Penh, 24-25 July, 2012.
- 18 "Study on Use of Amphetamine-Type Stimulants among High-School Students at Myitkyina

State", Substances Abuse Control Project, Department of Health, Ministry of Health, Republic of Myanmar and the World Health Organisation Country Office for Myanmar, Myitkyina, Myanmar, 2011.

- 19 UNODC. The Challenge of Synthetic Drugs in East and South-East Asia: Trends and Patterns of Amphetamine-type Stimulants and New Psychoactive Substances. A Report from the Global SMART Programme June 2017. Bangkok, Thailand.
- 20 Australian Crime Commission. Illicit drug data report 2005–06, Canberra: Commonwealth of Australia; 2007.
- 21 Queensland Health. Psychostimulants Information for Health Workers. Queensland: Queensland Health. 2004.
- 22 UNODC. World drug report 2010. Vienna, UNODC: 2010.
- 23 United Nations. Convention on Psychotropic Substances. 1971.
- 24 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra: 2008.
- 25 Kuczenski R and Segal DS. Effects of methylphenidate on extracellular dopamine, serotonin, and norepinephrine: comparison with amphetamine. Journal of Neurochemistry. May 1997; 68(5):2032–2037.
- 26 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra: 2008.
- 27 Queensland Health . Psychostimulants Information for Health Workers. Queensland: Queensland Health. 2004.
- 28 Australian Drug Foundation. 2015. Why do people use alcohol and other drugs? Melbourne, Australia.
- 29 South Western Area Health Board. 2006. Understanding Substances and Substance Use: A Handbook for Teachers. Ireland.
- 30 European Monitoring Centre for Drugs and Drug Addiction. 2002. Drugs in focus, Recreational drug use a key EU challenge. Lisbon, Portugal.
- 31 European Monitoring Centre for Drugs and Drug Addiction. 2002. Polydrug use. Selected issue In EMCDDA 2002 Annual report on the state of the drugs problem in the European Union and Norway. Lisbon, Portugal.http://www.emcdda.europa.eu/attachements.cfm/ att_37265_EN_sel2002_1en.pd
- 32 World Health Organization ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic criteria for research. http://www.who.int/substance_abuse/terminology/ ICD10ResearchDiagnosis.pdf

- 33 American Psychiatric Association. Diagnostic and statistical manual of mental disorders IV. (DSM-IV) Washington, DC: American Psychiatric Association. 1994.
- 34 World Health Organization ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic criteria for research. http://www.who.int/substance_abuse/terminology/ ICD10ResearchDiagnosis.pdf
- 35 Allen, B. and Tresidder, J. Amphetamine type stimulants: An update on the Australian experience. Of Substance. 2003: 1(1); 8-11.
- 36 Australian Drug Foundation. Amphetamine Facts. Melbourne: Australia; 2013.
- 37 Pennay A and Lee N. Prevention and early intervention of methamphetamine-related harm. Prevention

Research Quarterly: Current evidence evaluated, Drug Info Clearing House, Issues Paper, No. 6: 2008.

- 38 National Institute on Drug Abuse. Research Report Series: Methamphetamines. U.S Department of Health and Human Services. 2013.
- 39 Ibid
- 40 Turning Point 2007. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne: Australia; 2007
- 41 Australian Drug Foundation. Amphetamine Facts. Melbourne: Australia; 2013.
- 42 Turning Point 2007. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne: Australia; 2007
- 43 Darke. S, Kaye, S, McKetin, R and Duflou, J. Major physical and psychological harms of methamphetamine use. Drug and Alcohol Review. 2008, 27:253–262.
- 44 Cuzen NL, Koopowitz S, Ferrett HL, et al Methamphetamine and cannabis abuse in adolescence: a quasi-experimental study on specific and long-term neurocognitive effects BMJ Open 2015;5:e005833. doi: 10.1136/bmjopen-2014-005833.
- 45 Kirkpatrick MG, Gunderson EW, Levin FR, Foltin RW, Hart CL. Acute and residual interactive effects of repeated administrations of oral methamphetamine and alcohol in humans. Psychopharmacology. 2012;219(1):191-204. doi:10.1007/s00213-011-2390-5.
- 46 Semple SJ, Strathdee SA, Zians J, Patterson TL. Sexual Risk Behavior Associated with Coadministration of Methamphetamine and Other Drugs in a Sample of HIV-positive Men Who Have Sex with Men. The American journal on addictions / American Academy of Psychiatrists in Alcoholism and Addictions. 2009;18(1):65-72. doi:10.1080/10550490802544466.
- 47 Degenhardt L, Mathers B, Guarinieri M, Panda S, Phillips B, Strathdee S. et al. Meth/ amphetamine use and associated HIV: Implications for global policy and public health. International Journal of Drug Policy. 2010: 21; 347–358.

- 48 Degenhardt L, Mathers B, Guarinieri M, Panda S, Phillips B, Strathdee S, et al. The global epidemiology of methamphetamine injection: A review of the evidence on use and associations with HIV and other harm. Sydney: National Drug and Alcohol Research Centre, University of NSW: 2007.
- 49 Kozlov AP, Shaboltas AV, Toussova OV, Verevochkin SV, Masse BR, Perdue T, et al. HIV incidence and factors associated with HIV acquisition among injection drug users in St Petersburg, Russia. [see comment]. AIDS. 2006: 20(6); 901–906.
- 50 Molitor F, Ruiz J, Flynn N, Mikanda J, Sun R. and Anderson R. Methamphetamine use and sexual and injection risk behaviours among out-of-treatment injection drug users. American Journal of Drug and Alcohol Abuse. 1999: 25(3); 475–493.
- 51 Wu, L., Pilowsky, D., Wechsberg, W. and Schlenger, W. Injection drug use among stimulant users in a national sample. American Journal of Drug and Alcohol Abuse. 2004: 30(1); 61–83.
- 52 Darke S, Cohen J, Ross J, Hando J. and Hal, W. Transitions between routes of administration of regular amphetamine users. Addiction. 1994: 89; 1077–1083.
- 53 Celentano D and Aramrattama A, Associations of substance abuse and sexual risk with selfreported depressive symptoms in young adults in northern Thailand. Journal of Addiction Medicine. 2008: 2; 66–73.
- Wasserheit, J. Epidemiological synergy: Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases. Sexually Transmitted Diseases. 1992: 19; 61–77.
- 55 National Institute on Drug Abuse. Research Report Series: Methamphetamine Abuse and Addiction. Are methamphetamine abusers at risk for contracting HIV/AIDS and hepatitis B and C? Bethesda, US Department of Health and Human Services, National Institutes of Health, revised September 2006.
- 56 Molitor F, Ruiz JD, Flynn N, Mikanda JN, Sun RK and Anderson R. Methamphetamine use and sexual and injection risk behaviors among out-of-treatment injection drug users. American Drug Alcohol Abuse. 1999;25:475 – 93.
- 57 McNall M and Remafedi G. Relationship of amphetamine and other substance use to unprotected intercourse among young men who have sex with men. Arch Pediatr Adolescent Medacine. 1999: 153; 1130 5.
- 58 Nemoto T, Operario D and Soma T. Risk behaviors of Filipino methamphetamine users in San Francisco: implications for prevention and treatment of drug use and HIV. Public Health Report. 2002: 117(Suppl. 1):S30 – 8.
- 59 Sherman S, Gann, D, German D, Sirirojn B, Thompson N, Aramrattana, A et al. 'A qualitative study of sexual behaviours among methamphetamine users in Chiang Mai, Thailand: a typology of risk', Drug and Alcohol Review. 2008: 27, 3: 263 269.

- 60 Molitor F, Truax SR, Ruiz JD and Sun RK. Association of methamphetamine use during sex with risky sexual behaviors and HIV infection among non-injection drug users. Western Journal of Medicine. 1998: 168; 93–97.
- 61 Centre for Disease Control and Prevention. Prevention of methamphetamine use and risk of HIV. United States. 2007.
- 62 Jernigan TL Gamst AC, Archibald SL, Fennea-Nostestine C, Mindt MR, Marcotte TL et al. Effects of methamphetamine dependence and HIV infection on brain morphology. American Journal of Psychiatry. 2005: 162; 1461–1472.
- 63 Hinkin CH, Barclay TR, Castellon SA, Levine AJ, Durvasula RS and Marion SD. Drug use and medication adherence among HIV-1 infected individuals. AIDS and Behavior, 2007: 11; 185–194.
- 64 Ellis RJ, Childers ME, Cherner M, Lazzaretto D, Latendre SL and the HIV Neurobehavioral Research Center Group. Increased human immunodeficiency virus loads in active methamphetamine users are explained by reduced effectiveness of antiretroviral therapy. Journal of Infectious Diseases. 2003: 188; 1820–1826.
- 65 National Institute on Drug Abuse. Medication Development Research for Treatment of Amphetamine and Methamphetamine Addiction. Report to Congress. Bethesda, US Department of Health and Human Services, 2005.
- 66 Reback CJ, Larkins S and Shoptaw S. Methamphetamine abuse as a barrier to HIV medication adherence among gay and bisexual men. AIDS Care. 2003: 15(6); 775-85.
- 67 Westmore T, Van Vught J, Thomson N, Griffiths P, Ryan J (2014). Impacts of methamphetamine in Victoria: a community assessment. Penington Institute Report. For the Victorian Department of Health. Melbourne, Australia.
- 68 Zule WA and Desmond DP. An ethnographic comparison of HIV risk behaviors among heroin and methamphetamine injectors. Am J Drug Alcohol Abuse 1999: 25; 1 – 23.
- 69 Hall W, Hando J, Darke S and Ross J. Psychological morbidity and route of administration among amphetamine users in Sydney, Australia. Addiction. 1996: 91; 81 7.
- 70 McKetin R, McLaren J and Kelly E. The Sydney methamphetamine market: patterns of supply, use, personal harms and social consequences. National Drug Law Enforcement Research Fund Monograph no. 13. Adelaide: Australasian Centre for Policing Studies, 2005.
- 71 Turning Point. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne, Australia. 2007
- 72 Dawe S, Loxton NJ, Hides L, Kavanagh DJ and Mattick RP. Review of diagnostic screening instruments for alcohol and other drug use and other psychiatric disorders (NDS Monograph Series No. 48). Canberra: Commonwealth Department of Health and Ageing. 2002.
- 73 Turning Point. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne, Australia. 2007.

- 74 Australian National Council on Drugs (ANCD). Methamphetamines: position paper. Canberra, ANCD, 2007.
- 75 Baker, A., Lee, N.K. and Jenner, L. Models of intervention and care for psychostimulant users. 2nd Edition. National Drug Strategy. Monograph Series No 51. Canberra: Australian Government Department of Health and Ageing. 2004.
- 76 Australian General Practice Network. Management of patients with psychostimulant use problems – Guidelines for general practitioners. Canberra. Australian Government Department of Health and Ageing. 2007.
- 77 American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4th edn, text revision.

Washington, DC: American Psychiatric Association, 2000.

- 78 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra. 2008.
- 79 McKetin R,McLaren J, Kelly E, Lubman D and Hides L. The prevalence of psychotic symptoms among methamphetamine users. Addiction. 2006: 101; 1473 8.
- 80 Glasner-Edwards S, Mooney LJ. Methamphetamine Psychosis: Epidemiology and Management. CNS drugs. 2014;28(12):1115-1126. doi:10.1007/s40263-014-0209-8.
- 81 World Health Organization ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic criteria for research. http://www.who.int/substance_abuse/terminology/ ICD10ResearchDiagnosis.pdf
- 82 Zorick T, Nestor L, Miotto K, et al. Withdrawal symptoms in abstinent methamphetaminedependent subjects. Addiction (Abingdon, England). 2010;105(10):1809-1818. doi:10.1111/ j.1360-0443.2010.03066.x.
- 83 Mental Health and Drug and Alcohol Office. Drug and alcohol withdrawal Clinical Practice Guidelines NSW. Sydney, NSW Department of Health, 2008.
- 84 Turning Point. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne, Australia. 2007
- 85 Ibid
- 86 WHO. Clinical guidelines for withdrawal management and treatment of drug dependence in closed settings. Manila, WHO Western Pacific Region: 2009.
- 87 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra.2008.
- 88 Australian Drug Foundation. Breaking the Ice in Our Community: Harm Reuduction and Methamphetamine Use. Fact Sheet, 2016.

- 89 Turning Point. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne, Australia. 2007.
- 90 Jenner, L., Spain, D., Whyte, I., Baker. A., Carr, V.J., Crilly J. Management of patients with psychostimulant toxicity: Guidelines for emergency departments. Canberra: Australian Government Department of Health and Ageing.
- 91 Ibid
- 92 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra. 2008.
- 93 Jenner, L., Spain, D., Whyte, I., Baker. A., Carr, V.J., Crilly J. Management of patients with psychostimulant toxicity: Guidelines for emergency departments. Canberra: Australian Government Department of Health and Ageing. 2006.
- 94 Turning Point. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne, Australia. 2007.
- 95 WHO. Clinical guidelines for withdrawal management and treatment of drug dependence in closed settings. Western Pacific Regional Office, Manila. 2009.
- 96 Angrist B, Sathananthan G, Wilk S and Gershon S. Amphetamine psychosis: behavioral and biochemical aspects. J Psychiatr Res. 1974: 11; 13–23.
- 97 Misra LK, Kofoed L, Oesterheld JR and Richards GA. Olanzapine treatment of methamphetamine psychosis. J Clin Psychopharmacol. Jun 2000: 20(3); 393–394.
- 98 Misra L and Kofoed L. Risperidone treatment of methamphetamine psychosis. Am J Psychiatry. Aug 1997: 154(8); 1170.
- 99 Dore Gand Sweeting M. Drug-induced psychosis associated with crystalline methamphetamine. Australia Psychiatry. Mar 2006: 14(1); 86–89
- 100 Morefield K, Ali R, Baigent M, Christie P, Pointer S and Danz C. Methamphetamine Psychosis in South Australia: Stage 1 of Methamphetamine Psychosis Research Program. Adelaide, South Australia: Drug and Alcohol Services Council; 2004. DASC Monograph No.11.
- 101 LeeJenn Health Consultants. Medication treatment options for amphetamine-type stimulant users. A discussion paper prepared for the Australian National Council on Drugs. 2014.
- 102 Kamieniecki, G., Vincent, N., Allsop, S. and Lintzeris, N. Models of intervention and care for psychostimulant users. National Drug Strategy Monograph Series no. 32. Canberra: Commonwealth Department of Health and Family Services. 1998.
- 103 New South Wales Department of Health. NSW Drug and Alcohol Withdrawal Clinical Practice Guidelines. Mental Health and Drug & Alcohol Office, NSW Department of Health Australia. 2008.

- 104 Turning Point. Methamphetamine dependence and treatment: clinical treatment guidelines for alcohol and drug clinicians. Melbourne, Australia. 2007.
- 105 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra. 2008.
- 106 Matua Raki. (2016). Mental Health and Addiction Screening and Assessment. New Zealand. Wellington: Matua Raki.
- 107 Prochaska, J.O., DiClimente, C.C. Toward a comprehensive transtheoretical model of change (stages of change and addictive behaviours). In Miller, W.R. and Heather, N. (Eds.), Treating Addictive Behaviours (pp.3-24). New York. Plenum Press. 1998.
- 108 WHO. 2010. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) Manual for use in primary care. Geneva, WHO.
- 109 Lee, N., Johns, L., Jenkinson, R., Johnston, J., Connolly, K., Hall, K. & Cash, R. Clinical Treatment Guidelines for Alcohol and Drug Clinicians. No 14: Methamphetamine dependence and treatment. Fitzroy, Victoria: Turning Point Alcohol and Drug Centre Inc. 2007.
- 110 WHO. Technical Briefs 4. Amphetamine –type stimulants (ATS): Therapeutic interventions for users of amphetamine-type stimulants (ATS). WHO, Western Pacific. 2011.
- 111 WHO. Technical Briefs 4. Amphetamine –type stimulants (ATS): Therapeutic interventions for users of amphetamine-type stimulants (ATS). WHO, Western Pacific. 2011.
- 112 National Drug Research Institute. National Stimulant Strategy Background paper: monograph series No.69. Australian Government, Department of Health and Ageing, 2007.
- 113 University of Newcastle. 2003. A brief cognitive behavioural intervention for regular amphetamine users: a treatment guide. Australian Government Department of Health and Ageing. http://www.drugsandalcohol.ie/13632/1/NTA_AMPHETAMINE_cognitive-intervention.pdf
- 114 WHO. Technical Briefs 4. Amphetamine –type stimulants (ATS): Therapeutic interventions for users of amphetamine-type stimulants (ATS). WHO, Western Pacific. 2011.
- 115 Rubak S, Sandbæk A, Lauritzen T, Christensen B. Motivational interviewing: a systematic review and meta-analysis. *The British Journal of General Practice*. 2005;55(513):305-312.
- 116 Smout M. Psychotherapy for methamphetamine dependence. Drug and Alcohol Services, South Australia, Government of South Australia. 2008.
- 117 Miller, William R.; Yahne, Carolina E.; Tonigan, J. Scott. Motivational interviewing in drug abuse services: A randomized trial. Journal of Consulting and Clinical Psychology, Vol 71(4), Aug 2003, 754-763.
- 118 Douglas L. Polcin, Rachael A. Korcha, Madhabika Nayak, Jason Bond. Methamphetamine dependence and intensive motivational interviewing. January 1, 2015, Volume 146. DOI: <u>http://dx.doi.org/10.1016/j.drugalcdep.2014.09.564</u>

60

- 119 Prochaska, J.O., DiClimente, C.C. Toward a comprehensive transtheoretical model of change (stages of change and addictive behaviours). In Miller, W.R. and Heather, N. (Eds.), Treating Addictive Behaviours (pp.3-24). New York. Plenum Press. 1998.
- 120 Matua Raki. Interventions and Treatment for Problematic Use of Methamphetamine and Other Amphetamine-Type Stimulants. Wellington: Ministry of Health. New Zealand. 2010.
- 121 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra. 2008.
- 122 Roozena H, Boulognea J, van Tulderc M, van den Brinkd W, De Jongf C, Kerkhofa A. A systematic review of the effectiveness of the community reinforcement approach in alcohol, cocaine and opioid addiction. Drug and Alcohol Dependence 74 (2004) 1–13.
- 123 MEYERS, R.J.; MILLER, W.R.; HILL, D.E.; AND TONIGAN, J.S. Community Reinforcement and Family Training (CRAFT): Engaging unmotivated drug users in treatment. Journal of Substance Abuse 10:291–308, 1998.
- 124 Miller W, Meyers R. Hiller-Sturmhöfel S. The Community Reinforcement Approach. Alcohol Research & Health. Vol. 23, No. 2, pp 116-121, 1999.
- 125 WHO. Technical Briefs 4. Amphetamine –type stimulants (ATS): Therapeutic interventions for users of amphetamine-type stimulants (ATS). WHO, Western Pacific. 2011.
- 126 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra. 2008.
- 127 Ibid
- 128 Donovan DM, Ingalsbe MH, Benbow J, Daley DC. 12-Step Interventions and Mutual Support Programs for Substance Use Disorders: An Overview. Social work in public health. 2013;28(0):313-332. doi:10.1080/19371918.2013.774663.
- 129 Topp L and Mattick RP. Choosing a cut-off on the Severity of Dependence Scale (SDS) for amphetamine users. Addiction. 1997: 92(7); 839–845.
- 130 Jenner L and Lee N. Treatment Approaches for Users of Methamphetamine: A Practical Guide for Frontline Workers. Australian Government Department of Health and Ageing, Canberra. 1998.
- 131 Nookala AR, Li J, Ande A, Wang L, Vaidya NK, Li W, et al. (2016) Effect of Methamphetamine on Spectral Binding, Ligand Docking and Metabolism of Anti-HIV Drugs with CYP3A4. PLoS ONE 11(1): e0146529. doi:10.1371/journal.pone.0146529
- 132 Lintzeris, N., Dunlop, A., Thornton, D. Getting through Amphetamine Withdrawal: A guide for people trying to stop amphetamine use. Fitzroy, Victoria, Australia: Turning Point Alcohol and Drug Centre Inc. 2004.