Methamphetamine: Effects & Responses

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There is increasing concern about the use of methamphetamine in Australia. In particular, growing attention has focused on the use of the crystalline form of methamphetamine known as 'ice'.

There is currently a lack of understanding about who uses methamphetamine, whether more people are using now than in the past, and what risks and harms are associated with use.

This paper details current patterns of methamphetamine use, changes in frequency and mode of use, emergent effects and negative consequences, and intervention options.

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What is methamphetamine?

Methamphetamine belongs to the 'stimulant' class of drugs, which also includes amphetamine, ecstasy, and cocaine. These drugs stimulate the brain and central nervous system, resulting in increased alertness and physical activity.

What is ice?

There are three main forms of methamphetamine: powder (speed); base; crystal (known as 'ice').

Ice (also known as crystal meth, meth, crystal, shabu, batu, d-meth, tina, glass, or shard) is the most potent form of methamphetamine, and is usually smoked or injected.

Between 2010 and 2013[1] preference for ice increased significantly, and ice is now the preferred form of methamphetamine for most users. During this period there has also been an increase in the preference for smoking as the main mode of administration.

Since 2010 the price of ice in Australia has decreased, while average purity has increased.

Who uses methamphetamine?[2]

A diverse range of people use methamphetamine. Two broadly different demographic profiles can be identified, characterised by different patterns of use and levels of risk.[3]

Infrequent users (less than monthly)

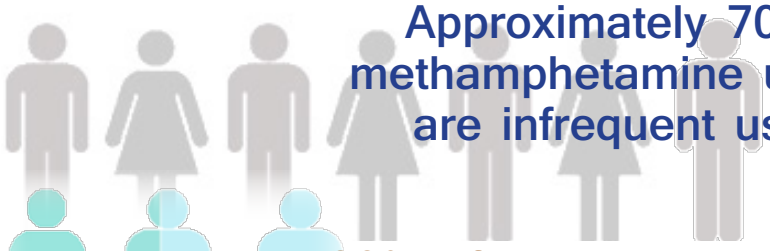
Less frequent users of methamphetamine (including ice) tend to be employed, heterosexual, male, and have low levels of psychological distress.

Frequent users

Frequent (weekly/monthly) methamphetamine users (including ice) tend to comprise more females, and are less likely to be married or heterosexual.

Frequent users are more likely to be:

- Unemployed
- Psychologically distressed
- Engaged in risk taking activities.



Approximately 70% of methamphetamine users are infrequent users.[1]

Approximately 30% of methamphetamine users are frequent users. Of these users, 16% use weekly or daily.[1]

Immediate effects

A range of psychological, physiological, emotional, cognitive and neural effects can be experienced when using methamphetamine.

A number of adverse health effects can also arise from methamphetamine use, including:

1. Acute toxic effects/overdose
2. Acute intoxication effects (injury, violence)
3. Sudden unexplained death
4. Chronic use effects: e.g., chronic disease, infections, mental disorders.

Toxic reactions can occur regardless of dose, frequency of use, route of administration, or amount used.

Toxic reactions can occur even with small doses.

There is no established dose/response relationship for methamphetamine.

Coming down

When 'coming down' from methamphetamine, users may experience:

- Impaired decision-making ability
- Poor concentration
- Difficulty planning
- Headaches, blurred vision, hunger
- Flat affect, depression, anxiety
- Exhaustion
- Interrrupted sleep
- Irritability
- Mild psychotic symptoms, paranoia, hallucinations
- Symptoms of withdrawal (if they are dependent).

Potential harms

Methamphetamine-related harms can result from:

- Mode of administration and level of purity
- Intoxication
- Withdrawal
- Chronic long term use.

If methamphetamine is injected, there is risk of transmission of blood borne diseases (including HIV/AIDs, Hep A, B, C), as well as risk of injection site infections. If smoked, there is a risk of respiratory disease, excessive ingestion and overdose.

Psychological effects
Euphoria, increased energy, enhanced mood, increased self-esteem, alleviation of fatigue, increased attention.

Physiological effects
Activation of the adrenergic system: increased heart rate and respiration, hypertension, decreased appetite, psychomotor stimulation, increased body temperature.

Emotional effects
Dysphoria, nervousness, irritability, agitation, hallucinations, delirium, psychosis.

Cognitive and neural effects
Altered brain function, impaired frontal lobe executive function (i.e., disinhibited/poor self control and decision making (biased towards immediate desires)), impaired judgement, poor verbal memory, slowed cognitive processing speed, cognitive inflexibility (difficulty switching between different activities).

Impairment is not related to frequency, duration or quantity of the drug used. Impairment seems to be greater in older users, men, and where comorbidities exist.[4]

Users never know exactly what a drug contains, and it may be more concentrated than expected. Higher purity is associated with risk of greater harms.

Minimising harms

There is a range of well-established harm minimisation strategies that can reduce potential risks and harms associated with methamphetamine use.

Because drug effects can be unpredictable, it is important not to use while alone and to ensure that friends will provide care and support and immediately seek help if needed.

Stimulants suppress appetite. It is therefore very important that good nutrition is maintained. It is also important to ensure adequate hydration by drinking plenty of water.

Like all illicit drugs, content, purity and concentration of methamphetamine can vary substantially.

Stimulants also interrupt sleep patterns and can result in extended periods of wakefulness. Getting sufficient sleep is essential.

Poor diet, lack of hydration and insufficient sleep can cause health and performance problems for anyone, even without drug use.

When is treatment needed?

Treatment can be effective and is strongly encouraged. Treatment is especially important when someone using methamphetamine, or their family/friends/associates, becomes concerned about changes in their behaviour and/or ability to function normally.

If someone's use of methamphetamine is impairing their ability to carry out their usual daily roles (e.g., work, parenting) then treatment is appropriate.

If someone's use has substantially and/or rapidly escalated, then treatment is warranted. Increased levels and/or frequency of use is associated with several potential harms, including dependence.

If someone has difficulty controlling the amount of methamphetamine they are using then treatment is definitely required.

How is treatment and recovery for methamphetamine different to other drugs?

Stimulant drugs, including methamphetamine, alter brain functions in ways that have important implications for treatment. Memory, regulation and executive function may be impaired, requiring:

- More frequent but shorter treatment sessions
- Reminders
- Memory aids
- Assertive followup
- Written instructions from treatment providers.

Physically detoxing from methamphetamine can take almost twice as long as other drugs (i.e., between 10-14 days).

Treatment may need to be continued for many months before significant improvement is achieved. Full recovery of all cognitive functions may take 12-18 months.[4]

Early and brief intervention

Common negative effects of methamphetamine use include anxiety and depression. Primary care providers are well placed to ensure that any client/patient presenting with symptoms of anxiety and/or depression is always screened for drug use.

ASSIST[5] Standard Screening Questions

In the past 3 months:	YES [1]	NO [0]
1. Did you use an amphetamine-type stimulant, or cocaine, or a stimulant medication not as prescribed?		
If YES:		
2. Did you use a stimulant at least once each week or more often?		
3. Has anyone expressed concern about your use of a stimulant?		

A score of 2+ indicates that the person is positive for a stimulant use disorder and treatment is warranted.

Reducing stigma

In order to minimise potential harms from methamphetamine use, encourage people into treatment, and ensure the provision of appropriate evidence based care, it is crucially important to not stigmatise drug use.

Stigmatising users reduces the prospect that those who need care will seek it.

Strong supportive messages are needed that highlight that treatment is effective and can be provided in various forms.

What can be done to prevent use?

Ensuring that potential methamphetamine users are aware of the short and long term harms associated with use is important.

Some consequences of methamphetamine use are not well understood; others may be exaggerated or over emphasised.

Peer education and support are also important and effective strategies.

Implementing workplace strategies that reduce risk factors associated with use is recommended. This includes:

- Ensuring that appropriate policies and mechanisms for early detection and referral to supportive treatment services are in place
- Avoiding workplace practices that may be conducive to stimulant drug use or exacerbate use.

Reducing availability, supply and access are key prevention strategies. Australia is currently experiencing:

- Low price
- Ready availability
- High levels of drug purity.

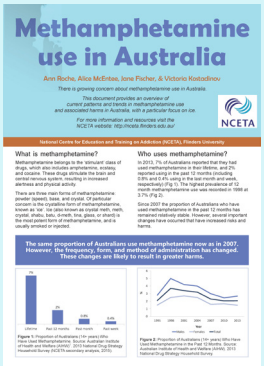
These factors are likely to contribute to increased use and greater harm from methamphetamine use.

Other Resources

Other resources available in this series include:

Pidd, K., & Roche, A. (2015). *'Ice' and the workplace*. Adelaide, South Australia: National Centre for Education and Training on Addiction (NCETA), Flinders University.

Roche, A., McEntee, A., Fischer, J., & Kostadinov, V. (2015). *Methamphetamine use in Australia*. Adelaide, South Australia: National Centre for Education and Training on Addiction (NCETA), Flinders University.



Contact Us

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1. AIHW National Drug Strategy Household Survey data.
2. For further details about patterns and trends in use see the accompanying NCETA information sheet 'Methamphetamine use in Australia' Roche et al., 2015.
3. The data cited here are derived from NCETA secondary analyses of the AIHW 2013 National Drug Strategy Household Survey.
4. See further detail in A/Professor Rob Hester's NCETA Methamphetamine Symposium presentation available on the NCETA website.
5. Ali R., et al., 2013 Drug and Alcohol Dependence; 132: 352-361.

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