

A Global Review of the Harm Reduction Response to Amphetamines: A 2015 Update

OCTOBER 2015

Sophie Pinkham and Katie Stone



A Global Review of the Harm Reduction Response to Amphetamines: A 2015 Update

Sophie Pinkham and Katie Stone

© International Harm Reduction Association, 2015
ISBN 978-0-9927609-6-0

Designed by Mark Joyce
Copy-edited by Kathryn Perry

Published by
Harm Reduction International
Unit 2C09, South Bank Technopark
90 London Road
London SE1 6LN
+44 (0)207 717 1592 | info@ihra.net | www.ihra.net



HARM REDUCTION
INTERNATIONAL

Harm Reduction International is a leading non-governmental organisation working to promote and expand support for harm reduction. With over 8,000 members worldwide, Harm Reduction International is the largest membership-based global harm reduction association.

We work to reduce the negative health, social and human rights impacts of drug use and drug policy – such as the increased vulnerability to HIV and hepatitis infection among people who inject drugs – by promoting evidence-based public health policies and practices, and human rights based approaches to drug policy.

We are an influential global source of research, policy/legal analysis and advocacy on drug use, health and human rights issues.

The organisation is an NGO in Special Consultative Status with the Economic and Social Council of the United Nations.

Acknowledgements

This report owes a debt of gratitude to a number of people who took time to comment on the text and share their ideas.

Our sincere thanks to Carl Hart and Luciano Colonna for reviewing this report.

Thanks also to the following people for providing input and guidance: Rachel Anderson, Rick Lines, Maria Phelan, Cinzia Brentari, Olga Szubert, Gen Sander, Claudia Stoicescu and Catherine Cook.

Introduction

Amphetamines, or ‘amphetamine-related drugs’, are stimulants prescribed for a variety of conditions (e.g. attention deficit hyperactivity disorder (ADHD) and the sleep disorder narcolepsy) with the temporary action of increasing the activity of the central nervous system, producing effects similar to adrenaline. Although some amphetamines such as Adderall and Dexedrine are prescribed, this paper will explore the harms associated with the illicit use of certain amphetamines. Despite heavy media coverage regarding amphetamines and increased research attention in some countries, the harm reduction response remains underdeveloped when compared to the response to opiates and injecting-related harms. The overwhelming majority of academic literature focuses on the harms related to amphetamine use, rather than harm reduction. Recently, it has been demonstrated that some of the harms associated with amphetamine use have been greatly exaggerated.⁽¹⁾ Harm reduction programmes do exist and new guidance has been compiled, but there is an urgent need for harm reduction-focused research, evaluation of current programmes, further documentation of experiences, and expansion of effective interventions. This paper will discuss the emerging responses to amphetamine-related harms and consider the next steps for the international harm reduction community.

Definitions and effects

Amphetamine, methamphetamine, methcathinone and cathinone, the four drugs discussed in this paper, stimulate the central nervous system and cause the rapid release of monoamine neurotransmitters.^(2,3) They can produce feelings of energy, confidence, alertness, well-being, talkativeness and increased sex drive. They increase blood pressure, heart rate and other metabolic functions, and decrease appetite.^(1,4,5)

Cathinone is the active substance in fresh khat, a North African shrub whose leaves have been chewed for centuries for their mild stimulant effect. The differences between cathinone and methcathinone are similar to those between amphetamine and methamphetamine: methcathinone is stronger than cathinone and produces similar but more intense effects, including a sense of invincibility, energy and increased sex drive, and talkativeness. Euphoric effects are often more pronounced than with amphetamine or methamphetamine, leading some to compare cathinone and methcathinone to cocaine. Negative effects are similar to those caused by amphetamine and methamphetamine.⁽⁶⁾

Although amphetamines are often grouped with ecstasy in the category ‘amphetamine-type stimulants’, this paper will limit its scope to amphetamine, methamphetamine, cathinone and methcathinone. The paper will exclude ecstasy primarily because of the dramatic differences in patterns of ecstasy use. People who use ecstasy are less likely to become dependent on it and are much less likely to inject or smoke it, reducing the frequency of harms associated with these routes of administration.

For simplicity, the plural ‘amphetamines’ will be used to refer to the four amphetamine-like drugs discussed here. Individual drug names (e.g. the singular ‘amphetamine’) will be used to discuss issues specific to one drug or when the research discussed refers to one drug rather than to the group.

Overview of amphetamine use around the world

It is estimated that there are between 13.9 and 54.8 million people who use amphetamines worldwide,⁽⁷⁾ with 12 million thought to be residing in the European Union.⁽⁶⁾ The wide-ranging global figures reflect the current dearth of accurate data on the topic. Data collection methods often vary dramatically from country to country, and some countries do not collect or analyse data at all, meaning that international, large-scale epidemiological information related to amphetamine use is extremely limited. Where information is available, we have seen a marked increase in amphetamine use in South Africa,^(8,10) with the percentage of patients in a drug treatment centre in Cape Town reporting methamphetamine as their primary or secondary drug rising from 0.7% in 2002 to 47% in 2009.⁽⁹⁾ Methamphetamine use has also steadily increased in the United States, with an estimated 595,000 people using methamphetamine in the past month,⁽¹¹⁾ and has been reported in Brazil, predominantly among truck drivers.^(12,13) In Western Europe, although amphetamine use has been reported by only 2.5% of the population,⁽¹⁴⁾ the injecting of stimulants has posed challenges for needle and syringe programmes (NSPs) since more frequent injection requires more syringes, and adapted outreach is required to enable people who use stimulants to access these services.⁽¹⁵⁾

Reports from the Czech Republic and Slovakia indicate a rise in the number of people entering treatment centres reporting problem pervitin use (a form of crystalline methamphetamine).⁽¹⁴⁾ In Hungary it is thought that every second person who injects drugs is now using a new psychoactive substance (NPS), with 48% reporting the sharing of needles. In much of Asia, demand for drug treatment related to methamphetamine use remains high,^(16,17) with 74% of people who use drugs receiving treatment for crystalline methamphetamine (crystal meth) in Cambodia,⁽¹⁸⁾ and 50.8% in

one treatment centre in Laos PDR receiving treatment for methamphetamine use.⁽¹⁶⁾ However, the majority of treatment facilities in Asia still do not provide amphetamine-specific treatment services.

Civil society organisations have also noted a recent increase in the use of amphetamines in both Australia and New Zealand.^(19,20) In a study looking at 15 years of HIV surveillance in Australia, 31% of people who inject drugs had recently injected methamphetamine (n=22,478),⁽²¹⁾ with another study between 2008 and 2013 finding a similar increase in methamphetamine injecting.⁽²²⁾ It is argued that New Zealand has seen a decrease in amphetamine use from 2.2% in 2009 to 1% in 2013.⁽²³⁾ However, experts believe these figures to be inaccurate due to both altered survey methodology on behalf of the ministry of health, and the availability and ease of supply.⁽²³⁾

In response to the increased use of amphetamines, the United Nations Office on Drugs and Crime (UNODC) started the SMART Programme, which sought to generate, manage, analyse and report synthetic drug information, with East Asia being its first area of priority.⁽²⁴⁾ The results of this are yet to be published.

Forms and routes of administration

Amphetamines are produced in pill, powder, crystalline and liquid forms. They can be swallowed, snorted, smoked, injected or inserted anally. The crystalline form (often called crystal meth, ice or glass) is most often smoked. It is usually more pure than other forms since it is difficult to produce crystals with impure materials.⁽²⁵⁾

Harms related to the use of amphetamines

Much of the harms related to amphetamine use refers to heavy rather than recreational use, and as noted previously, can often appear disproportionately represented in the literature.

Injecting

The risks associated with injecting amphetamines are largely the same as those of opiate injecting, including HIV, hepatitis, endocarditis, abscesses, sepsis and collapsed veins. Although harm reduction services for people who inject amphetamines are far fewer than for people who use opiates, in countries where prevalence of amphetamine injecting is high and harm reduction services are already well established, innovative approaches for this sub-group are in place. For example, in the Czech Republic, where amphetamine injecting accounts for approximately two-thirds of all injecting drug use,⁽²⁶⁾ harm reduction facilities are being encouraged to distribute empty gelatine capsules to promote the swallowing rather than injecting of amphetamines.⁽²⁷⁾ Although the approach has not yet been evaluated properly, early assessment has indicated its benefits as a harm reduction intervention, including simplicity, safety and low cost, with drug users reporting the onset of effects as comparable to that of injecting. There are, however, limitations such as gastric ulcers associated with long-term oral use, nausea and emesis. Therefore, as an approach this should be investigated further.

Smoking and snorting

Heavy users of amphetamines are more likely to smoke than inject, especially if they are using crystal meth. The dehydration caused by amphetamine use can cause the lips to crack and bleed, making people more likely to contract and transmit infections via shared smoking paraphernalia. Smoking on foil or in a pipe can cause burns to the fingers and face, and using

contaminated containers (e.g. paint cans) or inappropriate materials (e.g. plastic containers) can lead to inhalation of toxic fumes.⁽²⁸⁾ Straws used for snorting amphetamines can become contaminated with blood and thus transmit blood-borne viruses, notably hepatitis C.⁽²⁹⁾

Side effects

Although many of the side effects of amphetamine use are rare, or only found among people who regularly use high doses, they may include anxiety, insomnia, aggression,⁽³⁰⁾ chest pain, hypertension, tachycardia and other cardiac arrhythmias.⁽³¹⁾ High doses, particularly in the context of repeated binges, can cause temporary psychosis that includes mood swings, visual, auditory and sensory hallucination, paranoia, delusion, obsessive thought patterns, impulsivity and the potential for aggression.⁽³²⁾

Amphetamines and sexual activity

Much of the discussion of amphetamines-related harm has focused on sexual risk-taking associated with methamphetamine use, especially among men who have sex with men (MSM). In a study undertaken in Canada between 2005 and 2008, unprotected sex was more common among gay, bisexual or transgender populations using methamphetamines.⁽³³⁾ A link was also observed between increased vulnerability (e.g. homelessness, warrants and/or area restrictions) and sexual risk-taking associated with amphetamine use, highlighting the ways in which drug laws and policies may worsen the health of vulnerable groups, putting them at greater risk of HIV.⁽³⁴⁾ The study also found an associated link between unprotected sex among female sex workers and methamphetamine use,⁽³³⁾ which can also be linked to structural vulnerabilities such as client pressure to engage in unsafe sex

practices.⁽³⁵⁾ The 2015 European drug report from the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) also notes concern regarding the spread of stimulant injecting among men who have sex with men, particularly in large European cities which are seeing an increase in ‘chem-sex’ parties, having implications for HIV transmission via risk-taking sexual practices.⁽⁸⁾ However, a study conducted in London found that although engaging in ‘chem-sex’ unwittingly led some men to greater sexual risk-taking, others maintained strict rules regarding safer sex.⁽³⁶⁾ Therefore, establishing a direct link between use of methamphetamines and sexual risk among this population remains ambiguous. There are online resources available, primarily for men who have sex with men, giving a variety of harm reduction approaches and ways to stay safe when using amphetamines.⁽³⁷⁾ Although some have documented increased sexual risk behaviour among people who use amphetamines, it is difficult to untangle the relationship between amphetamines and sex.⁽³⁸⁾ Many people use the disinhibiting effects of amphetamines to facilitate sex, including high-risk sex, with the impulsivity produced by amphetamines making people potentially more likely to forgo condoms.

Risk for people living with HIV

There is reason to believe that amphetamines can increase the likelihood of HIV infection during sex: they dry mucous membranes, decrease sensitivity of the genital and rectal areas, and delay orgasm, increasing the risk of torn membranes vulnerable to infection.⁽³⁸⁾ Research also suggests that amphetamine use by people living with HIV is associated with increases in viral replication and viral load, even among people receiving antiretroviral therapy (ART).⁽³⁹⁾ However, this is believed to be due to the likelihood of regular methamphetamine users not adhering fully to ART treatment.

HIV combined with methamphetamine use is also thought to contribute to neuronal cell injury and death. However, understanding the specific relationship between the two would require further study.⁽⁴⁰⁾ Amphetamines may also negatively affect HIV-related dementia.⁽³⁸⁾ Frequent use of amphetamines has been linked to increased risk of lymphoma in people living with HIV.⁽⁴¹⁾

Amphetamines and pregnancy

The use of amphetamines during pregnancy does not appear to cause congenital defects. It has been associated with elevated risks of heart defects,⁽⁴²⁾ and cleft lip and palate⁽⁴³⁾ in studies in which the subjects used multiple drugs, confounding results. Use of amphetamines in pregnancy has also been correlated with low birth weight, premature birth, post-partum haemorrhage and retained placenta.⁽⁴⁴⁾ In more recent studies, prenatal exposure to amphetamines has been associated with increased emotional reactivity and anxiety in children between the ages of three and five,⁽⁴⁵⁾ and subtle deficits in inhibitory control during early school years.⁽⁴⁶⁾

As with better-studied drugs such as cocaine and heroin, it is important to remember the complex set of factors that affect the course of pregnancy, and to be wary of giving too much weight to the drug itself for negative outcomes. For example, poor nutrition, irregular sleep patterns, tobacco use, alcohol use and lack of access to prenatal care have a greater effect on pregnancy outcome than cocaine use in itself.⁽⁴⁷⁾ Heavy use of amphetamines often leads to poor nutrition, lack of sleep, increased tobacco use and difficulty planning ahead and keeping appointments, meaning that pregnant women who use amphetamines are at risk for many of the factors that contribute to a high-risk pregnancy. Harm reduction measures to deal with this set of risks, along with drug treatment,

are likely to be effective in improving pregnancy outcomes.

Production and environmental harms

Illicit synthesis of amphetamines can be dangerous both for people making or 'cooking' the drug and those around them. Chemical processes involved in the production of amphetamines require and produce flammable, carcinogenic, poisonous and caustic substances.⁽⁴⁸⁾ Some of these can cause explosions if managed improperly. These risks are greater if cooks have poor knowledge of chemical processes or if their judgement is impaired by drug use or other factors. Chemicals can spread into surrounding areas and contaminate soil and water. Proper clean-up of methamphetamine labs is expensive, time-consuming and at times dangerous.⁽⁶⁾

Harm reduction for people who use amphetamines

Innovative programmes for stimulants: lessons from Latin America

Research is increasing into the harms related to non-injecting drug use in Latin America, with snorting and smoking of cocaine and its derivatives acknowledged as the most predominant form.^(49,50) Growing recognition of HIV prevalence and hepatitis C among people who use cocaine has increased the harm reduction response in this region. For example, in Brazil the non-governmental organisation *É de Lei* of São Paulo has successfully distributed new crack pipes⁽⁵¹⁾ in an attempt to reduce viral hepatitis transmission through the sharing of pipes. In São Paulo, the *Bracos Abertos* (Open Arms) programme offers healthcare, information on treatment, paid work and three meals a day to people in the favelas who use crack cocaine. The programme has already made a significant impact on health outcomes, as well as on lowering the levels of stigma and discrimination associated with drug use in the area.⁽⁵²⁾

Harm reduction for people who use amphetamines follows the same fundamental principles as harm reduction for people who use opiates:

- > Meet people who use amphetamines 'where they are'.
- > Give people who use amphetamines information, means and opportunities for behaviour change to improve their health.
- > Organise amphetamine harm reduction programmes around their needs rather than imposing external demands.
- > Provide safer injecting supplies and accurate information.
- > Provide mobile services and outreach workers to access people who use amphetamines unwilling or unable to come to a harm reduction site.
- > Engage people who actively use, or who have previously used, amphetamines as staff members, volunteers and advisors.
- > Refer and assist in accessing other needed services, such as cognitive behavioural therapy (CBT) and motivational interviewing.

Some harm reduction programmes, designed for and accustomed to working with people who use opiates, can be daunted by the idea of working with people who use amphetamines, as there are differences in basic needs. For example, in many settings people are more likely to smoke amphetamines than opiates, and the psychological problems associated with heavy use can make them seem more 'difficult' as clients than people who use opiates. Use of amphetamines, as noted earlier, can lead to anxiety, insomnia and aggression,⁽³⁰⁾ mood swings, visual, auditory and sensory hallucinations, paranoia, delusions, obsessive thought patterns and impulsivity,⁽³²⁾ all of which can make counselling and service provision a challenge. Finally, there is little solid evidence relating to pharmacological treatment for amphetamine dependence. This can be disconcerting to providers accustomed to being able to offer treatments as straightforward and effective as methadone and buprenorphine. Thankfully, experience from various countries has shown that harm reduction programmes can respond effectively to the harms associated with the use of amphetamines. Table 1, developed using several existing resources,^(27,28,37,38,53-56)

presents key aspects of harm reduction interventions for people who use amphetamines. These approaches are useful not only for harm reduction service providers, but also for people who use amphetamines, their friends and family, primary and emergency healthcare providers, and law enforcement personnel in contact with people who use amphetamines. There may be a role for harm reduction service providers in training others to respond appropriately to amphetamine-related harms.

Area	Behaviour	Harm	Harm Reduction Strategy
Hydration, nutrition and hygiene	<ul style="list-style-type: none"> » Diminishing food intake » Eating only junk food » Not sleeping 	<ul style="list-style-type: none"> » Malnutrition and dehydration » Increased risk of anxiety, paranoia and psychosis » Decreased high; need for higher dose to achieve same effects » Intensified 'crash' 	<ul style="list-style-type: none"> » Provide water, juice and healthy food where possible, especially for people who are homeless, marginally housed and/or impoverished » Stress the need to sleep or at least rest in a darkened room, eat healthy food (particularly fruits and vegetables) and drink water regularly. Point out that these are not abstract health concerns, but have immediate positive effects on the experience of day-to-day use
	<ul style="list-style-type: none"> » Forgetting to drink water and brush teeth » Eating sugary foods » Grinding teeth 	<ul style="list-style-type: none"> » Dry mucous membranes more vulnerable to infection » Dental problems 	<ul style="list-style-type: none"> » Stress the importance of hydration and dental hygiene » Distribute toothbrushes and toothpaste
Moderating patterns of use	<ul style="list-style-type: none"> » Binges (heavy use over a period of days or weeks) 	<ul style="list-style-type: none"> » increased risk of amphetamine-induced psychosis, paranoia, anxiety and other health problems 	<ul style="list-style-type: none"> » Encourage people to plan for breaks in advance. Develop methods to help them keep track of how long and how much they have been using, take a break at the limit they have set for themselves, eat well before using and stay hydrated while using. When introducing and implementing these plans, it can be helpful to have a 'harm-reduction buddy' – someone they trust who can support their efforts
	<ul style="list-style-type: none"> » Heavy use 	<ul style="list-style-type: none"> » Withdrawal and crashes 	<ul style="list-style-type: none"> » Stress that depression, fatigue, moodiness and aches are a natural part of withdrawal and will pass with time » Inform people that focusing on pleasant and distracting activities, keeping close to supportive people, and maintaining a healthy diet and routine will help them to manage withdrawal and crashes » Once the crash has receded, help people to develop their own strategies to reduce crashes, using the same tactics effective for episodes of paranoia and psychosis » Once the crash has receded, explore referral to CBT or psychological support mechanisms

Area	Behaviour	Harm	Harm Reduction Strategy
Reducing harm related to modes of use	<ul style="list-style-type: none"> » Sharing injecting equipment » Sharing mouthpieces, including jagged ones » Smoking with toxic materials » Using pipes that can easily cause burns 	<ul style="list-style-type: none"> » Risk of blood-borne diseases, lung damage, toxicity, cuts and burns 	<ul style="list-style-type: none"> » Distribute sterile injecting equipment and information on safer injecting » Distribute glass stems with gauze or individual pipe tips » Teach people how to make safer pipes » Distribute lip balm and burn salve » Distribute empty gelatine capsules for people to fill with amphetamines as an alternative to injecting
	<ul style="list-style-type: none"> » Transition to smoking and injecting or to more potent forms (e.g. crystal meth) 	<ul style="list-style-type: none"> » Dependence develops more quickly and is more severe among people who inject and who use more potent forms » Increased risk of blood-borne viruses 	<ul style="list-style-type: none"> » Inform people who swallow or snort about the risks of injecting and smoking, and about safer injecting and smoking techniques » Encourage people not to transition to a more intense route » Give people who inject or smoke appropriate information about safer methods and encourage them to transition to snorting or swallowing if possible » Inform people that smoking from a pipe produces a faster and more intense high than smoking on foil and inhaling smoke through a tube or smoking from a joint, and that switching to one of these methods is another harm reduction strategy
	<ul style="list-style-type: none"> » Injecting many times in one sitting 	<ul style="list-style-type: none"> » Increased risk of vein and tissue damage, missed shots, infection and other injection-related harms 	<ul style="list-style-type: none"> » Use a butterfly needle scheme, eliminating the need to enter the vein repeatedly and repeat the risk of associated harms noted above. Distribute appropriate supplies and teach participants how to use them
Managing paranoia, delusions and anxiety	<ul style="list-style-type: none"> » Picking at 'speed bugs' 	<ul style="list-style-type: none"> » Open wounds that can become infected 	<ul style="list-style-type: none"> » Use methods described above to deal with delusions » It may be helpful to create non-invasive 'treatment' for the bugs to calm the person during acute episodes

Area	Behaviour	Harm	Harm Reduction Strategy
<p>continued..</p> <p>Managing paranoia, delusions and anxiety</p>	<p>» Exhibiting signs of paranoia, delusions and/or acute anxiety</p>	<p>» Risk of harm to self or others</p>	<ul style="list-style-type: none"> » Be calm and reassuring » Take the person to a quiet, calming place and try to turn their attention to something else » Take people seriously and do not tell them that they are delusional as this can upset them more. Validate their experience while avoiding acknowledging that it is real (if you are certain that it is not) » Help people to recognise the ways in which paranoia and anxiety are associated with patterns of drug use and with harms such as violence or arrest » Do not sit behind a desk, take notes or have the client face doors or windows » Apply cool compresses to the neck, underarms, backs of the knees and forehead to help lower body temperature » Provide plenty of hydrating fluids (nothing caffeinated or sugary) » If available, small doses of benzodiazepines can be helpful, as can 50–100ml of diphenhydramine (Benadryl/ Dimedrol) » When a person is not high, discuss strategies to reduce the occurrence of anxiety, paranoia and psychosis, including diet, hydration, sleep, breaks, CBT referral, moderation of dose, routes of administration, and setting » People who are acutely psychotic or aggressive, appear to be a danger to themselves or others, or are experiencing symptoms of acute toxicity need medical attention. For psychological symptoms this includes benzodiazepines and, in acute cases, anti-psychotics. If vital signs are significantly elevated, an intravenous line, cardiac monitoring and emergency care may be needed. If appropriate, it is important to check for breathing and use rescue breathing if needed » Harm reduction providers should not risk their own safety if a situation appears to be dangerous

Area	Behaviour	Harm	Harm Reduction Strategy
Managing harm of associated activities and 'functional' use	» Sexual risk	» HIV and sexually transmitted infections (STIs)	<ul style="list-style-type: none"> » Provide free access to condoms, lubricant and information about STIs and HIV » Emphasise the special importance of using plenty of lubricant during long, dry or rough sex » Provide low-threshold access to HIV and STI testing and treatment, as well as contraception and pregnancy testing and counselling » Understand and acknowledge the role that amphetamines play in the sexual lives of users. Rather than perceiving amphetamines as the sole source of risk, understand that many people use them to facilitate sexual activity » Discuss pleasure and functionality along with risk to allow for more sophisticated strategies of risk reduction » Develop a sexual harm reduction plan in advance, discussing realistic ways to reduce sex-related harms in the context of people's lives » Talk not only about HIV and STIs, but also about sexual and physical violence, transactional and commercial sex, abusive relationships, housing and other issues intimately related to sexual risk behaviours. Addressing the context of sexual risk and developing a plan to make behaviours less dangerous, possibly through the use of CBT and motivational interviewing if of interest to the user, can be a successful way to reduce risk in people using amphetamines
	» Using amphetamines to control weight	» Dependence, excessive weight loss, other harms associated with use	<ul style="list-style-type: none"> » Recognise that some people, particularly women, use amphetamines to lose or control weight and fear gaining weight if they stop using » Discuss this fear and help people to develop a plan to prevent or manage weight gain, while exploring the issues underlying poor body image
	» Use of amphetamines for work or study	» Dependence, other harms associated with use	<ul style="list-style-type: none"> » Remind people that while amphetamines can initially help to sustain attention and endurance for long periods of time, heavy use eventually makes it very difficult to complete a task, focus, or behave appropriately in work or study settings » Organise separate support groups to respond more accurately to the needs of people who use amphetamines for different reasons. Truck drivers who use methamphetamine while working, for example, are likely to have very different concerns than teenagers who use it at parties or sex workers who use it to endure harsh working conditions

Drug dependence treatment

There are presently no approved pharmacological treatments available for amphetamine use.⁽⁵⁷⁾ However, a study undertaken in Australia among predominantly intravenous users of methamphetamine (n=42, sample size 49) found that those receiving a once-daily dose of sustained release dexamphetamine (a central nervous system stimulant often used to treat ADHD and narcolepsy) remained in treatment for an average of 86.3 days compared to a placebo group, and showed a significant decrease in methamphetamine use.⁽⁵³⁾ In short, pharmacotherapy for dependence on amphetamines is still in trial phases, with present results being inconclusive for drugs such as dextroamphetamine,⁽⁵⁸⁾ modafinil, bupropion and methylphenidate.⁽⁵⁹⁾

In terms of treatment utilisation, one study found that drug counselling followed by Narcotics Anonymous were the most popular forms, with therapeutic community treatments last on the list of methamphetamine-dependent people. However 35% of people in the study stated they had never felt the need to access drug treatment services, highlighting the lack of understanding regarding treatment by dependent users.⁽⁶⁰⁾

On the whole, behavioural/cognitive interventions are the preferred method, with evidence supporting their effectiveness⁽⁵⁴⁾ and guidelines developed in both Australia, the United States⁽³⁸⁾ and the UK.⁽⁶¹⁾ One model that has demonstrated success is the Matrix Model, integrating CBT, family education, social support and individual counselling in a non-confrontational, non-judgemental style reinforced by peers.⁽⁵⁵⁾ While some believe that the long-term psychological effects of heavy amphetamine use mean that people require long-term treatment,⁽⁶²⁾ others have found significant increases in abstinence following a session of motivational interviewing and behavioural therapy lasting only two to

four hours.⁽⁵⁶⁾ Web-based interventions are also being explored using CBT and motivation enhancement. However, results indicated that this technique did not reduce the use of amphetamines.⁽⁶³⁾

Next steps for reducing harms related to amphetamine use

The first priority for the international harm reduction community should be to support the development, evaluation and expansion of harm reduction interventions specific to amphetamines. Although the evidence for interventions is not yet as substantial as that for harm reduction interventions among opiate users, and pharmacological interventions are still at the stages of clinical trial, research on these interventions should be prioritised. It is important to expand the range of services available to people who use amphetamines and to work to reduce the spread of HIV and other harms among this group.

Harm reduction providers in many countries have expressed their need for training on work with people who use amphetamines, and efforts should be made to make such trainings available as soon as possible. The experience and knowledge of service providers in countries such as the United States or Australia can be used to develop expertise in regions such as Eastern Europe and Southeast Asia, or in South Africa.

Treatment for people who use amphetamines also needs to be demystified. There is a growing body of research, noted within this report, on treatment modalities, and some guidelines already exist. Interventions specific to amphetamines should be implemented and evaluated, and international guidelines for treatment developed and promoted: for example, adapted outreach of NSPs to reach people who use stimulants,⁽¹⁵⁾ together with tailored NSP programmes that address both sexual risk and injection-related harms specific to people who use amphetamines.⁽⁶⁷⁾

Service providers, researchers and policymakers also need to consider the negative role of drug laws and policies in creating or exacerbating harms related to amphetamines. On a macro level, it is clear that efforts to suppress one drug

often lead only to the 'substitution' of another that is more easily or cheaply available. For example, efforts to suppress opium production in Asia led to a boom in production of amphetamines.⁽⁶⁴⁾ Vigorous and even violent prohibition efforts succeed only in replacing one drug with another that is equally or more harmful. This experience is one example among many for the need to re-examine national and global drug policy.

Prohibition can push production, trafficking and use towards more potent, easily concealable and transportable forms of drugs.⁽⁶⁴⁾ More potent forms and more direct methods of administration (e.g. injecting crystal meth instead of taking amphetamine pills) are more likely to cause dependence and other harms, including HIV infection. Moreover, punitive policies and law enforcement practices can push people who use drugs to use quickly and wherever they can (e.g. in an alley), inhibiting their ability to practice harm reduction.⁽⁶⁵⁾ The widespread criminalisation of possession for personal use in most countries also puts people who use amphetamines at risk of coming into conflict with the law, and the numerous health, economic and social harms that arise as a result.

Policymakers and advocates need to consider the consequences of criminalisation and explore other methods of reducing the harms related to amphetamine use, such as targeted harm reduction services, the provision of evidence-based education and voluntary treatment services, and the decriminalisation of possession for personal use.⁽²⁵⁾ Further research on the relationship between drug laws and policies, drug use patterns and associated harms would be useful in supporting more effective public health-oriented drug policies. There is also an urgent need for epidemiological studies on amphetamine injecting to get the measure of methamphetamine use, particularly in countries like Iran, where the harm reduction needs of

people who use amphetamines are simply not being met,⁽⁶⁶⁾ and to establish appropriate responses to a growing trend in injecting and non-injecting amphetamine use.

References

- Hart CL, Marvin CB, Silver R, Smith EE. Is cognitive functioning impaired in methamphetamine users? A critical review. *Neuropsychopharmacology*. 2012;37(3):586-608.
- Sulzer D, Sonders MS, Poulsen NW, Galli A. Mechanisms of neurotransmitter release by amphetamines: a review. *Progress in neurobiology*. 2005;75(6):406-33.
- Baumann MH, Solis E Jr, Watterson LR, Marusch JA, Fantegrossi WE, Wiley JL. Baths salts, spice, and related designer drugs: the science behind the headlines. *The Journal of neuroscience*. 2014;34(46):15150-8.
- Hart CL, Gunderson EW, Perez A, Kirkpatrick MG, Thurmond A, Comer SD, et al. Acute physiological and behavioral effects of intranasal methamphetamine in humans. *Neuropsychopharmacology*. 2008;33(8):1847-55.
- Kirkpatrick MG, Gunderson EW, Johanson CE, Levin FR, Foltin RW, Hart CL. Comparison of intranasal methamphetamine and d-amphetamine self-administration by humans. *Addiction*. 2012;107(4):783-91.
- Gahlinger P. *Illegal Drugs: A Complete Guide to the History, Chemistry, Use and Abuse*. New York: Plume; 2004.
- UNODC. *World Drug Report 2014*. Vienna: 2014.
- EMCDDA. *European Drug Report: Trends and Developments*. Portugal: 2015.
- Pluddermann A, Dada S, Parry C, Bhana A, Bachoo S, Perreira T, et al. Monitoring alcohol and drug abuse trends in South Africa (July 1996–June 2010). *South African Community Epidemiology Network on Drug Use (SACENDU) Research Brief*. 2010;13(2).
- Scheibe A. GSHR 2014 survey response. *Western Cape consultant*: 16 July 2014.
- SAMHSA. Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD: 2014.
- Oliveira LG, Endo LG, Sinagawa DM, Yonamine M, Munoz DR, Leyton V. [Persistent amphetamine consumption by truck drivers in Sao Paulo State, Brazil, despite the ban on production, prescription, and use]. *Cadernos de saude publica*. 2013;29(9):1903-9.
- Leyton V, Sinagawa DM, Oliveira KC, Schmitz W, Andreuccetti G, De Martinis BS, et al. Amphetamine, cocaine and cannabinoids use among truck drivers on the roads in the State of Sao Paulo, Brazil. *Forensic science international*. 2012;215(1-3):25-7.
- EMCDDA. *European Drug Report: Trends and Developments*. Portugal: 2014.
- Hedrich D, Kalamara E, Sfetcu O, Pharris A, Noor A, Wiessing L, et al. Human immunodeficiency virus among people who inject drugs: is risk increasing in Europe? *Euro surveillance*. 2013;18(48):20648.
- Global SMART Programme. *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific 2013*. Vienna: 2013.
- Stoicescu C. GSHR 2014 survey response. *Harm Reduction International*: October 2014.
- (NACD) NAfCD. *Country Report on Drug Situation in Cambodia*. Cambodia: 2012.
- Morrison E. GSHR 2014 survey response. *Australian Injecting & Illicit Drug Users League*: 23 June 2014.
- Henderson C. GSHR 2014 survey response. *New Zealand Needle Exchange Programme*: 13 August 2014.
- Topp L, Day CA, Iversen J, Wand H, Maher L. Fifteen years of HIV surveillance among people who inject drugs: the Australian Needle and Syringe Program Survey 1995-2009. *AIDS*. 2011;25(6):835-42.
- Iversen J, Maher L. *Australian Needle and Syringe Program National Data. Report 2008-2012*. The Kirby Institute, University of New South Wales: 2013.
- Black M. Getting the measure of meth - just how bad a problem has New Zealand got? *Matters of substance*. 2015;26(2).
- UNODC. *Patterns and trends of amphetamine-type stimulants and other drugs: Challenges for Asia and the Pacific*. Vienna: 2013.
- Hart C, Csete J, Habibi D. *Methamphetamine: Fact vs. Fiction and Lessons from the Crack Hysteria*. New York: 2014.
- Griffiths P, Mravcik V, Lopez D, Klempova D. Quite a lot of smoke but very limited fire—the use of methamphetamine in Europe. *Drug and alcohol review*. 2008;27(3):236-42.
- Mravcik V, Skarupova K, Orlikova B, Zabransky T, Karachaliou K, Schulte B. Use of gelatine capsules for application of methamphetamine: a new harm reduction approach. *The International journal on drug policy*. 2011;22(2):172-3.
- Southwell M MT. Personal communication with the Gold Standard Team on the Stimulant Harm Reduction Intervention: 2010.
- Scheinmann R, Hagan H, Lelutiu-Weinberger C, Stern R, Des Jarlais DC, Flom PL, et al. Non-injection drug use and Hepatitis C Virus: a systematic review. *Drug and alcohol dependence*. 2007;89(1):1-12.
- Barr AM, Panenka WJ, MacEwan GW, Thornton AE, Lang DJ, Honer WG, et al. The need for speed: an update on methamphetamine addiction. *Journal of psychiatry & neuroscience*. 2006;31(5):301-13.
- Kaye S, Darke S, Dufou J, McKetin R. Methamphetamine-related fatalities in Australia: demographics, circumstances, toxicology and major organ pathology. *Addiction*. 2008;103(8):1353-60.
- Jenner L. *Management of Patients with Psychostimulant Use Problems: Guidelines for General Practitioners / prepared by Linda Jenner ... [et al.]*. National Drug S, Australia. Department of H, Ageing, editors. Canberra: Dept. of Health and Ageing; 2004.
- Marshall BD, Wood E, Shovelier JA, Patterson TL, Montaner JS, Kerr T. Pathways to HIV risk and vulnerability among lesbian, gay, bisexual, and transgendered methamphetamine users: a multi-cohort gender-based analysis. *BMC public health*. 2011;11:20.
- Frohlich KL, Potvin L. Transcending the known in public health practice: the inequality paradox: the population approach and vulnerable populations. *American journal of public health*. 2008;98(2):216-21.
- Shannon K, Strathdee S, Shovelier J, Zhang R, Montaner J, Tyndall M. Crystal methamphetamine use among female street-based sex workers: moving beyond individual-focused interventions. *Drug and alcohol dependence*. 2011;113(1):76-81.
- Bourne A, Reid D, Hickson F, Torres-Rueda S, Weatherburn P. Illicit drug use in sexual settings ('chemsex') and HIV/STI transmission risk behaviour among gay men in South London: findings from a qualitative study. *Sexually transmitted infections*. 2015.
- Tweaker.org. *Harm reduction resources*. San Francisco AIDS Foundation: 2015 [Accessed 15 July 2015]. Available from: <http://www.tweaker.org/resources/harmed.html>
- 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 New South Wales; 2007.

39. Ellis RJ, Childers ME, Cherner M, Lazzaretto D, Letendre S, Grant I. Increased human immunodeficiency virus loads in active methamphetamine users are explained by reduced effectiveness of antiretroviral therapy. *The Journal of infectious diseases*. 2003;188(12):1820-6.
40. Langford D, Adame A, Grigorian A, Grant I, McCutchan JA, Ellis RJ, et al. Patterns of selective neuronal damage in methamphetamine-user AIDS patients. *Journal of acquired immune deficiency syndromes*. 2003;34(5):467-74.
41. Chao C, Jacobson LP, Tashkin D, Martinez-Maza O, Roth MD, Margolick JB, et al. Recreational amphetamine use and risk of HIV-related non-Hodgkin lymphoma. *Cancer causes & control*. 2009;20(5):509-16.
42. Bateman DN, McElhatton PR, Dickinson D, Wren C, Matthews JN, O'Keeffe M, et al. A case control study to examine the pharmacological factors underlying ventricular septal defects in the North of England. *European journal of clinical pharmacology*. 2004;60(9):635-41.
43. Thomas DB. Cleft palate, mortality and morbidity in infants of substance abusing mothers. *Journal of paediatrics and child health*. 1995;31(5):457-60.
44. Little BB, Snell LM, Gilstrap LC 3rd. Methamphetamine abuse during pregnancy: outcome and fetal effects. *Obstetrics and gynecology*. 1988;72(4):541-4.
45. LaGasse LL, Derauf C, Smith LM, Newman E, Shah R, Neal C, et al. Prenatal Methamphetamine Exposure and Childhood Behavior Problems at 3 and 5 Years of Age. *Pediatrics*. 2012.
46. Derauf C, Lagasse LL, Smith LM, Newman E, Shah R, Neal CR, et al. Prenatal methamphetamine exposure and inhibitory control among young school-age children. *The Journal of pediatrics*. 2012;161(3):452-9.
47. Frank DA, Augustyn M, Knight WG, Pell T, Zuckerman B. Growth, development, and behavior in early childhood following prenatal cocaine exposure: a systematic review. *JAMA*. 2001;285(12):1613-25.
48. Grund J-PC, Zabransky T, Irwin K, Heimer R. Stimulant Use in Central and Eastern Europe. In: Pates R, Riley D, editors. *Interventions for Amphetamine Misuse*. Oxford: Wiley-Blackwell; 2009.
49. Rossi D. GSHR 2014 survey response. Intercambios Civil Association: 29 August 2014.
50. Fischer B, Powis J, Firestone Cruz M, Rudzinski K, Rehm J. Hepatitis C virus transmission among oral crack users: viral detection on crack paraphernalia. *European journal of gastroenterology & hepatology*. 2008;20(1):29-32.
51. Mesquita F. GSHR personal communication via Intercambios Civil Association: August 2014.
52. IDPC. Braços Abertos in Sao Paulo, what can we learn from the Housing First model? London: IDPC; 2014 [Accessed 25 November 2015]. Available from: <http://idpc.net/blog/2014/12/braços-abertos-in-sao-paulo-what-can-we-learn-from-the-housing-first-model>.
53. Longo M, Wickes W, Smout M, Harrison S, Cahill S, White JM. Randomized controlled trial of dexamphetamine maintenance for the treatment of methamphetamine dependence. *Addiction*. 2010;105(1):146-54.
54. Mausbach BT, Semple SJ, Strathdee SA, Zians J, Patterson TL. Efficacy of a behavioral intervention for increasing safer sex behaviors in HIV-negative, heterosexual methamphetamine users: results from the Fast-Lane Study. *Annals of behavioral medicine*. 2007;34(3):263-74.
55. Rawson. *The Next Big Thing? Methamphetamine in the United States*. Washington, DC: The Sentencing Project; 2004.
56. Pennay A, Lee N. Prevention and early intervention of methamphetamine-related harm. *Prevention research quarterly*. 2008(3).
57. Colfax G, Santos GM, Chu P, Vittinghoff E, Pluddemann A, Kumar S, et al. Amphetamine-group substances and HIV. *Lancet*. 2010;376(9739):458-74.
58. Galloway GP, Buscemi R, Coyle JR, Flower K, Siegrist JD, Fiske LA, et al. A randomized, placebo-controlled trial of sustained-release dextroamphetamine for treatment of methamphetamine addiction. *Clinical pharmacology and therapeutics*. 2011;89(2):276-82.
59. Lee N, Johns L, Jenkinson R, Johnston J, Connolly K, Hall K et al. Methamphetamine dependence and treatment. *Clinical Treatment Guidelines for Alcohol and Drug Clinicians*. 2007;14.
60. Kenny P, Harney A, Lee NK, Pennay A. Treatment utilization and barriers to treatment: results of a survey of dependent methamphetamine users. *Substance abuse treatment, prevention, and policy*. 2011;6:3.
61. NICE. *Treatments for Drug Misuse*. London: 2007.
62. Rawson RA, Anglin MD, Ling W. Will the methamphetamine problem go away? *Journal of addictive diseases*. 2002;21(1):5-19.
63. Tait RJ, McKetin R, Kay-Lambkin F, Carron-Arthur B, Bennett A, Bennett K, et al. Six-month outcomes of a web-based intervention for users of amphetamine-type stimulants: randomized controlled trial. *Journal of medical Internet research*. 2015;17(4):e105.
64. Kramer T, Jelsma M, Blickman T. *Withdrawal Symptoms in the Golden Triangle: A Drugs Market in Disarray*. Amsterdam: 2009.
65. Roberts M, Trace M, Klein A. Law enforcement and supply reduction. *A Drugscope Report for the Beckley Foundation Drug Policy Programme*; 2005.
66. Alam Mehrjerdi Z, Noroozi A. An emerging trend of methamphetamine injection in Iran: a critical target for research on blood-borne infection diseases. *Hepatitis monthly*. 2013;13(2):e8154.

Harm Reduction International is an international non-governmental organisation that works to reduce drug-related harms by promoting evidence-based public health policy and practices, and human rights based approaches to drug policy through an integrated programme of research, analysis, advocacy and civil society strengthening. Our vision is a world in which individuals and communities benefit from drug laws, policies and practices that promote health, dignity and human rights.



HARM REDUCTION
INTERNATIONAL

www.ihra.net