3.4: Speeding up the response: A global review of the harm reduction response to amphetamines

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Introduction

Amphetamines, or 'amphetamine-related drugs', are stimulants with the temporary effect of increasing the activity of the central nervous system, producing effects similar to adrenaline. Although some amphetamines are prescribed, this chapter will explore the harms associated with the illicit use of certain amphetamines. Despite heavy media coverage of amphetamines and increased research attention in some countries, the harm reduction response remains underdeveloped when compared with the response to opiates and injecting-related harms. Programmes do exist and new guidance is being compiled, but there is a need for evaluation, further documentation of experiences and expansion of effective interventions. This chapter will discuss the emerging responses to amphetamines-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 chapter, stimulate the central nervous system and cause the rapid release of dopamine and other neurotransmitters. 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]

Methamphetamine has stronger subjective effects, or a more intense high, than amphetamine.[2] 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 sexuality 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. Cathinone or methcathinone can be addictive and cause problems similar to those produced by long-term or heavy use of amphetamine and methamphetamine.[3]

Although amphetamines are often grouped with ecstasy in the category 'amphetamine-type stimulants', this chapter will limit its scope to amphetamine, methamphetamine, cathinone and methcathinone. The chapter excludes ecstasy in part 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 term '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

During the 1990s the global use and production of amphetamines increased significantly, receiving mounting attention from law enforcement agencies, the media, politicians, medical and social service providers and researchers.

In the context of continued efforts to reduce cocaine and heroin production, amphetamines have a clear advantage in the marketplace. Rather than being grown in the open over an extended period of time in specific climates, amphetamines can be manufactured relatively cheaply and easily from other chemical 'precursors' that are licit and often easily available. Amphetamines are produced in clandestine laboratories that vary widely in size and sophistication. In some regions, it is common for drug users to produce their own amphetamines at home. Amphetamines have the potential to yield huge profits, and production is even harder to measure and prevent than that of opium or coca. If a laboratory is identified by police, a replacement can quickly be set up in another location. When law enforcement succeeds in limiting certain precursors, manufacturers can use different ones or synthesise their own. For example, if access to the precursor pseudoephedrine is restricted, it can be replaced by another, more easily available medication that can also be used to produce amphetamines.[4]

From the user's perspective, amphetamines are often cheaper and more easily available than opiates or cocaine. They are popular in part because of their perceived functionality: many people use them to facilitate work, study, sex or weight loss.

Prevalence and patterns of use

According to estimates from the United Nations Office on Drugs and Crime (UNODC), between 16 and 51 million adults used amphetamine-type substances in 2007; the wide range reflects the dearth of precise data on use.[5] Where available, prevalence estimates are based on household surveys, seizures and arrests by law enforcement agencies, treatment demand and other medical data, epidemiological research and anecdotal evidence. These methods are not, however, always reliable. Lab seizures and arrests reflect law enforcement priorities; treatment demand reflects accessibility and perceived effectiveness of treatment; household surveys tend to miss high-risk groups. Data collection methods vary dramatically from country to country, and some countries do not collect or analyse data at all. Internationally, large-scale epidemiological research is limited.

In its synthesis of international data on rates of drug use, UNODC uses the term 'prevalence' to mean use at least once a year, which can also be called 'annual prevalence'.[6] 'Regular use' is defined as use at least once within the last month.[6] Given the wide availability of licit and illicit amphetamines, their varied functions and forms and the large number of people able to use them occasionally without suffering severe drug-related harm, these definitions are problematic and provide a very limited understanding of the nature, severity and context of use. For example, people who snorted amphetamine at a party a single time are grouped with people who smoke methamphetamine in chronic binges, and students who take a pill once a month while writing a paper are grouped with people who inject multiple times a day.

'Heavy' use and 'binges', two terms used often in this chapter, are better indicators of problematic use of amphetamines and are much more closely correlated with severe harms. Heavy use is usually defined as several times a week or more over a sustained period of time, although studies may use varying definitions. A binge is characterised by periods of intensive use for a period of at least two days (often more), followed by a break.[7]

The Philippines, Australia, New Zealand, El Salvador, the United States, Estonia, Denmark and the United Kingdom report the highest prevalences of annual amphetamine use in their general populations.[1] Asia is home to almost two-thirds of the world's methamphetamine users, while Oceania has the highest regional prevalence of annual use.[8] After marked increases in the 1990s, use of amphetamines in the United States[9] and the European Union[10] seems to be stabilising or even decreasing. There appears to be little use of amphetamines in most countries of Latin America, where cocaine is more popular and more accessible.[1] Amphetamines use is low but appears to be increasing in the Middle East.[4] Almost no data is available from Africa, but methamphetamine now accounts for nearly half of drug treatment admissions in South Africa.[11]

When considering the use of methamphetamine, it is important to maintain a critical perspective on reports of increased use. In the United States, for example, methamphetamine has been the focus of exaggerated media claims about prevalence of use and effects on health and society. While it is true that there are a significant number of people who use methamphetamine in the US, rates of problematic use and treatment demand remain lower than those for cocaine or heroin and are a tiny fraction of the rates for alcohol or marijuana. Despite frequent statements in the media about the 'epidemic' of methamphetamine use, only 0.2% of Americans use methamphetamine once a month or more, and rates of use have not increased since 1999.[9] Treatment guidelines from Australia, a country with one of the world's highest prevalences of methamphetamine use, state that only 3% of methamphetamine users will use on a frequent, habitual basis.[7]

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 as it is difficult to produce crystals with impure materials.[12]

The relative popularity and availability of different forms of amphetamines vary according to region. In Asia, the main markets for crystal methamphetamine (shabu) are in Japan, the Philippines and Malaysia, and use is increasingly widespread in China. In Southeast Asia, methamphetamine pills (yaba or yama) were long the most popular form of amphetamines, but crystal methamphetamine produced in illicit commercial laboratories is growing in popularity. Asian use of methamphetamine has been intimately linked with economic growth and the demands placed on workers by a rapidly developing economy.[13] In the European Union, amphetamine use is more prevalent than methamphetamine use. Relatively high levels of methamphetamine use are reported only in the Czech Republic, Estonia and the United Kingdom. Use of crystal methamphetamine as opposed to other amphetamines is reported to be increasing in Australia and New Zealand.[10]

Commercially produced illicit drugs were rarely available in the Soviet Union, and users prepared their own amphetamines (usually called vint, pervitin or belyi) from locally available precursors. After the fall of the Soviet Union, users in Eastern Europe and Central Asia did not, for the most part, transition to commercially produced amphetamines. Instead, homemade methamphetamine, methcathinone or cathinone mixtures synthesised from ephedrine, pseudoephedrine, and, more recently, phenylpropanolamine remain the primary amphetamines in the region.[14]

Although it can be prepared in just forty-five minutes, methamphetamine production requires the greatest amount of time, skill and equipment, and it elicits a more toxic reaction. In contrast, methcathinone can be prepared in about twenty minutes.[14] Cathinone can be prepared in just a few minutes without heat, but homemade preparations appear to have weak effects that last as little as a few minutes. Though sometimes available as powder or crystals, these drugs usually come in liquid form, with a high volume required to obtain the desired effects. Users sometimes begin by drinking the solution, but often move to injecting after a period of use. The variety of precursors and cooking methods involved means that users and even cooks often do not know exactly what substance they are preparing and using.[14]

Harms related to the use of amphetamines

Unwelcome side effects

Amphetamines can cause anxiety, insomnia and aggression.[15] The use of very high doses of methamphetamine can cause chest pain, hypertension, tachycardia and other cardiac arrhythmias[16] and increase the risk of stroke, seizures, cerebral haemorrhage and death.[17] High doses, particularly in the context of repeated binges, can cause temporary psychosis that includes mood swings, visual, auditory and sensory hallucinations, paranoia, delusions, obsessive thought patterns, impulsivity and the potential for aggression.[18]

Heavy or long-time users often experience 'speed bugs', the feeling that insects are crawling under their skin. They pick at the bugs and sometimes try to cut them out, causing large wounds that may become infected and can even be fatal.[19] Psychotic symptoms usually subside with reduction of use, although this is not always the case for those predisposed to psychosis.[20]

Amphetamines can induce or exacerbate depression and anxiety disorders and trigger existing mental illnesses such as schizophrenia.[21] A study of people with pre-existing psychotic disorders found that those using amphetamines or cocaine at baseline were eight times more likely to commit suicide.[22] The paranoia, psychosis, fatigue and intense depression associated with amphetamine binges may prevent users from approaching service sites.[23]

Long-term use of methamphetamine can cause painful or irregular menstruation.[24] This can have important implications, as women users may assume they cannot become pregnant and stop using contraception or they may become pregnant without realising it until relatively late.

As methcathinone is metabolised, breakdown products are exuded from the skin. This can give chronic users a very unpleasant body odour.[25]

Withdrawal

Withdrawal symptoms after long-term or heavy use of amphetamines can include fatigue, anxiety, irritability, depression, inability to concentrate, muscle aches, tremors, increased appetite and suicidality,[15] as well as insomnia, hypersomnia (excessive sleepiness), paranoia and aggression.[26] Methcathinone and cathinone withdrawal symptoms can also include a runny nose and nosebleeds, cravings for sweets, muscle spasms and joint pain.[25]

Withdrawal symptoms often subside after about a week, though the duration of typical withdrawal remains unclear. The length and severity of withdrawal varies depending on drug dose, purity and route of administration, as well as on the age and general health of the user.[26]

Neurotoxic effects and neurological damage

A growing body of evidence has associated chronic methamphetamine use with persistent changes in neurotransmitter systems, although the functional results of these changes in humans are not yet clear.[27] They appear to cause depression in some people and to have negative effects on memory, attention and other cognitive functions, although cessation of use may result in a return to more normal neurotransmitter function.[27] High doses of amphetamines can cause permanent damage to the nerve endings of serotonin and dopamine neurons. This may become apparent only later in life, when this damage is augmented by age-related dopamine and serotonin neuron loss and manifests in disorders such as Parkinson's Disease or depression.[27]

In recent years, methcathinone use has been associated with Parkinsonism in Russia, Ukraine, Estonia and Azerbaijan.[28] It is assumed that this is due to toxic effects of the potassium permanganate (manganese) used to synthesise methcathinone and cathinone. It is not yet clear whether these symptoms resolve with cessation of use; the symptoms of some people exposed to high levels of manganese in the workplace continued to progress after exposure ceased.[28]

Mortality and overdose

Mortality related to amphetamines is likely to be much lower than that related to opiates.[29] An Australian analysis of methamphetamine-associated deaths showed that only 17% were the direct result of methamphetamine toxicity alone, while combined drug toxicity was the cause of 51% of deaths. Opiates, benzodiazepines and antidepressants were the most common drugs present with methamphetamine. Levels of methamphetamine toxicity varied.[30] Opiates can cause respiratory depression that can lead to cardiac failure, whereas alcohol and methamphetamine increase blood pressure and thus the risk of cardiovascular crisis. Methamphetamine masks the effects of alcohol and opiates, allowing people to underestimate their intoxication and increasing the risk of accidents and overdose. Cocaine and methamphetamine taken together increase the risk of cardiotoxic effects from both drugs.[31] In the Australian study, underlying cardiovascular pathology was found in a substantial proportion of the deaths. Hyperthermia was also implicated in some deaths. It seems that mental illness is a significant factor

in methamphetamine-related deaths as 14% of total deaths and one-third of overdoses examined were determined to be suicides.[30]

Injecting

The basic risks associated with injecting amphetamines are largely the same as those of opiate injecting, including HIV, hepatitis, endocarditis, abscesses, sepsis and collapsed veins. Injecting patterns, however, appear to differ somewhat. Whereas opiate-dependent people tend to inject a few times a day every day, provided that drugs are available, amphetamines users are more likely to have periodic binges of days or even weeks during which they inject many times a day. It should be noted, however, that this is not universally true: a US study found that daily methamphetamine injectors had an average of two injections per day.[32] Another US study found that methamphetamine users visited syringe exchanges less frequently and took larger numbers of syringes on a single visit, reducing opportunities to interact with them and offer additional services.[33] Some studies have shown that women and men who have sex with men (MSM) who inject methamphetamine are more likely to engage in high-risk sexual behaviours. That said, it is difficult to make generalisations, as studies have found substantial variations in patterns of use and risk behaviours among people who inject amphetamines.[1]

Smoking and snorting

As compared with heavy opiate users, heavy users of amphetamines are more likely to smoke rather than inject, especially if they are using crystal methamphetamine. The dehydration caused by amphetamines use can cause users' lips to crack and bleed, making them 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.[34] Straws used for snorting amphetamines can become contaminated with blood and thus transmit blood-borne viruses, notably hepatitis C.

Sexual risk

Much of the discussion of amphetamines-related harm has focused on sexual risk-taking associated with methamphetamine use, especially among MSM. Studies, the majority of them from North America, Australia or Western Europe, have found conflicting evidence about a causal link between methamphetamine use and HIV. Though some have documented increased sexual risk behaviour among amphetamines users, it is difficult to untangle the relationship between amphetamines and sex.[1] Many people intentionally use the disinhibiting effects of amphetamines to facilitate sex, including high-risk sex. Amphetamines use is prevalent in many settings in which high-risk sex is already occurring, and people inclined to take the risk of drug use may also be inclined to engage in high-risk sex.[1] On the other hand, the confidence and impulsivity produced by amphetamines may make users more likely to forgo condoms or engage in other risk behaviours.

There is good reason to believe that amphetamines can increase the likelihood of 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.[35]

Risks for people living with HIV

Research suggests that amphetamines use by people living with HIV is associated with increases in viral replication and viral load, even among people receiving antiretroviral therapy [ART]. It may also alter the metabolism of HIV medications and negatively affect HIV-related dementia.[27] The effects of methamphetamine may be stronger for people taking some protease inhibitors, especially ritonavir, which could increase the risk of overdose.[36] Frequent use of amphetamines has been linked to increased risk of lymphoma in people living with HIV.[37]

Amphetamines and pregnancy

Use of amphetamines during pregnancy does not appear to cause congenital defects. It has been associated with elevated risks of heart defects[38] and cleft lip and palate[39] 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.[40] Large-scale studies of the effects of prenatal exposure to methamphetamine are in their early stages.

As with better-studied drugs such as cocaine and heroin, it is important to remember the complex of factors that affect the course of a pregnancy, and to be wary of blaming the drug itself for all 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.[41] 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 users 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 for cooks and the people around them. Chemical processes involved in the production of amphetamines require and produce flammable, carcinogenic, poisonous and caustic substances.[42] [14] 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.[42]

Harm reduction for people who use amphetamines

Harm reduction for people who use amphetamines follows the same fundamental principles as harm reduction for opiate users: meet users where they are, give them the information, means and opportunities for positive change and organise programmes around their needs rather than imposing external demands. Many aspects of harm reduction programmes for people who use amphetamines are identical to those of programmes for opiate users. These include provision of safer injecting supplies and accurate information; mobile services and outreach workers to access users unwilling or unable to come to a harm reduction site; engagement of active and former drug users as staff members, volunteers and advisors; and referrals and assistance in accessing other needed services.

Some harm reduction programmes, designed for and accustomed to work with opiate users, are daunted by the idea of working with amphetamines users. There are indeed some differences in basic needs. For example, in many settings users are more likely to smoke amphetamines than opiates, and the psychological problems associated with heavy use can make them seem more 'difficult' than opiate users as clients. Use of amphetamines may lead to paranoia, confusion, impulsiveness and memory and attention lapses that make it challenging to counsel users. Finally, there is almost no access to pharmacological treatment for dependence on amphetamines. This can be disconcerting to providers accustomed to being able to offer treatments as straightforward and effective as methadone and buprenorphine.

Fortunately, experience from various countries has shown that harm reduction programmes can respond effectively to harms associated with the use of amphetamines. Table 3.4.1, developed using several existing resources, [23 34 43 44 45 46] 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 users, friends and family, and primary and emergency health care 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 amphetamines-related harms.

Table 3.4.1: Responding to harms associated with the use of amphetamines

Area	Behaviour	Harm	Harm Reduction Strategy
Hydration, nutrition and hygiene	• Forgetting to eat and drink • Eating only junk food • Not sleeping	• Malnutrition and dehydration • Increased risk of anxiety, paranoia and psychosis • Decreased high, need for higher dose to achieve the same effects • Intensified 'crash'	• Provide water, juice and healthy food where possible, especially for homeless, marginally housed and impoverished users • Stress the need to sleep or at least rest in a darkened room, eat healthy food (especially 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
	• Forgetting to drink water and brush teeth • Eating sugary foods • Grinding teeth	• Dry mucous membranes more vulnerable to infection • Dental problems	• Stress the importance of hydration and dental hygiene • Distribute toothbrushes and toothpaste
Moderating patterns of use	• Binges (heavy use over a period of days or weeks)	• Increased risk of amphetamines-induced psychosis, as well as paranoia, anxiety and other health problems	• Encourage users 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 new plans it can be helpful for the user to have a 'harm-reduction buddy', someone they trust who can support their efforts
	• Heavy use	• Withdrawal and 'crashes'	• Stress that depression, fatigue, moodiness and aches are a natural part of withdrawal and will pass with time • Inform users that focusing on pleasant, distracting activities; keeping close to supportive people; and maintaining a healthy diet and routine will help them to manage withdrawal and crashes • After the crash is over, help users develop their own strategies to reduce crashes, using the same tactics effective for episodes of paranoia and psychosis

Reducing harms related to modes of use	• Sharing injecting equipment • Sharing mouthpieces, including jagged ones • Smoking with toxic materials • Using pipes that can easily cause burns	• Risk of blood-borne diseases, lung damage, toxicity, cuts and burns	• Distribute sterile injecting equipment and information on safer injecting • Distribute glass stems with gauze or individual pipe tips • Teach users how to make safer pipes • Distribute lip balm and burn salve
	• Transition to smoking and injecting or to more potent forms (e.g. crystal meth)	• Dependence develops more quickly and is more severe among users who inject and who use more potent forms • Increased risk of blood-borne viruses	• Inform users who swallow or snort about the risks of injecting and smoking and about safer injecting and smoking techniques • Encourage users not to transition to a more intense route • Give users who inject or smoke appropriate information about safer methods and encourage them to transition to snorting or swallowing if possible • Inform users 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
	• Injecting many times in one sitting	• Increased risk of vein and tissue damage, missed shots, infection and other injection-related harms	• Use a butterfly needle scheme, eliminating the need to enter the vein repeatedly and repeat the risk of associated harms. Distribute appropriate supplies and teach participants how to use them
Managing paranoia, delusions and anxiety	• Picking at 'speed bugs'	• Open wounds that can become infected	• Use measures described above to deal with delusions • It may be helpful to create non-invasive 'treatments' for the bugs to calm the user during acute episodes
	• Exhibiting signs of paranoia, delusions and/or acute anxiety	• Risk of harm to self or others	• Be calm and reassuring • Take user to a quiet, calming place and try to turn their attention to something else • Take users 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 users 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 50–100 ml of diphenhydramine (Benadryl/Dimedrol) • When user is not high, discuss strategies to reduce the occurrence of anxiety, paranoia and psychosis, including diet, hydration, sleep, breaks, moderation of dose, routes of administration and setting • Users 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 IV 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
Managing harms of associated activities and 'functional' use	• Sexual risk	• HIV and STIs	• 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 to 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 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 users' 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 is often the best way to support users in reducing risk
	• Using amphetamines to control weight	• Dependence, excessive weight loss, other harms associated with use	• Recognise that some people, especially women, use amphetamines to lose or control weight and fear gaining weight if they stop using • Discuss this fear with users and help them 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	• Remind users that while amphetamines can initially help 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 raves or sex workers who use it to endure harsh working conditions

Drug dependence treatment

Because there is as yet no widely accepted medication-assisted treatment for amphetamines dependence and because the psychological side effects of heavy amphetamines use can make traditional drug treatment counselling methods impractical, it is sometimes believed that dependence on amphetamines cannot be treated. This is not true, though there remains a shortage of evidence-based treatment specific to amphetamines.

Evidence supports the effectiveness of behavioural interventions, particularly cognitive behavioural therapy and contingency management, and guidelines have been developed in Australia and the United States.[47] One model that has demonstrated success is the Matrix Model, which integrates cognitive-behavioural therapy, family education, social support and individual counselling in a non-confrontational, non-judgmental style reinforced by peers.[48] While some believe that the long-term psychological effects of heavy amphetamines use mean that users require long-term treatment,[49] others have found significant increases in abstinence following a session of motivational interviewing and behavioural therapy lasting only two to four hours.[50]

The stepped care approach is a way of adjusting interventions to the needs and motivation levels of individual clients. This approach begins with provision of the least intensive intervention and offers the possibility of scaling up into longer and more intensive ones. It has the added benefit of maximising resources by avoiding unnecessarily intensive interventions and thus increasing the number of people who can be provided with services.[2]

Pharmacotherapy for dependence on amphetamines is still in trial phases. In England, an experimental substitution treatment programme that prescribed a set dose of 30 mg/day of dexamphetamine sulphate found that half the subjects stopped injecting and the remainder reduced injection significantly; 85% had not used or shared injecting equipment after entering treatment.[51] Modafinil, buproprion and methylphenidate are also under investigation, but the results are not yet conclusive.[52]

Next steps for reducing harms related to amphetamines 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. Though the evidence base for these interventions is not yet as substantial as that for harm reduction interventions among opiate users, the positive experience of programmes in several countries suggests their value. Research on these interventions should be prioritised, but in the meantime it is important to expand the range of services available to amphetamines users and to work to reduce the spread of HIV and other harms in this group. Harm reduction providers in many countries have expressed their need for training on work with amphetamines users, 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, Southeast Asia or South Africa.

Next, treatment for amphetamines users needs to be demystified. There is significant research on treatment modalities and some guidelines already exist. Interventions specific to amphetamines should be implemented and evaluated in other regions, and international guidelines for treatment should be developed and promoted.

Service providers, researchers and policy-makers also need to consider the role of drug policy in 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.[53] For example, efforts to suppress opium production in Asia led to a boom in production of amphetamines.[54] Vigorous and even violent prohibition efforts succeeded only in replacing one drug with another that is equally or more harmful. This experience indicates the need to re-examine global drug policy.

On a more local level, experience in countries as varied as Australia and Ukraine suggests that attempts to control precursors of amphetamines can lead to increased harms associated with their use. Decreased availability of cold medicines has been linked to increased pharmacy break-ins in Australia[55] and to a shift in Ukraine to more neurotoxic preparations made using less tightly regulated precursors.[56]

Prohibition can push production, trafficking and use towards more potent, easily concealable and transportable forms of drugs.[13] More potent forms and more direct methods of administration – for example, 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 drug users to use quickly and wherever they can (e.g. in an alley), inhibiting their ability to practice harm reduction.[53] Policy-makers and advocates need to consider the consequences of prohibition and explore other methods of reducing problem drug use, notably drug treatment, harm reduction and evidence-based drug education targeted at high-risk groups. Further research on the relationship between drug policy, drug use patterns and associated harms would be useful in supporting more effective public-health-oriented drug policies.

Finally, service providers need to take into account the role of production methods in harms related to amphetamines. Especially in situations in which users produce drugs themselves, a change in production methods could reduce neurotoxic effects, environmental hazards and perhaps other harms. Region-specific research into drug production methods could give providers and users a better understanding of exactly what drug they are synthesising and its specific dangers. It would be useful to explore the possibility of developing harm reduction interventions related to production, as well as the legal, political or ethical questions that such interventions might raise.

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