



PERSPECTIVES ON DRUGS

Health and social responses for methamphetamine users

Outbreaks of methamphetamine use in the United States and South-East Asia have presented major and well-documented public health problems (see interactive timeline). In many cases in these regions the main form of use has been smoking crystal methamphetamine. In contrast, European drug markets have historically been dominated by the use of amphetamine, with methamphetamine use in Europe largely confined to the Czech Republic and Slovakia (where the drug is known as pervitin).

There have been recent reports, however, highlighted by a 2013 trendspotter study by the EMCDDA, of changes and developments in methamphetamine markets in some European countries (EMCDDA, 2014c). These reports have highlighted a number of distinct regional trends, each with their own characteristics and patterns of use, and usually linked with changes in production and trafficking of the drug (EMCDDA, 2014d).

Methamphetamine is a stimulant drug that affects the central nervous system (EMCDDA, 2014a). A range of health-related harms are linked to its use and the route of administration, including somatic and mental health problems, as well as an increased risk of transmission of infectious diseases such as hepatitis C virus (HCV) and human immunodeficiency virus (HIV) that are associated with injecting. In particular, the range of public health concerns linked with methamphetamine use make close surveillance of new developments an important policy priority.

Methamphetamine use in Europe

Recent reports from both the Czech Republic and Slovakia indicate that there has been a spread of pervitin use among problem drug users, which is reflected in increases in problem drug use estimates and in the number of people entering treatment for the first time who report pervitin problems (EMCDDA, 2014b). In addition, new pockets of methamphetamine use and associated problems have been identified in a number of other European countries. Germany, for example, reports the emergence of

Full edition of this article with interactive features available online at

emcdda.europa.eu/topics/pods/responses-for-methamphetamine-users



methamphetamine sniffing in recreational drug scenes and its use among treatment populations in regions bordering the Czech Republic. The presence of methamphetamine on some northern European markets has been noted in recent years (Griffiths et al., 2008). In Norway, for example, methamphetamine use appears to be interlinked with the older, more established amphetamine market. Particular challenges have arisen in Greece (and to a lesser extent Cyprus and Turkey) where the smoking of crystal methamphetamine (locally known as 's(h)is(h)a') by injecting opioid users has been identified by low-threshold services and treatment agencies. In a different development, the United Kingdom has reported low, but nevertheless worrying, patterns of methamphetamine injecting (known as slamming) among small populations of men who have sex with men (MSM) (EMCDDA, 2014c).

Increasing awareness of these diverse emerging patterns of methamphetamine use has served to put the spotlight on the range of harms associated with its use, and the availability and adequacy of health and social responses. Each population, with its unique pattern of use, is likely to raise challenges and place new burdens and demands on countries' public health systems. To date, documentation on Europe's responses to methamphetamine problems is scarce. Bearing this in mind, this analysis makes a first attempt to identify and highlight emerging challenges for policy and service provision linked with the various manifestations of methamphetamine use that have recently been identified. This includes a brief look at the limited international evidence on the effectiveness of interventions.

Varied problems requiring a range of responses

Although at low levels, methamphetamine is being used by diverse groups of drug users in different ways, and this is clearly raising a variety of challenges and initial responses from service providers. Services currently identified as responding to problems include mental health, low-threshold, drug treatment, youth and sexual health.

Methamphetamine has long been used by problem drug users in both the Czech Republic and Slovakia, with injection as the most common route of administration. In the Czech Republic mental health care and residential treatment programmes applying the therapeutic community model have been at the centre of the response (Kalina, 2007). The focus has been on client assessment, the use of psychosocial interventions and medical treatment, and social reintegration initiatives. Services offering information, including harm reduction advice to methamphetamine users, are also available. An innovative intervention has involved the distribution of empty



Photo: iStockphoto

gelatine capsules by some low-threshold services in order to encourage users to consume the drug orally rather than injecting it (Mravcik et al., 2011). Such measures are designed to reduce the injection-related risks of blood-borne viruses (HIV, HCV).

Crystal methamphetamine smoking among opioid injectors has recently been reported in Greece, in particular among marginalised immigrant sub populations in Athens (EMCDDA, 2013). Methamphetamine smoking is associated with particular problems for users' health, including respiratory damage and dental corrosion. In Greece, both low-threshold and mental health care services have been involved in responding to the needs of these users. However, a combination of restricted service availability and the marginalised social status of these users has reportedly exacerbated the health problems in this group (EMCDDA, 2013).

Several northern European countries with established patterns of amphetamine use are now also seeing the emergence of methamphetamine use among existing stimulant users. In Norway, for example, these two drugs have been sold interchangeably, with amphetamine users unknowingly consuming methamphetamine. Increased use of the drug has also been observed among problem drug users in Latvia, with more than half of the users in one cohort study reporting methamphetamine as their primary drug in 2010 (EMCDDA, 2014c). In general in these countries, no differentiation has been made between treating users of amphetamine and methamphetamine, and psychosocial intervention is the form of treatment most widely available for stimulant users.

Methamphetamine is also reportedly used by recreational drug users, including clubbers, in several countries, such as the Czech Republic, Slovakia, Germany and the United

Kingdom. Given the age profile of these users, youth services have sometimes been involved in delivering responses to them. This has included new multidisciplinary services being developed specifically for methamphetamine users. In London, a specialist clinic treating drug-using clubbers has piloted a set of targeted support for users. It provides drug and sexual health services and uses a unique funding scheme that allows access to services for people who self-refer from across the United Kingdom (Kirby and Thornber-Dunwell, 2013). With a broader target audience in mind, another British online service provides drug education to methamphetamine users. The public health service 'Talk to Frank' presents methamphetamine facts, emergency help, harm reduction and drug treatment information to users.

Methamphetamine use has emerged in the United Kingdom among small urban populations of MSM (Stuart, 2013). Within this group, methamphetamine is being injected (known as 'slamming') at parties where users engage in high-risk sexual behaviours (multiple partners, no protection). In this context, methamphetamine is one of a number of substances used, including synthetic cathinones, GBL and Viagra. These users face long-established health risks related to injecting drugs, in particular the risk of contracting blood-borne viruses. In London, there are reports of users presenting at sexual health clinics to receive post-exposure prophylaxis (PEP) for HIV after attending slamming parties. In some cases, it has been the services dealing with sexual health issues and targeting MSM clients that have been frontline responders. For example, in the United Kingdom a health promotion initiative operated by a London lesbian, gay, bisexual, and transgender health and well-being charity is targeting methamphetamine users (Marshall et al., 2011). It provides drug, alcohol and sexual health counselling, social support groups and telephone advice to users (Bourne et al., 2014; Stuart, 2013).

Evidence for intervention effectiveness

Much of Europe's drug treatment provision has been developed in response to heroin use and related problems, and there is limited documentation of approaches addressing stimulant problems. Studies examining the health and social responses to problems linked with methamphetamine use come primarily from the United States and Australia, where smoking of crystal methamphetamine predominates. This means the transferability of results to European contexts is not assured. Presently, there is consistent evidence in support of the efficacy of two psychosocial treatment approaches for methamphetamine dependence — cognitive behavioural approaches and contingency management. Cognitive behavioural approaches, in conjunction with pharmacotherapy or as a stand-alone intervention, have been shown to increase treatment attendance and to reduce methamphetamine use

Terms and definitions

Acute adverse effects

Acute methamphetamine intoxication or overdose can lead to severe hyperthermia, renal failure and heart attacks (Lan et al., 1998).

As stimulant effects dissipate, users may experience drowsiness, reduced ability to concentrate and/or impaired judgment and learning (Meredith et al., 2005).

Personality issues and changes commonly experienced are low mood, anxiety, depression, irritability, aggression (Meredith et al., 2005).

Acute paranoid psychosis (psychotic reaction similar to acute paranoid schizophrenia) may develop after single or repeated use of methamphetamine; people with underlying mental health problems are at greatest risk (Chen et al., 2003; Grant et al., 2012).

Chronic adverse effects

Chronic use changes the brain — tolerance develops, leading users to take higher doses.

Smoking methamphetamine can lead to lung complaints including pulmonary hypertension or oedema (fluid retention) (Thompson, 2008).

The skin and the mouth can be affected — teeth and gums decay rapidly due to the acidic nature of the drug and poor dental hygiene (known as 'meth mouth') (Hamamoto and Rhodus, 2009).

Sources: www.talktofrank.com/drug/methamphetamine

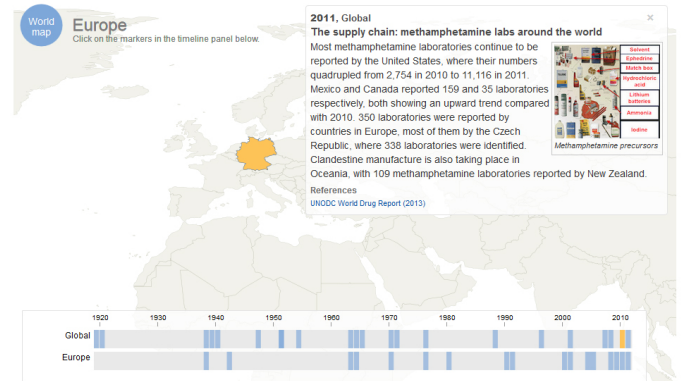
and risky sexual behaviour (Lee and Rawson, 2008; McElhiney et al., 2009; Reback and Shoptaw, 2011). Similarly, individuals who have been assigned to contingency management conditions have demonstrated better retention in treatment, lower rates of methamphetamine use and longer periods of sustained abstinence over the course of their treatment experience (Roll et al., 2013).

To date, although there have been a number of efficacy trials of potential methamphetamine pharmacotherapies (e.g. bupropion, modafinil), all candidate drugs have been shown to be no more effective than placebo. Consequently, there are no approved medications for treating methamphetamine dependence, and pharmacotherapy is recommended as an adjunct to psychosocial interventions rather than being a primary component of treatment (Brackins et al., 2011; Karila et al., 2010; Rajasingham et al., 2012).

Conclusion

While methamphetamine is an established drug in other parts of the world and in some European countries, it is now emerging in EU Member States where it has not previously been recorded. It is being used by different populations of drug users, encompassing socially integrated users who sniff or inject the drug and marginalised populations where methamphetamine is smoked. As such, Europe's current methamphetamine problem has no single face and appropriate responses will need to be adapted, developed and tailored to the local patterns of use and problems observed. This will undoubtedly require service providers to adopt flexible referral practices and develop existing services, for example tried and tested psychosocial interventions, and to build complementary treatments for users. As patterns and these new developments in methamphetamine use continue to evolve within Europe, it will be important to monitor how use of the drug is developing and to continue to shape responses towards users' needs.

Interactive element



Interactive element — methamphetamine global timeline, available on the EMCDDA website: emcdda.europa.eu/topics/pods/responses-for-methamphetamine-users

Forms of methamphetamine

Methamphetamine exists in two optical isomeric forms, *d* and *l*. Both are psychoactive, having stimulant effects, however, the *d*-form is more potent and longer-lasting than the *l*-form. Illicit methamphetamine in Europe is normally a mixture of both *d*- and *l*-forms.

D- and *l*-methamphetamine can come in two physical forms, base and salt. The pure base is a clear, colourless volatile oil, insoluble in water, which can be easily converted into methamphetamine hydrochloride (the most prominent salt form).

On the illicit drug market methamphetamine is sold as a crystalline solid or powder. The crystalline solid is often called 'ice' or 'crystal meth' due to its appearance. 'Ice' is suitable for smoking as high-purity methamphetamine hydrochloride can be vaporised without thermal decomposition. In powder methamphetamine, granules of the salt are mixed with other ingredients (e.g. lactose, dextrose, caffeine); the proportion of methamphetamine to the other ingredients determines the purity.

Powder methamphetamine found on the illicit drugs market is similar to powder amphetamine in many ways, including in its purity and appearance, and the two are often indistinguishable to both users and dealers. Powder methamphetamine tends to be administered in the same way as amphetamine powder — either inhaled intra-nasally (snorted) or dissolved and injected.



Credit: iStock

References

- Bourne, A., Reid, D., Hickson, F., Torres, S. and Weatherburn, P. (2014), *The chemsex study: drug use in sexual settings among gay and bisexual men in Lambeth, Southwark and Lewisham*, Sigma Research, London School of Hygiene and Tropical Medicine, London (www.sigmaresearch.org.uk/chemsex).
- Brackins, T., Brahm, N. C. and Kissack, J. C. (2011), 'Treatments for methamphetamine abuse: a literature review for the clinician', *Journal of Pharmacy Practice*, 24(6), pp. 541–550.
- Chen, C. K., Lin, S. K., Sham, P. C., et al. (2003), 'Pre-morbid characteristics and comorbidity of methamphetamine users with and without psychosis', *Psychological Medicine*, 33(8), pp. 1407–1414.
- EMCDDA (2013), SISA, Greek Documentation and Monitoring Centre for Drugs — Greek Reitox Focal Point of the EMCDDA.
- EMCDDA(2014a), *EMCDDA drug profiles: methamphetamine*, EMCDDA, Lisbon (www.emcdda.europa.eu/publications/drug-profiles/methamphetamine).
- EMCDDA (2014b), *European Drug Report 2014: Trends and developments*, Publications Office of the European Union, Luxembourg.
- EMCDDA (2014c), *Exploring methamphetamine trends in Europe*, EMCDDA Paper, Publications Office of the European Union, Luxembourg.
- EMCDDA (2014d), *Synthetic drug production in Europe*, Perspectives on drugs EMCDDA, Lisbon (<http://www.emcdda.europa.eu/topics/pods/synthetic-drug-production>).
- Grant, K. M., LeVan, T. D., Wells, S. M., et al. (2012), 'Methamphetamine-associated psychosis', *Journal of Neuroimmune Pharmacology*, 7(1), pp. 113–139.
- Griffiths, P., Mravcik, V., Lopez, D. and Klempova, D. (2008), 'Quite a lot of smoke but very limited fire: the use of methamphetamine in Europe', *Drug and Alcohol Review* 27(3), pp. 236–242.
- Hamamoto, D.T. and Rhodus, N.L. (2009), 'Methamphetamine abuse and dentistry', *Oral diseases*, 15(1), pp. 27–37.
- Kalina, K. (2007), 'Developing the system of drug services in the Czech Republic', *Journal of Drug Issues*, 37, pp. 181–204.
- Karila, L., Weinstein, A., Aubin, H. J., et al. (2010), 'Pharmacological approaches to methamphetamine dependence: a focused review', *British Journal of Clinical Pharmacology*, 69(6), pp. 578–592.
- Kirby, T. and Thornber-Dunwell, M. (2013), 'High-risk practices tighten grip on London gay scene', *The Lancet*, 381(9861), pp. 101–102.
- Lan, K. C., Lin, Y. F., Yu, F. C., Lin, C. S. and Chu, P. (1998), 'Clinical manifestations and prognostic features of acute methamphetamine intoxication', *Journal of the Formosan Medical Association*, 97(8), pp. 528–533.
- Lee, N. K. and Rawson, R. A. (2008), 'A systematic review of cognitive and behavioural therapies for methamphetamine dependence', *Drug and Alcohol Review*, 27(3), pp. 309–317.
- Marshall, B. D., Wood, E., Shoveller, J. A., et al. (2011), 'Pathways to HIV risk and vulnerability among lesbian, gay, bisexual, and transgendered methamphetamine users: a multi-cohort gender-based analysis', *BMC Public Health*, 11, p. 20.

- | McElhiney, M. C., Rabkin, J. G., Rabkin, R. and Nunes, E. V. (2009), 'Provigil (modafinil) plus cognitive behavioral therapy for methamphetamine use in HIV+ gay men: a pilot study', *American Journal of Drug and Alcohol Abuse*, 35(1), pp. 34–37.
- | Meredith, C. W., Jaffe, C., Ang-Lee, K. and Saxon, A. J. (2005), 'Implications of chronic methamphetamine use: a literature review', *Harvard Review of Psychiatry*, 13(3), pp. 141–154.
- | Mravcik, V., Skarupova, K., Orlikova, B., Zabransky, T., Karachaliou, K. and Schulte, B. (2011), 'Use of gelatine capsules for application of methamphetamine: a new harm reduction approach', *International Journal of Drug Policy*, 22(2), pp. 172–173.
- | Rajasingham, R., Mimiaga, M. J., White, J. M., et al. (2012), 'A systematic review of behavioral and treatment outcome studies among HIV-infected men who have sex with men who abuse crystal methamphetamine', *AIDS Patient Care and STDs*, 26(1), pp. 36–52.
- | Reback, C. J. and Shoptaw, S. (2011), 'Development of an evidence-based, gay-specific cognitive behavioral therapy intervention for methamphetamine-abusing gay and bisexual men', *Addictive Behaviours* (available at: PM:22169619).
- | Roll, J. M., Chudzynski, J., Cameron, J. M., Howell, D. N. and McPherson, S. (2013), 'Duration effects in contingency management treatment of methamphetamine disorders', *Addictive Behaviours*, 38(9), pp. 2455–2462.
- | Stuart, D. (2013), 'Sexualised drug use by MSM: background, current status and response', *HIV Nursing*, pp. 6–10.
- | Thompson, C. A. (2008), 'Pulmonary arterial hypertension seen in methamphetamine abusers', *American Journal of Health-System Pharmacy*, 65(12), pp. 1109–1110.