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issuing **forth**

Monitoring matters: The emerging trends in methamphetamine use in Australia

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Each year the NDARC Annual Symposium provides a forum for alcohol and other drug workers to hear about a wide range of research projects which are currently being undertaken at the Centre.

This year the focus was on treatment, with a special emphasis on one of NDARC's major projects – The Australian Treatment Outcome Study (ATOS). This is one of the first longitudinal cohort study of heroin users to be conducted in Australia and is jointly funded by the National Health and Medical Research Council (NHMRC) and the Commonwealth Department of Health and Ageing. ATOS is a 12 month longitudinal study of entrants to the three major treatment modalities in Australia: methadone/buprenorphine maintenance, residential rehabilitation and detoxification. ATOS provides the first Australian data on treatment outcome across a range of treatment modalities. In addition to outcomes on drug use, ATOS examines criminality, health and a comprehensive range of psychopathology. A number of presentations at the Symposium addressed findings on treatment outcome at 3 months, and also a range of major clinical issues emerging from the study.

In response to unprecedented demand we decided to dedicate the final session of the program to issues around methamphetamine, including psychosis, treatment and violence. In addition to Dr Rebecca McKetin from NDARC, we also invited a number of outside speakers including Dr Amanda Baker from the Centre for Mental Studies at the University of Newcastle, Ms Sue Henry-Edwards from the National Expert Advisory Committee on Illicit Drugs and Dr Stephen Jurd from the Herbert Street Clinic.

The day was a great success and in response to the interest in methamphetamine we have asked Dr McKetin to provide an update of the current state of play with regard to this drug.

One of NDARC's key priorities is to ensure that we disseminate the findings of our research as widely as possible in a timely manner. The NDARC Annual Symposium and *CentreLines* are two of our main tools to achieve this goal.

Paul Dillon
Editor

CentreLines is a joint publication from the National Drug and Alcohol Research Centre, Sydney and the National Drug Research Institute, Perth. It is published bi-monthly and produced alternately by each Centre.

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Monitoring matters: The emerging trends in methamphetamine use in Australia

A/Prof Maree Teesson

Drug use is becoming an increasing problem for many countries. Probably the most important lesson that has been learned is that to understand drug abuse problems and to be more efficient in addressing these, regular monitoring of the drug situation is essential. It is generally agreed that systems designed to monitor drug use work best when they integrate a variety of data sources that address different angles of the drug problem. Such a system, if well designed, not only will provide information on the types of drugs being used and the characteristics of those using them but also will generate questions for other more focused studies to provide information that would serve to plan effective prevention and treatment programs.

Drug monitoring systems in Australia detected the emergence of more pure forms of methamphetamine in Australia as early as 1999. Sentinel early warning systems such as the Illicit Drug Reporting System (IDRS) were able to provide valuable information of the different forms of the drug available to users, and pick up on the increasing use of these different forms, and track these trends over time. This data can be interpreted in light of population survey data which show how widespread use is among the general population, and routine data sources that monitor related consequences such as treatment admissions and criminal involvement.

It is now clear from these different information sources that methamphetamine use has increased in Australia over the past five years, and the availability of more pure forms of the drug have continued to the current time. Also apparent are the problems associated with increasing methamphetamine use, and information from monitoring systems in Australia has been useful in guiding further investigation of these problems. To this end, NDARC has initiated a number of research projects both to further investigate methamphetamine-related issues and also to improve monitoring of the use of methamphetamine and other synthetic drugs.

These initiatives include ongoing monitoring of methamphetamine use and related consequences through the IDRS and also the IDRS 'party drugs' module. Further development of routine data sources to monitor trends in methamphetamine and other stimulant drugs is also underway through the National Illicit Drug Indicators Project. Recently efforts have been initiated to estimate the number of dependent or injecting methamphetamine users in Australia, similar to estimates previously obtained for the number of dependent heroin users. This will allow estimation of the coverage of services for methamphetamine users as well as an idea of the extent of heavy methamphetamine use.

One of the key problems to understanding the methamphetamine situation in Australia is the complex and dynamic nature of the market. There are a variety of physical forms available (e.g., pills, powder, crystal) that are both imported and domestically produced. Inconsistency in the terms used to describe these different forms and the various use patterns associated with them further complicate the picture. NDARC has received funds from the National Drug Law Enforcement Research Fund to undertake research specifically into the dynamics of the methamphetamine market in Australia. The aim of this work is to better understand the supply and demand for these different forms of the drug, especially the more pure forms such as 'ice' or 'shabu', and their impact on health and law enforcement services.

In terms of understanding the implications of increased methamphetamine use for treatment, there is still a long way to go. Currently there are limited options for specialized care of dependent methamphetamine users. The recent update of the National Drug Strategy Monograph titled *Models of Intervention and Care for Psychostimulant Users* should provide a forerunner to the development of appropriate interventions for this group. Even so, developing appropriate interventions for psychostimulant users presents a considerable challenge. The Australian methamphetamine treatment research forum has provided a preliminary opportunity for researchers who specialize in methamphetamine treatment issues to share their views on how to best to proceed with developing interventions for this group and collaborate on related research. One of the issues identified by this group was a strong need to better integrate treatment demand information into drug monitoring systems in Australia and to improve interpretation of monitoring data for development of appropriate interventions for users.

Ideally, all policy should be informed by such evidence. In the case of amphetamines we must continue to monitor markets, availability, use and the personal and social consequences. In the current *Issuing Forth* Dr Rebecca McKetin shares an excellent overview of the information provided by such careful monitoring. Only through such careful monitoring can we build an effective response. **cl**

issuing forth

In February 2001's *Issuing Forth*, Dr Libby Topp discussed one of the major findings of the 2000 Illicit Drug Reporting System (IDRS) – the prevalence of ice in Australia. In this issue, Dr Rebecca McKetin updates this article with an overview of the current methamphetamine market, both here in Australia and in the South East Asian region.

The methamphetamine market in Australia

Over the last few years Australia has seen the emergence of new forms of methamphetamine available on the illicit drug market. Traditionally methamphetamine available in Australia was the 'salt' form of amphetamine or methamphetamine (i.e., hydrochloride or hydrosulfate), which was sold in a powder form as 'speed'. However, in the past few years, new more pure forms of the drug have emerged – notably so-called 'base' methamphetamine and crystal methamphetamine or 'ice'. These various patterns of amphetamine use present a challenge to understanding patterns of methamphetamine use and problems associated with the use of these new forms of the drug[1]. This article overviews the new forms of methamphetamine available on today's illicit drug market, some of the recent trends in their use and their implication for health service provision.

Forms of methamphetamine

'Base'

Base methamphetamine, also known 'paste', 'wax', 'point' or 'pure' is a sticky, gluggy, waxy or oily form of damp powder paste or crystal that is manufactured in Australia and often has a yellow or brownish hue (Figure 1). True base methamphetamine is an oil, and may also occur in a waxy form. This 'oily' form of the drug is not soluble in water and consequently would be difficult to inject, and would also be difficult to snort. It could be speculated that most

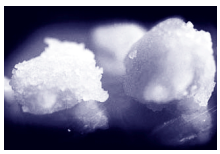

Figure 1. 'Base' methamphetamine available in Australia

methamphetamine in Australia is probably poorly purified methamphetamine crystal resulting from an incomplete conversion of methamphetamine base to methamphetamine crystal. Iodine and residual chemicals from the 'cooking' process give the brownish-yellow colour, while the oily texture is from residual base left in the mixture. There still remains some uncertainty about the actual composition of 'base' methamphetamine being used in Australia, although a National Drug Law Enforcement Research Find (NDLERF) funded project on the dynamics of methamphetamine markets and the emergence of new more pure forms of the drug should provide further insight into the composition of base, the nature and extent of its use and associated consequences.

'Ice'

Also known as shabu, ice is crystalline methamphetamine, and has the appearance of large translucent to white crystals or a coarse crystalline powder (Figure 2). These crystals are usually produced in South East Asia, notably South East China. Crystal methamphetamine is often trafficked to Australia and elsewhere via other countries within South East Asia[2]. Recently there has been an increase in the amount of crystalline methamphetamine being seized on importation into Australia, and there has been a parallel increase in the drug's availability on the local market, as discussed below.

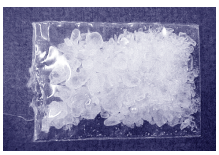

Figure 2. Crystalline methamphetamine, or 'ice'

Tablets, pills, ya-ba

Production of methamphetamine tablets, often called ya-ba, occurs mostly in Burma, where it has been estimated that around 800 million tables are produced per year. While production of methamphetamine occurs locally in Burma, much of the drug is trafficked into neighbouring Thailand where use has risen to 'epidemic' proportions in recent years. Methamphetamine tablets have been seized at the Australian border, suggesting that importation does occur, however, it is far from clear to what extent imported methamphetamine tablets supply the Australian market. In Australia the main market for methamphetamine tablets appears to be among 'party drug' users where it is sold as ecstasy. The Australian Bureau of Criminal Intelligence in its Australian Illicit Drug Report 2000/01 estimates that 80% of the tablets sold as 'ecstasy' in Australia today are actually locally manufactured methamphetamine tablets (Figure 3)[3].

Figure 3. Methamphetamine tablets

Methamphetamine powder, or 'speed'

Speed is the powder form of methamphetamine or amphetamine that has traditionally been available in Australia. The powder can range in consistency from fine to more crystalline or coarse powder that is whitish in colour, although the colour can range to yellow, orange, brown or pink depending on the manufacture of the drug (Figure 4). Powder methamphetamine is usually injected, snorted or sometimes swallowed. It is still by far the most readily available form of methamphetamine in Australia.

Figure 4. Methamphetamine powder, or 'speed'

Current extent of use in Australia

Exposure to 'amphetamines' among the Australian population is relatively high with 1.4 million, or 9% of Australians aged 14 years and over having ever used these types of drugs. Use is highest among young adults (20-29 years), this being a trend common to most illicit drug types that is not peculiar to Australia, being well documented internationally. Among this younger group, use levels are two to three time higher than the national average with roughly one-in-five having ever used the amphetamines, and one in ten having used them in the past year. Use is higher among males than females on a ratio of about 2 males to every female user. Most amphetamine users (84%) took powder methamphetamine, or 'speed', although a remarkably high proportion had used crystalline methamphetamine or 'ice' (38%). Other forms of methamphetamine used included tablet form (14%), liquid form (9%) and prescription amphetamine (9%)[4].

Use of base and ice methamphetamine has also become relatively commonplace among the dance party scene. One in five 'party-drug-users' interviewed in Sydney during 2001 had used methamphetamine base recently, while one-quarter had used the crystalline form of the drug. Even though similar numbers had been exposed to both ice and base, the base form of the drug was used more often: most of this group used base once a month compared with only having used ice once in the past 6 months. Similar to the overall population, powder 'speed' is still by far the most common form of the drug used in the dance-party scene[5].

The increase in the use of base and ice methamphetamine became very apparent among injecting drug users during the 2001 heroin shortage. At this time an estimated three-quarters of injecting drug users in Australia had recently used methamphetamine – a notable increase from previous years. The increase of 2001 appeared to have stabilized in 2002, but the presence of the more pure forms of methamphetamine was still evident. For example, almost one-quarter of the injecting drug users surveyed through the IDRS in Sydney had recently used crystalline methamphetamine (Figure 2) and/or methamphetamine base (Figure 1). This level of exposure to methamphetamine base and ice is similar to that seen in 2001, although markedly higher than previous years. For example, in 1999 only a handful of injectors in Sydney reported use of ice (3%), and "base" methamphetamine was being reported for the first time. Even though exposure to base and ice were similar among injectors, ice was used less frequently than either base or powder methamphetamine. Powder methamphetamine was still the most common form of the drug available and used by injectors[6].

A regional perspective – methamphetamine trends in South East Asia

The spread of methamphetamine use is not only a concern in Australia, but is also a major concern for many countries in the South East Asian region. Use of methamphetamine appears to be affecting more countries in the region, with many countries experiencing an increase in the extent of methamphetamine use, and local studies suggesting that use has spread into broader population groups in selected countries. Traditionally high levels of methamphetamine use have been seen in Japan and the Philippines, where the crystalline form of the drug is common. Since the mid 1990s there has been an increase in the use of methamphetamine pills in other parts of the region, especially Thailand where particularly high levels of consumption can be seen. Regular users in Thailand typically smoke the drug 2-3 times a day. There has been a notable shift away from injecting in Thailand, although, injection does occur among a small proportion of methamphetamine users in certain parts of South East Asia. This presents a concern for the potential spread of blood-borne viruses should injecting spread among this group. The increase in methamphetamine use in South East Asia is beginning to impact on service provision, with increasing numbers of methamphetamine users presenting at drug treatment services and other health services such as psychiatric facilities. For example, in Thailand where levels of methamphetamine use are particularly high, the drug accounts for nearly half of all drug-related treatment admissions. The increase in methamphetamine use and associated service utilisation has presented a dire need for better understanding of how to deal with methamphetamine dependence and related health problems[7,8,9,10,11].

Implications

Methamphetamine use has increased both in Australia and in the South East Asian region. Recently we have seen increased importation of high purity methamphetamine from South East Asia, alongside the emergence of more pure forms of the drug being produced domestically. There has also been diversification of the market in terms of tablet methamphetamine being available, usually domestically produced and sold as ecstasy. The increasing use of methamphetamine in Australia, alongside the emergence of more pure forms of the drug, may result in increased numbers being

dependent on the drug and an increase in related problems (e.g., psychosis and other mental health problems). It is likely that this trend will place increasing demands on service providers, although currently there are limited specialised treatment options for methamphetamine use and similarly limited referral options. Moreover, methamphetamine users have relatively low contact with drug-related services which are often more accessible to opiate users. This means that accessing methamphetamine users may present an additional challenge in responding to problematic use of the drug. Responses to methamphetamine-related problems need to be devised in light of the kind of problems encountered by users of the drug and the needs of those people who are most likely to come into contact with these users.

Further information on the problems associated with methamphetamine use can be found in the NDARC publication *A User's Guide to Speed*.

Acknowledgements

This article was prepared by Rebecca McKetin from the National Drug and Alcohol Research Centre, UNSW. Acknowledgements go to Libby Topp, former Senior Investigator on the Methamphetamine Program; the Australian Customs Service; researchers of the Illicit Drug Reporting System; and members of the Asian Multicity Epidemiology Work Group; for their contribution to the information presented in this article. **cl**

References

1. Topp, L. & Churchill, A. (2002). *Australia's Dynamic Methamphetamine Market. Drug Trends Bulletin, June 2002.* Sydney: National Drug and Alcohol Research Centre.

2. United Nations Office on Drug Control and Crime Prevention. (2002).*Global Illicit Drug Trends 2002.* New York: United Nations. http://undcp.org/pdf/report_2002-06-26_1/report_2002-06-26_1.pdf

3. Bureau for International Narcotics and Law Enforcement Affairs. (2002). *International Narcotics Control Strategy Report, March 2002.* Washington D.C.: US Department of State. http://www.state.gov/g/inl/rls/nrcrpt/2001/rpt/8483.htm

4. Australian Institute of Health and Welfare (2002). *2001 National Drug Strategy Household Survey: First Results.* AIHW Drug Statistics Series No. 9. Canberra: Australian Institute of Health and Welfare.

5. Topp, L., Breen, C., Kaye, S., & Darke, S. (2002). *NSW Party Drug Trends 2001: Findings from the Illicit Drug Reporting System (IDRS) Party Drugs Module.* NDARC Technical Report No. 136. Sydney: National Drug and Alcohol Research Centre.

6. National Drug Trends Conference. (2002). Findings from the Illicit Drug Reporting System. November 28, 2002. Sydney, Australia.

7. Asian Multicity Epidemiology Work Group 2002. (in press). *Report of the Asian Multicity Epidemiology Work Group 2002. International Monograph Series.* Penang, Malaysia: Centre for Drug Research, Universiti Sains Malaysia.

8. Poshyachinda, V., Srisurapanont, M., & Perngparn, U. (1999). *Amphetamine Type Stimulants Epidemic in Thailand: A Country Profile.* Paper presented for the WHO meeting on Amphetamine, MDMA and other psychostimulants Phase II, 22-26 November. Bangkok, Thailand.

9. Poshyachinda, V., Perngparn, U., and Ngowabunpat, A. (2002). *Status of Drug and Substance Use: 2001 National Household Survey, Preliminary Report.*

10. Zhimin, L., Xianxiang, L., Yue, M., Zhi, L., & Jiaqi, C. (2003). Characteristics and consequences of amphetamine-type stimulants abuse in China. In: *Report of the Asian Multicity Epidemiology Workgroup 2002, International Monograph Series.* Penang, Malaysia: Centre for Drug Research, Universiti Sains Malaysia.

11. Chaiyawong, A. (2002). Drugs situation and the drugs information system in Thailand. *Global Workshop on Drug Information Systems: Activities, Methods and Future Opportunities. December 3-5 2001, Vienna.* United Nations, New York.

project **notes**

Party Drugs Initiative (PDI)

Louisa Degenhardt, Courtney Breen and Bethany White

The Party Drugs Initiative (PDI) is a national study funded by the National Drug Law Enforcement Research Fund (NDLERF) and coordinated by NDARC to monitor party drug markets in Australia. Party drugs cover a range of drugs including ecstasy, methamphetamine, cocaine, GHB and ketamine.

In 2000-2001 a trial was conducted to assess the feasibility of monitoring party drug markets. The research was conducted in NSW, QLD and SA. The trial concluded that it was feasible to monitor these markets and in 2003 funding was granted to expand the study to monitor party drug markets in every state and territory across Australia.

The Party Drugs Initiative uses a similar methodology to the Illicit Drug Reporting System (IDRS). Regular ecstasy users are interviewed as they were identified as a group of party drug users that are able to provide the required information on patterns of party drug use, the current availability, price and purity of party drugs and perceived drug-related health issues associated with party drug use. A semi-structured survey of experts in the field of party drugs (e.g. party promoters, treatment providers, law enforcement personnel) is also conducted and indicator (e.g. purity of drug seizures and overdose rates) is analysed. These data sources are examined together to identify convergent trends in party drug use and markets.

Data collection is underway for 2003 and preliminary results of the study will be presented at the National Drug Trends Conference (November 26th and 27th 2003). Detailed state and national reports will be available in early 2004.

For further information on the PDI contact Louisa Degenhardt, Courtney Breen or Bethany White at NDARC.

Participating researchers and institutions:

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Chris Moon, Department of Health and Community Services (NT)

Jane Fischer, Stuart Kinner and Jake Najman, Queensland Alcohol and Drug Research and Education Centre (QLD)

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Craig Fry and Jennifer Richards, Turning Point Alcohol and Drug Centre Inc (VIC)

Francoise Chanteloupe and Simon Lenton, National Drug Research Institute (WA).

Evidence-based answers to cannabis questions

Jan Copeland, Wendy Swift and Saul Gerber

The Australian National Council on Drugs (ANCD) has commissioned NDARC to conduct this project that aims to provide clear, concise and evidence-based advice to government and others in key decision making positions on some of the commonly asked questions on cannabis.

While cannabis is the most frequently used illicit drug the evidence base of harms and interventions is relatively new and of varying quality. A number of issues are contributing to a lack of clarity in some aspects of cannabis research and related publications. These include early stage and conflicting research findings, the number of opinion pieces on passionately held views and the lack of accessibility of balanced material to some decision makers.

The first task for this project is the collection of relevant literature that relates to the identified questions. These include how is cannabis used in Australia?, what are the main health effects of cannabis?, the relationship between cannabis use and mental health disorders? and how many people, and who, develop problems because of their cannabis use? The search strategy will be to enter the key words for all relevant questions using accepted thesaurus terms into the relevant

databases such as *Medline, Embase, PsychInfo, Australasian Medical Index, GrayLIT Network, HEAPS* and *Web of Science*.

Upon collection, the material will be audited for relevance and quality. Given the controversial nature of cannabis use it is crucial to employ strict evidential standards when appraising the literature. We will use the accepted model of evidential principles employed in recent comprehensive reviews on the health and psychological consequences of cannabis use. These include strength of association, consistency, specificity, biological gradient, biological plausibility and coherence.

In addition to thorough searches of the relevant current published literature (and where appropriate "grey area" literature), the standard criteria for causal inference described above will be employed, evidential standards will be made explicit and we will seek clarification of issues with experts in the field when required. The peer-reviewed journal articles and other relevant research will be rated according to the *Agency for Health Care Policy and Research* scales where I= meta-analysis of multiple, well designed controlled studies, II= at least one well-designed experimental study, III- well designed, quasi-experimental studies, IV= well-designed non-experimental studies, and V= case reports and clinical examples. The research will be assessed for threats to validity such as non-randomisation, and aspects of internal, external and construct validity to ensure the weight and quality of evidence for any of the questions to be answered is assessed systematically, consistently and objectively. We feel this approach will ensure that decision-makers will have access to the most valid and credible information currently available.

The third task is to provide a succinct literature review based on the identified questions and to develop answers to the identified questions. The project team has been involved in a range of research and clinical projects on aspects of cannabis use, dependence and treatment. Our experience in developing the educational and clinical materials on cannabis such as *Quitting? Cannabis* and the *What's the Deal?* series of booklets for parents and adolescents will be drawn upon in the preparation of these more general materials in consultation with the ANCD. There will be two booklets developed, one containing the literature review evidence and the other smaller booklet containing concise answers to the identified questions and related materials. The intended audiences for these materials are politicians, political advisors, the media and the drug and alcohol sector. A central aim will be to ensure that the package is clear and easy to use, provides references for further reading while providing some information on a few of the more common questions concerning cannabis.

This project commenced in July and will be completed in February 2004. **cl**

abstracts

Pilot randomised double blind placebo controlled study of dexamphetamine for cocaine dependence

Addiction 98, 1137-1141

James Shearer, Alex Wodak, Ingrid van Beek, Richard Mattick, and John Lewis

Aims: To establish the feasibility of conducting a placebo-controlled clinical trial of dexamphetamine replacement therapy for cocaine dependence and to obtain preliminary data.

Design: Double-blind randomised placebo-controlled trial.

Participants: Thirty cocaine-dependent injecting drug users.

Intervention: Subjects were assigned randomly to receive 60 mg/day dexamphetamine (n = 16) or placebo (n = 14) for 14 weeks.

Measurements: Immunoassay and mass spectrometric techniques were used to identify cocaine metabolites in urine. Subjects were screened using the Composite International Diagnostic Interview and DSM-IV. The Opiate Treatment Index, Brief Symptom Inventory. Severity of Dependence Scale and visual analogue craving scales were used to collect pre- and post-self report data.

Findings: Treatment retention was equivalent between groups; however, outcomes favoured the treatment group with no improvements observed in the placebo control group. The proportion of cocaine-positive urine samples detected in the treatment group declined from 94% to 56% compared to no change in the placebo group (79% positive). While the improvements were not significant between groups, within group analysis revealed that the treatment group reduced self-reported cocaine use ($P = 0.02$), reduced criminal activity ($P = 0.04$), reduced cravings ($P < 0.01$) and reduced severity of cocaine dependence ($P < 0.01$) with no within-group improvements found in the placebo group.

Conclusions: A definitive evaluation of the utility of dexamphetamine in the management of cocaine dependence is feasible and warranted.

A comparison of buprenorphine treatment in clinic and primary care settings: a randomised trial

Medical Journal of Australia 179, 38-42

Amy E. Gibson, Christopher M. Doran, James R. Bell, Anni Ryan and Nicholas Lintzeris

Objective: To compare outcomes, costs and incremental cost-effectiveness of heroin detoxification performed in a specialist clinic and in general practice.

Design and Setting: Randomised controlled trial set in a specialist outpatient drug treatment centre and six office-based general practices in inner city Sydney, Australia.

Participants: 115 people seeking treatment for heroin dependence, of whom 97 (84%) were reinterviewed at Day 8, and 78 (68%) at day 91.

Interventions: Participants were randomly allocated to primary care or a specialist clinic, and received buprenorphine for 5 days for detoxification, then were offered either maintenance therapy with methadone or buprenorphine, relapse prevention with naltrexone, or counselling alone.

Main outcome measures: Completion of detoxification, engagement in post-detoxification treatment, and heroin use assessed at Day 8 and Day 91. Costs relevant to providing treatment, including staff time, medication use and diagnostic procedures, with abstinence from heroin use on Day 8 as the primary outcome measure.

Results: There were no significant differences in the proportions completing detoxification (40/56 [71%] primary care v 46/59 [78%] clinic), participating in postwithdrawal treatment (28/56 [50%] primary care v 36/59 [61%] clinic), reporting no opiate use during the withdrawal period (13/56 [23%] primary care v 13/59 [22%] clinic), and in duration of postwithdrawal treatment by survival analysis. Most participants in both groups entered postwithdrawal buprenorphine maintenance. On an intention-to-treat basis, self-reported heroin use in the month before the Day 91 interview was significantly lower than at baseline (27 days/month at baseline, 14 days/month at Day 91; $P < 0.0005$) and did not differ between groups. Buprenorphine detoxification in primary care was estimated to be $24 more expensive per patient than treatment at the clinic. The incremental cost-effectiveness ratio reveals that, in this context, it costs $20 to achieve a 1% improvement in outcome in primary care.

Conclusions: Buprenorphine-assisted detoxification from heroin in specialist clinic and primary care settings were similar in efficacy and cost-effectiveness. Buprenorphine treatment can be initiated safely in primary care settings by trained GPs.

Changes in patterns of drug injection concurrent with a sustained reduction in the availability of heroin in Australia

Drug and Alcohol Dependence 70, 275-286

Lippy Topp, Carolyn Day and Louisa Degenhardt

Between 1996 and 2000, heroin was the drug most frequently injected in Australia, and viable heroin markets existed in six of Australia's eight jurisdictions. In 2001, there was a dramatic and sustained reduction in the availability of heroin that was accompanied by a substantial increase in its price, and a 14% decline in the average purity of seizures analysed by forensic laboratories. The shortage of heroin constitutes a unique natural experiment within which to examine the impact of supply reduction. This paper reviews one important correlate of the shortage, namely changes in patterns of illicit drug injection. A number of studies have consistently suggested that between 2000 and 2001, there was a sizable decrease in both prevalence and frequency of stimulant injection. Cocaine was favoured in NSW, the sole jurisdiction in which a cocaine market was established prior to the heroin shortage; whereas methamphetamine predominated in other jurisdictions. Some data suggest that, at least in the short-term, some drug injectors left the market altogether subsequent to the reduced heroin availability. However, the findings that (1) some former heroin users switch their drug preference to a stimulant; and (2) subsequently attributed this change to the reduced availability of heroin suggests that reducing the supply of one drug may serve to increase the use of others. Given the differential harms associated with the use of stimulants and opiates, this possibility has grave implications for Australia, where the intervention and treatment system is designed primarily to accommodate opiate use and dependence.

Testing hypotheses about the relationship between cannabis use and psychosis

Drug and Alcohol Dependence 71, 37-48

Louisa Degenhardt, Wayne Hall and Michael Lynskey

Aim: To model the impact of rising rates of cannabis use on the incidence and prevalence of psychosis under four hypotheses about the relationship between cannabis use and psychosis.

Methods: The study modelled the effects on the prevalence of schizophrenia over the lifespan of cannabis in eight birth cohorts: 1940–1944, 1945–1949, 1950–1954, 1955–1959, 1960–1964, 1965–1969, 1970–1974, 1975–1979. It derived predictions as to the number of cases of schizophrenia that would be observed in these birth cohorts, given the following four hypotheses: (1) that there is a causal relationship between cannabis use and schizophrenia; (2) that cannabis use precipitates schizophrenia in vulnerable persons; (3) that cannabis use exacerbates schizophrenia; and (4) that persons with schizophrenia are more liable to become regular cannabis users.

Results: There was a steep rise in the prevalence of cannabis use in Australia over the past 30 years and a corresponding decrease in the age of initiation of cannabis use. There was no evidence of a significant increase in the incidence of schizophrenia over the past 30 years. Data on trends the age of onset of schizophrenia did not show a clear pattern. Cannabis use among persons with schizophrenia has consistently been found to be more common than in the general population.

Conclusions: Cannabis use does not appear to be causally related to the incidence of schizophrenia, but its use may precipitate disorders in persons who are vulnerable to developing psychosis and worsen the course of the disorder among those who have already developed it.

Cessation of methadone maintenance treatment using buprenorphine: transfer from methadone to buprenorphine and subsequent buprenorphine reductions

Drug and Alcohol Dependence 71,49-55

Courtney Breen, Simon Harris, Nicholas Lintzeris, Richard Mattick, Lynn Hawken, James Bell, Alison Ritter, Michael Lenné and Elizabeth Mendoza

Background: Buprenorphine is used in the treatment of opioid dependence. Due to its pharmacology, the transfer from methadone to buprenorphine may precipitate withdrawal symptoms.

Methods: Methadone maintained patients with clinical indicators of stability who were seeking withdrawal from methadone were recruited from three Australian states. Patients on methadone doses between 30 and 40 mg were randomised to transfer to buprenorphine by a fixed dose (transfer at 30 mg methadone) or by a variable dose induction (transfer when 'uncomfortable'). A third group of patients with methadone doses less than 30 mg were transferred to buprenorphine at their entry methadone dose. Fifty-one patients were inducted onto buprenorphine using the same dosing protocol with the first dose of 4 mg buprenorphine. Following stabilisation on buprenorphine, patients gradually reduced the buprenorphine dose to 0 mg. Withdrawal severity and drug use was monitored.

Results: There were no significant difference between the transfer at 30 mg and transfer when `uncomfortable' dosing protocols in severity of withdrawal on transfer from methadone to buprenorphine. Those on doses less than 30 mg reported significantly less withdrawal discomfort at transfer. All but one patient stabilised on buprenorphine. Thirty-eight of the 51 patients inducted onto buprenorphine reached 0 mg.

Conclusions: Transfer from methadone to buprenorphine can safely occur from doses of around 30 mg of methadone. Buprenorphine dose reductions were well tolerated. Thirty-one percent of patients were not using heroin or methadone at 1-month follow-up.

Prevalence and correlates of intravenous methadone syrup administration in Adelaide, Australia

Rachel Humeniuk, Robert Ali, Catherine McGregor and Shane Darke

Addiction 98, 413-418

Aims: The aims of this study were to determine the prevalence of methadone syrup injecting in Adelaide, South Australia and to characterize methadone injectors, including their heroin use and risk behaviours associated with heroin overdose.

Design: Cross-sectional design.

Setting: Community setting, principally metropolitan Adelaide.

Participants: Current heroin users (used heroin in the last 6 months), recruited through snowballing.

Measurements: Structured questionnaire.

Findings: Of 365 participants, 18.4% reported having ever injected methadone syrup and 11.0% had injected methadone in the last 6 months. Those that had injected methadone were more likely to be male, and were more likely to be receiving methadone maintenance. They were also maintained on higher doses of methadone than subjects not injecting methadone. A history of methadone injection was associated with more heroin overdose experiences and greater dependence on heroin. Methadone injectors were also more likely to engage in risky behaviours associated with heroin overdose, including using heroin when no other people were present, not trial-tasting new batches of heroin and poly-drug use.

Conclusions: Methadone syrup injectors appear to be at greater risk of a series of harms than subjects not injecting methadone. The prevalence of methadone syrup injecting in Adelaide, South Australia was 11% which was lower than prevalence in Sydney, New South Wales, but higher than in Melbourne, Victoria. Jurisdictional differences concerning the prevalence of methadone syrup injecting may reflect differing policies by each state to methadone dispensing. **cl**

recent **publications**

For more information on or copies of these publications, please contact the relevant researcher

Technical Reports and Monographs

Breen, C., Degenhardt, L., Roxburgh, A., Bruno, R., Duquemin, A., Fetherston, J., Fischer, J., Jenkinson, R., Kinner, S., Longo, M., & Rushforth, C. (2003). *Australian Drug Trends 2002: Findings of the Illicit Drug Reporting System (IDRS).* Monograph No 50. Sydney: National Drug and Alcohol Research Centre.

Bruno, R. & McLean, S. (2003). *Tasmanian Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 148. Sydney: National Drug and Alcohol Research Centre.

Dolan, K., Shearer, J., White, B., & Wodak, A. (2003). *A randomised controlled trial of methadone maintenance treatment in NSW prisons.* Technical Report No 155. Sydney: National Drug and Alcohol Research Centre.

Dolan, K., Rees, V., Peters, R., & Wodak, A. (2003). *A Brief Cognitive Behavioural Intervention for Alternatives to Injecting: Therapist's Treatment Manual.* Technical Report No 154. Sydney: National Drug and Alcohol Research Centre.

Duquemin, A. & Gray, B. (2003). *Northern Territory Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 151. Sydney: National Drug and Alcohol Research Centre.

Fetherston, J. & Lenton, S. (2003). *WA Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 149. Sydney: National Drug and Alcohol Research Centre.

Jenkinson, R., Fry, C., & Miller, P. (2003). *Victorian Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 145. Sydney: National Drug and Alcohol Research Centre.

Kinner, S. & Fischer, J. (2003). *Queensland Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 147. Sydney: National Drug and Alcohol Research Centre.

Lawrinson, P., Copeland, J. & Indig, D. (2003). *The Brief Treatment Outcome Measure: Opioid Maintenance Pharmacotherapy (BTOM) Manual.* Technical Report No 156. Sydney: National Drug and Alcohol Research Centre.

Longo, M., Christie, P., Ali, R., & Humeniuk, R. (2003). *South Australian Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 146. Sydney: National Drug and Alcohol Research Centre.

Roxburgh, A., Degenhardt, L., Breen, C., & Barker B. (2003). *New South Wales Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 144. Sydney: National Drug and Alcohol Research Centre.

Rushforth, C. (2003). *Australian Capital Territory Drug Trends 2002: Findings from the Illicit Drug Reporting System (IDRS).* Technical Report No 150. Sydney: National Drug and Alcohol Research Centre.

Teesson, M., Sannibale, C., Reid, S., Proudfoot, H., Gournay, K., & Haber, P. (2003). *Manual for Compliance Therapy in Alcohol Pharmacotherapy.* Technical Report No 157. Sydney: National Drug and Alcohol Research Centre.

Published Articles, Chapters & Books

Breen, C., Harris, S., Lintzeris, N., Mattick, R.P., Hawken, L., Bell, J., Ritter, A.J., Lenné, M., & Mendoza, E. (2003). Cessation of methadone maintenance treatment using buprenorphine: transfer from methadone to buprenorphine and subsequent buprenorphine reductions. *Drug and Alcohol Dependence 71*, 49-55.

Buhrich, N., Hodder, T. & Teesson, M. (2003). *Down and Out in Sydney (Vol 2). Caring for homeless people who have a mental health disorder.* Sydney: Research Group in Mental Health and Homelessness.

Congreve, E. (2003). The National Drug and Alcohol Research Centre. *SALIS News 23*, 3.

Copeland, J., Howard, J., Keogh, T., & Seidler, K. (2003). Drugs and blood-borne viruses: knowledge and risk-taking behaviour among detained adolescents in New South Wales. *International Journal of Forensic Psychology, 1(1)*, 85-91.

Darke, S. (2003). Polydrug use and overdose: overthrowing old myths. *Addiction 98*, 711.

Degenhardt, L. (2003). GHB: un analisis. *Adicciones 14 (Supl 1)*, 1-11.

Degenhardt, L., Hall, W. & Lynskey, M. (2003). Testing hypotheses about the relationship between cannabis use and psychosis. *Drug and Alcohol Dependence 71*, 37-48.

Dolan, K. & Rouen, D. (2003). Evaluation of an educational comic on harm reduction for prison inmates in New South Wales. *International Journal of Forensic Psychology 1*, 138-141.

Gibson, A., Doran, C.M., Bell, J., Ryan, A., & Lintzeris, N. (2003). A comparison of buprenorphine treatment in clinic and primary care settings: a randomised trial. *Medical Journal of Australia 179*, 38-42.

Humeniuk, R., Ali, R., McGregor, C., & Darke, S. (2003). Prevalence and correlates of intravenous methadone syrup administration in Adelaide, Australia. *Addiction 98*, 413-418.

Kimber, J., Dolan, K., van Beek, I., Hedrich, D., & Zurhold, H. (2003). Drug consumption facilities: an update since 2000. *Drug and Alcohol Review 22*, 227-233.

Lawrinson, P. & Copeland, J. (2002). Measuring Treatment Outcomes for Clients of Alcohol and Other Drug Treatment Services. In: **J.D. Sellman** (ed) (2002). New Zealand Treatment Research Monograph, Alcohol, Drugs and Addiction. *Research Proceedings from the Cutting Edge Conference, September 2002.* Wellington.

Lynskey, M., Coffey, C., Degenhardt, L., Carlin, J.B., & Patton, G. (2003). A longitudinal study of the effects of adolescent cannabis use on high school completion. *Addiction 98*, 685-692.

Lynskey M.L., Day, C. & Hall, W. (2003) Alcohol and other drug use disorders among older aged people. *Drug and Alcohol Review 22*, 125-133.

Mattick, R.P. & Degenhardt, L. (2003). Methadone-related and heroin-related deaths among opiate users: methadone helps saves lives (Editorial). *Addiction 98*, 387-388.

Mattick, R.P., Ali, R., White, J.M., O'Brien, S., Wolk, S., & Danz, C. (2003). Buprenorphine versus methadone maintenance therapy: a randomized double-blind trial with 405 opioid-dependent patients. *Addiction 98*, 441-452.

O'Sullivan, B., Levy, M.H., Dolan, K.A., Post, J.J., Barton, S.G., Dwyer, D.G., Kaldor, J.M., & Grulich, A.E. (2003). Hepatitis C transmission and HIV post-exposure prophylaxis after needle- and syringe-sharing in Australian prisons. *Medical Journal of Australia 178*, 546-549.

Shand, F., Gates, J., Fawcett, J., & Mattick, R. (2003). *The Treatment of Alcohol Problems: A Review of the Evidence.* Canberra: Commonwealth Department of Health and Ageing.

Shearer, J., Wodak, A., van Beek, I., Mattick, R.P., & Lewis, J. (2003). Pilot randomized double blind placebo-controlled study of dexamphetamine for cocaine dependence *Addiction 98*, 1137-1141.

Simon, N. & Mattick, R.P. (2003). Psychostimulant use, polydrug use and memory functioning: a reply to Parrott et al. Letter to the Editor. *Addiction 98*, 1003-1005.

Topp, L., Day, C. & Degenhardt, L. (2003). Changes in patterns of drug injection concurrent with a sustained reduction in the availability of heroin in Australia. *Drug and Alcohol Dependence 70*, 275-286.

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