

# centre lines

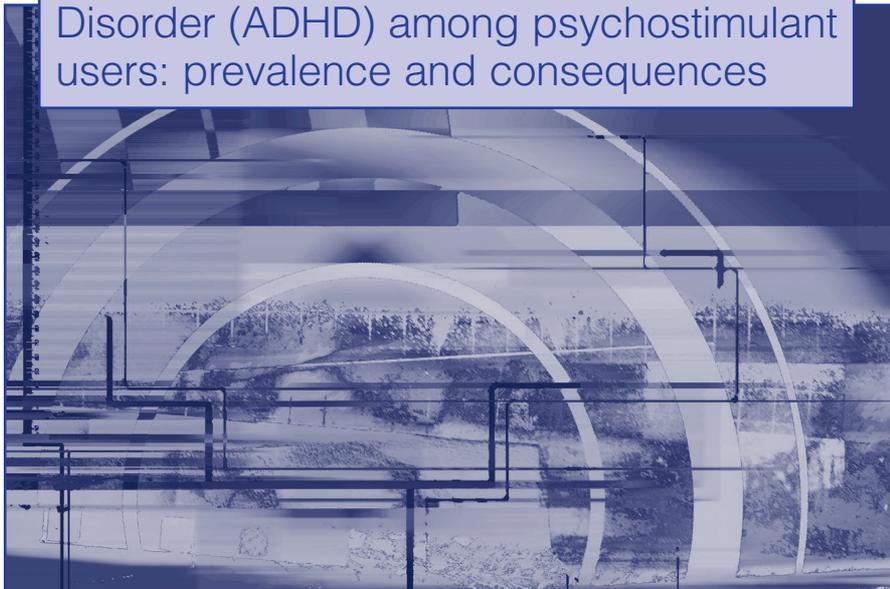
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## issuing forth

Adult Attention Deficit Hyperactivity Disorder (ADHD) among psychostimulant users: prevalence and consequences



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## edspace

It is difficult to believe that we have now been in the new NDARC premises for almost 5 years. The number of staff continues to grow and our list of research projects is a credit to all who work here. The number of academic staff is particularly impressive and at this time I thought it would be appropriate to mention some of the significant achievements of two of these staff members.

Recently Shane Darke was promoted to Professor. Shane has worked in the field of illicit drug research at the NDARC since 1988 and is internationally recognized as being a leader in the field. His areas of research over that period of time have been extensive, but he is best known for the examination of the harms associated with illicit drug use, most particularly heroin. He has published widely in the area of illicit drug use, and is the senior author of the Opiate Treatment Index (OTI), a standardised measure of outcome of opiate dependence treatments.

His ground-breaking work in the late 1990s on the prevalence and correlates of fatal and non-fatal heroin overdoses led to changes in the way the AOD field conceptualised 'overdose' and has influenced policy decisions internationally. It also led to the development of a range of educational interventions that aimed to reduce the incidence of heroin overdose. This work exemplifies the close connection that Dr Darke aims to achieve between the research findings on drug-related harm and the development of measures to reduce that harm. Last year Shane was awarded the Senior Scientist Award at the APSAD Annual Awards for Excellence in Science and Research.

Louisa Degenhardt has also been recognized as a leader in the field and was recently appointed an Associate Professor. Louisa completed her PhD in 2001 on comorbidity between drug use and mental health problems in the general population. She currently co-ordinates a number of major NDARC projects monitoring trends in illicit drug markets across Australia: the Illicit Drug Reporting System (IDRS), the Ecstasy and Related Drugs Reporting System (EDRS) and the National Illicit Drug Indicators Project (NIDIP). All of these projects are designed to monitor trends in illicit drug availability, use and related harms. Louisa has recently returned from the US where she was working with some of the key researchers in the epidemiological field.

Congratulations to both of these talented researchers on their recent appointments.

**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.*

**Richard Mattick**

Although the National Drug and Alcohol Research Centre (NDARC) was first established at the University of New South Wales in May, 1986 we were not officially opened until November, 1987. This means that we celebrate our 20th year of operation in 2007.

This year it will be important for us to look back at the last 20 years and reflect on our achievements. Over the years the Centre has undertaken reviews of treatment effectiveness, documenting the range of appropriate interventions in alcohol problems, nicotine dependence, opiate dependence, amphetamine problems and reviewing extensive bodies of literature on methadone maintenance treatment. The Centre has developed a basis for scholarly understanding of the existing literature and has presented this information to governments and other bodies to help to develop policy and to foreshadow important research directions where research evidence was previously lacking.

Our staff has worked hard to ensure that the Centre has a strong national and international profile. As such, we have developed collaborations with a range of local groups including state and territory departments of health and collaborating research centres. The Centre has also contributed to research conducted in the UK, Europe and North America.

Five years ago the Parliamentary Secretary to the Minister for Health and Ageing, the Hon Trish Worth officially opened our new building at the Randwick campus of UNSW. At that time I said that we believed these premises would see us through 'the next 10 to 15 years'. That now looks doubtful as we continue to grow and expand, with major projects such as the Drug Policy Modelling Program (DPMP) resulting in even greater growth than we could have ever imagined.

The future holds important and interesting work, including some of the projects covered in *Project Notes* this month. PTSD and illicit drug use, monitoring Suboxone diversion and an examination of cannabis contamination and

potency are just some of the topics currently being investigated at the Centre. As always we attempt to be 'one step ahead' and Sharlene Kaye's proposed research on Adult ADHD among psychostimulant users which is presented in this month's *Issuing Forth* is a perfect example of this type of work.

There are always challenges for every organisation and whether they be accommodation issues or new research directions, NDARC will continue to thrive whilst ensuring our aim of conducting high quality research is achieved.

To celebrate our 20th Anniversary we will be hosting a special event later in the year. Our Annual Symposium has become one of the major events in the alcohol and other drug field's calendar and this year we will be combining the Symposium with the National Drug Trends Conference and creating a special two day event. Full details of the program and speakers will be released very soon but you can be assured that the event will. **cl**

**issuing forth****Adult Attention Deficit Hyperactivity Disorder (ADHD) among psychostimulant users: prevalence and consequences****Sharlene Kaye**

The increasing prevalence of methamphetamine use, and use of the more potent form of the drug "ice" in particular, has caused considerable concern among health professionals, government, and the general community alike. Methamphetamine use has been associated with a number of mental and physical health problems, particularly among those who are dependent on the drug. Given that stimulant medications, such as methylphenidate (Ritalin) and dexamphetamine, are commonly used to treat Attention Deficit Hyperactivity Disorder (ADHD), the role of ADHD and its treatment in the illicit use of psychostimulants has come into question.

ADHD is the most commonly diagnosed neurobehavioural disorder in childhood. Past research has demonstrated an association between ADHD in childhood and subsequent substance abuse in adolescence and adulthood. Specifically, the presence of ADHD has been identified as an independent risk

factor for the development of substance use disorders and is associated with an earlier onset, higher frequency and increased chronicity of substance abuse. Adults with a history of childhood ADHD have been found to have higher rates of substance use disorders, and childhood ADHD is over-represented among substance abusers.

Although there are limited data on the adult prevalence of ADHD, it is estimated that between 1 and 6% of the adult population may have the adult disorder. This estimate is based on findings which suggest that one- to two-thirds of children with ADHD, who represent 3-10% of the general population, continue to manifest ADHD symptomatology as adults<sup>1</sup>. The fact that adult ADHD was not recognised as a valid psychiatric disorder until the publication of DSM-IV, however, suggests that many adults with the disorder may remain undiagnosed or, if diagnosed with ADHD as a child, may be thought to have 'outgrown' the symptoms that define the disorder in childhood. A review of the medical records of 854 adult ADHD patients found that only 25% of cases had been diagnosed with ADHD in childhood or adolescence<sup>2</sup>.

Studies that have assessed the continuation of ADHD symptoms beyond adolescence have demonstrated a strong association between adult ADHD and substance abuse. Individuals in whom childhood symptoms of ADHD persist into adulthood have been found to have higher rates of substance use disorders than those in whom childhood symptoms of ADHD have

remitted and non-ADHD controls. Similarly, adult ADHD appears to be over-represented among substance abusers. To date, there has only been one study of ADHD among Australian drug users<sup>3</sup>. This study found that both childhood (36%) and adult (46%) ADHD were over-represented among males using alcohol or illicit drugs, not necessarily regularly, who were engaged with drug use agencies. While adults with ADHD had a greater severity of drug use than non-ADHD drug users, in terms of dependence and extent of use, the association between ADHD and the use of particular drug classes (e.g., stimulants, opiates) was not reported, and thus remains unclear. Moreover, such a sample may not be representative of the broader psychostimulant using population.

Although substance use disorders have been associated with a general diagnosis of ADHD, there has been little research that has examined the relationship between subtypes of ADHD (i.e. *hyperactive-impulsive*, *inattentive* and *combined*) and substance use. It has been hypothesised that individuals with the hyperactive-impulsive subtype of ADHD are most likely to have comorbid substance use disorders. This is because of the salience of impulsivity as a feature of this sub-type, rather than inattentiveness per se. Accordingly, those with the hyperactive-impulsive or combined subtype of ADHD have been found to exhibit higher rates of substance use disorders and dependence than those with the inattentive subtype.

Given that the main pharmacotherapy for ADHD is stimulant medication, the relationship between ADHD and illicit psychostimulant use is of particular interest. It has been hypothesised that individuals with undiagnosed or untreated ADHD may use psychostimulants (e.g. methamphetamine) as a form of self-medication. That is, it is hypothesised that the causal relationship between ADHD and psychostimulant use is such that ADHD engenders methamphetamine use as a means of self-medication of the symptoms of ADHD. Consistent with this, increased rates of childhood and adult ADHD have been observed among dependent cocaine users. While there are studies that have found no significant differences in the use of stimulants between ADHD subjects and controls, the majority were based on samples of treatment-seeking opioid users, clinic-referred samples of adolescents in treatment for substance abuse, or referred adults meeting criteria for ADHD. As such, they may not be representative of all adults with ADHD or substance use disorders. If ADHD is particularly associated with psychostimulant use as a means of self-medication, the prevalence of ADHD would be expected to be higher among psychostimulant users than among non-drug users and users of other drug classes.

Alternatively, ADHD may be a feature of illicit drug use in general, rather than a specific feature of psychostimulant use. Impulsivity, which is a primary feature of ADHD, may underlie the initiation and disregard of consequences of illicit drug use. As such, there may be no special relationship between ADHD and methamphetamine use as a means of self-medication. Rather, high rates of ADHD amongst methamphetamine users may be a characteristic of drug users in general. Indeed, high levels of impulsivity are found among opioid users, as are increased rates of

childhood ADHD. To date, the prevalence of ADHD among psychostimulant users has not been directly compared to that seen amongst users of other drug classes in order to test the hypothesis that the disorder is differentially associated with psychostimulant use. In particular, no comparison has been made to users of cannabis, the most widely used illicit drug, or to opioid users. The former group is of interest in a study examining the differential association of ADHD with psychostimulant use due to the widespread use of this illicit drug. The latter group is of particular interest due to their high levels of impulsivity and elevated rates of childhood ADHD. If adult ADHD is indeed strongly associated with psychostimulant use, levels of the disorder should be significantly higher than amongst these control groups. Alternatively, if the impulsivity associated with ADHD is a marker for illicit drug use in general, no group differences would be expected.

In examining the illicit drug preferences and patterns of use associated with ADHD, the impact of medication also needs to be considered. There have been concerns that the use of stimulant medications, such as methylphenidate (e.g. Ritalin), to treat ADHD in children and adolescents may lead to an increased risk of substance abuse. Research, however, has indicated that the risk of substance abuse is decreased with such treatment<sup>4</sup>. The possibility that adults with medicated ADHD choose to use different illicit drugs and engage in different patterns of use than those who are non-medicated, however, has not been explored.

Thus, there are a number of questions regarding the relationship between ADHD and illicit drug use that remain unanswered. Is the prevalence of ADHD among psychostimulant users higher than that among opioid users, cannabis users, and non-drug users? What is

the impact of ADHD medication on the extent of current illicit drug use and drug of choice? Do those who are taking ADHD medication have different patterns of illicit drug use than those who are either undiagnosed or not on medication? We also need to further explore the relationship between illicit drug use and the different subtypes of ADHD.

We are currently seeking funding to conduct this important and timely research. Such research is of clinical importance as comorbid ADHD among illicit drug users, particularly those who are drug dependent, complicates the course of drug use, such that drug use among those with ADHD is likely to have an earlier onset and be more severe. Moreover, the treatment of substance use disorders may be compromised by the symptoms of ADHD, such as inattention and impulsivity. Thus, the earlier that ADHD among dependent drug users is identified and treated, the better the prognosis for treatment of substance dependence. Determining the prevalence of such comorbidity and elucidating the nature of the relationship between ADHD and the use of particular drugs will inform the development of appropriate screening and treatment strategies. **cl**

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## project notes

### Emerging trends in drug use and high risk behaviours among the homeless

**Lucy Burns, Katherine Mills, Maree Teesson and Sarah Larney**

Homeless people who also have drug and alcohol disorders represent one of the most marginalized and hence disadvantaged groups in Australian society. Marginalization refers to a process of social, economical, psychological and physical deterioration when an individual loses more and more connection with key institutions of society (e.g. education, housing and aid agencies). During this period they also lose their connections with non-users and life revolves largely around the procurement and

use of drugs. Once this takes place, the social, health and economic circumstances of the person also become markedly reduced. In this situation there is a high probability of extreme disadvantage, poverty and criminality. They are also vulnerable to extreme life trauma including suicidal behaviour and homicide. Although a number of trajectories into homelessness have been identified, consistent risk factors for becoming homeless include childhood adversity, educational attainment and the prior existence of psychiatric disorders.

In NSW homelessness remains a major challenge for many individuals and service providers. On census night in 2001, it was found that 26,676 individuals were homeless with the highest rate of homelessness being in the inner city of Sydney. Many of these individuals are long-term homeless with approximately one-half being homeless for

one year or longer. Previous Australian research examining the relationship between homelessness and substance use has found that alcohol and drug dependence was common among these individuals with over 1 in 3 being alcohol dependent and about 1 in 3 being drug dependent. Cannabis and opiates were the most commonly used illicit drugs and of serious concern was the finding that homeless people were 33 times more likely to be dependent on opiates than the general population. While the figures on alcohol dependence among people who are homeless in Australia are comparable with other international studies, drug dependence appears to be more prevalent among Australian homeless than comparable international studies.

In recent years there has been noted to be an increase in the use of methamphetamine in Australia, suggested to be associated with a

decrease in the availability of heroin. This increase in use is associated with a concomitant increase in the number of individuals seen with methamphetamine related aggression and psychotic episodes and an engagement in violence and other high risk behaviours. Pilot work undertaken with staff of an inner city service providing crisis accommodation for homeless people suggests this trend is reflected in homeless individuals currently seeking crisis accommodation. These changes in patterns of drug use and high risk behaviours suggest new and complex challenges for service providers. The present study therefore aims; to determine the mental health, physical health and drug use patterns of homeless people in metropolitan Sydney; to examine the challenges these issues currently present to clients and service providers alike and, to provide the framework for a large-scale cross sectional study of these issues in rural and metropolitan NSW.

## Epidemiology of alcohol-related emergency department presentations

**Devon Indig, Jan Copeland and Kate Conigrave**

This study examines the epidemiology of alcohol-related presentations to emergency departments (EDs). Its aims include to assess:

- prevalence and nature of alcohol-related ED attendances
- service delivery impacts
- patient satisfaction and health outcomes
- staff satisfaction and collaboration

The methodology involved a combination of data sources including routine data collections, staff surveys, screening and follow-up of ED patients and medical record review. Analysis of routine data sources is underway, using the New South Wales Emergency Department Data Collection (including a related data collection that records nursing triage text in sentinel hospitals), the New South Wales Minimum Dataset for Alcohol and Drug Treatment Services and a number of population health surveys. As well as examining the prevalence and nature of alcohol related ED presentations, we are also comparing the rate of recording of a formal diagnosis of an alcohol use disorder, with the rate of triage nurse's mention of alcohol as a factor in the presentation.

In the patient surveys, ED patients were invited to participate in a short alcohol screening procedure and a follow-up interview 7-10 days later. Patient recruitment took place over a 48-hour period (from 6pm Friday to 6pm Sunday) over four study weekends at two study hospitals (Prince of Wales, Royal Prince Alfred) in Sydney. Over these weekends, N=1,091 patients presented to the EDs and about 50% consented to participate and approximately 85% of those who participated were successfully followed up. Between one fifth and one third of participating patients admitted to drinking alcohol in the 6 hours before attending the ED.

The medical records of all patients who presented over the four study weekends will also be examined. This will then be linked to the patient screening and follow-up data to gain a more complete picture of the epidemiology and detection of alcohol-related ED presentations.

## Integrated treatment of PTSD and illicit drug use

**Katherine Mills, Maree Teesson and Claudia Sannibale**

The high prevalence of PTSD among people with illicit drug use disorders (IDUD) has been clearly recognised in both the Australian and international literature. In Australia, 33% of those with opioid use disorders and 24% of those with amphetamine use disorders have comorbid PTSD. The prevalence among people with alcohol use disorders on the other hand, is comparably low (5%). Despite the high prevalence of PTSD among people with IDUD, research on treatment responses to this significant problem is sparse. Individuals with this comorbidity present a significant challenge to substance abuse treatment providers as they present with a poorer clinical profile, and have poorer treatment outcomes, including higher readmission rates. The costs of this comorbidity to individual sufferers and society may be reduced substantially by the implementation of an integrated treatment that addresses both disorders concurrently. There is however, little research to guide how best to treat comorbid IDUD and PTSD. Although a small number of interventions have been developed and trialled, none have been evaluated in an Australian setting. One intervention which has shown promise in the United States is Concurrent Treatment of PTSD and Substance Use Disorder (CTPSD). Preliminary research has shown that CTPSD can be used safely and is effective in the treatment of PTSD among individuals with cocaine dependence. Completers of the program have demonstrated significant reductions in all PTSD symptom clusters and cocaine use from baseline to end of treatment which were maintained at 6 month follow-up. Significant reductions in depressive symptoms were also observed.

NDARC has received funding from the National Health and Medical Research Council to conduct a randomized controlled trial (RCT) of CTPSD. This will be the first RCT internationally to examine the use of exposure therapy for PTSD among substance users. Approximately 150 participants will be randomly allocated to receive CTPSD or treatment as usual. The treatment arm will receive 12 sessions of individual cognitive behavioural therapy with exposure techniques. The control arm will receive standard care for their substance use. Interviews will be conducted at treatment entry, 3 months and 9 months follow-up and analyses undertaken to determine the whether CTPSD results in improved outcomes for those with comorbid PTSD and IDUD compared to receiving treatment as usual.

## Monitoring the extent of buprenorphine-naloxone (Suboxone®) diversion

**Briony Larance, Louisa Degenhardt, Richard Mattick, Robert Ali, James Bell, Nick Lintzeris and Adam Winstock**

The diversion and injection of buprenorphine has been documented internationally and in Australia, and is associated with a range of health harms such as vein damage, abscesses, infections, precipitated withdrawal, transmission of blood-borne viral infections, hospitalisation, overdose and death.

The newer formulation of buprenorphine, buprenorphine-naloxone (Suboxone®), was developed to deter injection of the medication. It was registered by the Therapeutic Goods Administration in 2005 and has been available on the Pharmaceutical Benefits Scheme (PBS) since April 2006. When taken sublingually, buprenorphine-naloxone has actions that are similar to those of buprenorphine alone. When injected by an individual dependent on heroin or methadone, however, the combination product can precipitate withdrawal<sup>4</sup>. Few studies have examined the diversion and misuse of the buprenorphine-naloxone formulation in 'real life' applications<sup>5</sup>.

The main aim of the present study is to monitor the extent to which Suboxone® is diverted and injected during its post-marketing period in Australia. The study triangulates data from a number of sources (detailed below), and will review these in the context of the national and jurisdictional pharmacotherapy policies. Where possible, comparisons will be made between methadone, buprenorphine and buprenorphine-naloxone, as well as other medications of interest (e.g. morphine, oxycodone and benzodiazepines). Data sources include:

- Interviews with regular injecting drug users (IDU) through the Illicit Drug Reporting System (IDRS) (2006-2008)
- Interviews with pharmacotherapy clients (methadone, buprenorphine and buprenorphine-naloxone clients) (2007-2008)
- Interviews with key experts (e.g. clinicians, pharmacists, NSP workers, outreach workers) (2007-2008)
- A postal survey of authorised methadone, buprenorphine and buprenorphine-naloxone prescribers (2007-2008)
- Prescription data (2006-2008)
- Secondary indicators of morbidity and mortality (e.g. hospital, emergency department, law enforcement and coronial data) (2006-2008)

The study commenced in March 2006 and is due to complete in early 2009. An Advisory Committee (made up of AOD specialists and researchers from across Australia) informed the methodology and early development of the project. In March-May 2007, the project will conduct pharmacotherapy client interviews, key

expert interviews and the national postal survey of prescribers. Baseline IDRS data was collected in June-July 2006, and will be collected again in June-July 2007. The project's first bulletin will be disseminated toward the end of 2007.

## An examination of cannabis contamination and potency in Australia

**Wendy Swift, Paul Dillon, Peter Gates, Jennifer McLaren, Steve Allsop (National Drug Research Institute, Curtin University) and Colin Priddis (Chemistry Centre of Western Australia)**

Although there is little detailed information about the Australian cannabis market, there is widespread speculation about several of its

aspects, including the domination of highly potent cannabis and contamination of local cannabis product. One major concern associated with cannabis potency is that more potent cannabis is responsible for a perceived increase in mental health problems, particularly among young people. However, to date, there is little data on cannabis potency with which to support these claims. This pilot study aims to gain a better understanding of cannabis potency and the presence of contaminants in Australian cannabis.

This innovative, collaborative study aims to improve our understanding of potency and contamination in cannabis available on the Australian market. It uses various methodologies to identify, and discuss the implications of, trends in cannabis potency and the presence of contaminants.

This pilot study will comprise (i) a literature review and consultations with key experts on potency and contamination; (ii) an audit of websites associated with cannabis cultivation, including hydroponics sites (focussing on Australian sites), for information on pesticides, growth promoters and microbial contaminants relevant to local conditions; and (iii) an online survey of growers and users addressing their knowledge and beliefs about potency and contamination. It is hoped to obtain further funding to conduct an analysis of cannabis seizures to measure potency and screen for natural and synthetic contaminants, growth enhancers, pesticides and heavy metals, identified from the pilot study.

To date, consultations have been completed with 32 key experts (national and international). The online survey will be up and running in March. **cl**

## abstracts

### Effects of backpacking holidays in Australia on alcohol, tobacco and drug use of UK residents

*BMC Public Health 7:1*

**Mark Bellis, Karen Hughes, Paul Dillon, Jan Copeland and Peter Gates**

**Background:** Whilst alcohol and drug use among young people is known to escalate during short holidays and working breaks in international nightlife resorts, little empirical data are available on the impact of longer backpacking holidays on substance use. Here we examine changes in alcohol, tobacco and drug use when UK residents go backpacking in Australia.

**Methods:** Matched information on alcohol and drug use in Australia and the UK was collected through a cross sectional cohort study of 1008 UK nationals aged 18-35 years, holidaying in Sydney or Cairns, Australia, during 2005.

**Results:** The use of alcohol and other drugs by UK backpackers visiting Australia was common with use of illicit drugs being substantially higher than in peers of the same age in their home country. Individuals showed a significant increase in frequency of alcohol consumption in Australia compared to their behaviour in the UK with the proportion drinking five or more times per week rising from 20.7% (UK) to 40.3% (Australia). Relatively few individuals were recruited into drug use in Australia (3.0%, cannabis; 2.7% ecstasy; 0.7%, methamphetamine). However, over half of the sample (55.0%) used at least one illicit drug when backpacking. Risk factors for illicit drug use while backpacking were being regular club goers, being male, Sydney based, travelling without a partner or spouse, having

been in Australia more than four weeks, Australia being the only destination on their vacation and drinking or smoking five or more days a week.

**Conclusions:** As countries actively seek to attract more international backpacker tourists, interventions must be developed that target this population's risk behaviours. Developing messages on drunkenness and other drug use specifically for backpackers could help minimise their health risks directly (e.g. adverse drug reactions) and indirectly (e.g. accidents and violence) as well as negative impacts on the host country.

### Hair analysis underestimates heroin use in prisoners

*Drug and Alcohol Review 25, 425-431*

**James Shearer, Bethany White, Stuart Gilmour, S., Alex Wodak and Kate Dolan**

The value of hair analysis in measuring treatment outcome was examined in a randomised controlled trial (RCT) of an Australian state prison-based methadone programme between 1997 and 1998 (n = 382 male prisoners). Hair samples were analysed for morphine using immunoassay techniques. Agreement between hair analysis and self-report was tested using kappa, McNemar's test of symmetry and Pearson's correlation coefficient r. Hair analysis based on immunoassay was inadequate as the primary outcome measure for the RCT but had value in supplementing self-reported heroin use. There was a modest correlation (r = 0.31, p < 0.001) between self-reported frequency of heroin use and morphine concentrations in hair. Sectional hair analysis, a reflection of duration of drug use, was uninformative and generally impractical due to the length of hair sections needed.

### Patterns and correlates of attempted suicide by heroin users over a 3-year period: Findings from the Australian Treatment Outcome Study

*Drug and Alcohol Dependence 87, 146-152*

**Shane Darke, Joanne Ross, Anna Williamson, Katherine Mills, Alys Havard and Maree Teesson**

In order to determine patterns and correlates of attempted suicide amongst heroin users across 3 years, a cohort of 387 heroin users (134 entering maintenance treatment, 134 entering detoxification, 81 entering residential rehabilitation and 38 not entering treatment) were interviewed about suicide attempts at baseline, 12, 24 and 36 months. Across the follow-up period, 11.6% attempted suicide. There were declines in the proportion who attempted suicide each year amongst both males and females and significant declines in Major Depression, suicidal ideation and current suicide plans. Despite this, levels of attempted suicide, suicidal ideation and Major Depression in the cohort remained higher than in the general population. Those who had made a previous suicide attempt were five times more likely to make an attempt across follow-up and there was a strong association between an attempt in any 1 year and increased probability of an attempt in the subsequent year. A quarter of those who reported suicidal ideation at baseline made an attempt across follow-up. At each interview point, current suicidal ideation was strongly associated with increased risk of a suicide attempt in the following year. Independent

predictors of a suicide attempt across follow-up were a lifetime suicide history, baseline suicidal ideation, social isolation and the extent of baseline polydrug use. Given the strong predictive value of suicidal ideation and previous attempts, regular brief screening would appear warranted to identify those at greatest risk.

## The Australian Treatment Outcome Study: What have we learnt about treatment for heroin dependence?

*Drug and Alcohol Review 26, 49-54*

**Shane Darke, Joanne Ross and Maree Teesson**

Opioids make the single largest contribution to illicit drug-related mortality and morbidity worldwide. In this paper we reflect upon what has been learnt regarding treatment outcome and the natural history of heroin use from the Australian Treatment Outcome Study (ATOS). We focus on what we knew prior to ATOS, what ATOS revealed that is novel, and the implications for research, practice and policy. ATOS provided strong evidence for sustained improvement attributable to treatment across the three years of the study. It is argued that treatment for heroin dependence is money well spent, and leads to clear and sustained benefits to both heroin users and society.

## Cost effectiveness analysis of smoking cessation interventions

*Australian and New Zealand Journal of Public Health 30, 428-434*

**James Shearer and Marian Shanahan**

**Objective:** To identify which smoking cessation interventions provide the most efficient use of health care resources at a population level.

**Methods:** Effectiveness data were obtained from a review of the international literature. Costs and effects of smoking cessation interventions were estimated from the perspective of the Australian Government. Treatment costs and effects were modelled using incremental cost-effectiveness ratios. Assumptions regarding effectiveness, resource use and costs were tested by sensitivity analysis.

**Results:** From the population perspective, telephone counselling appeared to be the most cost-effective intervention. Adding proactive forms of telephone counselling increased the effectiveness of pharmacotherapies at a low incremental cost and, therefore, this could be a highly cost-effective strategy. Bupropion appeared to be more cost effective than nicotine replacement therapy (NRT). Combined bupropion and NRT did not appear to be cost effective.

**Conclusions:** General practitioners should be encouraged to refer patients to telephone quit

lines and if prescribing pharmacotherapy consider the addition of telephone counselling.

**Implications:** The results support greater investment in proactive forms of telephone counselling and more formal integration of pharmacotherapies with proactive telephone counselling services as cost-effective strategies for reducing population-level smoking rates.

## HIV in prison in low-income and middle-income countries

*Lancet 7, 32-41*

**Kate Dolan, Ben Kite, Emma Black, Carmen Aceijas, Gerry Stimson for the Reference Group on HIV/AIDS Prevention and Care among Injecting Drug Users in Developing and Transitional Countries**

High prevalence of HIV infection and the over-representation of injecting drug users (IDUs) in prisons combined with HIV risk behaviour create a crucial public-health issue for correctional institutions and, at a broader level, the communities in which they are situated. However, data relevant to this problem are limited and difficult to access. We reviewed imprisonment, HIV prevalence, and the proportion of prisoners who are IDUs in 152 low-income and middle-income countries. Information on imprisonment was obtained for 142 countries. Imprisonment rates ranged from 23 per 100 000 population in Burkina Faso to 532 per 100 000 in Belarus and Russia. Information on HIV prevalence in prisons was found for 75 countries. Prevalence was greater than 10% in prisons in 20 countries. Eight countries reported prevalence of IDUs in prison of greater than 10%. HIV prevalence among IDU prisoners was reported in eight countries and was greater than 10% in seven of those. Evidence of HIV transmission in prison was found for seven low-income and middle-income countries. HIV is a serious problem for many countries, especially where injection drug use occurs. Because of the paucity of data available, the contribution of HIV within prison settings is difficult to determine in many low-income and middle-income countries. Systematic collection of data to inform HIV prevention strategies in prison is urgently needed. The introduction and evaluation of HIV prevention strategies in prisons are warranted.

## Shooting gallery operation in the context of establishing a Medically Supervised Injecting Centre: Sydney, Australia

*Journal of Urban Health*

**Jo Kimber and Kate Dolan**

Shooting galleries (SGs) are illicit off-street spaces close to drug markets used for drug injection. Supervised injecting facilities (SIFs) are low threshold health services where

injecting drug users (IDUs) can inject pre-obtained drugs under supervision. This study describes SG use in Kings Cross, Sydney before and after the opening of the Sydney Medically Supervised Injecting Centre (MSIC), Australia's first SIF. Operational and environmental characteristics of SGs, reasons for SG use, and willingness to use MSIC were also examined. An exploratory survey of SG users (n=?31), interviews with SG users (n=?17), and drug workers (n=?8), and counts of used needles routinely collected from SGs (6 months before and after MSIC) and visits to the MSIC (6th study period). Key operational characteristics were 24-h operation, AUS\$10 entry fee, 30-min time limit, and dual use for sex work. Key reasons for SG use were to avoid police, a preference not to inject in public, and assistance from SG operators in case of overdose. SG users reported high levels of willingness to use the MSIC. The number of used needles collected from SGs decreased by 69% (41,819 vs. 12,935) in the 6 months after MSIC opened, while MSIC visits increased incrementally. We conclude that injections were transferred from SGs to the MSIC, but SGs continued to accommodate injections and harm reduction outreach should be maintained.

## Australian clinician attitudes towards contingency management: Comparing down under with America

*Drug and Alcohol Dependence 87, 312-315*

**Alison Ritter and Jacqui Cameron**

**Background:** Contingency management (CM) is an efficacious treatment intervention. Research from the US indicates that clinicians have both positive and negative attitudes towards CM. Concerns about the practicalities of implementation and potential philosophical differences have been identified in American samples. To date, no research has examined Australian clinicians attitudes towards CM nor assessed the extent to which Australian clinicians share the concerns of American clinicians.

**Method:** The Provider Survey of Incentives was completed by 102 Australian drug and alcohol treatment providers. The survey assesses both positive and negative attitudes towards tangible and social incentives. Comparisons are made with published data on American samples.

**Results:** The proportion of respondents agreeing with positive opinions about CM in this Australian sample was lower than that reported in the American sample. The average percentage agreement for positive aspects of tangible rewards was 41% whereas the average percent agreement for social rewards was 51% indicating more positive views towards social rewards. Objections to CM were similar between the two samples, but American respondents more strongly agreed with the idea that it would not be right to give incentives when clients are still using drugs, whereas the Australian sample had much less difficulty with this concept.

**Conclusions:** There appears to be broad

support for CM from about half of the clinicians surveyed. The areas of concern were highly similar between the Australian sample and published American data. Many Australian clinicians expressed neutral views about CM, indicating that the environment may be ripe for implementation of programs.

## The relationship between crystalline methamphetamine use and methamphetamine dependence

**Rebecca McKetin, Erin Kelly and Jennifer McLaren**

**Background:** The aim of the current study was to determine whether crystalline

methamphetamine users are more dependent on methamphetamine than people who use other forms of the drug, and if so, whether this could be accounted for by their methamphetamine use history.

**Method:** A structured face-to-face interview was used to assess drug use patterns and demographics among a convenience sample of 309 regular methamphetamine users from Sydney, Australia. Dependence on methamphetamine in the past year was measured using the Severity of Dependence Scale. The use of crystalline methamphetamine in the past year was confirmed using a photographic identification sheet.

**Results:** Participants who had used crystalline methamphetamine in the past year were significantly more likely to be dependent on methamphetamine than participants who took

only other forms of methamphetamine during this time (61% versus 39%). Methamphetamine dependence was also associated with injecting or smoking methamphetamine (67% and 58%, respectively versus 30% for intranasal or oral use), using methamphetamine more than weekly (68% versus 34%), having used the drug for more than 5 years (61% versus 36%), and having used 'base' methamphetamine in the past year (59% versus 39%). Crystalline methamphetamine use remained significantly associated with methamphetamine dependence after adjusting for these patterns of methamphetamine use.

**Conclusions:** Methamphetamine users who took crystalline methamphetamine in the past year were more likely to be dependent than methamphetamine users who had not taken the crystalline form of the drug during this time. **CI**

## recent publications

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