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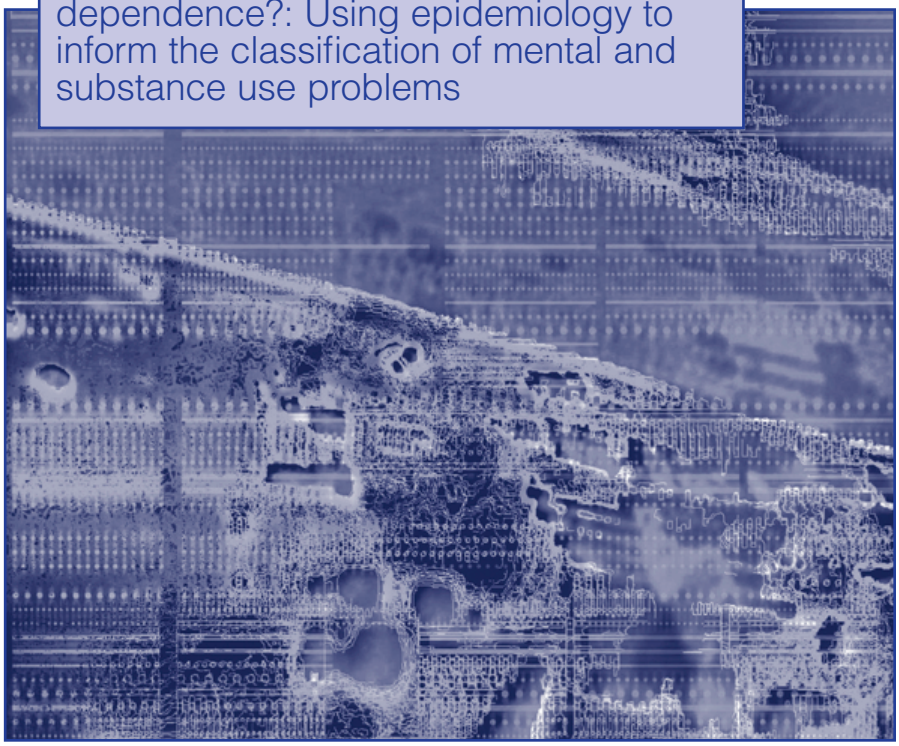
issuing **forth**

Do 1 in 5 young men really have alcohol dependence?: Using epidemiology to inform the classification of mental and substance use problems



contents

edspace

Over the past fifteen years it has been my pleasure to work on this newsletter which aims to provide up-to-date information on the research activities of the national centres. This will be my last issue as Editor. *CentreLines* has evolved over the years based on the requests of the over 1000 national and international subscribers that receive the publication. NDARC has grown immensely over the time I have been here and there is never a shortage of projects and publications to report on. One only needs to look at our staff list on the back page to see how much we have grown. When I started at the Centre I joined a staff of 12!

I have been fortunate enough to gain a position at the National Cannabis Prevention and Information Centre NCPIC) as the National Communications Manager. This is an extremely exciting role and I look forward to the challenges ahead as the Centre attempts to successfully bridge the gap between research and practice.

NCPIC will be producing a range of electronic resources (including monthly E-Zines and the NCPIC Bulletin Series). If you wish to become a NCPIC subscriber and receive these resources as well as regular updates on the Centre's activities (including free national training) please contact me by email (p.dillon@unsw.edu.au). You will find an A4 poster insert inside this issue of *CentreLines* which advertises both the NCPIC website and the National Cannabis Information and Helpline, please feel free to use this to promote these valuable services. Extra copies of this poster can be downloaded from the NCPIC website.

Finally I would like to say thank you to all of the people over the years who have helped me put *CentreLines* together, as well as the many subscribers who have have contacted me to let me know their thoughts on the publication.

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.

headspace

Assessing the impact of drug and alcohol on Australians

Maree Teesson

In 1997 Australia undertook a landmark study counting how many Australians had problems with mental disorders and substance use disorders. Over 10 000 Australians were interviewed and the study was one of the most complex pieces of social research undertaken in the country. The survey found that in the previous 12 months, over a million adult Australians met criteria for a disorder associated with their alcohol or other drug use. Alcohol use disorders are common, and although drug use disorders are less common, they still affect a substantial minority of Australian adults. Comorbidity was high and this research led to a number of important national initiatives in this area, most importantly, the National Comorbidity Initiative. Treatment seeking among persons with alcohol and other drug use disorders is low and most likely to be sought from general practitioners. While these findings are of no surprise to people working in the drug and alcohol field they were critical in identifying that problems with drug and alcohol were experienced across the population. These problems could no longer be ignored and there is no doubt that the availability of information on the impact of AOD problems on the general population in Australia has influenced future research, policy and practice in Australia.

At the end of 2008 the second national survey of mental health and well being will be completed. There are a number of key challenges in the AOD area which this data will be crucial in addressing.

Unmet need for care: The first survey highlighted that very few people seek help. There are two reasons for this. Firstly, there is a stigma associated with having these problems and secondly, there are just too few services available. As with physical disorders, health care in the alcohol and other drug field will continue to be rationed, and there will never be sufficient funds to provide the care that all individuals with problems with substance use need or would like. However, the current degree of unmet need in Australia is considerable. To put it into perspective, Australia currently spends around 5% of the health budget on mental health and substance use services. Yet, the burden to society of mental disorders and substance use disorders is considerably more than would be implied by this allocation to care. The World Health Organization's Burden of Disease report estimates that mental health and drug and alcohol contribute 20% to the burden of disease in society. There have been some innovative service developments in this area and the second survey will allow planning for future initiatives.

Young adults: Problems with alcohol and other drug use is of particular concern for young adults aged 15-24 years. Substance use disorders or mental disorders account for nine out of the ten leading causes of burden of disease in young males and eight out of ten leading causes in young females, according to previous Australian research.

This high concentration of mental illness in the young suggests that early intervention and prevention may assist to reduce the burden. Prevention is a crucial component in the breadth of interventions considered in the area. Prevention of mental disorders has a low priority in the health care agendas of most countries and Australia is no exception. This is despite the fact that there has been a substantial growth in knowledge about both environmental and genetic risk factors for substance disorders and that there are now a number of promising models for early intervention. Having a better understanding of the use and subsequent problems associated with alcohol and other drugs among young adults can guide the development of innovative responses.

Improving our descriptions: An important area of future research using the second national survey will be improving our descriptions of substance use disorders. Australia has been influential in research to improve the description of these disorders. The most recent survey uses measures consistent with international research allowing for work to check and improve nosology. Critical questions include whether the criteria for disorder work as well for males and females, across different ages and across different countries. Are there better ways of describing problems associated with drug and alcohol disorders? These and other related questions will form the basis of a program of research at NDARC led by Dr Tim Slade.

Dr Slade describes this recently funded research in this issue's *Issuing Forth*. This study is one of a number of National Health and Medical Research Council (NHMRC), Australian Research Council (ARC) grants and fellowships that NDARC staff have recently received. The success of these grants and fellowships indicate the importance of the field to health and the high regard with which drug and alcohol research is held.

On a personal note I was awarded an NHMRC Senior Research Fellowship last year. In March 2008 I will take up the fellowship at NDARC full-time and resign as Deputy. It has been an honour and privilege to be Deputy Director of NDARC since 2002, a time of fantastic growth for the Centre. I have very much enjoyed working as a team with the Director, Professor Richard Mattick, with the Board, academic staff, research staff and administrative support staff at NDARC in a management role. The dedication and passion of NDARC staff both past and present has meant that NDARC has thrived and grown into a premier international drug and alcohol research centre. The success of NDARC would not have been possible without the enthusiastic support and collaboration of the field. In my opinion a key to that success is a strong commitment to evidence and where the evidence doesn't exist doing the research to find the answers. I am lucky enough to be able to spend the next five years focusing on finding some of those answers and I look forward to the exciting new research collaborations that will bring.

This *Headspace* is also a time to acknowledge the contribution of a long standing staff member of NDARC, Mr Paul Dillon. Over the past 15 years Paul Dillon has developed a media and information strategy for NDARC which is the envy of research centres around the world. Paul's work has not only raised the profile of drug and alcohol issues, it has also been instrumental in disseminating evidence-based messages. In a volatile field such as ours this is not always easy and requires outstanding communication skills and persistence. Paul's communication skills have been acknowledged by numerous awards and invitations to speak both nationally and internationally. He has laid strong foundations for future research dissemination at NDARC. He will be taking on new and exciting challenges as the National Communications Manager at the National Cannabis Prevention and Information Centre. **cl**

Do 1 in 5 young men really have alcohol dependence?: Using epidemiology to inform the classification of mental and substance use problems

Tim Slade

Classification is the cornerstone of medical science. Classification systems are essential because of their influence on the clinical, research, public policy and administrative activities of health professionals. In psychiatry, efforts to classify mental and substance use disorders have been challenged by the complexity of the phenomena, the conflicting theoretical perspectives on these phenomena, the influence of non-scientific considerations in the development of formalised systems, and the diverse and at times competing purposes for which classification systems are used. This, in turn, restricts our ability to understand, identify, prevent and cure mental and substance use disorders.

One of the major challenges in the classification of mental and substance use disorders is an understanding of the boundaries between disorder and "normality". Having a better understanding about them may lead to more accurate theoretical models and more rapid advances in the search for etiology[1]. Boundary information may help resolve ongoing debates about the optimal number and organization of disorders within the classification system resulting in future classification systems characterised by greater validity, reliability, and clinical utility[2]. It may also allow better detection of affected individuals, better prediction of who might respond well to particular interventions, and better awareness of the kind and amount of change that indicates clinically significant improvement or recovery[3]. More recently, it has been argued that current classification systems are stifling efforts to link genetic profiles to the behavioural manifestations of mental and substance use disorder symptomatology[4].

The interplay between psychiatric classification and psychiatric epidemiology

In psychiatry, as in other medical disciplines, classification systems have traditionally been constructed from, and revised according to, the observed characteristics of samples of people turning up for assessment or treatment. However, such clinical samples typically display a restricted range of symptomatology and a motivation toward treatment, two characteristics that hamper the generalizability of findings to the population at large. Classification systems based entirely on the characteristics of clinical samples can only really be applied to other clinical samples. With a greater awareness of the number of people with these disorders that do not reach clinical attention has come the recognition that epidemiological samples can contribute greatly to the characterisation of psychopathology. Epidemiological samples derived from the general community complete the spectrum of disease in the population and therefore ensure that obtained results are representative of the general population at large rather than unique to any one particular setting. In other words epidemiological data sets provide the strongest test of the validity and utility of any classification system[5]. The importance of epidemiological data to the revision of classification systems has only recently been recognised. There is a need to capitalise on the growing bank of epidemiological data sets to carry out a comprehensive program of classification research with the express purpose of providing practical recommendations for the upcoming revision to both DSM-IV and ICD-10.

The importance of latent structure in classification research

As mentioned above the most fundamental and longstanding debate in the classification of mental and substance use disorders centres on the controversy over the nature of the boundary separating disorder from normality. This debate concerns the latent, unobserved structure that underpins any given mental or substance use disorder. While those who believe in categorical diagnoses regard mental and substance use disorders as discrete, tightly bounded entities that are qualitatively distinct from normal functioning[6], this view is regarded by others as less plausible than a dimensional model in which normal and abnormal behaviour lie along a single latent continuum and differ only quantitatively in their severity[7]. These boundary questions concern the characteristics of a disorder as it exists in nature, regardless of how we choose to conceptualise or measure it. Identifying the categorical versus dimensional structure of the major mental and substance use disorders can address the following fundamental questions[2]:

- Is a given disorder best conceived within a categorical or dimensional framework? For example, is alcohol dependence a discrete entity with an identifiable threshold or do the symptoms associated with dependence exist along a dimension?
- Does the latent disorder correspond to one or more existing diagnostic categories, a variant or a subtype of an existing category, or an entirely new grouping? For example are the characteristics of an identified latent cannabis dependence diagnosis identical to the symptoms of cannabis dependence as outlined in the DSM-IV?
- What is the relation of the disorder to milder pathological states? For example, are people with symptoms of heroin abuse that fall just below the diagnostic threshold similar in important ways to those who satisfy the threshold?
- Is there evidence for meaningful subtypes or lower-order factors within the disorder, and if so, to what extent are they consistent with subtypes specified by current classification systems or contemporary theory? For example, are those cases of alcohol dependence with evidence of tolerance or withdrawal different enough from those without evidence of tolerance and withdrawal to justify a physiological dependence subtype?
- Is there meaningful dimensional variation among affected cases that would support the addition of a severity score to the diagnostic criteria? For example, should a measure of severity be added to the diagnostic criteria for substance dependence?

The translation of latent structure into practical recommendations

Questions about categorical versus dimensional latent structure are concerned with improving the validity of classification systems. However, it has become recently apparent that identifying the latent structure of the common mental disorders is only the first step in the process of achieving practical and informative classification systems[13]. The second step is to address the question of whether latent structure "matters' for classification – that is, whether knowledge of latent structure translates into more useful diagnoses that better predict outcomes of interest[14]. It is likely that the latent structure of the mental disorders examined will not correspond perfectly to the diagnostic algorithms set forth in DSM-IV or ICD-10 and may actually differ from these algorithms in significant ways. Furthermore, if results reveal a dimensional latent structure, this signals a somewhat radical departure from the category-based classification systems of DSM-IV and ICD-10. However, in this situation it is still possible, with the aid of epidemiological data, to locate defensible thresholds along this dimension to guide the unavoidable categorical decisions encountered in clinical, research, and policy settings[15]. In fact comparable thresholds have been identified for dimensional medical conditions such as hypertension by examining epidemiological data on the risks of heart attack and stroke associated with varying blood pressure levels[16]. Examining the practical implications of latent structure can address the following fundamental questions:

- What are the best symptoms to identify each mental and substance use disorder at the latent level? For example, should the controversial symptom of 'substance-related

legal problems' be a requirement for the diagnosis of substance abuse?

- Should symptoms be differentially weighted in the diagnostic calculation? For example, are some symptoms more characteristic of alcohol dependence in the young compared to the elderly or in males compared to females?
- Are these criteria applicable across all subtypes of the same disorder? For example, are some dependence or abuse symptoms more applicable to certain drugs than others?
- What are the best thresholds to identify categorical mental and substance use disorders? For example, is 3 out of 7 symptoms the best threshold for substance dependence or should the threshold be raised (or lowered)?
- Can defensible thresholds be identified for truly dimensional disorders? For example, is there a point along the latent dependence continuum where the risk of certain outcomes such as treatment seeking, suicidal thoughts, or a family history of substance use problems increases dramatically?
- What are the costs and benefits of making changes to the classification systems? For example, will clinicians use a new threshold for diagnosing substance dependence even if it is based on empirical evidence?

These and other issues form the basis of a recently funded 3-year NHMRC grant. In essence the aims of the project are to develop, using epidemiological data, models of the typology of mental and substance use disorders that lead to improvements in the classification systems, and to contribute to the American Psychiatric Association's revision of DSM-IV to DSM-V and the World Health Organization's revision of ICD-10 to ICD-11.

Collaborators on this project include Professor Gavin Andrews (School of Psychiatry, UNSW), Professor Maree Teesson (NDARC), Dr Katherine Mills (NDARC), Dr Andrew Baillie (School of Psychology, Macquarie University), Professor Mark Oakley Browne (Monash University) and Assistant Professor Ayelet Meron Ruscio (University of Pennsylvania, USA).

For more information regarding this project please contact Dr Tim Slade (tims@unsw.edu.au). **cl**

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project **notes**

Barriers and facilitators to cannabis treatment

Jan Copeland, Stephanie Taplin, Peter Gates, Greg Martin and Wendy Swift

A National Cannabis Prevention and Information Project

Cannabis is the most commonly used illicit drug in Australia. While most cannabis use is experimental or intermittent and most people stop using cannabis on their own, as their social roles and responsibilities change with age, it has been estimated that around one in ten people who try cannabis become dependent on it. This risk has been found to increase with the frequency of use. Only a minority of people who are cannabis-dependent, however, seek treatment. The reasons for this reluctance to enter treatment have not been previously explored in Australia. The aims of this project are to examine the barriers and facilitators to entry into cannabis treatment from the perspectives of cannabis users in treatment, cannabis users in the community, and their families.

The project consists of four components:

- a brief literature review of the facilitators and barriers to treatment entry into illicit drug treatment in general, and cannabis treatment in particular.
- a face to face survey of 100 adolescents (aged 16 years and over) and adults in cannabis treatment in the Greater Sydney area on the reasons they sought treatment for their cannabis problems, barriers to treatment access, how they view cannabis use, the factors that facilitated their entry into cannabis treatment and their experiences of cannabis treatment. Some information will also be collected about their levels of cannabis and other drug use, and the consequences of their drug use including on their family, health, financial and legal situation.
- a face to face survey of 100 adults and adolescents (16 years and over) in the Greater Sydney area who are current cannabis users, but not in treatment, to ascertain their knowledge of treatment and barriers to treatment access. This survey will closely match the survey of cannabis users in treatment outlined above to allow for comparison between those who do and do not access treatment.
- a secure on-line survey on the NDARC and UNSW website that will target families of cannabis users who may have attempted to gain access to treatment for their family members, for their views of the barriers and facilitators into treatment and information sources. This format will also enable cannabis users, in addition to those specified in the other components of the project, who are particularly concerned for their privacy, including those with co-morbid mental health disorders and those in rural and regional settings, to participate in the research.

This is a twelve month study which is due for completion in early 2008. The findings will inform a number of activities of the National Cannabis Prevention and Information Centre (NCPIC) during its first year.

Treatment for female drug injectors in Iran

Kate Dolan and Bradley Mathers

Iranian collaborators: Bijan Nassirimanesh, Setareh Mohsenifar, Zinat Sadeghi, Shabnam Salimi and Azarakhsh Mokri

Late last year the Program of International Research and Training (PIRT) was awarded a grant of nearly $300,000 to assist with the development and evaluation of specialist services for female drug users in Iran. PIRT had been trying to secure funding for three years, after a visit to Iranian prisons in September 2003.

There are three components to this project. The establishment of a community-based clinic specifically for female drug injectors, the establishment of a prison based methadone maintenance program with facilitated referral to the community clinic, as well as an evaluation component.

The clinic opened in August 2007 and was renovated to the women's liking. There is a communal room for clients to socialise. At the clinic there are a co-ordinator, a doctor, a midwife, nurses, a lawyer, a social worker, a psychologist and an administrator. At the prison there are a facilitator, doctor, nurse and psychologist. There is also a researcher and an accountant.

At the clinic 30 women have been placed on methadone so far and their mean dosage is 65 mg. The midwife has seen many clients, mostly for gynaecological problems. The lawyer has assisted clients with problems related to their families or finances. The social worker has introduced carpet weaving and classes to improve clients' skills in computing, typing, sewing and candle making. The social worker holds weekly educational sessions where the clients determine the topic for discussion. She has negotiated with a Welfare Organisation to provide loans to clients to start a business once they learn a new skill. The psychologist will begin group therapy sessions soon, using a behavioural psychotherapy approach. The clinic has organised for low cost dental treatment for the clients.

Three staff members – a doctor, a nurse and a psychologist – are employed as part of the Prison Methadone Program. Several sessions have been held for female prisoners inside the general yard to increase their knowledge about drug abuse and methadone. The research component of the project is about to commence. The project will run for 18 months.

Developing a common metric to evaluate policy options (the Harm Index)

Alison Ritter and Colleen Faes

One of the challenges for drug policy research is being able to compare policy options and outcomes. Comparisons between regions or countries, within regions and over time, and across domains of policy initiative: law enforcement, treatment, harm reduction and prevention are all relevant. The development of indexes, such as the UK Drug Harm Index or the UNODC Illicit Drug Index is a way to systematically enable such comparisons. The Drug Policy Modelling Program (DPMP) is also developing a comparative index.

DPMP is concerned with evaluating drug policy. In the main, DPMP is using models or simulations, as a primary method to evaluate policy options. It is intended that the simulations can derive reasonable and plausible effect sizes for the impacts of different drug policies. For example a model that can estimate the effect of a new compulsory treatment program for all cannabis users detected by police; or a model to compare a new treatment for methamphetamine dependence with the effect of law enforcement directed at seizing methamphetamine supplies. If we want to build models that can compare policies, we need outcome measures that can be used in the models.

It is in this context that DPMP is engaged in a project to develop a policy outcome index. The purpose of the DPMP policy outcome index is to compare different policy options and their effects, using a common metric.

The method applied for the DPMP Index involves determining an approach to outcomes, identifying all the outcomes, and quantifying them through the application of a social cost framework. Because each drug is different in its prevalence, consumption and most importantly harms, the Index developed by us is specific to individual drugs. In addition we distinguish between dependent and non-dependent use to manage the huge variance in harms associated with patterns of use. The feasibility of the DPMP approach has been examined. We conclude that the Index is feasible and worth further research endeavour.

The development and use of the DPMP index is an ongoing program of research.

Cannabis Cohort Research Consortium

Edmund Silins, Jennifer McLaren, Delyse Hutchinson and Richard Mattick

Cannabis is the most widely used illicit drug in Australia. Research suggests that cannabis use, particularly heavy regular use, may impact negatively on people's mental and physical health, educational and occupational attainment, use of other licit and illicit drugs and criminal involvement. In particular, there has been a surge of interest worldwide in understanding the link between cannabis and mental health problems such as depression, psychotic disorders and anxiety. Age of initiation to cannabis use in young people has also decreased in recent years and is associated with greater risk of subsequent problems.

Moreover, drug treatment and hospital data indicate that there has been a significant rise in the number of people seeking help for cannabis-related problems.

The recently published National Cannabis Strategy identified an urgent need to better understand current gaps in knowledge on cannabis use in Australia. Longitudinal cohort studies, or studies which follow a sample of the general population over time, provide the best available methodology for investigating the association between cannabis use and a range of adverse health and other outcomes. Existing Australian and New Zealand birth and adolescent cohorts have produced large data sets which provide unique and important information on cannabis and other drug use, mental health and psychosocial factors. Collaboration between researchers involved in existing cohorts will greatly advance longitudinal cannabis-related research. The recently formed Cannabis Cohort Research Consortium brings together a wide range of researchers for this purpose.

The main aims of the Consortium are to plan, conduct and disseminate cannabis research in a number of priority areas. Specifically, the Consortium aims to:

- identify limitations in knowledge on patterns of cannabis use and harms
- examine these limitations through secondary data analysis
- provide health and policy relevant feedback to the Commonwealth and health professionals
- provide information to the National Cannabis Prevention and Information Centre (NCPIC) for broader dissemination.

Priority research areas already identified include: the natural history of cannabis use; early life predictors of cannabis uptake; identification of critical child, adolescent and adult developmental time points at which interventions for cannabis use are likely to be effective; impacts of cannabis use on mental health; links between cannabis use and criminal offending; and, impacts of cannabis use on educational and occupational attainment.

Research findings generated from the Consortium will greatly increase current knowledge on cannabis use and the prevalence of associated problems, poor outcomes and other harms in Australia. In turn, this will guide the development and improvement of effective health policy and treatment responses to cannabis. The Cannabis Cohort Research Consortium brings together University of New South Wales (UNSW) and a range of external research affiliates.

For additional information about the Consortium contact Delyse Hutchinson (d.hutchinson@unsw.edu.au) or Edmund Silins (e.silins@unsw.edu.au). **cl**

abstracts

Characteristics of drug-related hospital separations in Australia

Drug and Alcohol Dependence 92, 149–155

Amanda Roxburgh and Louisa Degenhardt

Background: To examine (a) numbers of alcohol and drug-related hospital separations, 1999–2005; (b) demographics of these separations; (c) principal diagnoses co-occurring with drug-related problems; (d) length of hospital stay.

Methods: Data from the National Hospital Morbidity Database (NHMD) were analysed. Hospital separations where alcohol, opioids, amphetamine, cannabis, cocaine, other drugs (such as sedatives and hypnotics) and pharmaceutical poisoning were mentioned were examined.

Results: Numbers per million persons were highest for alcohol, followed by other drugs, particularly sedatives and hypnotics. Alcohol and opioids-related problems were prominent among older age groups, whereas cannabis and pharmaceutical poisoning problems had greater proportions among 15–24 year olds. Opioid-related separations were relatively high in number within the context of prevalence of use, and often accompanied by principal diagnoses of physical or general health problems. Almost half of amphetamine and cannabis-related separations were accompanied by principal diagnoses of mental health problems.

Conclusions: This research highlights the complexities of drug-related hospital presentations, indicating the need for thorough assessment of physical and mental problems, as well as a drug use history at the time of admission. Continued development of integrated models of care, targeting both mental health and drug use are essential. Consistent with the international literature, many of these separations are preventable, particularly those for pharmaceutical poisoning. Finally, ongoing efforts to reduce the significantly greater harms related to opioid use, as well as increasing treatment opportunities for opioid-dependent people in Australia is an important public health priority.

Patterns of nonfatal heroin overdose over a 3-year period: Findings from the Australian Treatment Outcome Study

Journal of Urban Health 84, 283-291

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

To determine annual patterns and correlates of nonfatal heroin overdose across 3 years, data were analyzed on 387 heroin users recruited for the Australian Treatment Outcome Study (ATOS), interviewed at 12, 24, and 36 months. A heroin overdose across follow-up was reported by 18.6%, and naloxone had been administered to 11.9%. Annual rates of overdose declined between baseline and 12 months and then remained stable. Previous overdose experience was strongly related to subsequent overdose. Those with a history of overdose before ATOS were significantly more likely to overdose during the study period. In particular, there was a strong association between overdose experience in any 1 year and increased overdose risk in the subsequent year. This is the first study to examine long-term annual trends in nonfatal heroin overdose. While overdose rates declined after extensive treatment, substantial proportions continued to overdose in each year, and this was strongly associated with overdose history.

Contemporary cocaine use patterns and associated harms in Melbourne and Sydney, Australia

Drug and Alcohol Review 26, 537-543

James Shearer, Jennifer Johnston, Craig Fry, Sharlene Kaye, Paul Dillon, Paul Dietze and Lynette Collins

The aim of this paper was to explore the nature of cocaine use and harms through a cross-sectional survey of cocaine users interviewed in the two largest Australian cities of Sydney (n=88) and Melbourne (n=77) between October 2004 and January 2005. The study supported previous findings that Australian cocaine users could be classified broadly into two types. The majority of cocaine users interviewed were classified as socially and economically integrated. They were young, employed, well-educated people who generally snorted cocaine on a recreational basis, typically in conjunction with other illicit and licit drugs. A second group of socially and economically marginalised users, residing mainly in Sydney, injected cocaine often in conjunction with heroin. This group reported significantly higher levels of cocaine use, cocaine dependence, criminal behaviour and human immunodeficiency virus (HIV) risk-taking behaviour. Heroin use was found to predict independently higher levels of cocaine use, criminal behaviour, needle sharing and physical problems in this sample, suggesting that increased resources and coverage for combined heroin/cocaine users may have scope for reducing cocaine-related problems in the Australian community.

Using population data to examine the prevalence and correlates of neonatal abstinence syndrome

Drug and Alcohol Review 26, 487-492

Lucy Burns and Richard Mattick

The objective of this study was to determine the population prevalence and correlates of neonatal abstinence syndrome among neonates born to women on methadone, using a cross-sectional analysis of linked population health data. A total of 2941 live births to women actively on methadone at delivery were analysed over an 11-year period (1992–2002). Of these births, 796 neonates (27%) were diagnosed with an International Classification of Diseases – 9CM (ICD-9CM) or International Classification of Diseases ICD – 0AM (ICD-10AM) diagnosis related to neonatal withdrawal from exposure to opiates in utero (NAS). There were significant differences found between mothers whose neonates did and did not receive an International Classification of Diseases NAS-related diagnosis. Mothers of neonates with a NAS-related diagnosis had a higher number of previous pregnancies, were more likely to be indigenous, to smoke more heavily and were more likely to present for delivery unbooked. Neonates diagnosed with NAS were admitted to Special Care Nursery more often. NAS is diagnosed less frequently using International Classification of Diseases (ICD) codes than when using clinical scales measuring opiate-related neonatal withdrawal. This suggests that NAS may be under-represented in hospital morbidity databases that use ICD codes to quantify patient throughput and in some circumstances this may result from under-detection of the condition. Future research should therefore seek to determine the validity of NAS recording in hospital morbidity databases reliant on the use ICD codes.

The impact of treatment on 3 years' outcome for heroin dependence: Findings from the Australian Treatment Outcome Study (ATOS)

Addiction 103, 80-88

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

Aim: To examine the impact of treatment for heroin dependence on drug use, injection-related risk-taking, health problems, criminality and general physical and mental health over 3 years among heroin-dependent Australians.

Design: Longitudinal prospective cohort study.

Participants: A total of 615 heroin users enrolled in the Australian Treatment Outcome Study; 94.5% of the sample completed at least one follow-up interview over 36-month follow-up.

Findings: The proportion who reported using heroin in the preceding month continued to decrease significantly from baseline to 24-month follow-up (99% versus 35%), with this rate remaining stable to 36-month follow-up. The reduction in heroin use was accompanied by reductions in other drug use. There were also substantial reductions in risk-taking, crime, injection-related health problems and improvements in general physical and mental health. Positive outcomes were associated with more time in maintenance therapies and residential rehabilitation and fewer treatment episodes. Time spent in detoxification was not associated with positive outcomes. Major depression was also associated consistently with poorer outcome.

Conclusions: At 3 years, there were impressive reductions in drug use, criminality, psychopathology and injection-related health problems following treatment exposure. **cl**

recent **publications**

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Technical Reports and Monographs

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