MONOGRAPH 10

DATA SOURCES ON ILLICIT DRUG USE AND HARM IN AUSTRALIA

Louisa Degenhardt

National Drug and Alcohol Research Centre, University of New South Wales

Paul Dietze

Turning Point Alcohol and Drug Centre
Monash Institute of Health Services Research

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THE DRUG MODELLING POLICY PROJECT

This monograph forms part of the Drug Policy Modelling Project (DPMP) Monograph Series.

Drugs are a major social problem and are inextricably linked to the major socio-economic issues of our time. Our current drug policies are inadequate and governments are not getting the best returns on their investment. There are a number of reasons why: there is a lack of evidence upon which to base policies; the evidence that does exist is not necessarily analysed and used in policy decision-making; we do not have adequate approaches or models to help policy-makers make good decisions about dealing with drug problems; and drug policy is a highly complicated and politicised arena.

The aim of the Drug Policy Modelling Project (DPMP) is to create valuable new drug policy insights, ideas and interventions that will allow Australia to respond with alacrity and success to illicit drug use. DPMP addresses drug policy using a comprehensive approach, that includes consideration of law enforcement, prevention, treatment and harm reduction. The dynamic interaction between policy options is an essential component in understanding best investment in drug policy. Stage One has: a) produced new insights into heroin use, harms, and the economics of drug markets; b) identified what we know about what works (through systematic reviews); c) identified valuable dynamic modelling approaches to underpin decision support tools; and d) mapped out the national policy-making process in a new way, as a prelude to gaining new understanding of policy-making processes and building highly effective research-policy interaction.

This Monograph (No. 10) provides a description and review of the routinely-collected data sources available in Australia that capture information on illicit drug use and related harms. Based on work undertaken at the National Drug and Alcohol Research Centre and Turning Point Alcohol and Drug Centre, it is intended as a reference document to provide interested persons with a guide to the type and nature of the information available in Australia. It reviews available data across four main domains; patterns and prevalence of use, health consequences, market characteristics and drug crime. For a review of information available on the economic aspects of illicit drug use and harm see Monograph 09 of this series.

Monographs in the series are:

01.   What is Australia's "drug budget"? The policy mix of illicit drug-related government spending in Australia

02.   Drug policy interventions: A comprehensive list and a review of classification schemes

03.   Estimating the prevalence of problematic heroin use in Melbourne

04.   Australian illicit drugs policy: Mapping structures and processes

05.   Drug law enforcement: the evidence

06.   A systematic review of harm reduction

07.   School based drug prevention: A systematic review of the effectiveness on illicit drug use

DPMP strives to generate new policies, new ways of making policy and new policy activity and evaluation. Ultimately our program of work aims to generate effective new illicit drug policy in Australia. I hope this Monograph contributes to Australian drug policy and that you find it informative and useful.

Alison Ritter
Director, DPMP

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INTRODUCTION

There is a wide variety of data sources that capture information on illicit drug use available in Australia, ranging from surveys of the general population and drug users through to routine data collections by various levels of government (ie local, state and federal). These are collected, maintained, analysed and held by a range of agencies, primarily government departments and organisations, or research agencies.

This report details the results of a review of the key data sources available on illicit drug use and harms available in Australia. The data sources considered are those that provide the key mechanism for the surveillance of the nature and extent of illicit drug use and related harms in Australia and are often used for policy formulation and evaluation (Williams, 1998). These data can be broadly categorised into direct or indirect data sources depending on the nature of the data collection. Direct data sources generally refer to those in which a group of participants is asked about their use of drugs and/or their experiences of the consequences of drug use. Indirect data sources generally refer to those that are "indicators" of drug use. By the term "indicator" we mean "that which serves to indicate or give a suggestion *of* something" (Barker, Conroy, Degenhardt, Kimber, & Dolan, 2004). In other words, an indicator is an indirect measure of a variable (or exposure) of interest, in this case the use of, or problems related to, illicit drugs.

With respect to illicit drugs, direct data sources are usually flawed by virtue of the difficulties in sampling representative groups within the community, the truthfulness of responses when asking about illegal behaviours, and a limited capacity to validate responses obtained (Hser, 1993). For these reasons the key variables of interest are often difficult to quantify, and even if they can be easily quantified, they may be difficult to measure in a reliable and exact fashion. Indicator data are therefore approximate and often imperfect measures of the nature and extent of particular drug-related events or outcomes.

The focus of this report is on the wide variety of these indicator data available in Australia. The World Health Organisation (WHO) further classifies indicators according to their function - structural, process or outcome (see Appendix A). Most of the indicators considered in this report relate to outcomes associated with illicit drug use.

The quality (and usefulness) of any indicator can be affected by a broad range of factors (Barker et al., 2004). These include:
- The accuracy with which the indicator reflects the variable of interest;
- The accuracy with which the indicator is collected;
- The reliability with which the indicator is collected;
- The period over which the indicator has been collected;
- Whether the indicator can differentiate between licit and illicit drugs;
- The extent to which the indicator can differentiate between illicit drugs (such as the more "traditional" or well-known drug classes [heroin, cocaine, methamphetamine, cannabis], more recently identified "party drugs" [ecstasy, MDA, ketamine, GHB] and other emerging drugs [e.g. 1,4-BD, PMA]); and
- The suitability of the indicator for monitoring trends at varying geographic levels (e.g. local, state, national).

Further data issues to consider that are relevant include:

- The representativeness of the data, be it of the general population, the broader community of illicit drug users, or important sub-populations (e.g. injecting drug users, ethnic and other minorities);
- The ability to detect changes in the underlying variables of interest; and
- Whether causal attribution of changes in the characteristics of indicator data (e.g. time, place) can be ascertained.

Indicator data are generally obtained from routine data collection systems (such as administrative datasets) that have been designed primarily as collection systems for ongoing monitoring purposes, related to program parameters such as funding (Barker et al., 2004). For example, the primary aim of administrative datasets is to support and facilitate the provision of a service. Although data may be routinely collected, it is often from a non-random population and is only one by-product of the service (Trewin, 2001). This means that the data items may: be limited; change over time; not be tailored to research use; be recorded manually and/or electronically; lack stringent quality checks for missing or incorrectly entered data; and not be completely comparable with definitions used by other agencies.

Due to the significant harms associated with injecting drug use (IDU), there is an emphasis of policy and programs (hence datasets) to record the outcomes associated with IDU. There is less information available on the more widespread non-injecting use of illicit drugs (Trewin, 2001). However, endeavours have been made to assist in filling this information gap, an example being the Party Drugs Initiative (PDI) of the Illicit Drug Reporting System (IDRS) (Degenhardt, Stafford et al., 2005; Stafford et al., 2005).

Many datasets collect some manner of information on minority groups (defined by a variety of criteria including ethnicity, country of birth, language spoken at home or ATSI status). Although the ability of datasets to reliably comment on these groups is not a focus of this report, is important to note that the small number of respondents usually contained within each category may limit the use of the information (Trewin, 2001). In addition, although minority groups such as the homeless and mentally ill are amongst the more disadvantaged groups in society, generally datasets do not have the potential to record these demographic categories despite the acknowledged associations between these underlying demographic factors and illicit drug use.

On most administrative datasets geographic location about individuals is recorded. While this information is often recorded through postcodes, some systems make use of census-derived administrative statistical units such as statistical local areas (SLAs) or Local Government Areas (LGAs). It is important to note that some survey datasets do not record sub-state data (such as the IDRS) or if they do (such as the National Drug Strategy Household Survey - NDSHS) the numbers are generally considered too small to provide reliable sub-state data on illicit drug use and related harms (Trewin, 2001).

One of the key uses of the data considered in this monograph is the ability to detect differences or changes over time. The ability to detect such differences is influenced by the size of the sample. Given that some indicators reflecting illicit drug use and related harms involves the use of relatively small numbers (e.g. the number of overdoses in a month), this leads to potential problems in ascertaining statistically significant differences over time. In addition, if there are perceivable changes in an indicator over time, it is important to note that they may be due to

changes in the way the data have been recorded and/or measured (i.e. artificial artefacts of the data coding process).

Finally, if change can be reliably detected, the next question is whether causal attribution can be ascertained. That is, what were the drivers behind any change observed, such as changes in the underlying prevalence and/or patterns of use of a given drug or changes in the nature of the harms experienced by drug users. This then relates to the drivers of these changes such as specific policy initiatives (at local, state, national and international levels) or other factors (e.g. changes in drug manufacture, distribution or use) that alone or in combination may have brought about the changes observed in the indicator variables. Causality is best established under experimental conditions such as in randomised controlled trials. While techniques are available to establish causality in other research designs, these are generally limited and caution should be exercised when commenting on why there are observed changes in indirect, ecological data in particular.

Summary and aims

All of the data issues mentioned above serve to illustrate that the use and interpretation of indicator data over time, and in the "real world" (i.e. outside of studies and experiments), is a complicated task. There is a myriad of factors influencing the quality of available data. However, if all the caveats are considered, and multiple indicators point to the same finding, researchers and policy makers are able to more confidently draw conclusions about the data. This is the premise of the much of the work undertaken in the illicit drugs field, embodied in surveillance projects such as the IDRS, and the model widely recommended for interpreting findings from illicit drug-related data.

The data sets considered in this Monograph have been categorised as follows:
1. Prevalence of drug use and characteristics of drug users;
2. Characteristics of drug markets;
3. Health consequences; and
4. Drug crime.

PREVALENCE AND PATTERNS OF DRUG USE

The prevalence and patterns of drug use in the Australian community are typically directly measured through surveys that vary dramatically in terms of sampling, targeting and intent. There are a number of routine surveys that provide information relating to the prevalence of drug use and the characteristics of individuals who use drugs. These surveys include those that access the general population and those that access specific drug using sub-populations.

General population surveys

Table 1 summarises the key characteristics of the two major general population surveys routinely conducted in Australia that include questions relating to the use of illicit drugs, along with a specific one-off survey.

Table 1: General population surveys that address illicit drug use

Survey type	Year(s) available	Level of analysis	Sample size	Utility for monitoring trends in consumption
Australian School Students Alcohol and Drug Survey	Triennial from 1996	National, State, health regions	n=30000, years 7 to 12	Some value for cannabis (limited value for other illicit drugs)
National Drug Strategy Household Surveys	Triennial from 1985	National, State	n=up to 25000	Some value for cannabis (limited value for other illicit drugs)
National Survey of Mental Health and Well Being	1997	National, State	n=10600	Some value for cannabis (limited value for other illicit drugs)

The Australian School Students Alcohol and Drug Survey is a national compilation of state-specific surveys managed by the Victorian Cancer Council. Prior to 1996, surveys were conducted differently in the different states (e.g. in Victoria in relation to drug use in 1992 and alcohol and tobacco use in 1993). The survey typically covers the following illegal drugs: cannabis, amphetamines, cocaine, narcotics, steroids, ecstasy and hallucinogens. Sampling involves the generation of random samples of secondary school students in Government, Catholic and Independent schools at years 7 to 12. Participants are asked about frequency of drug use and basic patterns of use during class time (with teachers present or absent depending upon schools).

The National Drug Strategy (NDS) Household Surveys have been conducted nationally since 1985 (commencing as an evaluation measure for the National Campaign Against Drug Abuse). The sample size has varied over time from around 3000 in 1985 up to around 25000 in 2001. Data collection methods have also varied from anonymous mail-back for the 'sealed section' (covering participants' drug use) to Computer Assisted Telephone Interviewing (CATI). The surveys typically cover a wide range of drug using behaviours (including purchase and use locations) and some sequelae (e.g. experience of violence) across a range of illicit drugs including: cannabis, amphetamines, hallucinogens, cocaine, ecstasy, designer drugs, and heroin. Respondents are asked whether they had ever used the drugs and whether they had used them within the past 12 months, along with basic questions about poly-drug and injecting drug use. Changes in questions over time limit the comparability of survey responses (especially in the 2001 survey where a change from the previously used "tried drugs" to "used drugs" was made across some drug use questions – a change carried forward into the 2004 survey).

The 1997 National Survey of Mental Health and Well Being was conducted by the Australian Bureau of Statistics (ABS) on behalf of the Commonwealth Department of Health and Family Services (Australian Bureau of Statistics, 1998). This profile was a random probability survey of 10,641 adults in Australia that incorporated the Composite International Diagnostic Interview (CIDI) for diagnosing mental and behavioural disorders (including alcohol and other drugs use and use disorders). The survey can be used to provide estimates of the prevalence and correlates of illicit drug use disorders (Hall, Teesson, Lynskey, & Degenhardt, 1999; Swift, Hall, & Teesson, 2001). Further, the use of the CIDI allows for an examination of the relationship between alcohol and other drug use to other psychiatric comorbidity (Burns & Teesson, 2002; Degenhardt & Hall, 2001a, 2001b; Degenhardt, Hall, & Lynskey, 2001a, 2001b, 2001c). This survey will be repeated in 2007.

These surveys provide the most direct measures of prevalence and patterns of illicit drug use within the Australian community. However, there are a number of serious limitations with these surveys that restrict their utility in monitoring trends in illicit drug use over time. These include:

a) The frequency of the implementation of the surveys
Unlike comparable surveys in the USA, the routinely collected surveys in Australia are conducted only every three years meaning that it is not possible to monitor annual changes in drug use or provide an appropriate number of data points for modelling exercises such as those undertaken for the DPMP. The National Survey of Mental Health and Well Being is currently only a one-off survey and will not be repeated until 2007.

b) The precision of estimates of the prevalence illicit drug use
It is clear that, with the exception of cannabis, the prevalence of illicit drug use within the community is very low. This means that it is not possible to obtain precise measures of the prevalence of illicit drug use (for drugs other than cannabis). The surveys reviewed here produce imprecise prevalence estimates (ie estimates that have very large confidence intervals or margins of error relative to the nominal prevalence) for the consumption of drugs such as heroin, amphetamines, cocaine and hallucinogens.

c) Issues relating to the reliability and validity of the data
While trends in the results of these types of survey are widely reported, (Makkai & McAllister, 1998) it is generally agreed that these types of survey do not provide valid and reliable information regarding the less common forms of illicit drug use (Hser, 1993). First, it is highly likely that the surveys underestimate illicit drug use within the community as a result of the reluctance on the part of survey participants to report their engagement in a socially undesirable behaviour. In this regard it should be noted that the response rate for the NDS survey is generally only around 50%. In addition, as these surveys only target households, they may miss heroin users in the population who do not live in stable housing, are homeless, are concentrated within relatively small geographic areas, or are otherwise inaccessible through this type of sampling strategy (Hall, Ross, Lynskey, Law, & Degenhardt, 2000; Larson & Bammer, 1996).

Summary
The surveys reviewed here have some potential for monitoring trends in the use of cannabis in Australia and can be used for some of the modelling work undertaken for the DPMP. However, important caveats need to be understood as these surveys provide only imprecise estimates of the use of other illicit drugs such as heroin, cocaine, hallucinogens and amphetamines as well as injecting drug use as a whole.

Surveys of drug using populations

Specialist surveys of drug using populations provide information regarding the characteristics of illicit drug use among particular groups within the community. They are however, of only limited utility for examining trends in drug use within the community. One of the major problems is that these surveys are often conducted only once, usually as a component of a particular research project. (e.g. the VICS cohort Crofts, Jolley, Kaldor, van Beek, & Wodak, 1997) In addition, it is not possible to access a representative sample of the population in question as there is insufficient information regarding the parameters of the population (e.g. heroin users in Melbourne) with which to inform the sampling strategy (Hser, 1993). While a review of studies in this area shows that a number of surveys of illicit drug using populations (including large samples such as the Australian Prevalence Estimation and Treatment study), the only surveys that have been repeatedly administered during recent years are the IDU survey component of the IDRS (Topp et al., 2002) and the National Needle and Syringe Program Survey (MacDonald et al., 2000).

The Illicit Drug Reporting System

The IDRS is funded by the Australian Government and the main aim of the project is to monitor key trends in illicit drug use in Australia. It involves a survey of IDU, key informant interviews and analysis of other indicators (Hando, Darke, O'Brien, Maher, & Hall, 1998). IDU are targeted in this research as they are considered to be a key sentinel group for monitoring trends in illicit drug use within the community. The IDRS was first implemented in Sydney in 1996 with Victoria and South Australia involved from 1997 and the remaining Australian jurisdictions involved since 1999. IDU survey numbers typically range from 100 to 150 depending upon the jurisdiction involved (although Victoria had samples of over 250 in 1997 and 1998). IDU are asked about their patterns of drug use, perceptions of price, purity and availability, health status and involvement in drug related crime. Although these surveys are cross-sectional in nature, a consistent sampling methodology is generally applied across years and standard questionnaires are used across jurisdictions (with changes in some non-core questions evident across years). The IDRS surveys provide a basis for an analysis of trends in illicit drug use among IDU, a recognised high risk group of drug users within the community. However, the value of the surveys is restricted because only convenience samples are used. This means that any changes from year to year may represent changes in the samples obtained rather than any changes in underlying drug use/market patterns. To the extent that the sampling frames remain constant over time, however, this limitation may be constrained.

Information regarding the ecstasy market is not captured well by systems designed to monitor trends among IDU. Over the past six years, efforts have been made to increase our understanding of the availability, patterns of use and harms associated with ecstasy and related drugs (ERDs) across Australia. Systems such as the IDRS, which concentrate upon IDU, are limited in their capacity to provide information about the use of these drugs. The PDI has monitored the market for ecstasy and related drugs in selected jurisdictions since 2000 (Breen, Topp, & Longo, 2002), and nationally since 2003 (Breen et al., 2004; Stafford et al., 2005). The PDI is designed to be sensitive to emerging trends in the use and harms of ERDs, providing data in a timely manner for users, healthcare professionals and law enforcement about trends in these markets, such that evidence-based responses to these trends can occur. It is based on the established IDRS methodology (Hando et al., 1998) and consists of three components, which are triangulated to maximise validity: interviews with regular ecstasy users (REUs); interviews with professionals (key experts) who have regular contact with REUs; and analysis and examination of relevant indicator data.

Survey of Needle and Syringe Program Attendees

The National Survey of Needle and Syringe Program Attendees, managed by the National Centre for HIV Epidemiology and Clinical Research, is a survey of around 2,000 IDU conducted at selected needle and syringe programs across Australia (MacDonald et al., 2000). The focus of the survey is upon blood borne virus transmission (with blood samples taken) but the survey does include information on self-reported frequency of injection along with recent patterns of drug use. However, as with the IDRS and PDI, the value of the survey is limited by its convenience sampling strategy (which is not necessarily consistent across survey years with changes in recruitment site evident in Victoria for example).

Drug Use Monitoring in Australia

Although not a national data source, a data source that has great potential for monitoring trends in illicit drug use related to crime is the Drug Use Monitoring in Australia system (DUMA). This system, implemented and managed in a number of sites across Australia (NSW, QLD, SA and WA) by the Australian Institute of Criminology (AIC), incorporates collection of urine samples along with a survey of arrestees designed to address drug purchasing and consumption and their relationship to crime. The system provides information similar to some of the key surveillance systems implemented overseas (e.g. ADAM in the USA). The results, published annually by the AIC provide an important picture of the extent of drug involvement in criminal activity in Australia and have been used in the development of aetiological fractions for the extent of drug involvement in property crime (Collins & Lapsley, 2002).

Summary

In contrast to other areas of public health surveillance there are significant issues associated with direct data collection in the field of illicit drugs. While survey datasets have the advantage of being targeted to the population of interest, they may or may not use random selection, have a sufficient population size, sufficient geographic coverage, include participants from all potential resident types, have a high response rate or be a closed questionnaire design. These factors all impact on the ability to draw accurate conclusions about some issues. For example, although a survey or program may target injecting drug users, it cannot be automatically assumed that this information is representative of all people who inject drugs. The capacity to generalise to the broader population of injecting and non-injecting drug users and the general community from survey data therefore depends not only on data quality issues but also the scope and nature of the survey data collection involved.

DRUG MARKET CHARACTERISTICS

An important component of monitoring trends illicit drug use and harms in the community is surveillance of key aspects of the drug market. In part, this due to the recognition that market parameters such as the price, purity and availability of the drug exert a strong influence on patterns of drug purchasing and consumption (Weatherburn & Lind, 1997). The key aspects of the drug market are as follows[1]:

Drug prices

Data relating to drug prices are routinely collected by the Australian Federal Police and state police services particularly through specialist drug operations that involve the purchasing of drugs. These data are collated nationally by the Australian Crime Commission, but our examination of the system used by Victoria Police suggests that the information is of only limited reliability.

Price information is also collected through the IDRS key expert surveys and drug user surveys (both for the IDU and PDI implementations of the project). This research focuses on prices paid by drug users in the retail market, with the survey canvassing prices paid across a variety of drugs and purchase quantities. While the reliability and validity of the information obtained through these surveys is unknown, the theory behind the IDRS (see previous section) suggests that these groups of drug users are an important sentinel source of information on drug prices.

Drug purity

The primary source relating to the purity of illicit drugs in Australia is the Australian Crime Commission's compilation of data available from state forensic laboratories (as well as the equivalent federal laboratory for some seizures made by the Australian Federal Police). These laboratories conduct the scientific analysis of drug seizures made for most illicit drugs excluding cannabis (due to technical reasons the potency of cannabis in terms of THC content is not currently routinely tested). Nevertheless, not all seizures are tested across Australia (with the exception of Victoria) as testing is generally only conducted for seizures used in evidence.

Estimates of purity from seizure data are reliable and consistent indicators of the quality of the drugs seized by law enforcement to the extent that methods for analysing drugs remain reasonably consistent over time. They can be a more reliable source of purity estimates than estimates provided by users. However, such data are also subject to a number of problems (Stimson, Fitch, Rhodes, & Ball, 1999). The amount of drugs seized may be affected by specific law enforcement operations; not all illicit drugs seized by Australia's law enforcement agencies are subjected to forensic analysis; and there is a difference between street level seizures and high-level seizures. With the exception of Victoria, figures do not represent the purity levels of all drug seizures – only those that have been analysed at a forensic laboratory. In NSW, for example, this represents those seizures that are the subject of some contest during criminal proceedings. To the extent that these biases remain consistent over time, however, changes in this indicator may provide useful indications of market changes.

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1 See also Moore, T.J., Caulkins, J.P., Ritter, A., Dietze, P., Monagle, S. & Pruden, J. (2005). Monograph No. 09: Heroin markets in Australia: Current understandings and future possibilities. *DPMP Monograph Series*. Fitzroy: Turning Point Alcohol and Drug Centre.

The IDRS survey of injecting drug users provides information regarding the subjective perceptions of drug users about the purity of the drugs they use. The relationship between these perceptions and actual drug purity is unknown.

Form of the drug

Most illicit drugs are available in a variety of forms. For example, heroin may be purchased in either rock or powder form. The IDRS drug user and key expert surveys provide information regarding the form of the drug used by the participants and forensic databases detailed above also include information on drug form.

Drug availability

While it is not possible to directly measure drug availability, the IDRS key expert and drug user surveys provide information regarding availability through the subjective judgement of the consumers. The IDRS IDU survey assesses users' knowledge of the availability of a variety of drugs including heroin, cocaine, amphetamines and cannabis availability, through questions which ask participants about how easy they believe it is to obtain these drugs and whether this has recently changed. In a similar fashion the PDI survey assesses users' knowledge of the availability of ecstasy, amphetamines, cocaine, MDA, GHB, ketamine and LSD.

HEALTH CONSEQUENCES

While there is some direct measurement of the health consequences associated with drug use through the survey data considered in the previous section, information on the health consequences of drug use is typically obtained from the analysis of relevant indicator data.

Morbidity

There is a wide variety of data sources available that contain information regarding various aspects of illicit drug-related illness and disease.

Emergency department visits

Currently, there is no national compilation of data on hospital Emergency Department utilisation. Instead, information regarding admissions to hospital Emergency Departments is collected by state health departments (e.g. the Victorian Emergency Minimum Dataset, VEMD, or the Emergency Department Information System, EDIS, in NSW). These databases vary considerably in quality across Australia in terms of completeness and accuracy of the application of ICD and other coding systems. However, in some cases they provide the only routine data on more acute complications related to the use of illicit drugs such as methamphetamine, which may be related to drug induced psychosis.

Hospital separations

Information regarding inpatient hospital admissions is collated by the Australian Institute of Health and Welfare (AIHW) through the National Hospital Morbidity Database (NHMD). This is a computerised database of Australian inpatient hospital separations drawn from state health department compilations. Separations are categorised according to the ICD coding system (up to 20 diagnoses) and the database is updated on an annual basis. This database provides an indication of the number of inpatient separations that may be attributed to various types of illicit drugs on the basis of ICD codes.

There are however, a number of limitations to this data source. Firstly, there is evidence that coding of diagnoses are only reliable for primary diagnoses (MacIntyre, Ackland, & Chandraraj, 1997; MacIntyre, Ackland, Chandraraj, & Pilla, 1997), which means that illicit drug-related separations may be underestimated as identification of the illicit drug may only be present at secondary diagnosis and beyond. Further, there are relatively few illicit drug-related inpatient separations - illicit drug-related morbidity usually results in treatment in hospital Emergency Departments only, for which there is currently no national compilation. Finally, as the national compilation is only available without unique identifiers, it is impossible to assess the extent to which the separations represent multiple individuals or multiple separations for the same individual.

Overdose

Overdose is a common and serious consequence of illicit drug use, particularly in relation to heroin use. There are a variety of data sources that provide information regarding the nature and extent of overdoses associated with illicit drug use within the community. The key data source used to examine heroin overdose is that pertaining to ambulance attendance (Dietze et al., 2004). Currently, there is only a national compilation of ambulance attendances related to heroin overdose (although information on attendances involving other drugs is currently compiled in Victoria). Further, the quality of the data varies dramatically across Australian jurisdictions with

little comparability available in terms of overdose definitions and attendance characteristics (Dietze et al., 2004). Nevertheless, ambulance attendance data are widely used in the analysis of heroin overdose patterns across Australia (Dietze et al., 2004; Weatherburn, Jones, Freeman, & Makkai, 2001), but still usually refers only to cases, as opposed to individuals, as described in relation to the hospital morbidity data above.

Information regarding hospital separations for drug overdose is available in the hospital databases described above. Information is routinely collected in the drug user surveys of the IDRS and PDI regarding participants' experience of non-fatal overdose. (See section on mortality fatal overdose data sources.)

Treatment service utilisation

Apart from the 1997 National Mental Health and Well Being Profile of Adults, the only other sources of information regarding the prevalence of drug dependence in the community are the records of treatment services. These records provide an indication of the utilisation of treatment services by individuals within the community. There are a number of data sources that may be used for this purpose.

Telephone Help-Lines

Telephone help-lines for drug related issues are provided in all states and territories in Australia. These are typically referred to as Alcohol and Drug Information Systems (ADIS), or DirectLine in Victoria. State and territory health departments compile information on calls to these help-lines but there is no consistent database of these calls maintained across Australia. Further, the interpretation of the data compiled by health departments is complicated by differences in counting rules, differences in service operation and by the fact that the number of calls made to the service in a given period is influenced by the level of promotion of the service and level of awareness of the service within the community.

Specialist treatment services

The Australian Institute of Health and Welfare compiles the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS-NMDS). Derived from data collections undertaken at a state level (although some states only implemented formal collection as a part of the establishment of the national system), the AODTS-NMDS compiles basic information about clients of government (state and federal) funded drug treatment services. Information collected includes primary drug problem along with detailed demographic information and the type of service provided. Nevertheless, this system does not capture information from GPs, the main professional group providing services to heroin users in particular through substitution pharmacotherapy programs (although the extent to which this information is captured differs across states). Further, while some states collect encrypted unique identifiers, thereby allowing tracking of individuals as opposed to service episodes, this information is not included on the AODTS-NMDS.

Generalist treatment

There is one source of data concerning dependent drug users who attend generalist health services, and in particular GPs for counselling or other treatment services: the Bettering the Evaluation and Care of Health (BEACH) study, which has run since 1998 (Britt et al., 2003). At present this is the most reliable method of gaining detailed data about drug-related morbidity and its management in general practice. There are rubrics (i.e. which consist of many specific codes) for alcohol abuse, nicotine abuse, medication abuse and drug abuse (Degenhardt, Knox, Barker, Britt, & Shakeshaft, 2005). Annual report and abstracts for the supplementary question analyses

& interactive data cubes are available on the internet at http://www.fmrc.org.au. Quality assurance is conducted via computer-aided error checks plus a physical check of samples of data entered versus those on the original recording form. Patients are representative of HIC patients (Britt et al., 2003). However, the level of specificity of coding depends on the detail provided by the GP. Although it is intended that the drug abuse rubric refers to illicit drugs there are many non-specific codes (such as dependence, drug(s); addiction, drug(s); abuse, drug(s)) that could represent licit drug use, illicit drug use or polydrug use.

Blood borne viruses

Blood borne viruses, and in particular HIV/AIDS and hepatitis B and C are a major health hazard for individuals who inject drugs. The sharing of equipment for injecting illicit drugs has infrequently resulted in HIV transmission in Australia, but transmission of the hepatitis C virus continues to occur at very high rates in people who inject drugs. All jurisdictions maintain databases of notifications of diagnoses of HIV and hepatitis B and C with a national compilation managed by the National Centre for HIV Epidemiology and Clinical Research.

However, there are problems with the interpretation of these data in terms of monitoring trends in the spread of the virus. For example, some injecting drug users who have been exposed to hepatitis C will not undergo testing. Nevertheless, the fact that approximately 4,000 notifications of hepatitis C infection were made in Victoria in 1997, for example, shows that this system is useful for surveillance purposes. HIV and hepatitis B and C prevalence is also recorded for individuals who are seen at metropolitan sexual health centres who identify themselves as injecting drug users and for injecting drug users attending needle and syringe exchange centres.

In addition to monitoring exposure to blood borne viruses, it is important to monitor the prevalence of the behaviour or practices that place injecting drug users at risk of spreading the virus. There are a number of surveys of injecting drug users that address equipment-sharing practices. These surveys are conducted annually among clients of Needle and Syringe exchanges and as a component of the IDRS (see previous section). These surveys are somewhat limited due to the fact that they address only a small number of the risk practices that are considered to be responsible for the spread of the hepatitis C virus within this population.

Needle and syringe programs were established in Australian jurisdictions from 1985 onwards. While individual states and territories record the number of needles distributed and returned, the number of clients and some client demographics, there is variation in the extent to which this data collection is complete across jurisdictions. Further, there is currently no national compilation of the numbers recorded in each jurisdiction.

Mortality

Causes of death database

Information regarding illicit drug-related deaths in Australia is available from the ABS Mortality data file. This is a computerised database of information drawn from state registries of births, deaths and marriages (and coronial services) that is updated on an annual basis. Drug information is coded according the International Classification of Diseases (ICD) coding systems.

There is considerable delay in the data compilation undertaken by the ABS (at least 12 months). There are also a number of conditions and constraints which affect mortality coding and need to be taken into account when analysing or interpreting drug-induced death data. Among these factors are ICD coding rules, the availability of toxicology results, the inconsistent terminology

used by medical certifiers, and the completeness of data provided within the medical certificate. For drug-related deaths, the ICD does not focus on the identity of the drug(s) involved, rather on the circumstance of death.

National Coronial Information System

Some of the information collected on, as well as absent from, the ABS Mortality Datafile is available directly from data collated by the Victorian Institute of Forensic Medicine through the National Coronial Information System. The data contains the results of toxicological and pathology analyses. The NCIS is a valuable hazard identification system and research tool for government agencies and researchers with a role or interest in public health and safety, death and injury surveillance and policy development. The NCIS is also designed to facilitate the role of coroners across Australia in obtaining more timely and efficient access to coronial data and it is hoped that it will contribute to a reduction in preventable death and injury in Australia. The drugs module contains information on deaths related to alcohol, illicit drugs, pharmaceuticals and other poisons.

The NCIS is a world-first electronic national database for coronial information. It has the potential to enhance the amount, consistency, accessibility and timeliness of data available on the role of drugs in coronial deaths in Australia. The NCIS Drugs module is able to identify key risk factors and monitor outcomes which will contribute to the reduction in preventable deaths and making better health care decisions. A comprehensive quality assurance (QA) program, undertaken by the QA officer, is in place with three areas of focus: completeness, timeliness and validity and reliability.

The NCIS is, however, difficult to use and only includes all Australian jurisdictions from 2001. It does not always capture information on all illicit drug related deaths (e.g. where a death is not referred to coronial services). As data are uploaded to the NCIS following local entry from each of the eight jurisdictions in Australia, there are occasional instances of coding errors, missing fields and documents not being attached to records.

DRUG CRIME

A range of data sources is available which contain information relating to drug related crime. As with the health consequences data considered in the previous section of this report, there is some direct measurement of the crime consequences associated with drug use through survey data. Nevertheless, information on drug crime is typically obtained from the analysis of relevant indicator data. This includes data from law enforcement and correctional services and is summarised in Table 2.

Table 2: Law enforcement and correctional service data sources

Type of data	Agency	updated
Drug seizures	ACC	annually
Policing statistics	ACC	annually
Court statistics	Jurisdictional Courts, AIC	annually
Prison	Australian Bureau of Statistics	annually
Treatment for prisoners	Forensic health services	no systematic compilation

Drug seizures
Data relating to the number and nature of police seizures of illicit drugs in Victoria are collated on an annual basis by the Australian Crime Commission (ACC). This information, a compilation of available data from state police forensic laboratories, is compiled on an annual basis. Nevertheless, as detailed above, it is important to note that not all seizures are tested for purity, with many states only testing those involved in prosecution (typically larger seizures).

Policing Statistics
All Australian Police collect statistics on the number of incidents reported to police related to illicit drug crime. A national compilation of these incidents (usually in the form of arrests) is undertaken by the ACC and updated on an annual basis. Drug offences are typically classified by type of offence (e.g. use, possession, traffic). Data quality is open to question as the number and type of forms required for completion places significant burden on operational police and the data are subject to biases as a result of variations in the intensity of police drug operations. Further, counting rules and procedures differ across the jurisdictions meaning that the reliability and validity of the national compilation is not well understood. Further, there is currently no system capable of determining the extent of drug related property crime as, in addition to differences in counting rules across jurisdictions, differences in offence categories and recording mean that comparable data are not available and not systematically compiled at a national level. This is also the case in relation to drug related violent crime, although the ABS does compile a database of victims of assault across Australia drawn from state-based police data collections.

Court statistics
Indictable offences normally require a trial by judge and jury, and drug offences are indictable offences; they may be heard in local or higher courts except in TAS, the NT and the ACT, where there is no local court as such meaning that drug offences are dealt with by their respective supreme courts. In each jurisdiction, court statistics are typically held by jurisdictional police or crime statistics agencies, such as the Bureau of Crime Statistics and Research (BOCSAR) in NSW.

National statistics on charges, trials and sentencing of suspects at all levels of courts are available for the first time in 2005 thorugh the Australian Buraeu of Statistics. The ABS publishes statistics on defendants whose cases were heard in higher and magistrates criminal courts. These data are still in the early stages of collection, however, and this should be taken into consideration; it also does not include cases in children's courts, electronic courts, family violence courts, Koori courts or drug courts.

Court databases can inform the performance of the jurisdiction, give details of defendants and monitor patterns in the administration of justice. It offers an insight into sentencing, conviction rates, bail status and court delay all by offence type (Barker et al., 2004).

However, court databases include court data and cannot inform on trends or patterns in the level of offending. Offenders not brought before Court are not included in the collection. Thus persons who are diverted from court by way of a caution or warning are not included in these data. The counting units are finalised court appearances. The dataset does not distinguish distinct persons within the counting period. If a person has more than one court appearance during the counting period, such a person will be counted more than once in the report.

Prison statistics

A prison census has been conducted on an annual basis since 1982 by the Australian Bureau of Statistics. Its aim is to provide nationally comparable statistics on the characteristics of all adult prisoners who were in custody on 30 June each year. The adult prison population comprises persons aged 17 and over in Queensland and Victoria and 18 and over in the other states and territories. These data include number of prisoners, most serious offence, age, sex, indigenous status, expected time to serve, aggregated sentence, country of birth, prison location, known prior imprisonment, date received, level of court, state, security, legal status, type of sentence and earliest release date.

The data from the Census does not represent all prisoners who enter and leave prison. The majority of prisoners in the Prisoner Census are serving long sentences for relatively serious offences, but the flow of offenders in and out of prisons consists predominantly of persons serving short sentences for much more minor offences. Furthermore, because data are coded according to the most serious offence, additional offences (of which drug offences are likely to be one) are not reported. As a result, the Census statistics underestimate the number of prisoners serving time for drug-related offences.

CONCLUSIONS

There is a wide variety of data available in Australia that captures information on drug use and related harms. These data range from direct surveys of the general population about patterns of drug use through to the measurement of key drug use consequences such as drug related mortality and crime. Given the range of data that are available in Australia, it is possible to build a strong evidence base from which research, policy and practice in the illicit drugs field can proceed. Nevertheless, building this evidence base requires significant expertise in the collection, use and interpretation of the data presented in this report. This is because all of the data sources are flawed, to varying degrees, in terms of their capacity in isolation to answer key questions asked by researchers, policy makers, and practitioners as well as the wider community. However, as illustrated, there are various tools and models available (such as examining multiple indicators for convergence) that enable reasoned conclusions to be drawn that provide understandings relevant to the 'real' world in which illicit drug use and harm takes place.

While this report has highlighted the breadth and extent of available data, we have not considered the multiple ways in which these data have been used, with such an endeavour considered beyond the scope of the report. What is clear, however, is that there is room for substantial improvement in not only how information on illicit drug use and related harms is collected in Australia, but also in the way in which data are used. Some of the improvements in relation to data collection relate to the nature of the information collected (e.g. overdose data pertaining to drugs other than heroin), the frequency of data collection (most population surveys in Australia with at most triennial frequency) and the parameters of data collection (e.g. coding in hospital Emergency Department datasets). Improvements in this domain should be guided not only by the administrative purposes for which data are collected but should be made with reference to the multiple ways in which such data are now used in Australia. Improvements in relation to the use of information should be guided by a multidisciplinary framework, such as that embodied within the DPMP, to ensure that disciplinary-specific insights into the use of data can be incorporated into the wider evidence base.

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APPENDIX A: WHO CATEGORIES OF INDICATORS

The World Health Organisation provides a taxonomy of indicators related to policy and program evaluation. Based on specific evaluative objectives these indicators include:

Structural indicators provide qualitative information (i.e. yes or no) on the basic structures that are considered necessary for implementing a policy. That is, they merely check whether the basic structures exist but do not evaluate the functioning of these structures.

Process (output) indicators provide quantitative information by assessing the performance of structural indicators. They allow for the assessment of the effectiveness and efficiency of mechanisms and activity that have been put into place. Early evaluations of the 1999 NSW Drug Summit would have been primarily concerned with this level of investigation. However it is important to note that monitoring process indicators (such as the number of frontline workers trained) by their nature will not be able to inform whether there has been any change in **outcomes** (such as number of illicit drug users accessing treatment/receiving better treatment etc).

Thus, **outcome indicators** provide quantitative information on the achievement of the major objectives of a policy (such as reducing the demand for and supply of illicit drugs, as well as minimising the harms to the user and the community). They measure the results achieved (e.g. number of illicit drug-related overdoses, hospital admissions, treatment episodes and seizures) and the changes that can be linked to the implementation of a policy. Ideally, they allow for the comparison between the situation at the time the indicator is used and the situation a few years before and therefore comment on the progress achieved.