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Drug Use Amongst Police Detainees: Some Comparative Data

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Illicit drug use and associated criminal activity are significant social problems that confront governments across the globe. To effectively target and monitor intervention and prevention strategies, policy-makers require rigorous and authoritative data on the problem. The Australian Institute of Criminology is contributing to an evidence-based policy-making agenda through its Drug Use Monitoring in Australia (DUMA) project. DUMA monitors the use of illicit drugs amongst people who break the law.

This paper reports on international data which show that some Australian sites have among the highest rates of opiate use amongst detainees in the five countries in which similar research is being undertaken.

This research has significant policy implications. If local heroin markets could be reduced, for example, rates of property offending around those markets should decline. Further, there is increasing evidence that open illicit drug markets are associated with a range of social disorders, not least of which is easy entry into drug use by novice users. Thus, an important crime prevention strategy should include tackling local open drug markets. This is best achieved by way of partnership between law enforcement, health, community services, housing and education sectors.

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Throughout the 1990s Australia witnessed an increase in illicit drug use amongst the general community, particularly of heroin and methylamphetamine. Associated with this has been a range of increased harms both to individuals and the community. These harms have included increasing rates of injection and transmission of blood-borne viruses such as hepatitis; more deaths from overdoses; and increased rates of property offending. Research from the United States has demonstrated that the monitoring of illicit drug use amongst detainees or arrestees can provide law enforcement with an early warning system amongst its core clientele—people who break the law (see Wish 1997).

This research, initially called the Drug Use Forecasting (DUF) study, began with a pilot program in 1984 in New York City. In 1986 it was expanded to a number of other sites and, in 2000, 34 cities in the United States were involved in the monitoring program. The methodology involves interviewing people detained by police at a local police station and collecting a urine specimen for analysis. Participation is confidential and voluntary, and is conducted every three months by civilian interviewers. Participation rates have been high, with around 90 per cent of detainees who were approached agreeing to an interview and 80 per cent agreeing to provide a urine specimen. This program is now called the Arrestee Drug Abuse Monitoring (ADAM) program and is expanding to 75 sites across the United States.

As a result of this research from the United States, and the relevance of the data for both policy and monitoring purposes, the British Home Office commissioned a pilot study in 1994 to test the

AUSTRALIAN INSTITUTE
OF CRIMINOLOGY

trends

&

issues

in crime and criminal justice

February 2001

ISSN 0817-8542

ISBN 0 642 24216 X



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feasibility of using the same methodology in an English environment (Bennett 1998). At this time, Chile had also begun a study of drug use amongst detainees using the same methodology. In 1999, three other countries (Scotland, Malaysia and South Africa) began piloting the methodology. In July 1998, the Australian Institute of Criminology received funding under the Commonwealth National Illicit Drug Strategy to undertake a similar exercise for a three-year period. The program began in January 1999 and the collection will cease in 2001. A more detailed outline of the Australian program is provided in Makkai (1999).

In 1998, the National Institute of Justice sponsored a meeting of all interested countries in the ADAM program and a loose coalition of countries formed the International ADAM (I-ADAM) program. Essentially, its purpose is to facilitate and encourage research on drugs and crime using the ADAM methodology. Three policy assumptions underlie this coalition:

- common methodologies in research will enable important comparative research that can better inform policy at the local, national and international level;
- drawing lessons from drug problems and interventions in other countries is an important aspect of policy development; and
- there is an interaction between the global trends in drug supply and use and local patterns of supply and demand.

This paper examines the rates of detainees testing positive in the various international and Australian sites for 1999, as this is the year for which comparable data are publicly available from most countries.

Comparative Analyses

It is important to acknowledge that comparative research is fraught with difficulty for a range of reasons that can include:

- lack of comparability on methodology/questions;

- problems with incorporating the micro conditions (that is, cultural variations within countries) into the macro picture; and
- political sensitivity.

Despite these inherent difficulties, this paper presents some basic information on the drug test results from the I-ADAM sites. There are a number of advantages to comparative research that enable us to:

- test theories about drug use and crime in different policy settings;
- identify general patterns of human behaviour that are not culturally specific;
- assess the relative impact of drug policies;
- compare and learn from different policing strategies;
- determine variation in illicit drug use and their associated risk factors;
- assess the impact of different methodological factors on data collection; and
- facilitate learning about illicit drug use in other countries.

Data

In all I-ADAM countries, interviews are voluntary and confidential. Detainees who are approached are asked to first complete an interview and then to provide a urine specimen. This paper focuses on the urine test results. Detection of illicit drug use in urine varies, however, use can be detected for up to 48 hours for all the drugs (see Makkai 2000a). For this reason, only detainees who have been held for 48 hours or less are asked to participate.

Each of the countries in the I-ADAM program tests the urine samples for a range of drugs. The results on adult males testing positive to four core drugs—

cannabis, opiates, amphetamines and cocaine—are presented here. Some countries undertake only a screening test to determine whether or not a drug is present, while others undertake a confirmatory test once the drug has been confirmed (see Makkai 2000a for further discussion of urine detection). In the tables for this paper, only the results for the screening tests are presented, except for amphetamines in the United States where the published data are for methylamphetamine. (The confirmatory test will detect amphetamine, methylamphetamine, methylenedioxymethylamphetamine [MDMA], phentermine, ephedrine and pseudoephedrine. This paper uses the Australian standard term—methylamphetamine—rather than the United States standard terminology of methamphetamine.)

When a drug is detected in the urine specimen above a particular level, the result is deemed to be positive. These cut-off levels are usually determined by local standards. In some countries the designated levels are based on legal and evidential requirements. For example, in Australia the Australian Standard 4308 is used to determine the cut-off level for asserting that a person has tested positive. Cut-off levels represent a balance between reporting that the drug was present when it was not (a false positive) and not reporting the presence of the drug when it had been consumed (a false negative) (see Makkai 2000a for further discussion on this matter).

Table 1 indicates the cut-off levels used by the I-ADAM countries. The same cut-off levels are used across all the countries for cannabis and opiates. Differences occur for amphetamines and cocaine. In the former case, Australia and

Table 1: *Cut-off levels (nanograms per millilitre) used by various I-ADAM sites**

	Cannabis	Opiates	Amphetamines	Cocaine
Australia	50	300	300	300
England	50	300	500	150
Scotland	50	300	1000	300
South Africa	50	300	1000	300
United States	50	300	1000	300

* Malaysia and Chile are also I-ADAM participants, but at the time of writing this paper, data were not yet in the public domain.

England use a different cut-off level to the other three countries. In the case of cocaine, England has a lower cut-off level than the other four countries. A lower cut-off level effectively means that more people will be detected, but the chance of falsely detecting people also increases. This matter is discussed further when the different amphetamine cut-off levels are examined in Table 5. These differences in cut-off levels between countries are a good example of the practical balancing act between the need for data that meet local requirements and standards, and the need for comparative data across nations.

Response rates have been relatively high across all the countries. Table 2 shows the response rate for 1999 for each country where the study is being conducted. As these are average response rates, they mask differences between sites within countries. For example, in England urine response rates varied between 63 per cent and 82 per cent across the five sites. Similarly, in Australia urine response rates varied between 56 per cent and 84 per cent in 1999.

All the international sites collect data on adult males; some sites collect data on adult females and juveniles. In the Australian case, data are collected from adult females in all the sites, but only from juveniles in New South Wales. The sample sizes for both females and juveniles are very small. This is consistent with other indicators of the representation of women in the criminal justice system. In 1998, females accounted for only six per cent of all prisoners, while they accounted for 17 per cent of all arrests for drug offences in 1998–99. Given the variability in data collected across countries on females and juveniles, and the small sample size, this paper restricts the results to adult male detainees.

Results

The United States has the largest monitoring program and Table 3 reports the percentages of

detainees who test positive to cannabis, opiates, cocaine and methylamphetamine in 1999. Table 4 reports the same information for the sites in Australia, England, Scotland and South Africa, except the data are for amphetamines rather than methylamphetamine. To determine if the illegal substance, methylamphetamine, has been used, a confirmatory test needs to be undertaken. Not all the I-ADAM sites undertake this test;

in Australia the confirmatory testing is undertaken, but only the screening results for amphetamines are shown in Table 4. Analyses of the Australian data indicate that just over 90 per cent of positive amphetamine tests are confirmed as methylamphetamine.

United States ADAM Data

The data from the sites in the United States indicate that the extent of illicit drug use varies

Table 2: Average response rate across all sites for 1999

	Australia	England	Scotland	South Africa	United States
Percentage who agreed to interview	86	85	74	95	80
Percentage of those interviewed who agreed to provide a urine specimen	70	74	66	91	80

Source: Makkai, Johnson & Loxley (2000); Bennett (1998); McKeganey et al. (2000); Pluddemann (pers. comm.); National Institute of Justice (2000).

Table 3: Percentage testing positive to illicit drugs, adult male detainees, United States, 1999

	Cannabis	Opiates	Methylamphetamine	Cocaine
<i>North-east sites</i>				
New York City	40.8	15.2	0.0	44.2
Philadelphia	41.2	14.8	0.2	39.3
Washington DC	34.9	16.0	0.9	37.7
<i>South sites</i>				
Atlanta	44.4	4.3	0.4	51.3
Birmingham	39.3	3.8	0.1	36.9
Dallas	39.2	4.5	2.5	34.3
Fort Lauderdale	39.3	1.4	0.4	41.0
Houston	38.2	6.2	0.1	35.7
Miami	36.2	3.4	0.0	49.2
New Orleans	39.6	13.5	0.1	43.8
Oklahoma City	47.9	1.6	8.7	25.5
<i>Mid-west sites</i>				
Chicago	44.6	20.1	0.0	41.7
Cleveland	43.3	4.3	0.0	40.3
Des Moines	43.4	1.3	14.0	15.6
Detroit	47.9	8.6	0.0	27.0
Indianapolis	48.0	2.5	0.6	33.7
Minneapolis	44.1	3.7	1.1	29.3
Omaha	51.2	0.4	7.8	21.6
<i>West/south-west sites</i>				
Albuquerque	36.9	13.6	5.1	42.5
Denver	43.7	3.4	3.0	40.6
Laredo	32.7	11.3	0.2	41.9
Las Vegas	28.0	4.6	16.2	30.3
Los Angeles	32.3	5.5	8.9	35.6
Phoenix	36.2	7.6	16.6	31.6
Sacramento	44.0	4.4	27.6	15.8
Salt Lake City	34.6	8.9	24.8	21.7
San Antonio	35.6	9.6	1.8	22.5
San Diego	36.3	9.0	26.0	16.5
San Jose	34.3	4.0	24.4	13.7
Tucson	45.1	8.6	5.8	39.9
<i>North-west sites</i>				
Anchorage	37.5	3.0	0.5	25.6
Portland	34.5	12.9	19.8	22.7
Seattle	39.0	13.9	9.0	33.4
Spokane	43.4	7.1	20.1	17.6

Source: National Institute of Justice (2000).

between sites, as does the type of drugs consumed. Cannabis is detected in all the sites ranging from 28 per cent of detainees in Las Vegas testing positive, to 51 per cent of detainees in Omaha, Nebraska. Cocaine is also widely detected. In every one of the 34 participating cities, more than 10 per cent of detainees test positive to cocaine. Only five sites have less than 20 per cent and 11 cities have 40 per cent or more of their detainees testing positive to cocaine.

There is much greater variability in the detection of opiates and methylamphetamine. The highest rates of opiates are detected in the east coast cities of New York, Washington DC and Philadelphia, and the mid-west site of Chicago. However, even in these cities, none has more than 20 per cent of their detainees testing positive to opiates. In these same cities, few detainees test positive to methylamphetamines. In 12 of the 34 United States cities, less than half a per cent tested positive to methylamphetamine, while another eight cities had rates of five per cent or less. In six cities, 20 per cent or more of the detainees tested positive to methylamphetamines. These are located on the west coast of the United States.

Other I-ADAM Country Data

Table 4 provides the rates for the various sites in the other I-ADAM countries. The data show that, like the United States, drug markets are localised with variability in the overall numbers testing positive, as well as variability in the type of drug detected.

Cannabis

Across all the sites, sizeable proportions of detainees test positive to cannabis. In Australia, adult male positive rates are between 52 per cent and 65 per cent. In England they are between 43 per cent and 54 per cent. In Scotland, between 48 per cent and 56 per cent of the detainees at the selected sites were positive. Finally, between 29 per cent and 57 per cent of the detainees at the South African sites tested positive.

Table 4: *Percentage testing positive to illicit drugs, adult male detainees, I-ADAM sites, 1999*

	Sample size	Cannabis	Opiates	Amphetamines*	Cocaine*
<i>Australia</i>					
Bankstown	71	52.1	45.1	4.2	2.8
East Perth	273	60.8	22.0	13.9	0.4
Parramatta	91	56.0	38.5	12.1	1.1
Southport	390	65.4	13.1	12.1	0.5
<i>England</i>					
South Norwood (London)	73	49.0	14.0	4.0	14.0
Liverpool	132	43.0	50.0	10.0	40.0
Nottingham	132	47.0	31.0	7.0	23.0
Sunderland	169	54.0	17.0	21.0	5.0
<i>Scotland</i>					
Fife	135	56.0	29.0	10.0	1.0
Strathclyde	145	48.0	33.0	6.0	3.0
<i>South Africa</i>					
Cape Town	302	57.0	2.6	0.1	3.3
Durban	241	45.5	0.6	0.0	3.7
Gauteng	320	29.0	2.5	0.0	4.9

* Note that different cut-off levels are used in different countries.

Source: Australian Institute of Criminology DUMA Collection 1999 [computer file]; Parry, Louw & Pluddemann (2000); McKeganey et al. (2000); Bennett (2000).

Opiates

There is much greater variability in relation to the other three drugs—opiates, amphetamines and cocaine. Within Australia, the Sydney sites had opiate positive rates of 45 per cent and 38 per cent, while East Perth is lower at 22 per cent and Southport, Queensland, at 13 per cent. In England there are similar variations across sites. The highest opiate positive rate is 50 per cent at Liverpool, with the lowest rate (14%) at the South Norwood site (an outer London suburb). The opiate positive rates are similar in the two Scottish sites, while there are very few opiate positives in any of the South African sites.

Amphetamines

The detection of amphetamines also varies across sites. Looking first at the Australian sites, less than five per cent of adult male detainees in the Bankstown site tested positive to amphetamines; in East Perth, 14 per cent of detainees tested positive; and in Parramatta and Southport, 12 per cent tested positive in 1999. These data indicate that within the same city, Sydney, drug use patterns vary between different geographical regions. In England, recent use of amphetamines varies from 21 per cent in Sunderland to four per cent in South Norwood. Relatively little

amphetamine was detected in the two Scottish sites or in the South African sites.

Cocaine

Very little cocaine was detected in any of the sites in Scotland, Australia or South Africa. Cocaine was detected in all five sites in England. The highest positive rate was found at Liverpool (40%) while the lowest was in Sunderland (5%).

Overall, these data indicate few detainees in the South African sites test positive to opiates, amphetamines or cocaine; however, the use of Mandrax is much more common (Parry, Louw & Pluddemann 2000). Mandrax is methylaqualone, a type of depressant, and it is often mixed with cannabis and smoked in South Africa (Pluddemann, pers. comm.).

Cautions

There are a number of important qualifications that should be highlighted. The first is that the cut-off levels sometimes vary across the sites, especially in regard to amphetamines. The level for a positive screen in the United States, Scotland and South Africa is much higher than in Australia or England. This higher cut-off level may be artificially decreasing the number of detainees testing positive to amphetamines in these countries. Alternatively,

Table 5: *Percentage testing positive to amphetamines and methylamphetamines, adult male detainees, Australia, 1999*

<i>Cut-off level (ng/ml)</i>	EMIT screen result		GC/MS confirmation result for methylamphetamine	
	<i>(300)</i>	<i>(1,000)</i>	<i>(300)</i>	<i>(1,000)</i>
Bankstown*	4.2	2.8	1.4	1.4
East Perth	13.9	6.6	11.4	5.5
Parramatta	12.1	5.5	11.0	4.4
Southport	12.1	5.9	11.8	5.6

* The sample size in Bankstown is extremely small, with only three cases recording a positive result to amphetamines with the 300 ng/ml cut-off, and one case recording a positive test to the 1,000ng/ml cut-off level.

Source: Australian Institute of Criminology DUMA Collection 1999 [computer file].

Australia and England may have higher false positives. Analysis of the confirmatory tests on the Australian data does not suggest that this is occurring. Of the 99 positive screens for amphetamines, only three were not confirmed by the gas chromatography/mass spectrometry test as being either amphetamines or methylamphetamines. Of the 96 confirmed screens, only eight urine samples were not found to contain methylamphetamine.

Given the differences in cut-off levels, Table 5 shows the:

- Australian data using both the Australian and United States cut-off level for the screen test; and
- results from the confirmation test for methylamphetamine using the two different cut-off levels.

Looking first at the screen results in the first two columns of Table 5, the percentage testing positive is reduced by around 50 per cent when a higher cut-off level is used. Given that only three false positives were detected with the confirmatory testing, an increase in the cut-off level would result in an under-reporting in the Australian sites to the order of 50 per cent.

The second two columns indicate the percentage of detainees who were confirmed as having used methylamphetamine within the last 48 hours. Except for Bankstown, where the numbers are extremely small, almost 90 per cent of the positive screen results, regardless of cut-off level, are for methylamphetamine.

The second important qualification is the representativeness of the samples. Usually the sites represent only

the local area, not the whole city. This is the case, for example, in the Sydney sites. However, in the Southport site the vast majority of detainees within the Gold Coast Police District of Queensland are brought to the lockup for processing. Similarly, in the English sites, Nottingham police station represents the city of Nottingham as it is the central lockup, but South Norwood in outer London is not representative of the whole city of London. In 1999, the United States monitoring program began to move towards a probability sampling frame which, when fully implemented, will allow reliable estimates at the county level to be calculated. Over the next three years the United States monitoring and research program will expand to 75 sites at a cost of US\$60 million for three years.

The third important qualification is that it is often difficult to compare sites. Within Australia, Sydney is clearly a different city from Southport in Queensland. When comparisons are made across nations, these differences are even more obvious—New York is not Sydney or London. However, there are some things that can be said—of the 34 major United States cities, not one, regardless of its sociodemographic and cultural traditions, has higher positive opiate rates than three of the four Australian sites. Similarly, in 29 of the 34 United States cities, more than 20 per cent of all detainees tested positive to cocaine, while not one of the Australian sites had positive rates greater than three per cent. Clearly, more work is required

before detailed comparisons are made. Some of this has begun (see Taylor & Bennett 1999).

A fourth important qualification is that these data rely on the urinalysis results. While these data tell us about recent use of the drug, self-report data are also collected about illicit drug use over the past year. Space precludes a detailed analysis of longer term drug use, but it is clearly an important research agenda that the Australian Institute of Criminology will address. In addition, urinalysis cannot tell us whether drugs cause criminal behaviour; for this we need more detailed analyses of the self-report data. Finally, the urinalysis data cannot tell us the level of intoxication of the detainee. What it does is confirm that the person had been using illegal drugs just prior to their arrest.

Policy Implications

The data presented here suggest that illicit drug use varies across sites in all the countries, indicating that drug markets are highly localised. This raises interesting questions about how global distributors of illicit drugs know where to target and market their product. What are the pull factors that operate at the local level to draw in particular types of illicit drugs? And, more importantly, what are the mechanisms whereby these pull factors are communicated back to the global producers of illicit drugs?

Given the high variability in use of drugs between sites, a significant question is that of the barriers to particular drugs infiltrating particular local communities. If these barriers could be empirically identified, they could be used in drug prevention strategies, particularly early childhood programs and building community resilience. Clearly, research on barriers or protective factors to particular markets taking hold is urgently required.

Research from the United States has shown that crack

markets are associated with high rates of violence, particularly homicide. Decline in homicide rates has been shown to be associated with a more stable crack market (Lattimore et al. 1997). Australian research suggests that heroin use is closely associated with property offending (Stevenson & Forsythe 1998; Makkai 2000b). Two important policy issues emerge from these findings. The first is that if crack markets of the type that developed in the United States in the 1980s were to become a problem in Australia, there would be significant implications for the levels of violence in Australia. It is therefore imperative that policy-makers have in place a range of monitoring programs to detect any possible upsurge in use (Weatherburn 2000).

The second policy issue is that if heroin markets could be reduced, or even dismantled, rates of property offending around those markets should decline. Studies of offenders have shown that a disproportionately small number of people commit a disproportionately large number of crimes (Blumstein et al. 1986; Canela-Cacho, Blumstein & Cohen 1997). In addition, research has shown that drug-using property offenders commit more crimes than non-drug-using property offenders (Stevenson & Forsythe 1998). Given that property crimes account for 80 per cent of major crimes in Australia, the potential impact of targeting drug-using property offenders could be substantial.

There is increasing evidence that open illicit drug markets are associated with a range of social disorders, not least of which is easy entry into the market for novice users (Jacobson 1999; Edmunds, Hough & Urquia 1996; May, Edmunds & Hough 1999). A clear prevention strategy is for such markets to be targeted by both law enforcement and treatment personnel. There is no doubt that some parts of the market will relocate, however, there should be an ongoing monitoring and intervention

strategy to track and attack these weaker markets when they begin to appear. Such an approach will require ongoing investment in research data that can identify and monitor illicit drug markets at the local level, coupled with health and police officers working cooperatively across bureaucratic boundaries to address drug problems. It will also require the criminal justice and health systems to give ground on philosophical differences in their approach to regulating illicit drug use (see Weatherburn & Lind 1999).

Acknowledgment

The DUMA project is funded under a three-year grant from the Commonwealth's National Illicit Drug Strategy. The National Drug Research Institute at the Curtin University of Technology, Marg Hauritz Pty Ltd, and Forsythe Consultants Pty Ltd collected the data used here for the AIC's DUMA project, with the assistance of the Queensland, New South Wales and Western Australian Police Services. Neither the collectors nor the police services bear any responsibility for the analyses or interpretations presented herein.

The author wishes to thank DUMA and I-ADAM participants, as well as Mike Hough and Gloria Laycock who commented on an earlier version of this paper.

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