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Drug Use Monitoring in Australia (DUMA): Preliminary Results from the Southport Site, 1999

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This paper is the first of a series which will examine findings from the Drug Use Monitoring in Australia (DUMA) pilot project. This project seeks to measure drug use amongst those people who have been arrested and held in custody by police. The focus of the paper is on the urinalysis results from one of the DUMA sites—the Southport watchhouse on the Gold Coast in Queensland. Some of the interesting findings include:

- *around two-thirds of all arrestees test positive to a drug at the time of arrest;*
- *a high percentage of these arrestees test positive to cannabis but the majority of those who test positive to cannabis do not test positive to another illicit drug;*
- *29 per cent of property arrestees test positive to opiates, only 10 per cent of violent arrestees test positive to opiates, and none of those arrested for drink driving test positive to opiates;*
- *benzodiazepines are widely used by arrestees regardless of the charge for which they have been arrested; and*
- *excluding cannabis, 10 per cent of arrestees test positive to two or more drugs, however, 46 per cent of those who test positive to opiates also test positive to benzodiazepines.*

These data demonstrate that relying on administrative data, such as police charge data, would grossly underestimate the extent of drug use across a range of criminal activity. It is only by developing independent monitoring systems that the criminal justice system will have reliable and valid indicators upon which to develop evidence-based policies. The DUMA project is an attempt to provide such evidence. Reports from other DUMA sites in Australia will be released in the near future.

Adam Graycar
Director

Various indicators have shown that use of illicit substances continues to increase in Australian society. Data from the most recent national household survey in 1998 found increases in self-reported use of the major illicit substances since the last survey in 1995 (see Williams 1999). Surveys of injecting drug users (McKetin et al. 1999) in various Australian cities indicate that illicit drugs are widely available and overdose deaths have now reached their highest point (Lynskey and Hall 1998). Law enforcement indicators show that arrests for trafficking and growing of illicit substances continue to increase as well (Australian Bureau of Criminal Intelligence 1999). However, policy makers have not had good data on the extent of drug use amongst the criminally-active population. We know considerably more about drug use patterns amongst the general population and injecting drug users. There have been selected studies of the prison population but virtually nothing about the arrestee population.

Drug Use Monitoring in Australia (DUMA) is a pilot project funded under the National Illicit Drug Strategy that seeks to measure drug use amongst those people who have been charged with a criminal offence (for more details, see Makkai 1999). The concept of interviewing and screening arrestees has been well established in the United States and, to a lesser extent, the United Kingdom (see National Institute of Justice 1999, Bennett 1998). On a quarterly basis, voluntary confidential interviews (including the

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Table 1: *Response Rates at Southport Site*

Collection period in 1999	Quarter 1 15/1-07/2	Quarter 2 15/4-12/5	Quarter 3 15/7-11/8
Number approached for interview	117	162	114
Number interviewed	93	133	106
Per cent who agreed to interview	***79***	***82***	***93***
Number who agreed to provide urine specimen	80	115	85
Per cent of interviewees who provided urine specimen	***86***	***87***	***81***

Source: AIC DUMA Collection 1999 [computer file]

collection of a urine specimen) are conducted among people who have been arrested and brought to a watchhouse. These data are analysed to provide estimates of recent drug use in this high-risk subgroup. The DUMA project provides the first effective monitoring strategy in Australia that focuses specifically on arrestees, with a clear mandate to address the issue of drugs and crime.

This paper presents preliminary data for the first three quarters in 1999 from one of the pilot sites—the Southport watchhouse on the Gold Coast region in Queensland. The paper uses only the results from the urinalysis testing and does not report on self-reported drug use amongst the sample; later publications will address this issue. The analysis is restricted to adult males as the number of females in each quarter is too small for reliable analyses. Interviews were conducted in late January, late April, and late July. Except for arrestees who were deemed to be either violent or too intoxicated to participate, all adult males were approached for an interview after the charging process had been completed.[1] Table 1 shows that 93 males participated in the first quarter, 133 in the second quarter, and 106 in the third quarter. The average response rate across the three-quarters was 84.5 per cent. Arrestees were asked to participate in an interview and provide a urine sample at first contact, but not all agreed to provide a urine specimen.[2] Of those who agreed to be interviewed, the average compliance rate for the specimen was 84.3 per cent. This analysis is restricted to only those arrestees who provided a urine sample. There was no masking detected of any of the urine samples.

It is important to acknowledge that this sample is not representative of arrestees generally. Criminal activity varies across geographical spaces even within large cities, thus the profile of arrestees will differ across watchhouses. Many factors can affect who is arrested. For example, police routinely make discretionary decisions about the arrest process, as a result not all arrestees are brought to the local watchhouse for processing. It should be said that it is unrealistic to expect that applied research within criminology can generate random samples of the population of interest. This is because the activity of interest is illegal; thus, individuals naturally hide such activity. As a result, the population is unknown, unlike, for example, a sample of voters from the electoral rolls, which are a registry of all voters. More detailed work on the representativeness of the sample will be undertaken at a later stage.

Table 2 indicates that there were no significant changes in the basic profile of offenders across the three collection periods. Around 60 per cent of the adult males were single and aged between 17 and 25 years. Almost three-quarters reported that they had not completed year 10 education and just over one quarter reported working full-time in the past 30 days. Conversely, around 60 per cent reported receiving government benefits in the past 30 days. These data confirm what is already known—arrestees tend to be young, unmarried, poorly educated, and less likely to be in full-time employment.

Who Tests Positive, and to What?

Urinalysis is not an exact science (see Makkai, forthcoming). In this paper, the results from the initial Enzyme Multiplied Immunoassay Technique (EMIT) are used to determine whether the person tested positive to the drug. A person is classified as testing positive when the screen result is above the cut-off levels as specified by Australian Standards 4308 (see Table 3). The screening results have been grouped into two categories—those below the cut-off value as per the Australian Standards and those above the cut-off level, the latter is referred to as a positive test. In drug testing, it is possible to have false positives (the person is said to have taken the drug when in fact they have not) and false negatives (the person is said to have not taken the drug when in fact they have consumed the drug). However, "accuracy rates for urinalysis generally exceed 95% across the major drugs, false negatives are in the 2 to 4 % range, and false positives are rare or nonexistent" (Cook et al. 1995, p. 419).

Urinalysis allows us to determine if the arrestee has been using drugs recently, but in the case of the cannabis metabolites the active ingredients can stay in the body for several weeks after use. There are limitations to what urinalysis can tell us about drug use. For instance, it cannot deter-

Table 2: *Sample Characteristics*

	Quarter 1	Quarter 2	Quarter 3
Per cent single	59	56	61
Per cent aged between 17 and 25 years	62	62	58
Per cent who had not completed year 10 education	77	72	70
Per cent in full-time work in past 30 days	31	24	29
Per cent receiving government benefit in past 30 days	63	71	58

Source: AIC DUMA Collection 1999 [computer file]

Table 3: *Drugs Tested For and Their Properties*

EMIT Screen[1]	Cut-offs AS4308 (ug/L)	Estimated length of time stays in the urine[2]
Cannabis	50	2-10 days (casual use) up to 30 days (chronic use)
Opiates	300	2-4 days
Methadone	300	2-4 days
Cocaine	300	2-3 days
Amphetamines	300	2-4 days
Benzodiazapines –hydrolysed	100	2-14 days

[1] Often the screen detects a metabolite of the drug. For example cocaine has a half-life of approximately 1 to 1.5 hours. However, its major metabolite, benzoylecgonine (BE) has a much longer half-life and a single dose can be detected in the urine for 2 days or longer (Li et al. 1995, p. 265).
[2] Detection periods should be viewed as estimates only as rates of metabolism and excretion vary for each person due to factors such as the amount taken, route of administration and fluid intake prior to analysis.
Source: AIC DUMA Collection 1999 [computer file]

mine long-term patterns or frequency of drug use by arrestees (see Makkai, forthcoming for more detailed discussions). Screening tests only indicate the class of drug the person has been using but not the specific metabolite. For example, the opiate screen does not distinguish between codeine and morphine. Thus, it is possible for a person to test positive to opiates after consuming over-the-counter cough medication that contained codeine or morphine (for example, Codral Forte). In future publications, more detailed analyses of the metabolites will be undertaken for opiates, amphetamines, and benzodiazepines.

Table 4 shows the number and the percentage of arrestees who tested positive for the different classes of drugs by quarter. The most common drug is cannabis—67 per cent of arrestees tested positive to this substance in the third quarter of 1999. This is consistent with other research showing that cannabis is the most popular drug of choice in the community, both in Australia and internationally (Makkai and McAllister 1997). Over the three quarters of data collection, there has been a noticeable change in the percentage of arrestees testing positive to opiates and amphetamines. Interestingly, more arrestees tested positive to amphetamines than opiates the first quarter, but this had reversed by the third quarter.

Few arrestees tested positive for methadone and none tested positive to cocaine. This is not saying, however, that this group does not use, or has never used, cocaine. These results indicate that at the time of arrest the person had not recently consumed this drug. Consistently across the three quarters, there is a relatively high percentage of arrestees testing positive to benzodiazepines. This use can occur with or without a prescription.

Does Drug Use Vary By the Type of Offence Charge?

Arrestees can have a number of charges laid against them. DUMA collects data on the three most serious charges. However, it is sometimes difficult to determine what are the most serious charges as the charge information does not indicate the level seriousness. DUMA interviewers are told that violent offences are regarded as the most serious, followed by property, drug, and other offences including disorder and traffic offences. Taking into account these three charges across the three quarters, the percentage of arrestees in each type of offence charged is:

- 13 per cent were charged with a violent offence,
- 30 per cent with a property offence,
- 13 per cent with a drug offence,
- 15 per cent with drink driving,
- 36 per cent with a traffic offence other than drink driving,
- 14 per cent with a disorder offence, and
- 24 per cent with an outstanding warrant.

Table 5 shows the percentage of arrestees who tested positive by the offence with which they were charged. There are no data for cocaine, as none of the arrestees tested positive for this drug and the numbers testing positive to methadone were too small, limiting its usefulness for this type of analysis. For some offence categories, the number of cases is relatively small so that caution needs to be exercised in drawing definite conclusions at this stage.

For violent offences:

- very few arrestees tested positive to opiates,
- 15 per cent tested positive to amphetamines,
- 20 per cent to benzodiazepines, and
- 58 per cent tested positive to cannabis.

For property offenders:

- 70 per cent tested positive to cannabis, and
- 29 per cent tested positive to opiates.

In terms of the overall profile of arrest type, only 13 per cent of arrestees had a drug charge as one of their three most serious charges. Virtually all of these arrestees tested positive to cannabis (94%). Very few tested positive to the other classes of

Table 4: *Percentage of Arrestees Who Test Positive, Southport Site, 1999**

	Quarter 1		Quarter 2		Quarter 3	
	N	%	N	%	N	%
Cannabis	49	***(61)***	73	***(64)***	57	***(67)***
Opiates	8	***(10)***	15	***(13)***	16	***(19)***
Methadone	1	***(1)***	9	***(8)***	2	***(2)***
Cocaine	0	***(0)***	0	***(0)***	0	***(0)***
Amphetamines	13	***(16)***	12	***(10)***	4	***(5)***
Benzodiazepines	11	***(14)***	21	***(18)***	15	***(18)***

*A positive test is where the EMIT screen shows a value above the cut-off levels specified by the Australian Standards.
Source: AIC DUMA Collection 1999 [computer file]

Table 5: *Percentage of Positive Test Amongst Arrestees By Charge**

	Cannabis		Opiates		Amphetamines		Benzodiazepines	
	N	%	N	%	N	%	N	%
Violent (n=40)	23	*(58)*	4	*(10)*	6	*(15)*	8	*(20)*
Property (n=86)	60	*(70)*	25	*(29)*	12	*(14)*	24	*(28)*
Drug offences (n=34)	32	*(94)*	4	*(12)*	5	*(15)*	6	*(18)*
Drink driving (n=39)	24	*(62)*	0	*(0)*	7	*(18)*	5	*(13)*
Other traffic offences (n=95)	59	*(62)*	12	*(13)*	4	*(4)*	9	*(10)*
Disorder offences (n=41)	26	*(63)*	2	*(5)*	4	*(10)*	5	*(12)*
Warrants (n=68)	42	*(62)*	6	*(9)*	7	*(10)*	14	*(21)*

*There is a range of other miscellaneous charges that have not been analysed here.
Source: AIC DUMA Collection 1999 [computer file]

drugs, including opiates.

For drink drivers:

- 62 per cent tested positive for cannabis,
- 18 per cent tested positive to amphetamines,
- 13 per cent test positive to benzodiazepines, and
- nobody tested positive to opiates.

In terms of cannabis, it is important to appreciate that a positive test does not necessarily mean the person had consumed cannabis, or were intoxicated, prior to driving. Cannabis can be detected in urine up to 30 days after it was last consumed.

For "other traffic offences":

- 13 per cent tested positive for opiates, and
- few arrestees tested positive for amphetamines or benzodiazepines.

For disorder offences, few arrestees tested positive for opiates and slightly more tested positive to amphetamines and benzodiazepines.

For people who were arrested for outstanding warrants:

- 9 per cent tested positive to opiates,
- 10 per cent to amphetamines, and
- 21 per cent to benzodiazepines.

Multiple Drug Use

Based on the test results, the proportion of arrestees who have recently used more than one drug can be determined. Including cannabis, 41 per cent tested positive to one drug alone, 14 per cent to two drugs, and 8 per cent tested positive to three drugs.

When cannabis is excluded, 18 per cent tested positive to one drug, 9 per cent tested positive to two drugs, and only 3 people (0.9%) tested positive to three drugs. Nobody tested positive to 4 or more drugs. Figure 1 indicates the overlap in use between the particular drugs[3] as well the percentage that did not test positive to another drug. The urinalysis results indicate that:

- two-thirds of cannabis users did not test positive to any other illicit drug;
- of those who tested positive to opiates, amphetamines, or benzodiazepines, the vast majority also tested positive to a second drug;
- of those who tested positive to amphetamines three-quarters of them also tested positive to cannabis, four per cent tested positive to opiates while 24 per cent tested positive to benzodiazepines;
- of those who tested positive to opiates 46 per cent also tested positive to benzodiazepines; and
- few opiate users also tested positive to amphetamines.

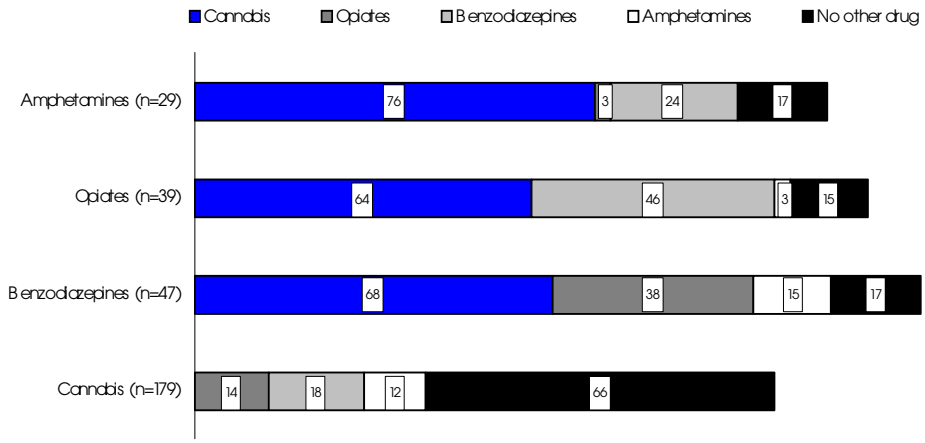
These data suggest that amongst this sample of arrestees:

- the majority of cannabis users have not used other illicit drugs recently;
- cannabis users who had used other illicit drugs recently did not favour any particular drug over another;
- most users of illicit drugs, such as opiates, also tested positive to cannabis;
- there is little overlap in recent use of amphetamines and opiates; and
- there is a considerable overlap in recent use of opiates and benzodiazepines.

The relatively high levels of benzodiazepines raise a number of issues. The implications for overdose are an obvious one (White and Irvine 1997). However, benzodiazepines may be used to assist in the management of dependence to opioids. Another issue is self-medication by benzodiazepines to deal with high levels of anxiety or other minor mental health problems.

Finally, Table 6 presents data

Figure 1: *Multiple Drug Use (percentages)*



Note: Percentages will not sum to a hundred as methadone is excluded and arrestees can test positive for more than two drugs.
Source: AIC DUMA Collection 1999 [computer file]

Table 6: *Percentage Tested Positive to Two or More Drugs Amongst Arrestees By Charge**

	Two or more drugs including cannabis (n=71)		Two or more drugs excluding cannabis (n=32)	
	N	%	N	%
Violent (n=44)	10	(23)	6	(14)
Property (n=99)	39	(39)	20	(20)
Drug offences (n=42)	13	(31)	3	(**)
Drink driving (n=49)	8	(16)	1	(**)
Other traffic offences (n=117)	14	(12)	7	(6)
Disorder offences (n=47)	7	(15)	1	(**)
Warrants (n=77)	18	(23)	9	(12)

* There are a range of other miscellaneous charges that have not been analysed here.
** The numbers are too small to provide estimates for practical purposes.
Source: AIC DUMA Collection 1999 [computer file]

on multiple drug use including and excluding cannabis by the arrestee's charges. Where cannabis is included, 39 per cent of property offenders test positive to two drugs, declining to 20 per cent when cannabis is excluded. In addition, 1 in 5 property offenders at the time of arrest test positive to two or more of the so-called "hard" drugs. In the case of arrestees charged with either a violent offence or a warrant, just under a quarter test positive to two or more drugs, declining by approximately 10 per cent points when cannabis is excluded.

Conclusion

This paper has presented new data on the extent of recent drug use amongst people arrested and brought to the Southport watchhouse at three different periods during 1999. The data show that cannabis is the most prevalent drug and it is the drug that most people arrested for a drug arrest test positive for. Two-thirds of those who tested positive to cannabis did not test positive to any of the other illicit drugs. However, virtually all of those who tested positive to one of the other illicit drugs tested positive to cannabis. As cannabis use is widespread it is found across all the major offence categories analysed in this paper.

Over a relatively short period of time, there has been a noticeable shift in the percentage of arrestees testing positive to amphetamines and opiates. The results show that there was a decrease in the percentage of arrestees testing positive to amphetamines and an increase for opiates. However, drug markets can change in a relatively short time frame and is one of the primary reasons why an ongoing monitoring system is required. Analyses indicate no significant differences across the quarters in terms of a range of the background characteristics of detainees that could possibly account for this.

Another explanation could be changes in the local drug markets. One possible impact may have been local policing activities. Over this period, various levels within the Queensland Police Service (Queensland Police Service Drug Squad and local police) have detected a number of clandestine laboratories manufacturing amphetamines. This may have reduced the availability of amphetamines and, thereby, displacing drug use activity into opiates. A second possible impact may be the changes in the offence profile of the arrestees. The percentage of arrestees charged with property offences increased from 24 per cent in the first quarter to 35 per cent in the third quarter, perhaps accounted for the increase in the percentage of arrestees testing positive to opiates. At the same time, there were increases in violent offences, declines in drink driving and disorder offences. Drug offences and other traffic offences remained stable, and warrants increased in the second quarter and declined in the third quarter[4]. However, the changes in the arrest profile across the three-quarters were not statistically significant.

Since commencing at Southport, DUMA has proved to be an invaluable tool with a variety of applications in both the research and operational police environments. Importantly, this project has assisted the Queensland Police Service in improving the management of watchhouse populations. This positive benefit has State and national implications for policing. In addition, DUMA has provided a mechanism through which the South Eastern Region can determine drug consumption patterns within their defined geographical area.

Within the watchhouse environment DUMA has already resulted in direct benefits for operational police. The following list provides some indication of the areas into which DUMA results are being incorporated to improve general awareness and watchhouse procedures:

Considering Duty of Care—During the charging process, self reported drug consumption behaviour is combined with aggregated DUMA information to provide an indication of Duty of Care implications of an individual detainee.

Providing Appropriate Medical Treatment—Based on DUMA information and self reported behaviour more relevant treatment can be provided to meet an individual's needs.

Reducing Assaults—Detainees who are intoxicated / drug dependent are placed in separate cells to avoid potential confrontations with other detainees.

Providing Appropriate Counselling and Support Services Through the Withdrawal Process—More accurate information about drug consumption patterns provides an opportunity for relevant counselling to be provided.

Identifying Changes in Drug Habits—DUMA information has provided an increase in general drug awareness among Watchhouse staff. An analysis of data is performed following each quarter and disseminated throughout the Watchhouse.

In addition, DUMA has been the driving force in a number of joint agency projects currently under development. These projects use DUMA data in combination with other sources of drug information to initiate strategies targeting particular drug consumption patterns and/or related criminal activity. As part of this complement of projects, a relevant treatment program for people released from the watchhouse is currently being developed for the Southport area informed by DUMA data. This project represents a cooperative partnership with a variety of government and non profit and voluntary organisations and is designed for individual drug users.

The data is also being used to inform a Steering Committee charged with developing an Alcohol and Drug Detoxification Unit at Southport. As part of this Unit, a Drug Counsellor Program is being considered for incorporation into the Cell Visitors Scheme.

Finally, the data is being used to inform South Eastern Region, and more generally the entire Service, of drug trends identified as a result of the DUMA program. The important consideration with this process is the timeliness in which DUMA data can be released to Service personnel. For example, fourth quarter data which is still being processed has detected a recent increase in cocaine which has already been provided to the intelligence, uniform and investigative areas of the region for operational reasons. This data, at an aggregate level, is also being fed into the strategic intelligence processes at regional and State levels.

Under the COAG agreement the Commonwealth and State governments have joined together in their commitment to divert drug-related offenders into treatment rather than the criminal justice system. However, DUMA data indicate that the common perception that illicit drugs are only linked with property offending is incomplete; illicit drug use is also found amongst other types of offenders. It is clearly the case that a large number of arrestees, regardless of offence, are drug users; whether they should also be diverted into treatment is an issue that policy makers need to consider. It also indicates that relying on official charge data will grossly underestimate the extent of drug use and who may require more intensive forms of assistance in the form of court mandated treatment amongst arrestees.

Notes

1 Preliminary analyses suggest that police deemed approximately 10 per cent of arrestees as not fit for interview (Makkai 1999). This is not based on the charge as 40 people were charged with violent offenses, including murder.

2 Arrestees are offered tea/coffee/biscuits prior to the interview commencing.

3 The overall number of arrestees who tested positive to methadone is small and they have not been included in this analysis.

4 This could be an artifact of the data collection due to the problems associated with collecting information on why the warrant was first issued.

These data were originally collected by Marg Hauritz Pty Ltd, with the assistance of the Queensland Police Service, for the Australian Institute of Criminology's Drug Use Monitoring in Australia (DUMA) project. Neither the collectors nor the Queensland Police Service bear any responsibility for the analyses or interpretations presented herein. We would particularly like to thank the staff of the Southport watchhouse for their tremendous support and the many arrestees who have co-operated with the project personnel in providing information of a confidential nature of them.

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