



# criminal justice bulletin

criminal justice bulletin series 10 – June 2012

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## Cannabis use and market indicators: A comparison between detainees from Australia and the United States

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### Key Points

- Cannabis is the most widely produced and commonly used illicit drug in the world
- Comparing cannabis use and market indicators across different countries can assist drug law enforcement agencies to respond more effectively to drug-related crime in their areas
- Patterns of cannabis use and self-reported cannabis market indicators from detainees surveyed through the Drug Use Monitoring in Australia (DUMA) program and the Arrestee Drug Abuse Monitoring II (ADAM II) Program in the United States were compared, with similar rates of cannabis use being found among offenders in both countries. The age of first use was also similar across both samples
- In terms of drug markets, Australian detainees were on average more likely to source their cannabis from a regular dealer and more frequently received cannabis without paying cash than their American counterparts. This suggests a more socially dynamic cannabis market in Australia, where a considerable quantity of cannabis is shared or traded informally between family and friends
- Both groups were equally as likely to test positive to cannabis, purchase cannabis with cash on approximately the same number of days in a month and experience roughly the same number of failed cannabis purchases
- While both countries have the potential to share information regarding effective policy decisions due to the overall similarities in drug use and cannabis markets, the diversity of individual cities and data collection sites, both within and across the two countries, serves as a timely reminder of the need for the development of local solutions to localised drug markets



## Introduction

Cannabis is the most widely produced and commonly used illicit drug in the world (UNODC 2011). Whilst many countries globally report that rates of cannabis use have remained stable in recent years, it has been estimated that globally in 2009 as many as 203 million people aged 15-64 (4.5 per cent of the world's population) had used cannabis at least once in the last 12 months (UNODC 2011:175).

Given the relatively widespread use of cannabis, together with the localised nature of its production and distribution (ACC 2011; Willis 2008), comparisons between countries provide important insights that guide researchers and policy makers in identifying “best practices” (Bennett 2004:9) for reducing both the supply and demand for cannabis, as well as the harms associated with its use. Identifying similarities and differences between countries can help provide essential information to drug law enforcement agencies as they work to respond more effectively to drug-related crime in their areas.

One source of global comparative data on cannabis use comes from the United Nations Office on Drugs and Crime (UNODC) Annual Report, which monitors key indicator data from across a wide range of sources, including drug arrest and seizure data from police and other law enforcement agencies (UNODC 2011). These data show that the Oceania region, to which Australia belongs, has one of the highest rates of cannabis consumption in the world (UNODC 2011). However, such comparisons have been the subject of much criticism, with concerns raised about the comparability of data sources and the likely implications for the validity of the resulting analysis (Bennett 2004). Given the significant differences between countries in the criminal justice processes that apply to cannabis-related offences (Finckenauer 2002), these concerns are not without foundation.

Alternative sources of comparative data are available, but rarely examined in detail. The International Arrestee Drug Abuse Monitoring (I-ADAM) Program, for example, was established in the late 1990s to gather knowledge about drug use and crime across multiple countries in an effort to better inform international drug policy development (Finckenauer 2002, Taylor 2003). The United States was the first country to regularly collect data on the drug use patterns of arrestees (Taylor 2002), through a program of data collection now known as the Arrestee Drug Abuse Monitoring II (ADAM II) Program (ONDCP 2011). In 1999, Australia's own Drug Use Monitoring Australia (DUMA) program commenced, modelled from the United States ADAM program, using a comparable set of research tools and data collection methodologies (Makkai 1999). Both programs, for example, involve the collection of self-report data from police detainees within 48 hours of their arrest, as well as the collection and testing of voluntary urinalysis samples. Together they provide one of the most comparable set of cross-border data on drug use among police detainees, and have the potential to provide information and knowledge to guide law enforcement practitioners and policy makers.

## About this study

The present study provides a comparison of patterns of cannabis use and self-reported cannabis market indicators from detainees surveyed in 2010 through the DUMA and ADAM II programs. The data include urinalysis results from respondents in both programs as well as self-reported information about drug market participation. Data from the United States ADAM II program were obtained from the 2010 Annual Report (ONDCP 2011), which provides results for the ten cities that form this program:

- Atlanta, Georgia
- Charlotte, North Carolina
- Chicago, Illinois

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- Denver, Colorado
  - Indianapolis, Indiana
  - Minneapolis, Minnesota
  - New York, New York
  - Portland, Oregon
  - Sacramento, California
  - Washington, DC

Data from the DUMA program are presented for detainees at six geographical locations across Australia:

- South-East Queensland (Brisbane and Southport), Queensland
- Sydney (Bankstown, Parramatta and Kings Cross), New South Wales
- East Perth, Western Australia
- Adelaide, South Australia
- Darwin, Northern Territory
- Footscray, Victoria

Two of these locations include aggregate data for multiple sites within the one geographical region – South East Queensland and the Sydney Basin. This aggregation was important since the ADAM II program in the US is based upon regional data collection in which city-wide results may be collected from a single facility that has city-wide intake of arrestees, or multiple facilities located in the same geographical region.

Other methodological differences exist between the DUMA and ADAM II programs, and where possible the analytical approach chosen for this paper seeks to minimise the impact of these differences. For example, unlike DUMA, the ADAM II program does not interview female or juvenile detainees and as such, females and those aged under 18 years have been excluded from the DUMA sample in this study.

Finally, it is important to note that urinalysis results reported for the ADAM II program include statistical imputations for missing data. In other words, detainees who refuse to provide a urine sample, or who are unable to provide a sample due to personal or watchhouse constraints, are given a statistically derived probability (of testing positive) which is later used in the calculation of overall test positive rates (ONDCP 2010:10; a more detailed description of this process is included in Hunt & Rhodes 2010). No such imputation is undertaken for missing data in DUMA as the validity of such methods are subject to some debate. Instead, test positive results for DUMA are calculated as a proportion of samples provided, excluding missing data.

## Results

### Cannabis use

Comparative examination of urinalysis results for both the DUMA and ADAM II data collection sites shows remarkably consistent results. Averaged across all sites, the data showed that 47 per cent of United States detainees and 45 per cent of Australian detainees tested positive to cannabis (see Table 1). By site, the proportion of detainees testing positive in Australia ranged from 37 per cent in Sydney and Footscray to over half (56%) in East Perth. In the US the proportion of arrestees testing positive to cannabis ranged from just over a third (35%) in Atlanta (2 percentage points lower than the lowest result in Australia) to well over half (58%) in Sacramento (2 percentage points higher than the highest result in Australia).

### Age of first cannabis use

In both the ADAM II and DUMA programs, detainees who self-reported cannabis use in the last 30 days were asked how old they were when they first used cannabis. The mean age of

first use was almost identical across both programs, with Australian detainees having a mean age of 14.9 years, and United States detainees having a mean age of 15.2 years (see Table 1). Site-specific results showed the mean age of first cannabis use for Australian detainees ranged from 14 years in East Perth (the Australian site with the highest rate of cannabis use) to 15.7 years in Darwin. In the US the mean age of initiation for cannabis ranged from 14 years (the same as the lowest mean age in an Australian site) to 16.4 years in Atlanta (slightly higher than the highest mean age of 15.7 years in Australia).

**Table 1: Proportion of detainees who tested positive to cannabis, and age of first cannabis use**

United States sites	Tested positive to cannabis (%)	Mean age of first use (years) <sup>(a)</sup>	Australian sites	Tested positive to cannabis (%)	Mean age of first use (years) <sup>(a)</sup>
Atlanta	35	16.4	South-East Queensland <sup>(b)</sup>	46	14.6
Charlotte	48	15.4	Sydney <sup>(c)</sup>	37	15.4
Chicago	56	15.1	East Perth	56	14.0
Denver	40	14.6	Adelaide	40	14.5
Indianapolis	49	15.2	Darwin	55	15.7
Minneapolis	53	15.0	Footscray	37	15.0
New York	48	15.1			
Portland	44	14.0			
Sacramento	58	15.0			
Washington	37	16.0			
<b>Average across all sites</b>	47	15.2		45	14.9

Source: AIC DUMA Collection [Computer File] & ONDCP 2011

- (a) Mean age of first cannabis use of those who self-reported use in the 30 days prior to their involvement with the police  
 (b) South-East Queensland sites include Brisbane and Southport  
 (c) Sydney sites include Bankstown, Parramatta and Kings Cross

### Cannabis drug market participation

In addition to gathering information from detainees about patterns of cannabis use, both the ADAM II and DUMA programs collect information about local cannabis markets. This includes information about the types and frequency of different cannabis transactions, whether cannabis was obtained from a regular source and whether detainees had tried to obtain cannabis but were unsuccessful.

Across all sites almost half (46%) of detainees in both Australia and the United States reported they had acquired cannabis in the 30 days prior, either for themselves or someone else (Table 2). In Australia, the results ranged from 39 per cent in Sydney to over half (57%) in East Perth, which is consistent with the rates of use reported earlier. In the US, results ranged from just over a quarter (27%) in Washington (12 percentage points lower than the lowest result in Australia) to over half (56%) in Chicago (just 1 percentage point lower than the highest result in Australia). Such patterns were also reflective of the positive test results amongst detainees within the US sites (as seen in Table 1).

**Table 2: Proportion of all detainees who acquired cannabis in the 30 days prior to being detained by police**

United States sites	%	Australian sites	%
Atlanta	43	South-East Queensland <sup>(a)</sup>	48
Charlotte	45	Sydney <sup>(b)</sup>	39
Chicago	56	East Perth	57
Denver	52	Adelaide	47
Indianapolis	41	Darwin	40
Minneapolis	43	Footscray	43
New York	51		
Portland	45		
Sacramento	52		
Washington	27		
<b>Average across all sites</b>	46		46

Source: AIC DUMA Collection [Computer File] & ONDCP 2011

(a) South-East Queensland sites include Brisbane and Southport

(b) Sydney sites include Bankstown, Parramatta and Kings Cross

In both the DUMA and ADAM II programs, detainees who had acquired cannabis in the previous 30 days were then asked to indicate on how many days they had purchased cannabis (with cash) and on how many days they received it without paying (non-cash transactions). Although data were not collected on the types of non-cash transactions, such transactions can include obtaining drugs through sharing, as a gift, a trade of possessions or a system where the recipient is seen to owe the provider back at a later time (Freeman & Fitzgerald 2002). Overall, in Australia 64 per cent of detainees reported buying cannabis and 70 per cent reported getting cannabis without paying. The average number of days (of the last 30) in which detainees purchased cannabis was 9.5, while the average number of days cannabis was exchanged without cash was 8.5. By location, Adelaide and Darwin had the highest overall prevalence of non-cash transactions, with the average number of days on which cannabis was exchanged without cash exceeding the number of days on which cannabis was typically purchased. Sydney, on the other hand, had the lowest prevalence of non-cash transactions in Australia (62%) and also recorded the lowest average frequency (5.8 days in the last 30). In the United States, 65 per cent of those who had acquired cannabis in the past 30 days purchased it with cash on at least one occasion, while 66 per cent received it at least once without paying. While the prevalence of cash transactions was comparable between the US and Australia, Australia had a marginally higher prevalence of non-cash transactions and a higher average number of days on which detainees acquired cannabis without paying (8.5 vs. 5.2).

There were some notable sites in both the US and Australia in which non-cash transactions were substantially more common than cash transactions; for example, Portland (47% reported a cash transaction compared to 85% who reported a non-cash transaction) and Adelaide (45% reported a cash transaction compared to 80% who reported a non-cash transaction). Conversely, in Washington cash transactions were substantially more common, with 73 per cent of detainees reporting a cash transaction, compared to 46 per cent of detainees reporting a non-cash transaction (see Table 3).

**Table 3: Proportion of detainees who acquired cannabis through cash and non-cash transactions in the 30 days prior to being detained and average number of days the transactions occurred**

United States sites	Cash (%)	Cash (Days)	Non-cash (%)	Non-cash (Days)	Australian sites	Cash (%)	Cash (Days)	Non-cash (%)	Non-cash (Days)
Atlanta	62	9.3	60	4.7	South-East Queensland <sup>(a)</sup>	63	9.3	67	6.9
Charlotte	68	10.2	62	4.7	Sydney <sup>(b)</sup>	64	11.6	62	5.8
Chicago	77	13.0	57	6.7	East Perth	64	10.5	71	10.2
Denver	57	6.3	67	4.5	Adelaide	45	8.4	80	9.0
Indianapolis	69	8.7	74	6.1	Darwin	75	9.8	74	12.4
Minneapolis	74	9.6	66	5.2	Footscray	71	7.3	71	6.5
New York	69	13.2	69	6.5					
Portland	47	6.7	85	6.0					
Sacramento	51	8.6	73	4.9					
Washington	73	12.0	46	2.2					
<b>Average across all sites</b>	65	9.8	66	5.2		64	9.5	70	8.5

Source: AIC DUMA Collection [Computer File] & ONDCP 2011

(a) South-East Queensland sites include Brisbane and Southport

(b) Sydney sites include Bankstown, Parramatta and Kings Cross

Note: Percentages for cash and non-cash transactions do not add up to 100% as some detainees reported acquiring cannabis through both cash and non-cash transactions

Detainees in Australia were more likely to report acquiring cannabis from a regular source than those in the United States, with an average of 62 per cent of DUMA detainees across all sites having bought cannabis on the last occasion from a regular dealer, compared to half (50%) of United States detainees interviewed through ADAM II. Buying from a regular source was clearly more common in some sites than others, for example 86 per cent of Darwin detainees and 63 per cent of Atlanta arrestees reported last buying cannabis from a regular dealer, compared to only 34 per cent in Washington and 36 per cent in Minneapolis. The results however indicate that it is common for detainees in both programs to have been buying cannabis from the same person on multiple occasions, rather than from a stranger (see Table 4).

**Table 4: Proportion of detainees who last bought cannabis from a regular source**

United States sites	%	Australian sites	%
Atlanta	63	South-East Queensland (a)	52
Charlotte	47	Sydney (b)	57
Chicago	42	East Perth	61
Denver	64	Adelaide	62
Indianapolis	51	Darwin	86
Minneapolis	36	Footscray	52
New York	55		
Portland	51		
Sacramento	54		
Washington	34		
<b>Average across all sites</b>	50		62

Source: AIC DUMA Collection [Computer File] & ONDCP 2011

(a) South-East Queensland sites include Brisbane and Southport

(b) Sydney sites include Bankstown, Parramatta and Kings Cross

Finally, respondents who reported paying cash for cannabis in the last 30 days in both the ADAM II and DUMA programs were asked if they had experienced a ‘failed buy’, meaning that they had sufficient money to buy cannabis but were unable to obtain it on at least one occasion. Again, the results were similar in both the ADAM II and DUMA programs, with 41 per cent of Australian detainees reporting a failed buy in the last 30 days compared to 36 per cent of US arrestees (see Table 5).

**Table 5: Proportion of detainees who reported an unsuccessful cannabis buy in the 30 days prior to being detained**

United States sites	%	Australian sites	%
Atlanta	37	South-East Queensland <sup>(a)</sup>	39
Charlotte	36	Sydney <sup>(b)</sup>	52
Chicago	34	East Perth	40
Denver	19	Adelaide	45
Indianapolis	47	Darwin	34
Minneapolis	39	Footscray	38
New York	50		
Portland	26		
Sacramento	35		
Washington	33		
<b>Average across all sites</b>	36		41

Source: AIC DUMA Collection [Computer File] & ONDCP 2011

(a) South-East Queensland sites include Brisbane and Southport

(b) Sydney sites include Bankstown, Parramatta and Kings Cross



## Discussion and Conclusion

This study provided a comparative analysis of cannabis use and cannabis market indicators reported by detainees interviewed in 2010 as part of the United States ADAM II program and the Australian DUMA program. Given the large degree of similarity between the two programs, this study provided a unique opportunity to compare data from two geographically and socio-politically different countries. The study found that in addition to the US and Australian detainees being of almost an identical age when they first tried cannabis, test positive to cannabis rates were also almost the same, contrary to earlier findings from general population studies that indicate cannabis use is more prevalent in Australia than in the United States (Single et al. 2000).

In terms of drug markets, the findings indicate that Australian detainees were on average more likely to source their cannabis from a regular dealer (62% vs. 50% in the US) and more frequently received cannabis without paying cash. In fact, when estimated over a period of 30 days, not only did a greater proportion of detainees in Australia receive cannabis without paying, but those who did tended to receive cannabis without cash more often than their counterparts in the US (8.5 days vs. 5.2 days in the United States). These data point to a more socially dynamic cannabis market in Australia, where a considerable quantity of cannabis is shared or traded informally between family and friends; findings which are consistent with results from the 2010 National Drug Strategy Household Survey (NDSHS) (AIHW 2011) and other research that showed cannabis to be a drug that is commonly given away without payment (Chanteloup et al. 2005).

For all other drug market indicators, when averaged across the two countries, police detainees in Australia and the US were remarkably similar. Not only were they equally likely to test positive to cannabis, they also reported buying cannabis with cash on approximately the same number of days and reported roughly the same number of failed cannabis purchases.

However, perhaps the most noteworthy finding in this comparative analysis was not between the averages of the two countries, but instead in the diversity of results at the individual city/site level. It has long been recognised in Australia that drug use and drug market indicators can vary considerably between data collection sites, owing to the localised nature of the drug markets (Sweeney and Payne 2012). These data confirm a similar degree of diversity across ADAM II data collection locations in the United States and provide further support for a mixed method approach to policy development and program implementation. On the one hand, the overall similarities between the US and Australia suggest that there is much that can be shared on the international stage regarding effective policies and practices. On the other, the diversity of individual cities and data collection sites, both within and across the two countries, serves as a timely reminder of the need for the development of local solutions to localised drug markets.

## References

- Australian Institute of Health and Welfare (AIHW).** (2011). *2010 National Drug Strategy Household Survey Report*. Drug Statistics Series Number 25. Cat. no. PHE 145. Canberra: Australian Institute of Health and Welfare. <http://www.aihw.gov.au/publication-detail/?id=32212254712&tab=2>
- Australian Crime Commission (ACC).** (2011). *Illicit Drug Data Report 2009-10*. Canberra: Australian Crime Commission. [http://www.crimecommission.gov.au/sites/default/files/files/IDDR/2009-10/IDDR\\_2009-10.pdf](http://www.crimecommission.gov.au/sites/default/files/files/IDDR/2009-10/IDDR_2009-10.pdf)
- Bennett, R.R.** (2004). Comparative criminology and criminal justice research: The state of our knowledge. *Justice Quarterly* 21, 1-21.
- Chanteloup, F., Lenton, S., Barratt, M., & Fetherston, J.** (2005). Effects of the Western Australian Cannabis Infringement Notice Scheme on regular cannabis users regarding attitudes, use and drug market factors – Baseline, Year 1. In. National Drug Law Enforcement Research Fund (NDLERF). *An evaluation of the impact of changes to cannabis law in WA – Summary of Year 1 findings*. Monograph Series No. 12. Canberra: Commonwealth of Australia: 5-22. [http://www.ndlerf.gov.au/pub/Cannabis\\_WA.pdf](http://www.ndlerf.gov.au/pub/Cannabis_WA.pdf)





**Finckenauer, J.O.** (2002). Foreword **In. B. Taylor (Ed.)**. *I-ADAM in eight countries: Approaches and challenges*. Washington, DC: U.S. Department of Justice-Office of Justice Programs. <https://www.ncjrs.gov/pdffiles1/nij/189768.pdf>

**Freeman, K. & Fitzgerald, J.** (2002). *Drug use monitoring of police detainees in New South Wales: The first two years*. Contemporary Issues in Crime and Justice no. 72, Sydney: NSW Bureau of Crime Statistics and Research.

**Hunt, D. & Rhodes, W.** (2010). *Arrestee Drug Abuse Monitoring Program II in the United States, 2010: Technical Documentation Report*. Ann Arbor, Michigan: Inter-University Consortium for Political and Social Research. <http://www.icpsr.umich.edu/icpsrweb/ICPSR/>

**Makkai, T.** (1999). *Drug use monitoring in Australia (DUMA): A brief description*. Research and public policy series no. 21, Canberra: Australian Institute of Criminology.

**Office of National Drug Control Policy (ONDCP).** (2011). *ADAM II 2010 Annual Report*. Washington, DC: Office of the National Drug Control Policy-Executive Office of the President. <http://www.whitehouse.gov/sites/default/files/ondcp/policy-and-research/adam2010.pdf>

**Single, E., Christie, P. & Ali, R.** (2000). The impact of cannabis decriminalisation in Australia and the United States. *Journal of Public Health Policy* 21, 157-186.

**Sweeney, J. & Payne, J.** (2012). *Drug use among police detainees: Comparative analysis of DUMA and the US Arrestee Drug Abuse Monitoring program*. Research in Practice. Canberra: Australian Institute of Criminology.

**Taylor, B.** (2002). Introduction and overview **In. B. Taylor (Ed.)**. *I-ADAM in eight countries: Approaches and challenges*. Washington, DC: U.S. Department of Justice – Office of Justice Programs. <https://www.ncjrs.gov/pdffiles1/nij/189768.pdf>

**Taylor, B., Brownstein, H.H., Parry, C., Pluddemann, A., Makkai, T., Bennett, T., & Holloway, K.** (2003). Monitoring the use of illicit drugs in four countries through the International Arrestee Drug Abuse Monitoring (I-Adam) Program. *Criminal Justice* 3, 269-286.

**United Nations Office on Drugs and Crime (UNODC).** (2011). *World Drug Report 2011*. Vienna, Austria: United Nations Office on Drugs and Crime-Division for Policy Analysis and Public Affairs. [http://www.unodc.org/documents/data-and-analysis/WDR2011/World\\_Drug\\_Report\\_2011\\_ebook.pdf](http://www.unodc.org/documents/data-and-analysis/WDR2011/World_Drug_Report_2011_ebook.pdf)

**Willis, K.** (2008). Cannabis supply into and within Australia. *Criminal Justice Bulletin Series 2*. Sydney: National Cannabis Prevention and Information Centre. <http://ncpic.org.au/ncpic/publications/aic-bulletins/pdf/cannabis-supply-into-and-within-australia>