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**Drug use monitoring in Australia:  
2018 technical appendix**

Alexandra Voce  
Tom Sullivan

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GPO Box 1936 Canberra ACT 2601  
Tel: (02) 6268 7166  
Email: [front.desk@aic.gov.au](mailto:front.desk@aic.gov.au)  
Website: [aic.gov.au](http://aic.gov.au)

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# Contents

## **1 Data collection method**

- 1 Participant eligibility
- 2 Consent
- 2 Charge and demographic information
- 2 Data storage and management
- 3 Drug testing
- 3 Provision of a urine sample
- 3 Urinalysis
- 4 Quality control
- 5 Data entry

## **6 Response rates**

- 6 Methodological considerations

## **7 References**

## **8 Glossary of terms**

## **10 Appendix tables**

## **Boxes**

- 8 Box 1: Glossary of terms

## **Tables**

- 10 Table 1: Fieldwork information, 2018
- 11 Table 2: Cut-off levels and drug detection times
- 11 Table 3: Comparing urinalysis and reported drug use by adult detainees, 2018
- 11 Table 4: National DUMA sample by urine provision and gender, 2018
- 11 Table 5: National DUMA sample by urine provision and Indigenous status, 2018
- 12 Table 6: National DUMA sample by urine provision and age, 2018
- 12 Table 7: National DUMA sample by urine provision and location, 2018
- 12 Table 8: Response rate of adult detainees by gender and location, 2018
- 13 Table 9: Response rate of detainees under 18 years of age, 2018

# Data collection method

## Participant eligibility

Due to the way that participants are invited to take part in the Drug Use Monitoring in Australia (DUMA) survey, the sample is not a random sample of all people detained by police. This is because the police officer in charge of the watch house or police station, or their delegate, can determine whether a detainee is eligible to participate in a DUMA interview. This eligibility assessment takes into consideration the level of risk a detainee may pose to the interviewer.

In 2018, 564 adult detainees (14% of the potential sample) were deemed by police to be unfit for interview. This varied by site, ranging from four percent ( $n=34$ ) of detainees in Brisbane, seven percent ( $n=122$ ) in Perth, 15 percent ( $n=34$ ) in Bankstown, 18 percent ( $n=44$ ) in Surry Hills, to 29 percent ( $n=330$ ) of detainees in Adelaide. Site variations may be due to the length of detention, the reasons for detention, detention procedures governed by state legislation or the characteristics of the watch house. Sites with longer holding periods also present greater opportunities for participation.

Table 1 presents the fieldwork data for 2018. This includes when fieldwork was undertaken, the number of hours interviewers spent at the police station or watch house, the number of detainees approached and interviewed, and the number of urine samples collected at each site.

Due to the high rate of recidivism in the detainee population, it is likely that a small group of detainees was surveyed twice or more. The DUMA sample is collected on the basis of episodes of detention, rather than individual detainees, so these duplicates cannot be tracked across interview periods. Further, names are not recorded as there is a strict code of anonymity and confidentiality attached to participation. To ensure these data are collected, detainees are asked if they recall ever participating in the study on a previous occasion. In 2018, 14 percent ( $n=315$ ) of the potential sample reported that they had previously participated in the study; a further one percent ( $n=17$ ) could not recall if they had previously participated.

## Consent

Detainees eligible for interview are approached by either a police officer or an interviewer and asked if they are willing to participate in the DUMA study. Detainees are notified that the interviewer is independent from the police and that anything they say will be treated in strict confidence. If detainees decline to participate in the study, the reason for their refusal is recorded. This decision has no impact on their criminal case or subsequent processing.

Where detainees agree to participate, they undergo an informed consent procedure where they are advised that the research project is funded by the Australian Government and that participation is voluntary and confidential. A plain language information statement is provided to them that describes the aims of the project. They are informed that they may end the interview at any time and can choose not to answer individual questions. Detainees are also informed that they can make a complaint to either watch house staff or the Australian Institute of Criminology (AIC) ethics secretariat if they feel they have been treated unfairly or unethically. The detainee is then asked to give verbal consent to participate in a structured interview and provide a urine sample (during relevant collection periods). Interview responses are included in the study regardless of whether a detainee provides a urine sample.

During the interview, detainees are reminded of the confidential nature of the research. Detainees' names are never recorded on the survey or on urine samples.

## Charge and demographic information

Demographic information and details of the charges laid against detainees are collected after completion of interviews. These data are collected from police charge records. A maximum of 10 charges can be recorded and they must relate to the detainee's current period of detention. Protocols for collecting this information differ between jurisdictions. The gender recorded is the gender assigned to the detainee on police charge records.

## Data storage and management

Interviews are administered using a computer-assisted personal interviewing (CAPI) system and the information is stored in an electronic tablet. Each interview entry is protected by a unique password and data can be accessed from the tablet by the interviewer. The CAPI system allows interviewers to send interview data to the secure AIC server immediately after the interview.

Where paper questionnaires are used, they are secured until responses are entered by the interviewer into the CAPI system. Physical copies are destroyed after the end of each quarterly data collection period.

## Drug testing

Although the DUMA program collects self-reported drug use data, it does not primarily rely on these data to investigate the drug-using habits of police detainees as these data may not be accurate. Problems with self-reported data include social desirability bias, perceptions about the consequences of reporting drug use, a lack of information about the purity and composition of purchased illicit drugs and recall issues (Darke 1998; Miller, Donnelly & Martz 1997). This may result in under-reporting of behaviours related to drug use and participation in illegal activities. To enhance the accuracy of self-report information in the DUMA study, and to cross-validate self-report drug use data, urinalysis is conducted on samples voluntarily provided by police detainees. Urine testing provides an objective measure of the presence of drugs and also provides a scientifically valid measure of drug use within the known limits of the test.

### *Provision of a urine sample*

During relevant collection periods, detainees are asked to provide a urine sample at the end of the interview. Only detainees who have been in a custodial setting for less than 48 hours are eligible to provide a urine sample, as the majority of drugs have a limited detection time in urine (see Table 2). Where detainees decline to provide a urine sample, the following statement is provided to them:

Your participation is completely voluntary, but I would like to remind you that no names will appear on a specimen and the results will not be given to the police or affect the outcome of your case. An independent laboratory will perform the analysis, and the sample will be destroyed as soon as the tests have been done. There is no way that the results can be tied back to you. The urine sample cannot and will not be used for DNA extraction. Would you agree to provide a urine sample?

If the detainee still declines to provide a urine sample, they are thanked for their time and participation and escorted back to their cell.

If a detainee agrees to provide a urine sample, a urine collection pot is given to them and they are escorted to an appropriate location to provide the sample. The sample is returned to the interviewer and the detainee is escorted back to their cell. Each urine sample is given a unique barcode, frozen and sent to an authorised testing laboratory in New South Wales.

### *Urinalysis*

Urinalysis is conducted by the Forensic and Analytical Science Service of NSW Health Pathology. This laboratory is accredited to Australian Standard AS/NZS 4308-2008. Results from urinalysis tests are provided to the AIC in electronic format. Police and local data collectors are not informed of individual test results and all urine samples are destroyed once the AIC receives and validates the results.

The Forensic and Analytical Science Service tests urine samples for the following classes of drugs: amphetamines, benzodiazepines, cannabis, cocaine, opioids and 6-acetylmorphine, a heroin metabolite indicating heroin use. A primary screening test is also conducted for the pharmaceutical opioids methadone and buprenorphine. When the drug or its metabolite is detected at or above the cut-off level set in the Australian Standard, the test will yield a positive result. Table 2 indicates the average detection time and the cut-off levels for a positive result.

Where a sample tests positive for amphetamines or opioids, a confirmatory test is performed using gas chromatography–mass spectrometry to ascertain the specific drug present in the urine. Opioids are classified as morphine, 6-acetylmorphine or codeine, and amphetamines are classified as methamphetamine, MDMA, MDA or other amphetamines (including prescription amphetamines). With the exception of cannabis and benzodiazepines, these results indicate whether the drug was consumed shortly before detention.

When reporting on urinalysis, the following should be taken into account:

- the screening test detects the class of drug, not the specific metabolite;
- false positives and false negatives can occur, although cut-off levels are designed to minimise their frequency;
- detection times vary based on the individual person's rate of metabolism and excretion;
- a positive result does not necessarily represent illicit use; and
- the presence of the drug does not necessarily mean the person was intoxicated or impaired.

### *Comparing urinalysis and reported drug use*

Table 3 shows the percentage of detainees who tested positive via urinalysis to heroin, methamphetamine or cocaine by self-reported drug use in the previous 48 hours and previous 30 days.

## **Quality control**

Before data collection, interviewers undergo training in the questionnaire and operational procedures specific to their site. During data collection, site coordinators audit questionnaires and report errors back to interviewers.

When data collection is complete, the AIC audits all questionnaires. Error reports are created by the AIC and distributed to each site manager prior to the next quarter. These error reports are supplied at both the site and interviewer level. Urine provision is also monitored by the AIC at both the site and interviewer level. These reports allow emerging issues to be identified and individual or site-specific issues to be addressed if and when they arise.

Annual teleconferences are held with members of the AIC's DUMA team and the site managers and coordinators. These teleconferences provide a forum to discuss issues related to the administration of the questionnaire or addenda.

## Data entry

After data are entered into the CAPI system, they are sent directly to the AIC over a secure network from each site's tablets. The data are downloaded and stored securely on the AIC's server for checking and analysis. Questionnaire responses and urinalysis data are matched by the AIC using barcode numbers.

# Response rates

Response rates are calculated by dividing the number of detainees who agreed to participate by the potential sample, which includes detainees deemed ineligible (for example, those who were mentally unfit or potentially violent) and those who were unavailable (for example, due to watch house constraints or because they had been taken to court).

In 2018, 2,418 adult detainees were interviewed, representing 58 percent of all detainees approached for interview ( $n=4,200$ ). This response rate increases to 95 percent if calculated using only those deemed eligible to participate ( $n=129$  declined). There were no substantial differences in the participation rates of eligible male and female detainees (95%,  $n=1,981$  males; 93%,  $n=437$  females).

Of those detainees who agreed to an interview and were eligible to provide a urine sample ( $n=1,012$ ), 87 percent ( $n=876$ ) agreed to provide a urine sample. All sites collected urine samples in the first quarter of 2018, no sites collected samples in the second quarter, three sites (Adelaide, Brisbane and Perth) collected samples in quarter 3, and only Bankstown collected samples in the fourth quarter. The proportion of detainees who provided a urine sample was 11 percentage points higher in 2018 than in 2017 (76%,  $n=852$ ) (Patterson et al. 2019). Refer to Tables 4 to 7 for a breakdown of urine provision rates by gender, Indigenous status, age and location. Table 8 shows the response rates of detainees.

## Methodological considerations

Sample sizes vary across the analysis due to instances where detainees were unable or unwilling to respond to survey questions. To preserve the largest sample size possible, detainees were excluded from analysis only for variables for which data were missing. Furthermore, males are over-represented in the DUMA detainee sample. Thus caution should be taken when interpreting results for female detainees or making gender-based comparisons.

The number of standard drinks consumed by detainees is based on conversion figures consistent with those used by the Australian Institute of Health and Welfare's National Drug Strategy Household Survey. Cider was added to the core DUMA survey in the third quarter of 2018. The data about cider consumption pertain only to the last two quarters of the reporting period.

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# Glossary of terms

A full glossary of terms can be found on the Crime Statistics Australia website (<http://www.crimestats.aic.gov.au/DUMA/glossary/>). The terms relevant to the 2018 report are listed below.

## Box 1: Glossary of terms

### Most serious offence

The most serious offence category is assigned to a detainee based on the most serious charge laid against them during the current period of detention. Charges are assigned to each detainee according to the Australian Bureau of Statistics' (2011) Australian and New Zealand Standard Offence Classification. The category is assigned to each detainee based on a hierarchy from the most serious to the least serious offences: violent, property, drug, driving under the influence (DUI), traffic, disorder, breach and other lesser offences respectively.

### Violent offences

Characterised as offences where violence was involved, including: homicide and related offences; acts intended to cause injury; sexual assault and related offences; dangerous or negligent acts endangering persons; robbery, extortion and related offences; selling, possession and/or use of prohibited weapons or explosives; and unlawfully obtaining, possessing or misusing regulated weapons or explosives.

### Property offences

Characterised as offences involving theft and/or where deception has been used to gain a benefit. This includes unlawful entry with intent, burglary or break and enter; theft and related offences; and fraud, deception and related offences.

### Drug offences

Characterised as offences involving the possession, manufacture, distribution and/or use of drugs, including misuse of prescription drugs.

### DUI offences

Characterised as offences where a detainee was driving under the influence of alcohol and/or drugs.

### Traffic offences

Characterised as offences where a detainee was operating a vehicle in an illegal manner. This includes dangerous or negligent operation of a vehicle, driving while suspended and driving without a licence.

**Disorder offences**

Characterised as offences where a detainee has caused disruption or offence to the general public (for example: trespass, offensive conduct, consumption of alcohol in a regulated space) and property damage (for example: vandalism, graffiti, arson).

**Breach offences**

Characterised as offences where a detainee has breached a court order. This includes breach of violence orders, breach of custodial orders (for example: home detention, suspended sentence or escape from custody) or breach of community-based orders (for example: community service order, parole or bail).

**Other lesser offences**

Characterised as a range of offences including environmental pollution, pedestrian offences and offences against justice procedures, government security and operations.

**Any drug**

Detainees who have tested positive to any drug via urinalysis are those who have at least one of the following drugs in their system:

- amphetamines (including methamphetamine, MDMA, MDA and/or other amphetamines);
- benzodiazepines;
- cannabis;
- cocaine; and
- opioids (including heroin, methadone, buprenorphine and/or other opioids).

**Multiple drugs**

Detainees who have tested positive to multiple drugs via urinalysis are those who have two or more of the following drugs in their system:

- amphetamines (including methamphetamine, MDMA, MDA and/or other amphetamines);
- benzodiazepines;
- cannabis;
- cocaine; and
- opioids (including heroin, methadone, buprenorphine and/or other opioids).

Detainees who tested positive to more than one type of amphetamine or opioid are not classified as a multiple drug user unless they also tested positive to a drug of another class.

# Appendix tables

Quarter	Site	Period	Hours in facility	Detainees approached (n)	Detainees interviewed (n)	Specimens collected
1	Adelaide	05.01.18–01.02.18	300	288	142	96
	Brisbane	10.01.18–06.02.18	390	207	194	163
	Perth	19.01.18–20.02.18	288	406	191	129
	Surry Hills	15.01.18–18.02.18	298	127	74	57
2	Adelaide	05.04.18–02.05.18	300	311	137	–
	Bankstown	03.04.18–05.05.18	390	129	81	–
	Brisbane	04.04.18–01.05.18	288	192	176	–
	Perth	05.04.18–06.05.18	299	436	201	–
3	Adelaide	05.07.18–01.08.18	300	252	133	96
	Brisbane	03.06.18–03.07.18	390	196	181	151
	Perth	05.07.18–05.08.18	288	390	211	127
	Surry Hills	18.07.18–22.08.18	298	117	65	–
4	Adelaide	05.10.18–01.11.18	300	303	151	–
	Bankstown	09.10.18–13.11.18	390	105	68	59
	Brisbane	03.10.18–30.10.18	288	234	217	–
	Perth	04.10.18–04.11.18	299	471	196	–
<b>Total</b>	<b>All sites</b>	<b>2018</b>	<b>5,106</b>	<b>4,164</b>	<b>2,418</b>	<b>878</b>

Note: Juveniles excluded (n=35)

Source: AIC DUMA collection 2018 [computer file]

**Table 2: Cut-off levels and drug detection times**

Drug class	Cut-off levels, AS/NZS 4308-2008 (µg/L)	Average detection time <sup>a</sup>
Amphetamines	300	2–4 days
Benzodiazepines (hydrolysed)	200	2–14 days
Cannabis	50	Up to 30 days for heavy use; 2–10 days for casual use
Cocaine	300	24–36 hours
Methadone	300	2–4 days
Opioids	300	2–3 days
Buprenorphine	10	2–7 days

a: Depends on testing method and equipment, the presence of other drugs, level of drug present and frequency of use

Source: Australian Standard AS/NZS 4308-2008; Makkai 2000

**Table 3: Comparing urinalysis and reported drug use by adult detainees, 2018**

Drug	Urinalysis results	Reported use past 48 hours (%)		Reported use past 30 days (%)		Total (n)
		No	Yes	No	Yes	
Heroin	Negative	99	1	97	3	827
	Positive	41	59	37	63	46
Methamphetamine	Negative	99	1	88	12	423
	Positive	43	57	22	78	451
Cocaine	Negative	99	1	88	12	853
	Positive	62	38	22	78	21

Note: Juveniles excluded (n=35)

Source: AIC DUMA collection 2018 [computer file]

**Table 4: National DUMA sample by urine provision and gender, 2018**

	Male		Female		Total	
	n	%	n	%	n	%
Provided urine	747	87	129	82	876	87
Did not provide	108	13	28	18	136	13

Note: Sample size may vary as cases were excluded due to missing data. Percentages were calculated for adult detainees who were eligible to provide a sample during the quarters in which urine samples were requested—quarters 1, 3 and 4 2018

Source: AIC DUMA collection 2018 [computer file]

**Table 5: National DUMA sample by urine provision and Indigenous status, 2018**

	Indigenous		Non-Indigenous		Total	
	n	%	n	%	n	%
Provided urine	223	84	648	87	871	86
Did not provide	43	16	93	13	136	14

Note: Sample size may vary as cases were excluded due to missing data. Percentages were calculated for adult detainees who were eligible to provide a sample during the quarters in which urine samples were requested—quarters 1, 3 and 4 2018

Source: AIC DUMA collection 2018 [computer file]

	18–20		21–25		26–30		31–35		36+	
	<i>n</i>	%								
Provided urine	70	90	143	86	158	89	161	87	342	85
Did not provide	8	10	24	14	19	11	23	12	62	15

Note: Sample size may vary as cases were excluded due to missing data. Percentages were calculated for the quarters in which urine samples were requested—quarters 1, 3 and 4 2018. Juveniles are excluded (*n*=35)

Source: AIC DUMA collection 2018 [computer file]

	Adelaide		Brisbane		Perth		Bankstown		Surry Hills	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Provided urine	192	85	314	98	256	76	58	91	54	86
Did not provide	33	15	7	2	81	24	6	9	9	14

Note: Sample size may vary as cases were excluded due to missing data. Percentages were calculated for adult detainees who were eligible to provide a sample during the quarters in which urine samples were requested—quarters 1, 3 and 4 2018

Source: AIC DUMA collection 2018 [computer file]

	Adelaide	Brisbane	Perth	Bankstown	Surry Hills	
<b>Adult male detainees</b>						
Approached ( <i>n</i> )		961	693	1,312	201	194
Eligible for interview ( <i>n</i> )		496	661	671	132	117
Agreed to interview (%) <sup>a</sup>		95	97	94	96	97
Agreed to interview ( <i>n</i> )		470	640	631	127	113
Agreed to interview during urine collection quarters ( <i>n</i> )		236	324	319	59	62
Provided urine specimen (%) <sup>b</sup>		85	98	78	89	84
Provided urine specimen ( <i>n</i> ) <sup>b</sup>		164	275	209	50	47
<b>Adult female detainees</b>						
Approached ( <i>n</i> )		193	136	391	33	50
Eligible for interview ( <i>n</i> )		98	129	189	24	30
Agreed to interview (%) <sup>a</sup>		95	99	89	92	93
Agreed to interview ( <i>n</i> )		93	128	168	22	26
Agreed to interview during urine collection quarters ( <i>n</i> )		39	51	83	9	12
Provided urine specimen (%) <sup>b</sup>		87	95	68	100	100
Provided urine specimen ( <i>n</i> ) <sup>b</sup>		28	39	47	8	7

a: Percentage calculated for adult detainees who were eligible to participate in the interview

b: Percentages were calculated for adult detainees who were eligible to provide a sample (in custody for 48 hours or less) during the quarters in which urine samples were requested—quarters 1, 3 and 4 2018

Note: Cases were excluded where gender was not recorded

Source: AIC DUMA collection 2018 [computer file]

<b>Table 9: Response rate of detainees under 18 years of age, 2018</b>			
	Male	Female	Total
<b>Juveniles<sup>a</sup></b>			
Approached ( <i>n</i> )	18	14	32
Eligible for interview ( <i>n</i> )	7	2	9
Agreed to interview ( <i>n</i> )	7	2	9
Agreed to interview during urine collection quarters ( <i>n</i> )	4	2	6
Provided urine specimen ( <i>n</i> ) <sup>b</sup>	3	1	4
<b>Brisbane 17-year-olds</b>			
Approached ( <i>n</i> )	2	1	3
Eligible for interview ( <i>n</i> )	2	1	3
Agreed to interview ( <i>n</i> )	2	1	3
Agreed to interview during urine collection quarters ( <i>n</i> )	2	1	3
Provided urine specimen ( <i>n</i> ) <sup>b</sup>	2	0	2
<b>Total</b>	<b>20</b>	<b>15</b>	<b>35</b>

a: Juveniles are those detainees aged under 18 years of age (excluding 17 year olds from Queensland)

b: Juvenile detainees who were eligible to provide a sample during the quarters in which urine samples were requested—quarters 1, 3 and 4 2018. Detainees were eligible to provide a urine sample only if they had been in custody for 48 hours or less

Note: Cases were excluded where gender was not recorded

AIC reports

# Statistical Report

Alexandra Voce is a Research Officer at the Australian Institute of Criminology.

Tom Sullivan is a Senior Research Analyst at the Australian Institute of Criminology.

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