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Drug Use Monitoring in Australia (DUMA): An  
expansion into the Pilbara, Western Australia

Dr Natalie Gately  
Suzanne Ellis  
Dr Robyn Morris

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# Drug Use Monitoring in Australia (DUMA): An expansion into the Pilbara, Western Australia

Dr Natalie Gately  
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Funded by the National Drug Law Enforcement Research Fund,  
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# Acronyms and abbreviations

ABS	Australian Bureau of Statistics
AIC	Australian Institute of Criminology
AIHW	Australian Institute of Health and Welfare
ANZSOC	Australia and New Zealand Standard Offence Classification
ATS	amphetamine-type substance (also referred to as speed)
ATSI	Aboriginal and/or Torres Strait Islander
DAO	Drugs and Alcohol Office
DoTAG	Department of the Attorney General
DUMA	Drug Use Monitoring in Australia
ECU	Edith Cowan University
FIFO	fly-in fly-out
Hydro	hydroponically grown cannabis
NDLERF	National Drug Law Enforcement Research Fund
NDSHS	National Drug Strategy Household Survey
SH	South Hedland
WA	Western Australia
WA Police	Western Australia Police

# Executive summary

The need to provide data on substance use and substance-related crime in regional and remote areas of Australia is established (Putt & Delahunty 2006). The 2010 National Drug Strategy Household Survey (NDSHS) report, and other research, has identified higher rates of violent crime and alcohol use in regional, compared with metropolitan, areas of Australia (AIHW 2011; Carcach 2000). Alcohol consumption and the associated crimes of drink-driving and interpersonal violence also tend to be higher in regional areas of Australia (Miller et al. 2010). This suggests there are higher levels of alcohol consumption and alcohol-related crime in regional Australia, yet there is neither substantial information regarding substance use and crime in regional and rural areas nor a good understanding of how the mining industry has influenced community drug markets.

The present study was designed to provide empirical evidence on the role of alcohol and other drugs, and a clear picture of the local drug market, in a remote regional town in Western Australia. Data was collected through the well-established Drug Use Monitoring in Australia (DUMA) methodology of interviewing police detainees, developed by the Australian Institute of Criminology (AIC). The DUMA dataset for WA used in the present study yielded a total of 209 usable Perth metropolitan cases collected from Quarter 4, 2012. The South Hedland regional dataset was collected in mid-2013 and produced 51 usable cases. Using this demographic and self-reported alcohol and drug-use data, a profile of South Hedland detainees was built and compared with that of Perth detainees for a range of variables, including substance use and criminal behaviour.

Key findings include the following points.

- South Hedland detainees were more likely to be:
  - male;
  - Aboriginal and/or Torres Strait Islander (ATSI);
  - aged 32 years ( $M=31.94$ ,  $SD=9.57$ );
  - educated to year 10 or less;
  - in a marital or de facto relationship; and
  - living in someone's Homeswest or housing commission house or apartment.

These detainees were more likely to have no dependent children ( $M=0.75$ ,  $SD=1.37$ ) and to be unemployed.
- The Perth and South Hedland samples did not differ significantly in gender, age, level of education attained, number of dependent children or work status. However, they differed significantly in marital status, residence and ATSI status.
- There were only two fly-in fly-out (FIFO) workers in the sample; the contribution of FIFO workers to the drug market was therefore impossible to determine.
- The South Hedland and Perth samples did not significantly differ in age at first consumption of alcohol, age at first excessive consumption of alcohol, or excessive use in the past year. However, South Hedland detainees were significantly more likely to report using alcohol in the past 48 hours, more frequent alcohol use in the last 30 days and consumption of larger quantities the last time they drank.
- The South Hedland and Perth samples did not differ significantly in terms of the age at which they first used illicit drugs or in how much they believed drugs had contributed to their current detention. However, South Hedland regional detainees were significantly less likely to have ever tried all categories of drugs (excluding inhalants), and less likely to have used cannabis and amphetamine-type stimulants (ATS) in the previous 12 months and 48 hours. The Perth metropolitan cohort was also significantly more likely to have used drugs more frequently within the prior 30 days, and to feel dependent on cannabis and ATS, than the South Hedland regional detainees. Licit prescription drugs and over-the-counter medications were also less likely to be used by the regional detainees.

- Due to the small sample size of South Hedland detainees reporting drug use, it was difficult to draw conclusions on the Pilbara drug market. Those who reported using cannabis usually paid cash, used hydro and generally purchased small amounts from regular dealers.
- Most detainees across both groups were detained for offences against justice procedures (breaches). After breaches, members of the South Hedland group were most likely to be detained for:
  - acts intended to cause injury;
  - break and enter offences; or
  - public order offences.
- By comparison, Perth detainees were less likely to be charged with acts intended to cause injury, theft, traffic offences or illicit drug offences.

The findings suggest the holistic approach to dealing with higher levels of substance use in the region should continue, with a focus on reducing demand through treatment and interventions, reducing alcohol supply through restrictions, and minimising the harm of high levels of alcohol use through education.

# Introduction

The relationship between alcohol and other drugs and offending is complex and dynamic. Substance misuse is prevalent in detained populations both nationally and internationally (AIHW 2010; Bennett & Holloway 2007; Butler, Levy, Dolan & Kaldor 2003; Butler & Papanastasiou 2008; Gately, Fleming, Morris & McGregor 2012; Johnson 2004; Kinner, Jenkinson, Gouillou & Milloy 2012; Kraemer, Gately & Kessell 2009; Payne & Gaffney 2012; Pernanen, Cousineau, Brochu & Sun 2002; Seddon 2000; Stewart 2009; Sweeney & Payne 2012). With the cost of crime in Australia estimated at \$36b per annum (AIC 2009), it is important to establish how the links between alcohol and other drugs and crime can be addressed to reduce crime and increase wellbeing.

Three models have been proposed to explain the causal link between drugs and crime. Goldstein's (1985) tripartite model of the drug-crime nexus explored the types of crimes associated with drug use and the interactions between key players in the illicit drug market (Figure 1). Goldstein developed the theory to understand the drug-crime nexus and explain the predominant types of crimes committed by drug-using offenders. The model incorporated three main types of crime: psychopharmacological crime, economic compulsive crime and systemic violent crime.

**Figure 1. Goldstein's conceptual framework (1985)**

<i>Psychopharmacologic Crime</i>	<i>Economic Compulsive Crime</i>	<i>Systemic Violent Crime</i>
Short-lived, excitable or irrational behaviour.	Need to steal to support a drug habit.	Violence against others who pose a real/imagined threat.

Source: Goldstein 1985

The psychopharmacological model suggests intoxication leads to antisocial and criminal behaviour; the economic compulsive model suggests the need to support a drug habit leads to crime; and the systemic model explains crime through engagement in the drug market such as the use or supply of illicit substances (Goldstein 1985; Pernanen et al. 2002).

Boiyum and Kleinman (2003) support the model of three main links between crime and drug use. Firstly, they note that drug users become intoxicated; this intoxication leads to the weakening of self-control, inhibitions and foresight which can impair behaviour, leading to crime. Secondly, drug users need money to purchase illicit drugs or to pay off drug debts, and may obtain it through theft or other criminal methods, particularly when they are unable to sustain regular employment. Thirdly, involvement in the illicit drug market carries the potential for violence to occur between buyers and sellers.

These models are not mutually exclusive: crime may occur as a result both of intoxication and the need to support a drug habit (Collins & Lapsley 2008). Determining the extent to which crime is drug-related is a complex process, requiring detailed examination of a range of demographic and socio-economic variables. The AIC's DUMA program regularly collects data on the drug-crime nexus. One of the inaugural DUMA sites, East Perth, has been involved in data collection since 1999, providing invaluable data on detainees for police and other stakeholders in Western Australia (WA) for over 15 years; however, little is known about regional sites. It was hoped that trialling the DUMA program at a new, non-metropolitan site would provide a better understanding of alcohol and drug use, and drug-related crime, in regional WA.

Addressing alcohol and drug misuse is a strategic priority for federal and local government (Ministerial Council on Drug Strategy 2011). Given the absence of data, it is necessary to establish the role of illicit drug and alcohol use in criminal behaviour in regional WA. By comparing a regional sample with a metropolitan sample, this study aimed to determine whether the findings from a regional site could be generalised to other

demographically similar regions of WA—and, potentially, other parts of Australia. Evaluating the similarities and differences found will provide evidence on which to base new strategies, or modify existing ones, for a regional context.

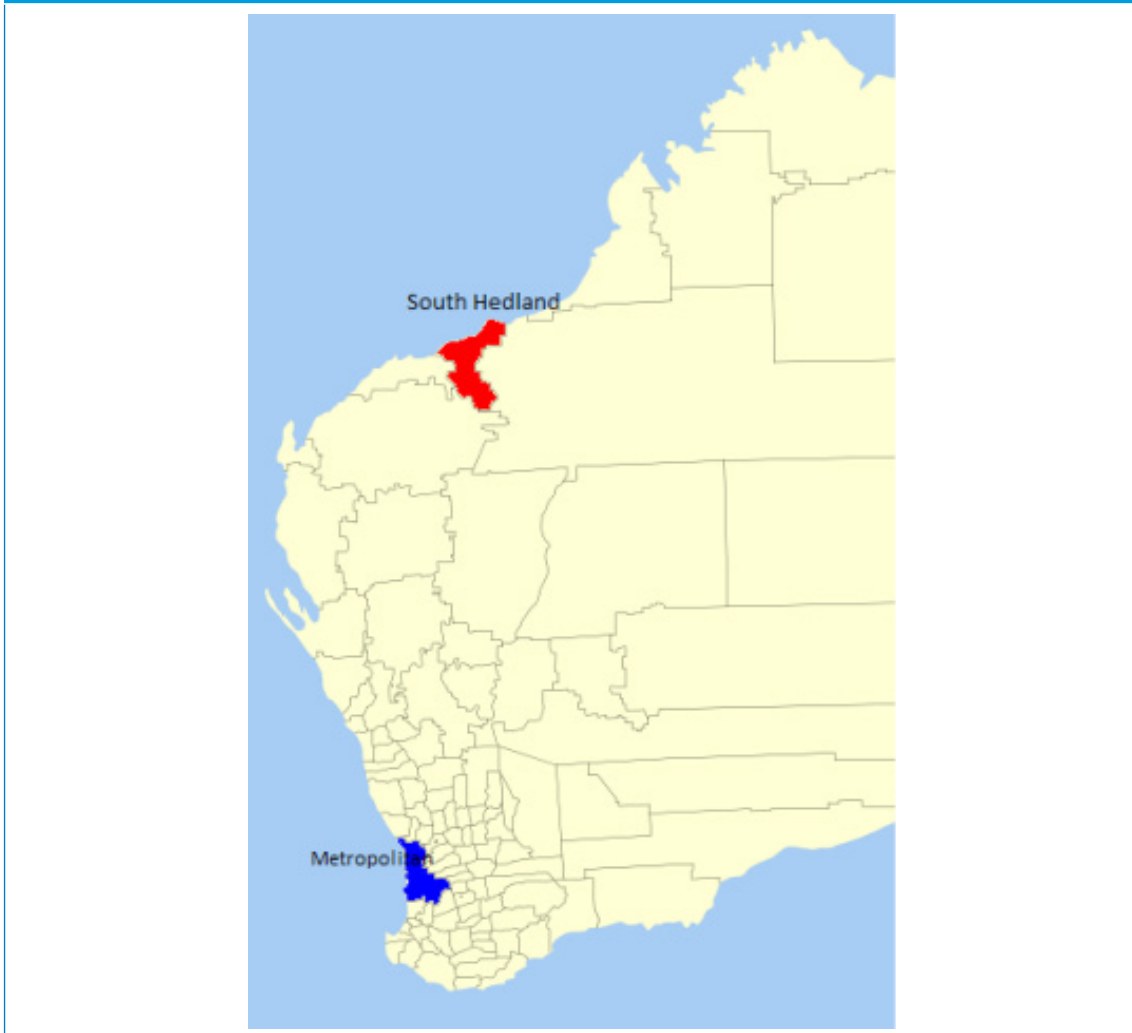
A literature review sets the scene for the current research project, and an overview of demographic, crime and arrest statistics is presented to illustrate current issues and crime distribution in WA. The drug-crime nexus is discussed, with particular reference to relevant studies of state, metropolitan and regional areas. In addition, the Pilbara region and Indigenous involvement in alcohol and drug use and crime are examined to provide context for the current research project.

# Facts and figures

## Demographics

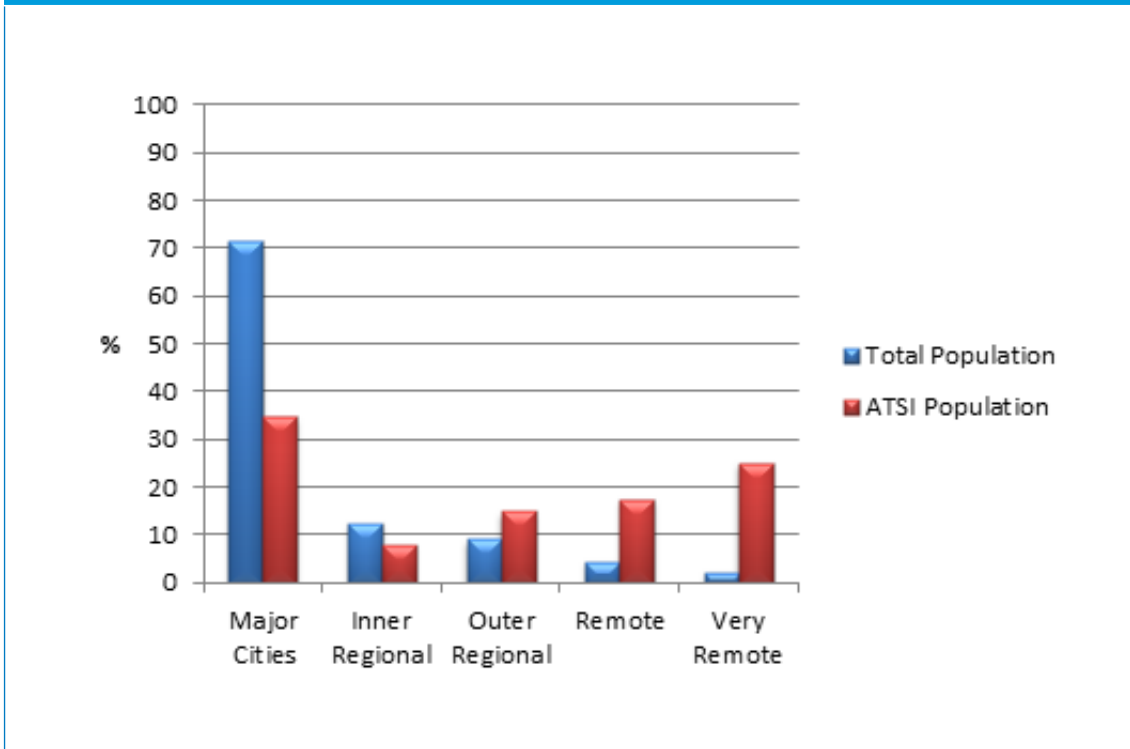
Western Australia has a population of over 2.2 million people spread over a vast area; however, over 1.7 million of these reside in Greater Perth, with just over 500,000 in the rest of WA (Australian Bureau of Statistics [ABS] 2013). The Pilbara is an area of 507,896 square kilometres in north-western WA with a population of around 50,000.

Map 1. Perth metropolitan and South Hedland regional areas



Aboriginal and/or Torres Strait Islander (ATSI) people make up 3.1 percent of the total population (ABS 2011a) of WA. While most non-Indigenous people reside in major cities and the Perth metropolitan area, 69 percent of the Indigenous populace reside in inner and outer regional, remote or very remote areas, as shown in Figure 2 (ABS 2010a).

Figure 2. Population distribution by remoteness in Western Australia by Indigenous status, June 2006



Source: ABS

Figure 2 illustrates the distribution of the Indigenous and total population of WA, defined by the remoteness of the area. Overall, Indigenous populations were considerably higher in remote areas, while non-Indigenous populations were concentrated in major cities.

## Crime

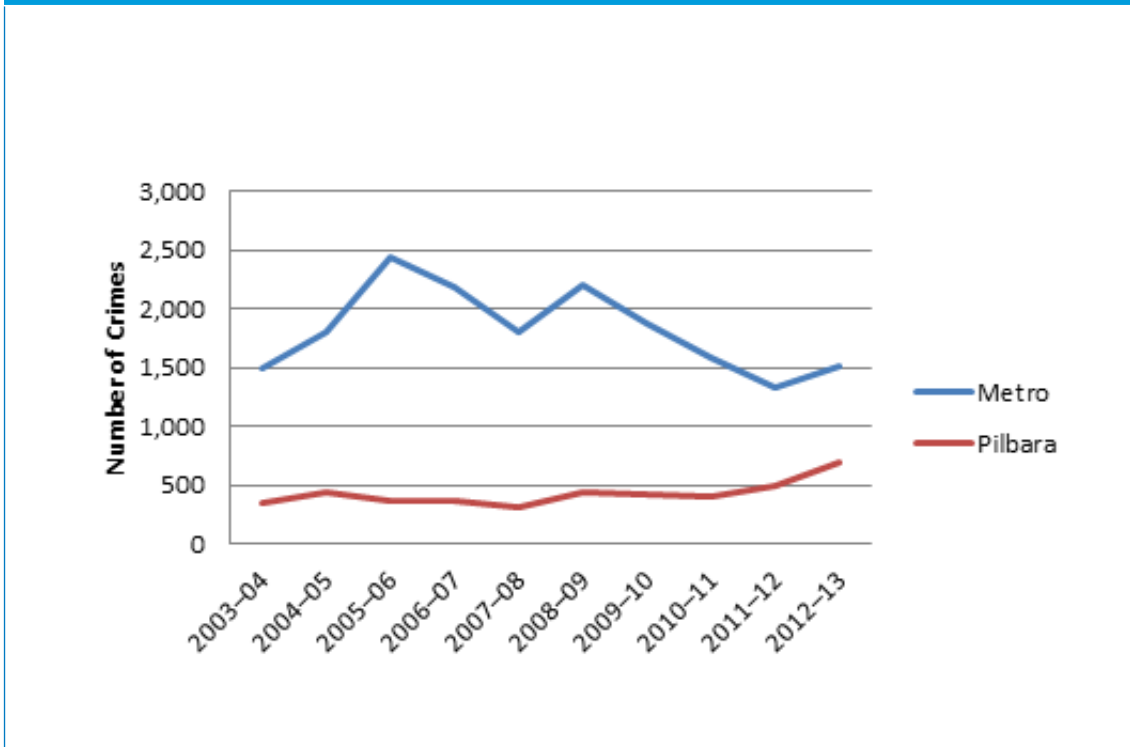
State crime statistics indicate that from 2004 to 2005 the total number of arrests in WA increased by 6.1 percent (Loh, Maller, Fernandez, Ferrante & Walsh 2005). In addition, 44 percent of all arrests in 2005 occurred outside the metropolitan area (Loh et al. 2007). Considered in relation to the population differences these statistics are surprising, as less than a quarter of the population reside in regional areas. The crime rate in the Pilbara region reflects these arrest rates; despite having a population 38.4 times greater than that of the Pilbara, the Perth region recorded only 2.7 times more offences in 2011–12 (WA Police statistics 2012). This shows the extent to which crime is a problem in the Pilbara region, despite its remote location and substantially smaller population.

It is also important to note that Indigenous arrests have continued to increase at a rate disproportionate to their representation in the general population. In WA in 2005, Indigenous people were arrested at 8.1 times the rate of non-Indigenous people (Loh et al. 2007).

There has been a small but steady increase in detected drug crimes in the Pilbara over the last 10 years. Corresponding figures for the central metropolitan region have fluctuated in the last 10 years (see Figure 3), although this may be due to targeted police operations.



Figure 3. Drug offences detected by WA police 2003–13



Source: WA Police 2010–2013

Higher levels of crime are expected in the Perth metropolitan area than in regional and rural locations due to population differences. It has been acknowledged, however, that regional locations are unique and complex, with distinct patterns of drug use and offending behaviour (Carcach 2000) that can be attributed to differences in location, demographics, economic circumstances and social or cultural dynamics. Recent increases in regional populations mean there are more people to commit offences. The population of the Pilbara increased by 3.1 percent between 2008 and 2009, making it the third-fastest growing region in WA at the time (ABS 2010b). This population growth could explain the higher levels of detected drug offences in the Pilbara, suggesting the need for further research in the region to better understand this increase, inform local stakeholders and provide strategic intelligence to the region's police.

Reported alcohol-related assaults, both domestic and non-domestic, were also considerably higher in the Pilbara when compared with WA as a whole (Drugs and Alcohol Office [DAO] 2013). Alcohol-related domestic assault offences were 76.8 percent of all reported domestic assaults in the Pilbara between 2005–06 and 2010–11, compared with 51.4 percent for the whole of Western Australia. Correspondingly, for the same period, alcohol-related non-domestic assaults were 53.6 percent of assaults reported in the Pilbara, compared with 38.6 percent for the state of WA (DAO 2013). Despite a decrease in reports of alcohol-related domestic assaults, and a fluctuation in reports of alcohol-related non-domestic assaults, the rate of reported assaults in the Pilbara is still significantly higher than that of WA as a whole.

Alcohol-related assaults, by their nature, affect both police and health service providers. Importantly, information from the study of regional alcohol use and its consequent effect on crime will assist police and health services to provide better services.

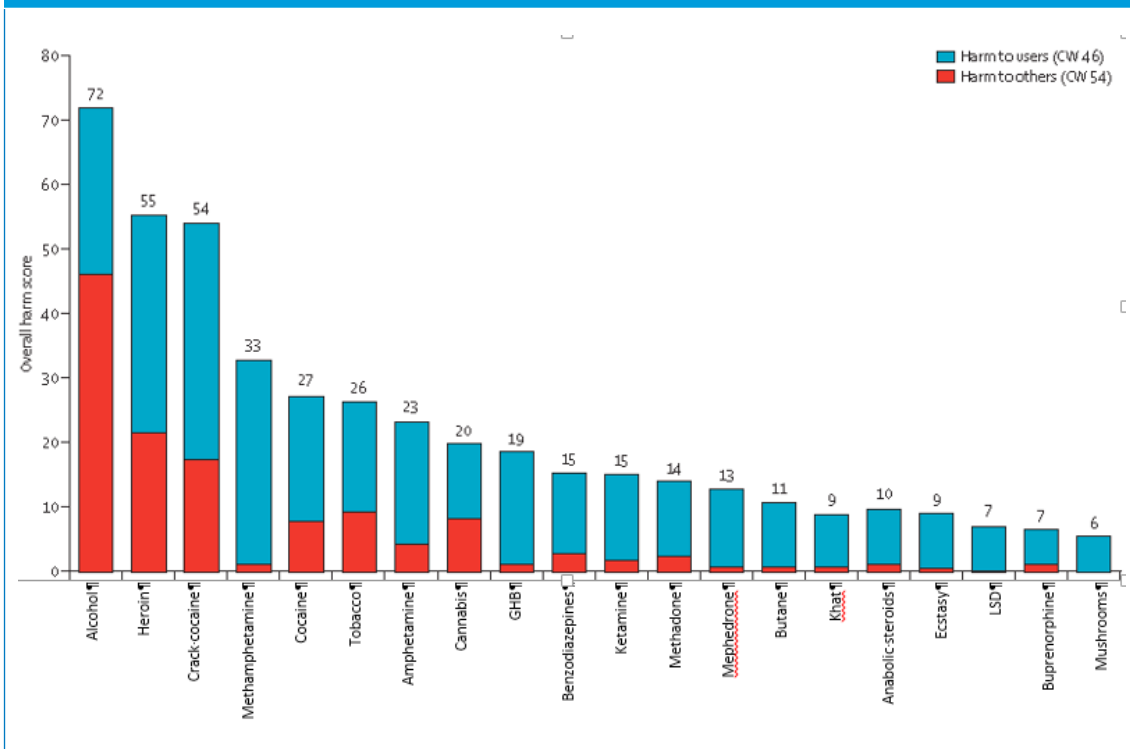
## Alcohol-drug-crime nexus research

The drug-crime nexus refers to the relationship between drug misuse and criminal behaviour (Bennett & Holloway 2005); the phrase is used by governments when outlining their strategies for the 'war on drugs'.

Drug policy in Australia is three-phase, specifically addressing supply reduction, demand reduction and, more recently, harm reduction. Supply reduction means reducing the quantity of drugs available through tighter controls, increased deterrents and preventative measures. Demand reduction strategies attempt to reduce the demand for drugs by educating people to resist drug use and providing treatment for problematic drug users. Attempts to reduce the harm caused by alcohol and other drug use have become more popular, particularly in relation to populations at risk of contracting HIV or hepatitis (Bennett & Hollaway 2005; Hunt & Stevens 2004). There have also been campaigns aimed at minimising the harms associated with the use of licit drugs such as alcohol and tobacco.

Nutt, King & Phillips (2010) used a multi-criteria decision analysis (MCDA) to quantify the harm caused to self and others by scoring 20 drugs against 16 criteria. 'Harm to self' criteria included mortality, damage, dependence, loss of tangibles and relationships, and injury. 'Harm to others' criteria included crime, environmental damage, family adversity and economic cost (see Nutt et al. for a full explanation of this method). As displayed in Figure 4, the results showed that heroin, crack cocaine and methamphetamine were the drugs most harmful to individuals, whereas alcohol, heroin and crack cocaine were those most harmful to others. Overall, alcohol scored highest for harm.

**Figure 4. Drugs (by overall harm scores) and their contribution to overall harms-to-users and harms-to-others scores**



Source: Adapted from Nutt, King and Phillips 2010

Harms associated with alcohol use have economic implications for the wider community. Cost modelling indicates alcohol misuse cost Australian society \$14.352b in 2010 (Manning, Smith & Mazerolle 2013). This estimate includes workplace costs such as lost productivity, alcohol-related accidents and involvement with the health and criminal justice system. The authors suggest that, had other direct costs such as pain and suffering been included in the calculation, the figure could reasonably have been doubled.

Many studies examining the drug-crime nexus have focused on those within the criminal justice system. Although many detainees are not arrested for drug-related crimes (Bennett & Holloway 2005; Sweeney & Payne 2012), they often have detailed knowledge of local drug markets and can provide information that

community samples cannot. For example, the 2010 National Drug Strategy Household Survey (NDSHS), which is heavily relied on for drug use information in Australia, questioned 26,648 people aged 12 years and over about their knowledge and use of, and attitudes towards, drugs (AIHW 2011). Of those surveyed, 14.7 percent reported using an illicit drug in the preceding 12 months (AIHW 2011). By comparison, the 2009–10 DUMA report found that 66 percent of the 5,714 detainees aged 16 years and over who provided a urine sample after completing a survey on drug and alcohol use tested positive to at least one drug type (Sweeney & Payne 2012). Further, nearly half of all offenders (45%) in the WA sample reported that substance use had contributed to their current offence (Sweeney & Payne 2012). Although the two sources are not directly comparable, the difference in the proportion of participants who cite illicit drug use (and presumably therefore have some knowledge of the local drug market) is notable. This shows that detained populations are a rich source of information for studies of substance use.

Research on substance use in detained populations has typically focused on metropolitan samples across Australia, limiting the ability to generalise the findings to regional areas. The AIC's longitudinal DUMA program is the only national research aimed at exploring the connections between drugs and offending behaviour among detainees, specifically by investigating trends in drug use and community drug markets as reported by police detainees in several metropolitan samples. DUMA has obtained detailed information about metropolitan community drug market trends, but it is not known whether these results can be generalised to regional areas. Data on patterns of substance use, crime and the supply of illicit drugs in regional Australia is therefore lacking because no other research—ongoing or otherwise—is being undertaken.

The three-yearly NDSHS provides some information regarding drug use in regional areas, with 11.1 percent of the 2010 sample classified as outer regional residents, 2.5 percent as remote and one percent as very remote (ABS 2007; AIHW 2011). The survey indicated that WA had the second-highest rate of illicit drug use after the Northern Territory, with 14.5 percent of WA participants reporting the use of any illicit drug in the previous 12 months (AIHW 2011). Individuals living in remote or very remote areas were also more likely to report using an illicit drug in the preceding 12 months (17.2%, compared with 15% in outer regional areas and 14.8% in major cities; AIHW 2011). This supports the finding that Aboriginal and/or Torres Strait Islander participants were more likely to have reported using illicit drugs in the preceding 12 months than non-Indigenous participants (25%, compared with 14.2% non-Indigenous).

With regard to alcohol consumption, the NDSHS report indicated that individuals living in remote or very remote areas were more likely (by 10 percentage points) to drink at risky levels than individuals living in major cities (AIHW 2011), indicating a higher incidence of high-risk alcohol consumption in regional than in metropolitan areas. It is important to note, however, that (beyond relying on self-reported data) the main limitation of the NDSHS is that, as a telephone survey, it excludes those who do not have a landline telephone—something common for low socioeconomic status individuals, younger people who tend to rely on mobile phones, those directly involved in drug markets and fly-in fly-out (FIFO) workers who are away from home for long periods of time. It is therefore likely that the regional drug use data captured by this survey is, although illuminating, limited. Further investigation is needed to accurately map substance use in regional areas.

Putt and Delahunty (2006) examined illicit drug use in remote Indigenous communities through meetings with local community representatives and service providers, as well as through a web-based survey of 299 metropolitan and 493 regional police officers in the Northern Territory, Queensland, South Australia and WA. Findings from the police sample indicate major differences in urban versus regional patterns of drug use by Indigenous people, including higher rates of cannabis and inhalant use and lower rates of amphetamine use, although amphetamine use was still rated as problematic (Putt & Delahunty 2006). Alcohol was rated by almost all police as a major problem in local Indigenous communities. Associated issues included domestic and family violence, mental and physical health issues, acquisitive crime (to get money to purchase alcohol and other drugs), disruption to schooling and employment and conflict within the community (Putt & Delahunty 2006). The National Aboriginal Torres Strait Islander Health Survey (NATSIHS) 2011 reported that 38 percent of Indigenous adults living in remote areas did not consume alcohol in the previous 12 months and indicates that, while Indigenous people are 1.9 times more likely to abstain from drinking, when they drink they do so at risky or very risky levels similar to those of the non-Indigenous sample (AIHW 2011).

The study also ascertained the perceived availability of illicit drugs, with findings indicating cannabis and amphetamines were both seen as easy to obtain, although amphetamines were slightly more available in urban areas. Putt and Delahunty (2006: 3) reported that in remote areas there were 'huge profits to be made from the illicit trafficking of drugs...a \$4,000 purchase of 400–500g [of cannabis] in Darwin can be expected to return \$16,000 to \$21,000 in profits often within several hours of arriving in the community'. Police surveyed reported that they believed non-Indigenous outsiders and local community members were the main conduits of illicit drugs into regional or remote communities, followed by local (small-scale) production and cultivation. Larger-scale cultivation and production was reported to occur interstate or in Perth, and the resulting drugs brought into regional or remote communities (Putt & Delahunty 2006). It was argued by the authors that 'in rural and remote communities there are no reliable data to indicate how many people apprehended by police are affected by illicit drugs or motivated to commit crime because of their illicit drug use' (Putt & Delahunty 2006: 5), and that the sharing of intelligence across regions and borders would assist police efforts and enable better targeting of resources.

The limited information available on regional and remote substance use and crime suggests that alcohol consumption, and the associated crimes of drink-driving and interpersonal violence, tend to be higher in regional areas (Miller, Coomber, Staiger, Zinkiewicz & Toumbourou 2010). Miller et al. (2010) conducted a systematic review of 16 databases, identifying 18 empirical Australian studies directly referring to alcohol use and/or alcohol-related harms. Several large-scale surveys reviewed (NDSHS, the Victorian Youth and Alcohol Drugs Survey) did not provide information on, or comparisons between, specific rural towns. Despite this, the studies reviewed suggested people living in regional, rural or remote areas were more likely to engage in high-risk alcohol consumption than those living in metropolitan areas (Miller et al. 2010). Specifically, Xiao, Rowe, Somerford, Draper and Martin (2008) found that 41.3 percent of over-14 year olds in the Pilbara region admitted drinking at high-risk levels likely to cause short-term harm. In addition, 19.1 percent admitted to consuming alcohol at high-risk levels that could cause long-term harm (Xiao et al. 2008).

Miller et al. (2010) also considered the relationship between alcohol and crime, reporting a paucity of information on alcohol-related assault in regional and rural areas. They suggested rural youth were more likely to physically abuse someone than their metropolitan peers and argued that it was overwhelmingly likely that different types of regional or remote locations (eg coastal, tourist and farming) would require different types of interventions in response to their own unique problems (Miller et al. 2010). They recognised the need for research into patterns of alcohol use and related harms in regional areas to inform police and health resource allocation.

Carcach (2000) argued the need for further research after a comparison of property and violent offences across metropolitan (100,000-plus residents), major urban (50,000–100,000 residents), minor urban (20,000–50,000 residents), major towns (4,000–20,000 residents), minor towns (1,000–4,000 residents), and rural localities (less than 1,000 residents). He reported that the highest property crime rates occurred in rural localities and major or minor urban areas, whereas violent crimes occurred most frequently in metropolitan areas, followed by major urban and major town localities and, using a Poisson regression to assess the effect of rural status and accessibility on crime rates, found that rural localities tended to have significantly higher rates of violent crimes than all other localities with the exception of the minor urban group. The regression also indicated that levels of crime in rural localities were lower than those in major towns and minor urban centres, but higher than those in minor towns and major urban and metropolitan centres (Carcach 2000). These differences may be partially attributable to differences in factors such as geographical location, demographics, economic circumstances and social or cultural dynamics. The author argued that further research to develop an understanding of the causes, dynamics, and consequences of rural crime was necessary in order to prevent and control it (Carcach 2000).

There is a great diversity in demographics, economic circumstances and social/cultural dynamics across metropolitan and regional populations in WA. This diversity can impact the patterns of drug use and crime that occur in these regions. For example, the geographical isolation of communities in the Pilbara may result in variations in the distribution and availability of drugs, compared with metropolitan locations (Pilbara Regional Council 2011). The Pilbara also hosts major mining industries that rely on FIFO workers, who often earn

in excess of \$100,000, with the region reporting the highest average wage in regional WA in 2008–09 (ABS, 2011b). It could reasonably be expected that FIFO workers with high disposable incomes would impact on the drug market in terms of transportation routes and the quantities and types of drugs being bought and sold.

Existing literature suggests illicit drugs pass into regional communities through ‘outsiders’ (Putt & Delahunty 2006). The growing number of mining workers coming into the Pilbara, including FIFO workers, may provide increased opportunities for the supply of illicit drugs in this area. This, in turn, could affect the types of drug-related crimes committed in regional WA, whether due to intoxication or the need to support a drug habit, or through engagement in the illicit drug market (Pernanen et al. 2002).

According to the most recent NDSHS, Indigenous people are more likely to report using illicit drugs than non-Indigenous people, and regional areas have higher rates of alcohol consumption than metropolitan locations (AIHW 2011). The majority of the 3.1 percent of WA’s population who identify as Indigenous (ABS 2011b) live in regional areas.

It can be assumed that the rate of illicit drug and alcohol use in regional locations with high Indigenous and transient FIFO populations, such as the Pilbara, will increase. Hospital admission data supports this assumption, indicating alcohol consumption in the Pilbara increased from 17 litres per person in 2000–01 to 21.6 litres per person in 2004–05 (ABS 2009), compared with a national average of 10.6 litres in 2006–07 (ABS 2012). In addition, the Pilbara region has one of the highest rates of hospitalisation for alcohol consumption in WA (Xiao et al. 2008). Alcohol-related deaths of Indigenous men and women were significantly higher in the Pilbara than in the rest of WA (Xiao et al. 2008). Xiao (2008) argues it is the government’s responsibility to minimise substance-related harms, including crime, in the community. Reliable data on illicit drug and alcohol use and crime in regional populations will provide the evidence base necessary to develop appropriate strategies to do so.

## Summary

The relationship between drugs and crime is well established, but further investigation into how this knowledge can be applied in a regional setting is clearly needed. The AIC’s DUMA program provides an established methodology for investigation, with consistently reliable results. Given the success of the program in producing findings for metropolitan populations, it is an appropriate method for investigating patterns of alcohol and other drug use in a regional setting in WA. DUMA also collects data on crime types, drug markets and participant demographics that can be utilised by local police and agencies.

# Present study

The present study conducted DUMA collection at a regional West Australian site and compared the findings to a similar Perth metropolitan collection. The study describes the characteristics of detainees in a South Hedland detainee population and identifies the types of crime they were detained for.

## Study objectives/aims

The DUMA program provides a key to establishing the role of alcohol and other drug use in crime in regional areas and advances the understanding of drug market operations in regional locations. Its methodology is well-established and validates self-reported data with urinalysis. This national program has been funded by the Australian Government since 1999, informing independent researchers, law enforcement and other major stakeholders (Gaffney et al. 2010). The Pilbara offers a sustainable location to conduct a regional DUMA collection; the population demographic of South Hedland is different to that of Perth and other major cities but similar to major mining towns across Australia, encompassing stable community members, transient FIFO workers, local mining camps, high-income residents and a high Indigenous population. South Hedland is also anticipating population growth due to an increase in FIFO workers over the next six years, making it more likely to be suitable for ongoing data collection.

### Primary objectives

Using DUMA data from two WA sites (Perth and South Hedland), the primary objective of this study is to:

- establish the demographic characteristics and patterns of crime, drug and alcohol use in a detained population in South Hedland; and
- identify the socio-economic and geographical differences in drug use and crime patterns between South Hedland and metropolitan sites, to inform police and health resource allocation.

### Secondary objectives

The study's secondary objectives are to:

- improve the understanding of illicit drug markets in South Hedland and how they operate to inform drug market monitoring; and
- evaluate the longer-term viability of South Hedland as a site for ongoing data collection.

### Research questions

To meet the primary and secondary objectives, the following specific research questions guided the study.

- What are the demographic characteristics and patterns of crime, licit and illicit drug use and alcohol use in the detained population of a regional mining community?
- How do the demographic characteristics and patterns of crime, licit and illicit drug use and alcohol use in a regional mining community (South Hedland) differ to those of a metropolitan community (East Perth)?
- Is South Hedland a sustainable site for ongoing DUMA data collection?

# Methodology

## Study design

This exploratory study was designed to statistically analyse data from two DUMA data collections in Western Australia (one metropolitan location and one regional location). Secondary data collected in Perth as part of the ongoing quarterly DUMA program was used for the cohort of metropolitan detainees. The regional data from South Hedland was collected as a pilot and thus involved a primary data collection procedure. These databases were combined and used to conduct a comparative analysis of the differences between the rural and metropolitan cohorts of detainees' demographic characteristics, patterns of alcohol use, licit and illicit drug use and offences committed. Conditions in the South Hedland drug market were also examined.

## Participants

### *South Hedland sample*

A total of 66 detainees were eligible for interview at the South Hedland Police Station during the four-week collection period; 51 of these (77.2%) were interviewed. Detainees were not interviewed if they:

- were deemed violent or unpredictable;
- declined to be interviewed;
- were taken to court or detention, or released, before being interviewed;
- could not understand English;
- had been detained for over 48 hours; or
- were juvenile offenders (under 18 years old).

Detainees were offered a drink of water and a snack. No other incentives were offered.

### *Perth sample*

A total of 245 detainees were eligible for interview at the East Perth Watch House during the four-week collection period; 209 of these (85.3%) were interviewed. Detainees were excluded from the interview process for the same reasons listed above. Participation was voluntary and, apart from a drink of water and a snack, no further incentive or remuneration was offered to participants.

## Data collection procedures

DUMA interviews were conducted in two locations, the South Hedland Police Station and the East Perth Watch House, by interview staff from the Edith Cowan University (ECU) Forensic Interview Team in a confidential interview room. Interviews followed identical collection procedures at both venues for consistency. Detainees in the police facility who had been detained for less than 48 hours were approached by an officer and advised that somebody would 'like to speak to them'. Detainees deemed inappropriate for the research were screened by the custody officer or the interviewer once in the secure interview room. Detainees could be deemed inappropriate for interview for a number of reasons, such as being too violent or too intoxicated to participate.

Once in the interview room each detainee was given an informed consent document to read; this was read aloud for illiterate participants. The detainee then either agreed or declined to participate in the survey. Those who declined were escorted back to their cell by a custodial officer. Consenting participants were interviewed using a questionnaire administered and recorded by the interviewer. Recording devices were not used, nor were any identifying particulars recorded on the interview schedule. Participants were given water and biscuits or chips while participating in the interview. Participants were assured that the information they provided to the researcher would not be identifiable or shared with the police. Participants were advised that participating in the interview would not affect the outcome of their case, either positively or negatively.

Approval to undertake the study was granted prior to commencement by the ECU Human Research Ethics Committee and the AIC Human Research Ethics Committee. The AIC approved the release of the DUMA data. The Perth metropolitan data was a pre-collected, anonymous, aggregated and confidential dataset, with no associated risks to the research participants. Raw research data for the Quarter 4 2012 DUMA collection was provided by the AIC in SPSS format and stored on a password-protected university computer at all times. The South Hedland surveys were collected by ECU and entered by the AIC, and the aggregated dataset was returned to ECU for analysis. The dataset obtained to conduct this research will be destroyed after five years.

## *The ECU Forensic Interview Team*

Great care was taken in determining who would be the most appropriate personnel to interview the South Hedland detainees. Some considered the team should have an Indigenous interviewer, while others suggested having a known individual from the region conduct the interviews would compromise participants. As a pilot study it was decided to use two interviewers from the established ECU Forensic Interview Team, which conducts interviews at the Perth site. These interviewers are independent of WA police and corrections staff and fully trained in various data collection methods, albeit more specifically in the DUMA survey instrument. Both interviewers received cultural sensitivity training from a local Aboriginal elder in Perth and are familiar with interviewing Indigenous and non-Indigenous clients. They frequently work in correctional and police facilities and are trained in assessing the suitability of detainees to give consent to and participate in the interviews. The interviewers also sign confidentiality agreements before data collection for each new project or location.

## Sampling procedures

South Hedland data collection was split into two separate periods. Historical custody statistics provided by WA Police indicate a peak in detainee numbers mid-year; based on those anticipated numbers, the first phase commenced on 1 June 2013. With police assistance, interviewers achieved good participation rates in the first phase of data collection (92.5%), but weather conditions at the time resulted in a dramatic reduction in the participant pool. At the suggestion of the officer in charge of South Hedland Police Station, a request was made to postpone data collection for three to four weeks, when it was anticipated that the weather would improve. The NDLERF committee approved the deferral and data collection was postponed.

With improved weather conditions, data collection recommenced on 15 July 2013 and continued until 3 August 2013. A final total of 51 detainees were successfully interviewed.

## Materials

Both collections utilised the DUMA questionnaire from Quarter 4, 2012. The South Hedland questionnaire was modified slightly with advice from, and the approval of, the AIC. To obtain as much useful information for local agencies as possible, the questionnaire was also viewed by WA Police, the Department of the Attorney General (DoTAG) and the WA DAO; DoTAG requested the inclusion of a question on the possession



of a birth certificate. The survey was also checked by the manager of Aboriginal advisory services at DoTAG, an Aboriginal man, for cultural sensitivity in the Pilbara; Question 1 was made consistent with other Commonwealth publications by allowing participants to identify as both Aboriginal and Torres Strait Islander. In the accommodation section, the word 'longgrass' was changed to 'bush camp' in line with north-west regional ATSI terminology, and an accommodation category of 'FIFO (fly-in fly-out)' accommodation was added. Several other FIFO questions were added to obtain information about this transient but expanding population of workers in the Pilbara.

## Data sources

This study used two sources of data: DUMA data from Quarter 4, 2012 and DUMA data from the mid-2013 South Hedland regional pilot study. The data includes detainee offences, as reported by the arresting officer, and self-reported demographic and alcohol and drug use information.

## Variables

A wide range of variables were relevant to this study. Most variables involved self-reported measures. Broadly, the variables of interest were:

- demographic characteristics;
- alcohol use;
- licit and illicit drug use;
- offences committed;
- local drug market conditions; and
- geographic location.

Specific measures for each of these variables are outlined in the next section.

## Measures

Measures for all of the variables listed above were drawn from the Quarter 4 2012 WA metropolitan DUMA database and the 2013 rural DUMA pilot study database. Some recoding and grouping of variable categories was required to format the data suitably for comparative analysis. The specific measures employed for this study are outlined below.

### *Demographic variables*

Nine demographic variables were measured and included in the analysis. These were:

- *gender*—measured as a dichotomous categorical variable, male and female;
- *age*—measured as a continuous variable using age at the time of offence. In cases where this data was missing or there was a substantial discrepancy between a detainee's self-reported age and their estimated age based on the year of birth recorded by police, the detainee's age was estimated as the difference between the year charged and the detainee's year of birth;
- *birth certificate*—measured as a dichotomous categorical variable, yes or no;
- *Indigenous status*—a dichotomous variable was derived from detainees' responses to two questions:
  - 'What is your ethnic background?', qualitative responses to which were then coded; and
  - 'Do you consider yourself Aboriginal or TSI (Torres Strait Islander)?'

The first question required an open qualitative response. Detainees who stated they were Australian in response to the first question but did not specifically state they were Aboriginal or Torres Strait Islander were then asked the second question, which was measured as a categorical variable with the response options of yes, no or both;

- *highest level of education*—initially measured as a categorical variable with 10 categories, which were subsequently grouped into five broader categories for the comparative analysis:
  - 1=completed year 10 or less;
  - 2=completed year 11 or 12;
  - 3=still at school/TAFE/university;
  - 4=some TAFE/university; and
  - 5=completed TAFE/university;
- *marital status*—measured as a categorical variable. An initial five categories were subsequently recoded into four for comparative analysis, by combining separated or divorced with widowed:
  - 1=single and never been married;
  - 2=de facto;
  - 3=separated/divorced/widowed; and
  - 4=married;
- *type of residence*—measured as a categorical variable; where the detainee most frequently lived in the past 30 days. This was initially measured using 11 categories, including FIFO accommodation and bush camp to capture the rural and mining community context of the rural detainees. These were subsequently collapsed into three main categories for the comparative analysis, with:
  - 1=in a house or apartment you own or rent;
  - 2=in someone else's house or apartment;
  - 3=another type of living arrangement.

Whether the person lived in a form of public housing was measured as a dichotomous categorical variable (yes/no).

- *work status*—measured as a categorical variable with:
  - 1=working full-time;
  - 2=working part-time;
  - 3=unemployed (various reasons); and
  - 4=workforce non-participant; and
- *number of dependent children*—measured as a continuous variable.

## Alcohol use

Several measures were used to examine the extent and nature of alcohol use by detainees.

- *Age and alcohol consumption*—the age at which the detainee first tried alcohol, and age at which the detainee first consumed more than the recommended standard number of alcoholic drinks on the same day (5 drinks for males and 3 drinks for females), was measured as a continuous variable.
- *Frequency of alcohol consumption*—this was measured using three indicators. If the detainee consumed more than the recommended standard number of alcoholic drinks in the last 12 months, this was measured as a dichotomous categorical variable (yes/no); the number of days on which alcohol was consumed in the last 30 days was measured as a continuous variable; and alcohol consumption in the 48 hours prior to interview was measured as a dichotomous categorical variable (yes/no).

- *Type and quantity of alcohol consumed*—detainees were asked a multiple-response question about what kind of alcohol had been consumed the last time they drank—beer, wine or spirits. This was measured as a dichotomous categorical variable (yes/no). The quantity of each type of alcohol consumed was then measured as follows:
  - the quantity of beer consumed was measured in four sizes (can/bottle, pint, schooner or middy/pot) and three different strengths (full, mid, or light);
  - the quantity of wine consumed was measured in three sizes (glass, bottle or cask); and
  - the quantity of spirits consumed was measured in two sizes (pre-mixed can/bottle or standard serve/shot).
- *Quantity*—to determine how much the detainee consumed in total at the last reported consumption, the sizes used to measure quantities of each kind of alcohol were converted to standard drinks using the Australian Department of Health’s standard drink guide as a metric.
- *Location of alcohol consumption*—detainees were asked where they had their last alcoholic drink. This was measured as a categorical variable with eight response options:
  - 1=tavern/hotel;
  - 2=restaurant;
  - 3=club;
  - 4=nightclub;
  - 5=home;
  - 6=park (public place);
  - 7=other family/friend’s home; and
  - 9=other, with a request to state where.
- *Effect of alcohol use*—this was measured using two indicators. The first measured whether the detainee had been hospitalised or sought medical treatment in the preceding 12 months as a result of alcohol-related issues as a dichotomous categorical variable (yes/no), and the second measured the extent to which the detainee believed alcohol had contributed to their current detention as a three-point interval scale where:
  - 1=not at all;
  - 2=a little; and
  - 3=a lot.

The option ‘don’t know’ was also available.

## Licit and illicit drug use

Licit drug use was measured as a dichotomous categorical variable (yes/no) by asking if the detainee had taken any prescription or over-the-counter medications in the last 30 days. This was followed by an open-response question asking what prescription or over-the-counter medications had been taken. The licit drugs named were then coded.

Illicit drug use was measured for nine different drugs: cannabis, cocaine, heroin, opiates, amphetamines, ecstasy, hallucinogens, illegal benzodiazepines and inhalants. Illicit drug use patterns were examined in two stages as follows:

- whether each drug had ever been tried was measured as a dichotomous categorical variable (yes/no); and
- for each illicit drug tried:
  - the age at which the drug was first tried and at which it was used on three or more days a week was measured as a continuous variable;
  - whether the drug had been used in the preceding 12 months (yes/no) and 48 hours (yes/no), and on how many days it had been used over the last 30 days was measured as a continuous variable (0–30);

- if, in the last 12 months: the drug had ever been injected; the detainee had overdosed/been hospitalised/sought medical treatment for issues related to the drug; and the detainee had felt a need for or felt dependent on the drug, these were all measured as dichotomous categorical variables (yes/no);
- the average quantity and measurement unit of the drug consumed in a day within the last 30 days was measured as an open response;
- the form of the drug used the last time it was consumed was measured as a categorical variable, with categories dependent on the type of illicit drug;
- how much the detainee believed drug use had contributed to their current detention was measured as a three-point interval scale (1=not at all, 2=a little, and 3=a lot). A ‘don’t know’ option also available; and
- the drug’s role in the detainee’s current detention was measured as a categorical variable with four options, where 1=needed money to buy the drug; 2=was high on the drug at the time, 3=was ‘hanging out’ for the drug; 4=another reason related to the drug.

## Offences committed

The offences detainees were detained for were initially measured as open qualitative responses. Up to 10 specific offences were recorded for each detainee. Offences were then categorised by grouping all charges recorded in the interviews using two classification systems—firstly, the Australian and New Zealand Standard Offence Classification (ANZSOC) and, secondly, the two broad classes of crime against the person and crime against property—as explained below.

### ANZSOC crime classifications

Offences were coded into 17 categories using the ANZSOC system, with one modification. As the researchers were particularly interested in examining the extent of breaches among the rural detainees, ANZSOC category 15 offences (offences against justice procedures, government security and government operations) were divided into two categories: breaches of justice orders, and other offences against government security operations and procedures, creating a total of 17 categories of offences. These were:

- i. homicide and related offences;
- ii. acts intended to cause injury;
- iii. sexual assault and related offences;
- iv. dangerous or negligent acts endangering persons;
- v. abduction, harassment and other offences against the person;
- vi. robbery, extortion and related offences;
- vii. unlawful entry with intent/burglary, break and enter;
- viii. theft and related offences;
- ix. fraud, deception and related offences;
- x. illicit drug offences;
- xi. prohibited and regulated weapons and explosives offences;
- xii. property damage and environmental pollution;
- xiii. public order offences;
- xiv. road traffic and vehicle regulatory offences;
- xv. breaches—offences against justice procedures;
- xvi. breaches—offences against government security and government operations; and
- xvii. miscellaneous offences (harassment, public health and safety, commercial/industry/financial regulation, other miscellaneous).

### ***Broad crime classifications***

Two broad crime classifications were also analysed separately to determine if there was any association with detainees' geographic location. These categories were formulated by grouping various ANZSOC categories, as follows:

- crimes against a person—ANZSOC 1, ANZSOC 2, ANZSOC 3, ANZSOC 5 and ANZSOC 6; and
- crimes against property—ANZSOC 7, ANZSOC 8, ANZSOC 9 and ANZSOC 12.

Each of the offence category variables were dummy-coded (0=not charged with the offence and 1=charged with the offence) according to whether a detainee had been charged with that crime.

### ***Local drug market conditions***

The local drug market for five illicit drugs—cannabis, cocaine, heroin, speed and ecstasy—was examined. For each of these drugs numerous variables were used to reflect the overall condition of the local drug market. Depending on the nature of the data gathered, some of these were measured as categorical variables while others were measured using an interval scale. The variables measured for each drug included:

- whether it was purchased in last 30 days (dichotomous categorical);
- perceived changes in the ease of purchasing (interval scale), the quality (categorical), the price paid (continuous scale) and the number of sellers (interval scale) in the past three months, with a 'don't know' option available;
- the perceived risk of being caught by police buying the drug, and any changes in this risk in the last three months (interval scale, with a 'don't know' option);
- the form, quantity and amount paid for the drug when last purchased (categorical and ratio scale);
- how many days in the last 30 days the drug was purchased with and without paying cash for it, and from how many different people (continuous scale);
- the type of place the drug was last purchased and how the seller was contacted (categorical measures), and if the seller was a regular supplier (interval scale);
- the difficulty of buying the drug with cash in last 30 days (dichotomous categorical measure); and
- the amount of the drug sold, given away or shared in last 30 days (interval scale).

### ***Geographic location***

The geographic location of detainees was measured as a dichotomous categorical variable where 0=metropolitan and 1=regional.

## **Data analysis**

Quarter 4 2012 data from the East Perth data collection site and the 2013 pilot study data from the South Hedland site were amalgamated into a single dataset for analysis. This yielded a total of 209 usable metropolitan cases and 51 usable rural area cases. These sub-groups were coded as metropolitan and rural for subsequent comparative analysis. The dataset was then fully cleaned, and the extent and pattern of missing data assessed for all variables of interest. The level of missing data for any single variable was very low (below 5%), and it was determined that the overall level and pattern of missing data was not a major concern. Some variables in the dataset were formatted to suit analyses addressing the research questions.

Following this procedure, the following analyses were conducted.

- Descriptive statistical analysis techniques were employed to address Question 1 on the demographic characteristics, alcohol use, licit and illicit drug use and patterns of crime in the detained population of a

regional mining community. This included frequency tables and, where appropriate, descriptive statistics (mean and standard deviation). Frequencies were conducted for all response categories for each variable of interest on which data was collected. This analysis provided an overall picture of the demographic characteristics, alcohol- and drug-use patterns and types of offences committed by the regional detainee cohort.

- Variables measured on interval or continuous scales were tested for normality. Where the results appeared to contravene the normality assumption the raw data was transformed using a technique suggested by Tabachnick and Fidell (1996), according to the nature of the non-normality, to see if the resulting distribution could be made more normal prior to conducting the required parametric tests. For variables where data transformations failed to improve the normality of the raw data distribution, the Central Limit Theorem (CLT) was assumed to hold, as the normality assumption applies to the shape of the sampling distribution rather than to the raw data, which cannot be directly tested. The sample size was sufficiently large for the CLT to apply.
- The following analyses were conducted to address the second research question, which related to how demographic characteristics, alcohol use, licit and illicit drug use and patterns of crime in a regional mining community differ from those of a metropolitan community:
  - for all single-response categorical measures of variables of interest, a series of cross-tabulations were conducted using an appropriate test of independence. Where the underlying assumptions for a Pearson Chi-square test were upheld, this statistic was used to evaluate if there was a significant association between the variables by examining the expected counts,  $p$ -value, standardised residuals, column and row percentages and the Cramer's V statistic. For some of the larger cross-tabulations, the expected counts for some cells were quite low, even where pooled response categories were used due to the relatively small sample of regional detainees in the dataset. Thus, in cases where the minimum expected count for a reliable Chi-square test was contravened, the Fisher's exact test of independence (FET) was used to evaluate the significance of the association between the variables of interest; this test is more accurate than the Chi-square test of independence where the expected count is small. When a valid significant value was detected, the Z-test comparison of column proportion results, with adjusted  $p$ -values for multiple comparisons using the Bonferroni method, was examined to identify which response categories differed significantly between the metropolitan and regional detainees. For 2x2 contingency tables, an Odds Ratio effect size was calculated;
  - for all multiple-response categorical variables, multiple-response cross-tabulations were conducted using the SPSS custom tables facility to compare the distribution of the two groups' responses. Column proportions, with adjusted  $p$ -values for multiple comparisons using the Bonferroni method, were evaluated to identify valid significant differences between the metropolitan and regional detainee groups; and
- a series of  $t$ -tests were conducted for all interval and ratio scale measures related to the variables of interest to identify significant differences. All significance tests were conducted using a five percent level of significance.

All analyses were conducted using SPSS Version 22 for Windows.

## Study limitations

This research was limited by the potentially sensitive nature of the research topic and a reliance on self-reported measures. Crime and justice research often involves asking participants sensitive questions and/or requiring the disclosure of illegal behaviours (Kraska & Neuman 2008). Participants may be reluctant to answer truthfully due to embarrassment and shame or the fear of further prosecution. Detainees may also embellish the information they provide, or it may be limited by memory deficiencies, the passing of time or even unwillingness to participate (Elffers 2010); furthermore, some participants may over-report positive behaviours or generally accepted beliefs (Caulfield & Hill 2013). Despite this, the use of self-report surveys has

provided a wealth and depth of knowledge about crime and criminal behaviour (Kraska & Neuman) and the method is accepted as a valid and reliable method for data collection for this type of research (Thornberry & Krohn 2000).

Indigenous respondents may agree to a direct question they have not properly understood regardless of their belief in the truth or falsity of the proposition, a documented phenomenon known as gratuitous concurrence (Roberts 2007; Bartels 2011). Care was taken to ensure participants understood that their participation was voluntary and their responses confidential; that their answers would not impact on their current case; and that they could withdraw at any time. The high number of negative responses suggests participants felt comfortable enough with their interviewer to clarify their answers, and that gratuitous concurrence was minimised.

The study was also limited by sample size. The relatively small sample of regional detainees from whom data could be gathered limits the ability to generalise the findings to the general population. In addition, the small sample size did not capture the specific demographics of the Pilbara population where drug-use problems may be concentrated, such as FIFO workers; only two FIFO workers were captured in the research, which is not representative of Pilbara's population of FIFO workers at any given time. Where the expected effect size is not large, small sample sizes can also adversely affect the power of the statistical tests conducted. The small sample size was addressed to some extent by using Fisher's exact test of independence to evaluate the associations between detainee location (regional and metropolitan) and other categorical variables of interest. This analytical technique is more accurate than a Chi-square test of independence when expected numbers are small; it is nonetheless acknowledged that larger samples, which allow the findings to be reliably generalised, are preferable to smaller samples.

Finally, police process fewer female detainees than male detainees at both locations, which is consistent with national data (Gaffney et al. 2010). The corresponding sample size for females is therefore much smaller, and should be taken into consideration when interpreting the data.

# Results

This section presents the study's findings by combining the aspects addressed in Questions 1 and 2. The results from the South Hedland regional sample of detainees are described; then, where equivalent data is available, these are compared and contrasted with those for the Perth sample in each respective section.

Firstly, the pattern of alcohol use among South Hedland detainees, and its association with crime, is examined. South Hedland detainees' patterns of illicit and licit drug use is then outlined, followed by an examination of the South Hedland drug market. Finally, patterns of offending by South Hedland cohort are presented.

## Demographic profile of detainees

This section provides an overview of the demographic characteristics of the South Hedland and Perth detainees. Each of the demographic characteristics of these two groups is then compared to determine if their profiles differ significantly.

## Demographics of South Hedland detainees

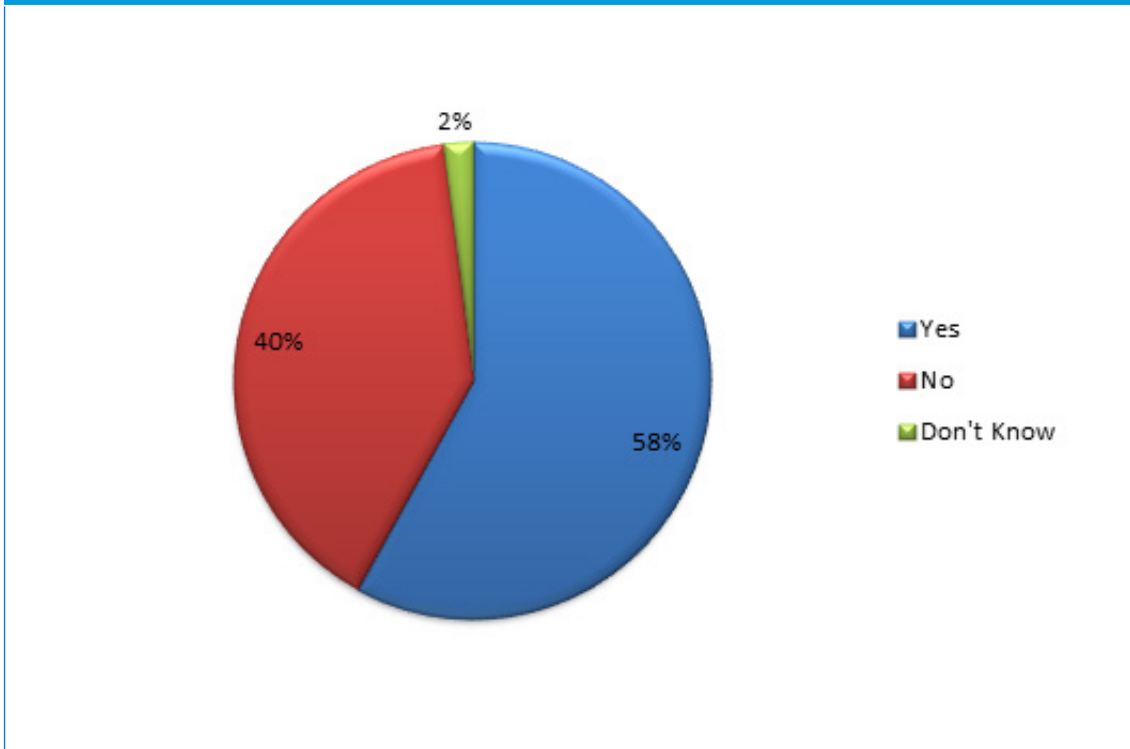
Of the 51 South Hedland detainees, 74.5 percent (n=38) were male and 25.5 percent (n=13) were female. The South Hedland detainees largely fell into three age categories: 18–24 years (27.5%), 25–34 years (31.4%), and 35–44 years (31.4%); this was followed by 45-plus years (9.8%; see Table 1). One participant reported they did not know their age and another's age value was missing. Three others (2 female and 1 male) appeared to misreport their ages, with all stating they were nine to 13 years younger than their estimated age based on their year of birth as recorded by police. The ages of these three participants was estimated based on the year of birth recorded by police and not on their self-reported age.

South Hedland participants were asked whether they possessed a birth certificate. Approximately six in 10 detainees (n=29) confirmed they had a birth certificate, 20 participants (40%) reported they did not possess one and two were unsure, as indicated in Figure 5. The Perth metropolitan cohort was not asked this question.

The majority of detainees reported their marital status as single and never married (35.3%), followed by de facto or married (each 23.5%), and separated, divorced or widowed (17.7%). The majority had no dependent children (64.7%).



Figure 5. South Hedland detainees with birth certificates



Source: AIC DUMA collection 2013 [computer file]

Three quarters (76.5%) of South Hedland detainees identified themselves as Aboriginal and/or Torres Strait Islander (see Figure 6). Just under half reported completing year 10 schooling or less (49%), and about one in every five (19.6%) had completed year 11 or 12. A further 15.7% had completed TAFE (see Figure 7). Most detainees were unemployed (60.8%), employed full time (27.5%) or a workplace non-participant (ie retired, disabled or a full-time caregiver; see Figure 8). The regional cohort was specifically asked whether they were employed as FIFO workers. Only two participants identified as FIFO workers; no further analysis could therefore be conducted on the FIFO workers in this study.

Detainees were most likely to report living at the home of another person (49%) or renting or owning their own home (21.6%). Nearly two thirds (60%) of detainees lived in Homeswest or housing commission properties, with 7.5 percent reporting they did not know if their home was a Homeswest or housing commission home. A further 11.8 percent reported living in a bush camp and another 11.8 percent lived in another kind of residence such as a caravan park or boarding house.

South Hedland detainees were more likely to be:

- male;
- Aboriginal and/or Torres Strait Islander;
- aged 32 years ( $M=31.94$ ,  $SD=9.57$ );
- educated to year 10 or less;
- married or in a de facto relationship; and
- living in someone else's house or apartment, or in accommodation provided by Homeswest or the housing commission.

South Hedland detainees were more likely to have no dependent children ( $M=0.75$ ,  $SD=1.37$ ) and to be unemployed.

Table 1: Age comparisons

Age in years	South Hedland regional		Perth metropolitan	
	Frequency	Percentage of participants	Frequency	Percentage of participants
18–24	14	27.5%	68	32.5%
25–34	16	31.4%	77	36.8%
35–44	16	31.4%	50	23.9%
45–54	4	7.8%	11	5.3%
55–64	1	2.0%	2	1.0%
65+	0	0.0%	1	0.5%
Total	51	100.0%	209	100.0%

Source: AIC DUMA collection 2012–13 [computer file]

## Demographics of Perth detainees

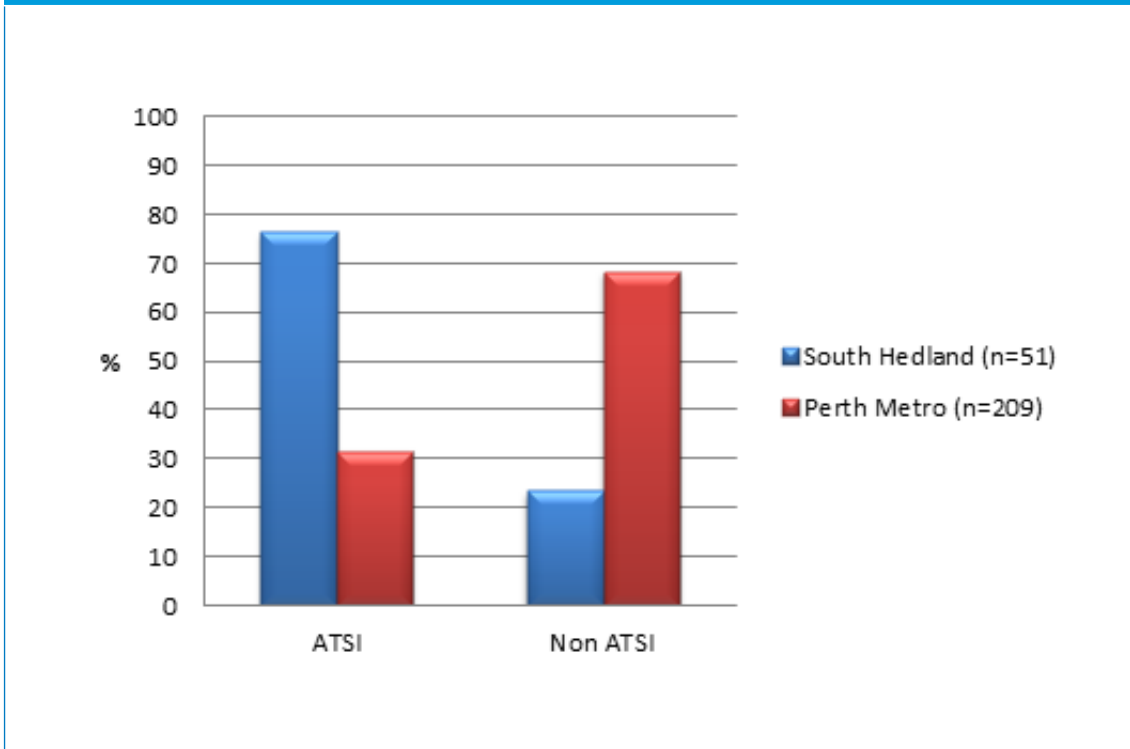
Descriptive statistics were generated to enable a comparison of the demographic characteristics of the metropolitan cohort. Of the 209 Perth metropolitan detainees, 82.8 percent (n=173) were male and 17.2 percent (n=36) were female. Most of the detainees were between 25 and 34 years of age (36.8%), followed by 18 to 24 year olds (32.5%); then those aged 35 to 44 years (23.9%) and those aged 45-plus years (6.8%); see Table 1). The majority of Perth metropolitan detainees reported they were single and never married (56.9%), followed by de facto (29.2%) and then separated or divorced (7.7%). Only 6.2 percent were married and none identified as widowed. The majority also had no dependent children (69.9%).

Six in every 10 Perth metropolitan detainees (59%) identified themselves as Australian and nearly a third (31.6%) indicated that they were Aboriginal and/or Torres Strait Islander (see Figure 6). Nearly half of the Perth metropolitan detainees reported they had completed year 10 or less (49.3%), and 16.3 percent had completed year 11 or 12. A further 20.6% had completed TAFE (see Figure 7). Most detainees were unemployed (47.3%), employed full-time (27.3%) or were a workplace non-participant (11.9%; see Figure 10). Most reported living in their own home, whether owned or rented (49%) closely followed by living in the home of another person (41.1%). Nearly two thirds (62%) lived in privately owned properties, with 1.6 percent reporting that they were unaware if their accommodation was a Homeswest or housing commission home. A further 8.1 percent reported living on the streets or having no fixed address.

### Indigenous status

To investigate differences in the Indigenous status of detainees from both sites, all response categories other than Australian and ATSI were pooled. Most detainees from both locations described themselves as either Australian or ATSI. A comparison of column proportion results revealed a significantly higher proportion of Perth metropolitan detainees identified as Australian (59.3%) compared with the South Hedland sample (13.7%), while a significantly higher proportion of the regional detainees identified as ATSI (76.5%) compared with the metropolitan cohort (31.6%). There was no difference in the proportion of each sample identifying as being of another origin ( $\chi^2 [3, N=260]=71.46, p< 0.001$ ; see Figure 6).

Figure 6. ATSI status of detainees

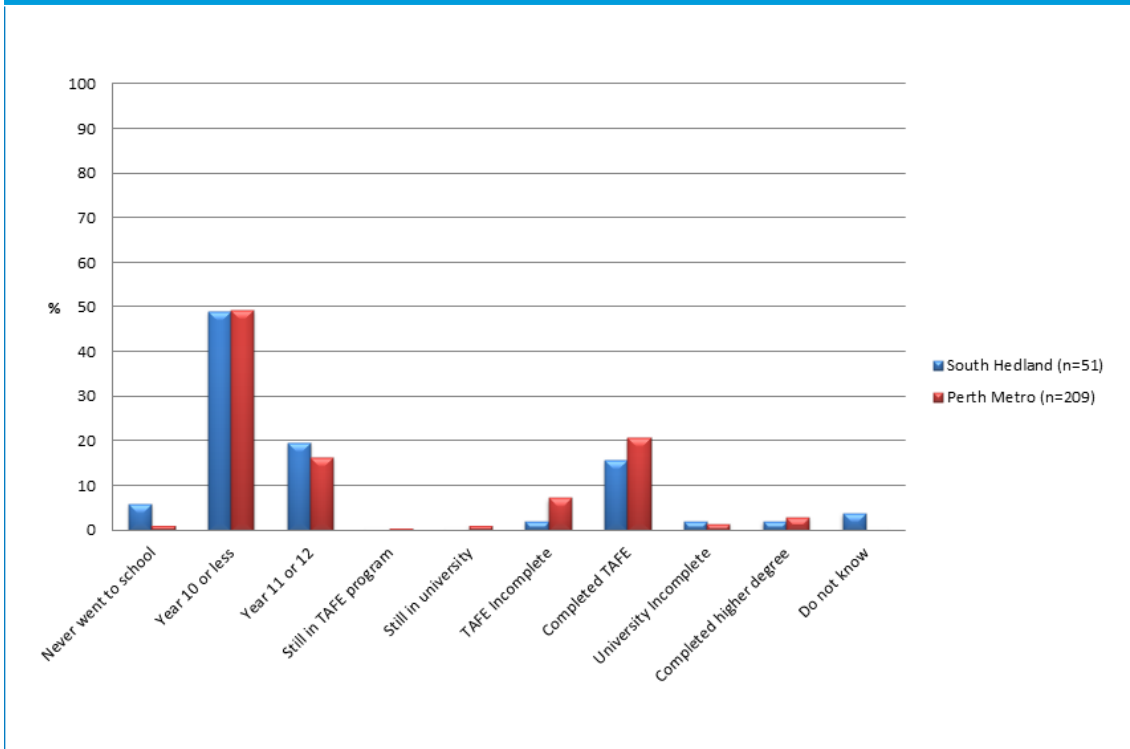


Source: AIC DUMA collection 2012–13 [computer file]

### Education levels

Figure 7 clearly shows the highest percentage of both groups of detainees achieved an education level of year 10 or less. Greater proportions of the South Hedland regional sample achieved Year 11 or 12 qualifications or had never gone to school. In contrast, a greater proportion of the Perth metro sample had completed or partially completed a TAFE qualification. Despite these apparent differences, however, a Fisher's exact test indicated the overall highest percentages for level of education did not differ significantly across the South Hedland and Perth Metropolitan sample ( $p=0.403$ ; FET).

Figure 7. Highest level of education currently in progress or completed



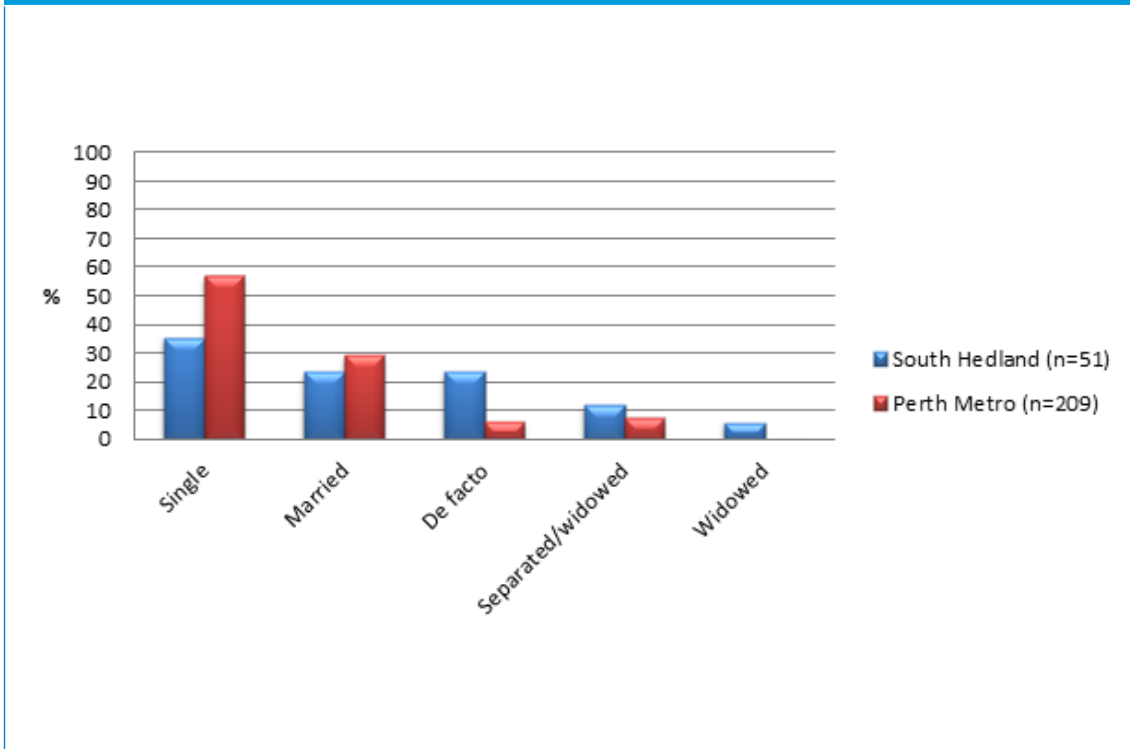
Source: AIC DUMA collection 2012–13 [computer file]

## Marital status

Figure 8 compares the marital status of the two groups of detainees. The greatest proportion of both the South Hedland detainees and Perth metropolitan detainees were single and had never been married. Almost a quarter of South Hedland detainees were married compared with less than one tenth of Perth metropolitan detainees. Overall the South Hedland sample, however, was much more evenly distributed across the different marital status categories.

The Fisher's exact test of independence of the five marital status categories indicated a statistically significant association between marital status and detainee location ( $p < 0.001$ ; FET). One of the most significant differences revealed was South Hedland detainees were almost four times more likely to be married than metropolitan detainees. They were also more likely to be widowed (6% vs 0%), while the Perth metropolitan detainees were more likely to be single and never been married (57% vs 35%).

Figure 8. Marital status of detainees

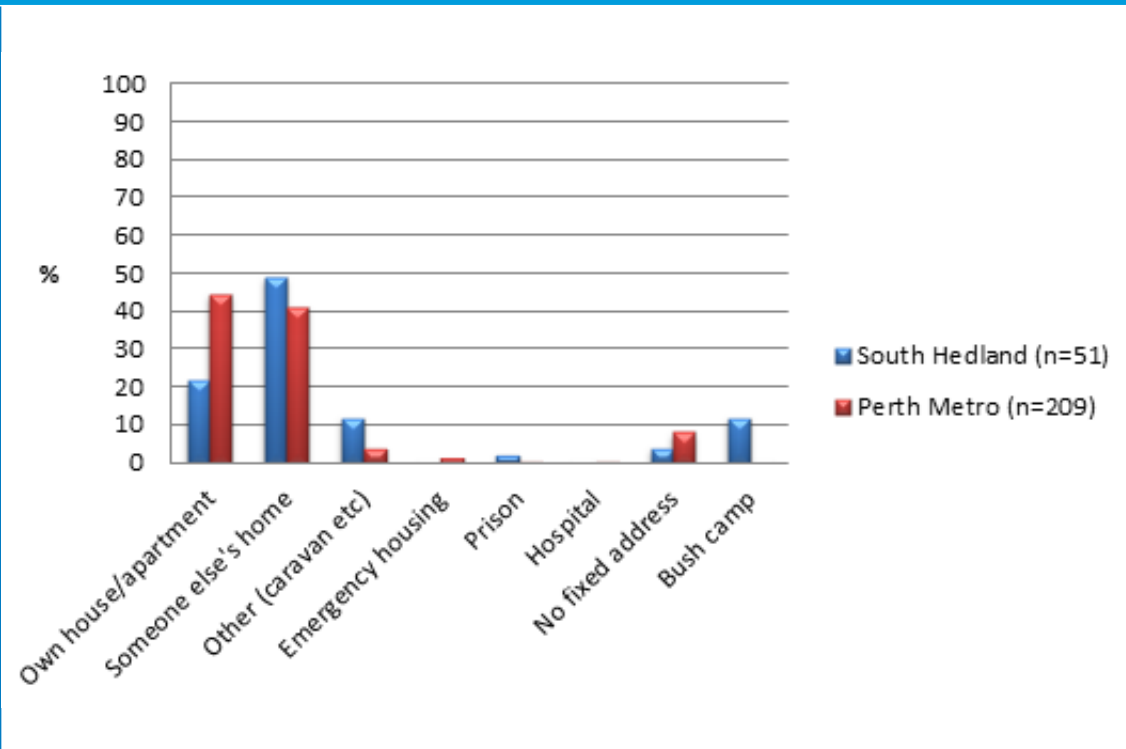


Source: AIC DUMA collection 2012–13 [computer file]

## Residence

Figure 9 shows the pattern of responses on the type of residence in which the two samples of detainees had lived in the past 30 days. Almost half of the South Hedland detainees were living in someone else's home, while just under half of the Perth metropolitan detainees indicated they lived in their own house or apartment.

Figure 9. Type of residence lived in, last 30 days



Source: AIC, DUMA collection 2012–13 [computer file]

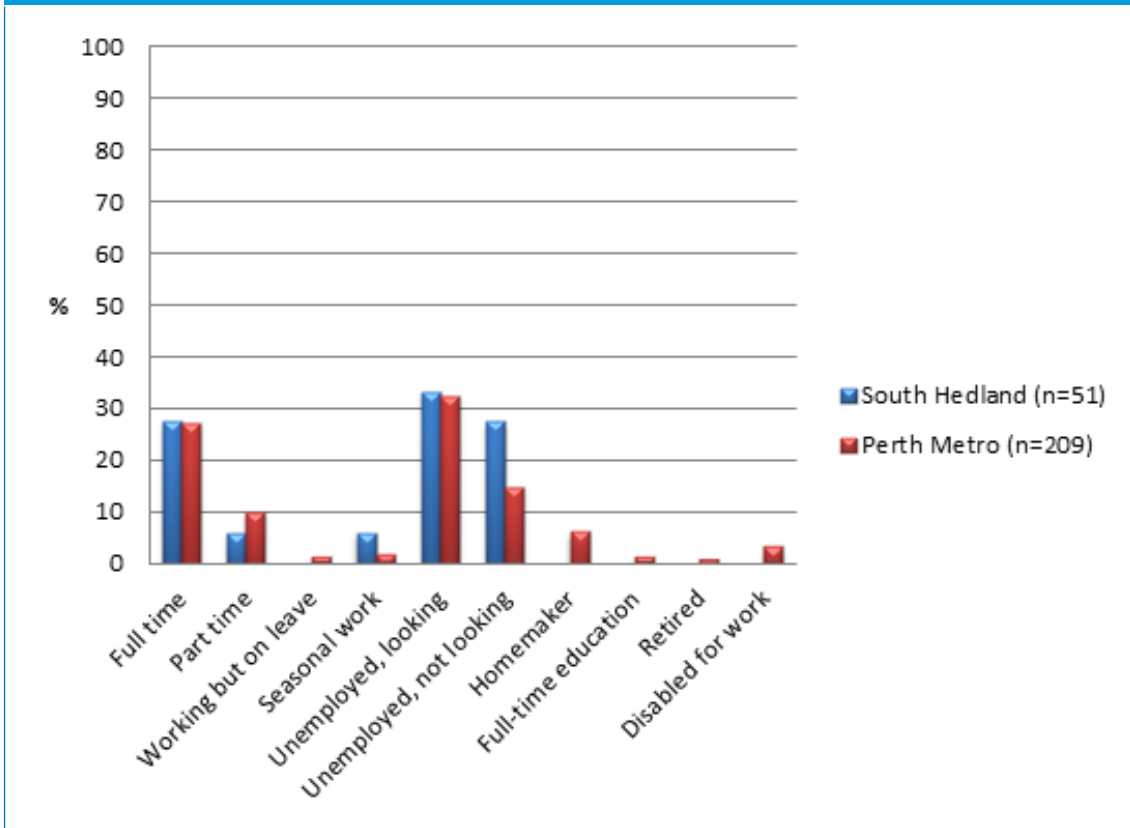
Initial Chi-square tests showed a very high number of cells with less than the expected minimum count for a reliable test, even when similar response categories were pooled. Thus, a Fisher's exact test was conducted. This indicated a significant difference in the type of residence in which the South Hedland regional and Perth metropolitan detainees lived ( $p < 0.001$ ; FET). The most significant differences identified included that the South Hedland regional sample was only half as likely to own or rent their own house or apartment but about three times more likely to live in another kind of residence such as a caravan park or boarding house. The South Hedland sample was also more likely to live in a bush camp.

As well as looking at type of residence, participants were asked whether they lived in public housing. Their responses revealed a statistically significant difference ( $\chi^2[1, N=221]=9.87, p=0.003$ ), with regional detainees (64.9%) almost twice as likely to live in public housing as metropolitan detainees (37%). The regional sample was just over three times more likely to live in public housing than the metropolitan sample.

## Employment

Detainees were asked their current work status. The initial responses are presented in Figure 10. About one third of both the South Hedland and Perth detainees were unemployed or laid off and looking for work, and about one quarter of both samples were employed full time. Although the regional cohort were almost twice as likely to be unemployed and not looking for work, the Fisher's exact test of independence revealed no statistically significant difference in the overall pattern of responses between the two samples of detainees.

Figure 10. Employment status



Source: AIC DUMA collection 2012–13 [computer file]

In summary, the findings indicate the Perth metropolitan and South Hedland samples did not differ significantly in gender, age, level of education attained, number of dependent children or work status. They did, however, differ significantly in marital status, residence and ATSI status, as presented in Table 2.

Table 2. Summary comparison of the main demographic characteristics of Perth metropolitan and South Hedland detainees

Characteristics	South Hedland regional	Perth metropolitan	Test statistic <sup>a</sup>	DF	p-value <sup>b</sup>
<b>Gender</b>	Greater proportion of females <sup>1</sup>				
	25.5% female	17.2% female	$\chi^2=1.83$	1	0.176
<b>Age</b>	Older in South Hedland population				
	Average=32; <25 years=14%	Average=30.3; <25 years=68%	$t=-1.11$	258	0.266
<b>Indigenous status***</b>	More likely to identify as ATSI <sup>2</sup>				
	76.5% Indigenous origin	31.6% Indigenous origin	$\chi^2=71.46$	3	<0.001
<b>Level of education</b>	Little difference in schooling (inc. never went to school)				
	57.1% completed year 10 or less; 18.4% completed TAFE/uni	50.2% completed year 10 or less; 23.4% completed TAFE/uni			FET 0.403
<b>Marital status***</b>	Significantly more likely to be in a marital or de facto relationship				
	35.3% single/never married; 47% de facto/married	56.9% single/never married; 35.4% de facto/married			FET <0.001

<b>Type of residence***</b>	Significantly fewer own/rent their own homes; significantly more likely to live in 'other' locations				
	21.6% live in house they own or rent; 49.0% live at the home of another person; 23.5% live in other household locations (eg bush camps, caravan parks)	44.5% live in house they own or rent; 41.1% live at the home of another person; 3.8% live in other household locations (eg bush camps, caravan parks)	$\chi^2=9.87$	1	FET <0.001
<b>Type of residence***</b>	Significantly more likely to reside in Homeswest/housing commission homes				
	64.9% live in public housing	37.0% live in public housing	$\chi^2=9.87$	1	0.002
<b>Work status</b>	More detainees unemployed and not looking for work				
	33.4% in part or full-time employment; 60.8% unemployed	37.3% in part- or full-time employment; 47.3% unemployed	7		0.173
<b>Number of dependent children</b>	A higher proportion of four or more children <sup>3</sup>				
	Average=0.73 (s.d.=1.37) 64.7% no dependent children; 9.8% four or more dependent children	Average=0.58 (s.d.=1.07) 69.9% no dependent children; 3.4% four or more dependent children	$t=-0.910$	258	0.364

Source: AIC DUMA collection 2012–13 [computer file]

a: Pearson Chi-square test statistic for categorical variables (gender, Indigenous status, marital status, type of residence, work status) shown where underlying assumptions were upheld and  $t$ -test statistic for continuous variables (age, number of dependent children)

b: Fisher's exact test of independence (FET) p-value shown for results where a reliable Chi-square test could not be conducted due to underlying assumptions contravened.

\*\* = $p < 0.05$ ; \* = $p < 0.01$ ; \*\*\* = $p < 0.001$  denotes a significant difference

1: Despite the proportion of females being greater for South Hedland detainees versus Perth metropolitan, males still comprised the majority of detainees at both sites

2: Detainees were asked if they are Aboriginal, Torres Strait Islander or both

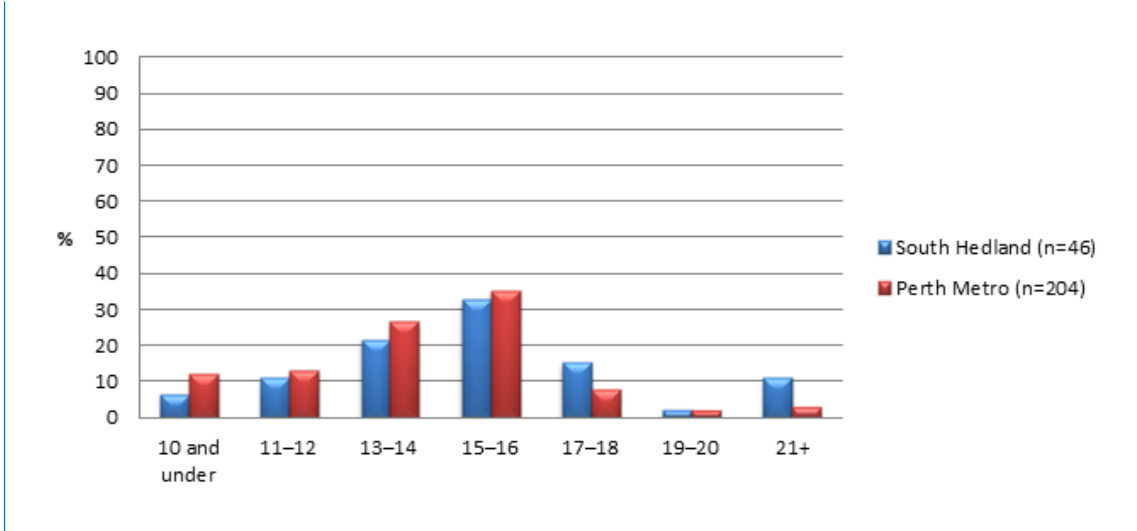
3: Despite the proportion of having four or more dependent children being greater for the South Hedland sample, most detainees across both sites reported having no dependent children

## Alcohol use

To determine the patterns of alcohol use amongst the South Hedland cohort and compare them with those of the Perth sample, responses to questions relating to alcohol were isolated from other illicit drug use for analysis. The questions were designed to provide an overall picture of detainees' historic and recent use of alcohol. Participants were initially asked at what age they first tried alcohol. One South Hedland detainee (2%) and four Perth metropolitan detainees (2%) stated they had never used alcohol; four South Hedland detainees (8%) and four Perth metropolitan detainees (0.5%) failed to respond to this question. The pattern of responses shown in Figure 11 indicates that South Hedland regional detainees first tried alcohol between the ages of eight and 29 years. There was one outlier of 42 years, which was excluded due to its distorting effect on the mean calculations.



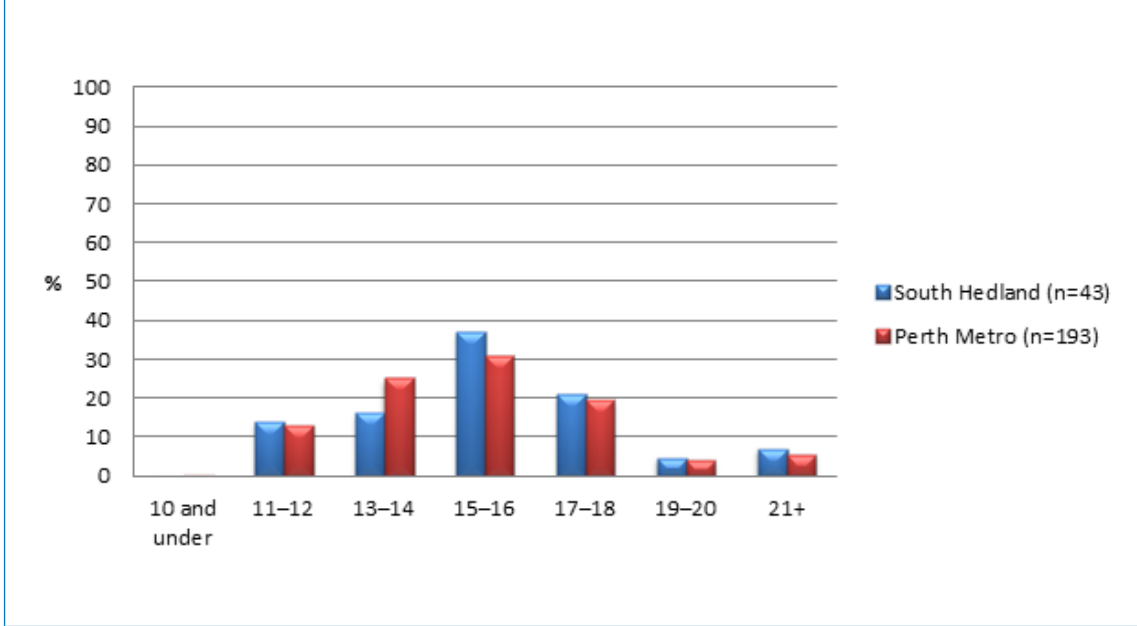
**Figure 11. Age at first alcohol experience**



Source: AIC DUMA collection 2012–13 [computer file]

When the South Hedland sample was compared with the Perth sample, the former cohort was, on average, older when they first tried alcohol ( $M=15.38$ ,  $SD=3.7$ ) than the metropolitan cohort ( $M=14.1$ ,  $SD=3.3$ ), but the ages reported by the regional sample were more greatly dispersed. When a  $t$ -test was conducted on the data, excluding three outliers that distorted the mean age at first drinking alcohol, there were no significant differences in the average age of each cohort at first using alcohol ( $t=-1.92[1; 245]$ ,  $p=0.056$ ).

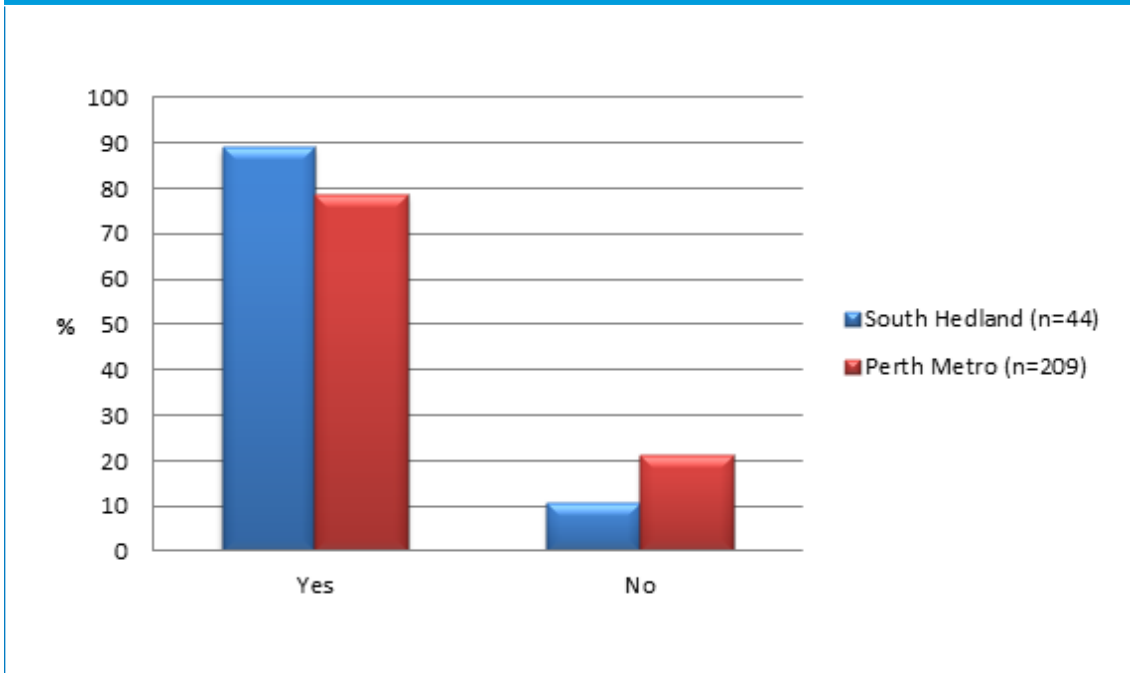
**Figure 12. Age first consumed three (for females) or five (for males) drinks on same day**



Source: AIC DUMA collection 2012–13 [computer file]

Participants were asked at what age they first consumed five alcoholic drinks (for males) or three alcoholic drinks (for females), or more, on the same day. The response pattern in Figure 12 indicates South Hedland detainees appeared were generally more likely to have consumed more than the recommended daily number of drinks at a slightly younger age ( $M=15.49$ ,  $SD=3.33$ ) than the Perth metropolitan detainees ( $M=15.72$ ,  $SD=2.77$ ). After excluding two outliers from the metropolitan sample that were distorting the average age and causing an abnormal distribution of ages, a  $t$ -test comparing the average number of drinks for the two samples showed this difference was not statistically significant  $t=-0.92$  ( $1=234$ ),  $p=0.360$ .

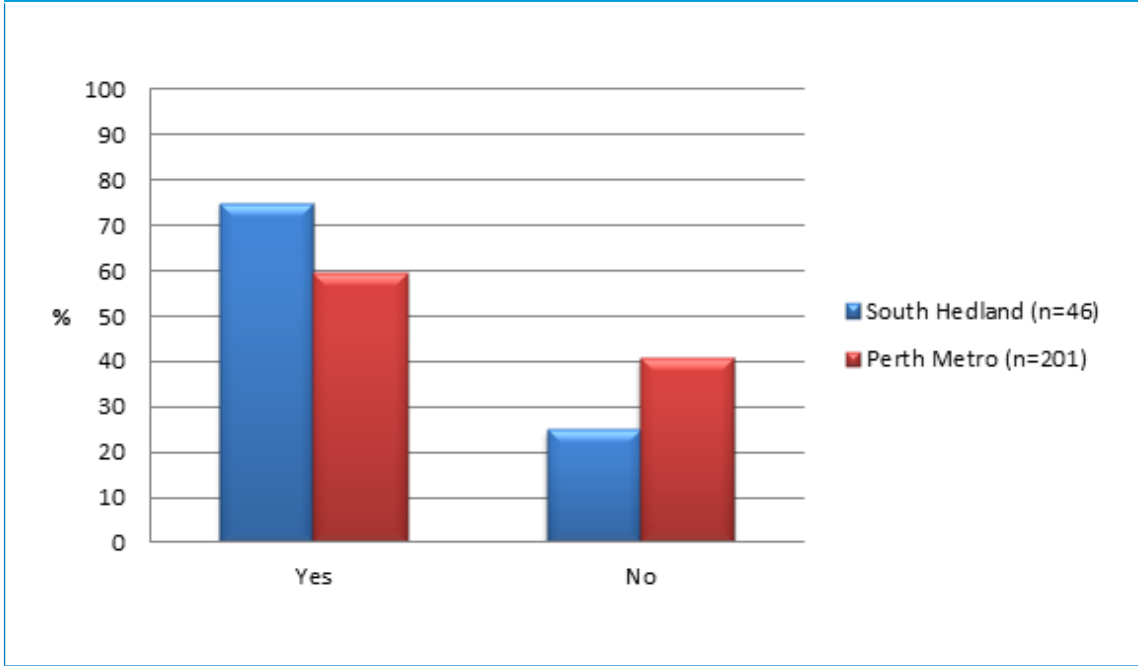
Figure 13. Five (for males) or three (for females) drinks consumed on the same day, last 12 months



Source: AIC DUMA collection 2012–13 [computer file]

Detainees were subsequently asked if they had consumed five (for males) or three (for females) drinks, or more, on the same day in the previous 12 months. About nine of every 10 (89.1%, n=41) South Hedland detainees and nearly eight of every 10 (78.6%, n=158) Perth metropolitan detainees responded positively. Relatively fewer of the South Hedland regional detainees reported they had not consumed more than the recommended daily number of alcoholic drinks in the past year, compared with the Perth cohort, as shown in Figure 13; but the Chi-square test of independence showed no significant association between detainee location and consuming more than the recommended daily number of standard drinks ( $\chi^2 [1, N=247]=2.65, p=0.147$ ). Most detainees across both samples had consumed more than the recommended amount of alcohol at one time in the previous year.

**Figure 14. Alcohol consumed in last 48 hours**



Source: AIC DUMA collection 2012–13 [computer file]

The responses of detainees who reported they had not consumed alcohol within the last 48 hours were recoded from a ‘skip’ response to a ‘no’ response—that is, as having drunk no alcohol in the last 48 hours. Figure 14 shows the South Hedland sample (66%) were significantly more likely to have consumed alcohol in the previous 48 hours than the Perth sample (46.9%). The Chi-square test of independence revealed a statistically significant association between detainee location and alcohol consumption within the previous 48 hours ( $\chi^2 [1, N=259]=5.90, p=0.018$ ).

**Frequency of alcohol use**

In relation to how many days alcohol had been consumed in the last 30 days, detainees who indicated they had never used alcohol had their skip response recoded as zero days, to retain the full cohort of participants in the analysis. This data was found to be heavily skewed so, for the purpose of conducting a valid *t*-test, it was first transformed using a natural logarithm procedure to make the distribution of the data approximately normal. An independent sample *t*-test was conducted on the average number of days detainees from the two sites reported consuming alcohol within the last 30 days using the transformed data. Assumptions of normality and homogeneity of variances were met, and the *t*-test result indicated a statistically significant difference between the South Hedland site and the Perth metropolitan sample ( $t[1:204]=-2.30, p=0.022$ ).

The mean number of days alcohol was consumed within the last 30 days was higher in the South Hedland sample (M=13.48, SD=12.41) than the Perth metropolitan sample (M=8.24, SD=9.96). Furthermore, the mode for the metropolitan sample was zero drinks in the last 30 days and for the regional sample it was 30 days. The findings indicate that, on average, South Hedland detainees drank alcohol on more days within the last 30 days than Perth detainees. Table 3 summarises the overall historic alcohol-use patterns of both samples of detainees.

**Table 3. Summary of historic use of alcohol by detainees**

	Ever tried	Age first tried	Age of first excessive use <sup>a</sup>	Used in last 12 months	Days used in last 30 days (mean)	Last 48 hours
<b>South Hedland</b>	98%	15.1 <sup>b</sup> (3.09)	15.7 (2.77)	89.1%	13.5 days (12.41)	66%
<b>Perth metro</b>	98%	14.1 (3.14)	15.5 (3.33)	78.6%	8.2 days (9.96)	46.9%
<b>Ratio (SH:M)</b>	1:1	1.07	1.01	1.13	1.65	1.41
					*	*

Source: AIC DUMA collection 2012–13 [computer file]

a: Participants were asked when they first consumed more than the recommended daily amount of alcohol (5 standard drinks for males and 3 standard drinks for females)

b: Mean ages exclude extreme cases. It is worth noting the age distribution was fairly strongly skewed. This was attributable to three extreme cases which, when removed from the comparative age analysis, changed a significant mean age of first alcohol consumption to a marginally non-significant mean age

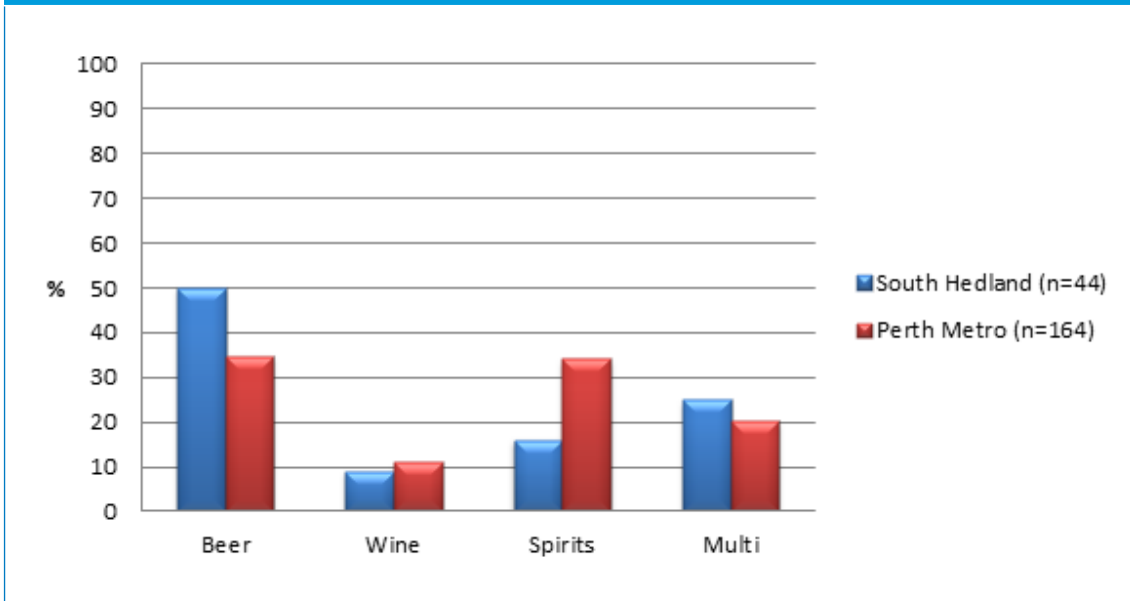
\*Indicates a statistically significant difference between the two cohorts

Overall, the two sites did not differ significantly in terms of age at introduction to alcohol or medium-term alcohol consumption patterns. No differences were found in terms of the average age detainees first consumed alcohol, exceeded the recommended daily consumption of alcohol, or consumed more than the recommended daily amount of alcohol in the last year. They did differ significantly, however, in their very recent usage patterns—that is, the average number of days in which alcohol was consumed within the last 30 days and use of alcohol within the last 48 hours.

### *Type of alcohol consumed*

Participants were asked what type of alcohol they consumed last time they drank. Responses were categorised as beer only, wine only, spirits only or multiple types. The South Hedland sample consumed mostly beer (50%) and relatively little wine (9.1%) and spirits (15.9%), as indicated in Figure 15. In comparison, the Perth sample were more likely to have consumed beer (34.8%) or spirits (34.1%) than wine (11%). The Chi-square test of independence results indicated no significant difference between the two samples in the overall patterns of types of alcohol last consumed.

Figure 15. Type of alcohol last consumed



Source: AIC DUMA collection 2012–13 [computer file]

### Quantity of alcohol consumed

Detainees who reported having at least one drink in the past 30 days (n=206) were isolated to allow analysis of the number of drinks last consumed (the questionnaire asked participants to indicate both the type of alcohol and the amount consumed). The average number of standard drinks consumed by males and females across the two sites was analysed with an analysis of variance (ANOVA). Test assumptions of normality and homogeneity of variance were met and the result was found to be statistically significant ( $F[1,205]=7.93$ ,  $p=0.005$ ). The findings show the South Hedland regional sample drank significantly more standard drinks ( $M=18.56$ ,  $SD=18.68$ ) when they last drank than the Perth metropolitan sample ( $M=12.27$ ,  $SD=11.01$ ).

The much higher levels of regional detainees' alcohol consumption, combined with the higher proportion of Indigenous regional detainees, warrants further investigation, at a descriptive level, into how the amount of alcohol consumption might differ between these sub-groups. The numbers in some cells were too small to allow meaningful statistical analysis, but the descriptive statistics of those who reported consuming alcohol indicate that ATSI females in South Hedland were drinking more than the other samples. Interpretation, however, must be undertaken with extreme caution as there were only nine females in the sample.

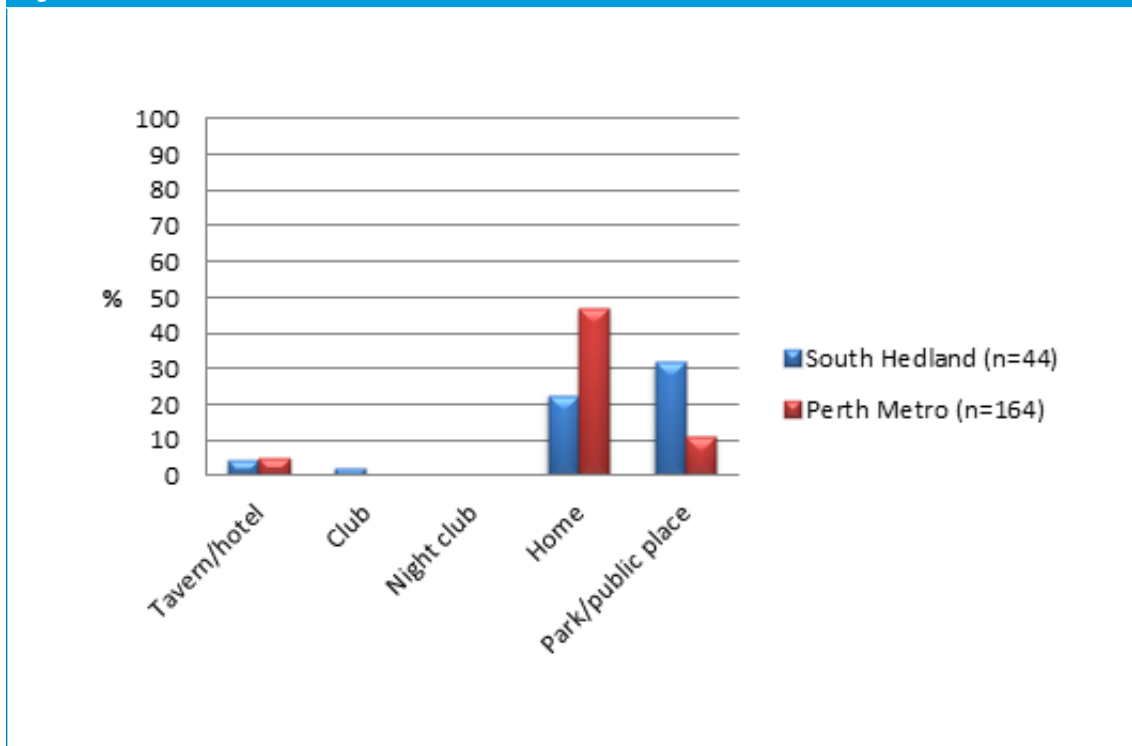
**Table 4. Descriptive statistics: means and standard deviations of the number of standard drinks consumed the last time alcohol was consumed**

Sample		Indigenous mean (SD)	Non-Indigenous (SD)	Total
South Hedland regional	Male	21.3 (21.2) (n=30)	7.9 (6.12) (n=13)	43
	Female	28.0 (19.0) (n=9)	00 (0) (n=0)	9
Perth metro	Male	14 (9.7) (n=112)	11.4 (10.4) (n=28)	140
	Female	9.3 (15.9) (n=7)	12.4 (13.9) (n=18)	25
<b>Total</b>		158	59	217

Source: AIC DUMA collection 2012–13 [computer file]

Figure 16 shows where detainees consumed their last alcoholic drink. Most South Hedland regional detainees last drank alcohol in a park or public place (32%), followed by at another family member's or friend's home (27%) and then at their own home (23%). Only very small numbers drank at a licensed establishment like a hotel, tavern or night club. Most of the Perth metropolitan sample last drank alcohol in their own home (47%) followed by at another family member's or friend's home (27.3%). Similarly, only a small number of Perth detainees drank at a licensed establishment the last time they consumed alcohol.

**Figure 16. Where alcohol was last consumed**



Source: AIC DUMA collection 2012–2013 [computer file]

Responses to this question were categorised into five categories by pooling responses of various licensed establishments (a logical combination of location types). The Chi-square statistical test of independence confirmed there was a significant association between detainee location and where they last drank alcohol ( $\chi^2$  [4, N=208]=15.41,  $p=0.004$ ; Table 5). Individual comparisons of the column proportions indicated South Hedland detainees (22.7%) were about half as likely to have last consumed alcohol at home than Perth detainees (47%) but almost three times as likely to have consumed their last drink in a park or public place (31.8%) than metropolitan detainees (11.1%).

**Table 5: Location of last alcoholic drink**

Place	South Hedland	Perth Metro	Total
Various licensed establishments	3 (6.8%)	10 (6.1%)	13 (6.3%)
Home	10 (22.7%)	77 (47%)	87 (41.8%)
Park or public place	14 (31.8%)	18 (11%)	32 (15.4%)
Other family member's/friend's home	12 (27.3%)	47 (28.7%)	59 (28.4%)
Other	5 (11.4%)	12 (7.3%)	17 (8.2%)
Total	44 (100%)	164 (100%)	208 (100%)

Source: AIC DUMA collection 2012–13 [computer file]

## Impact of alcohol use

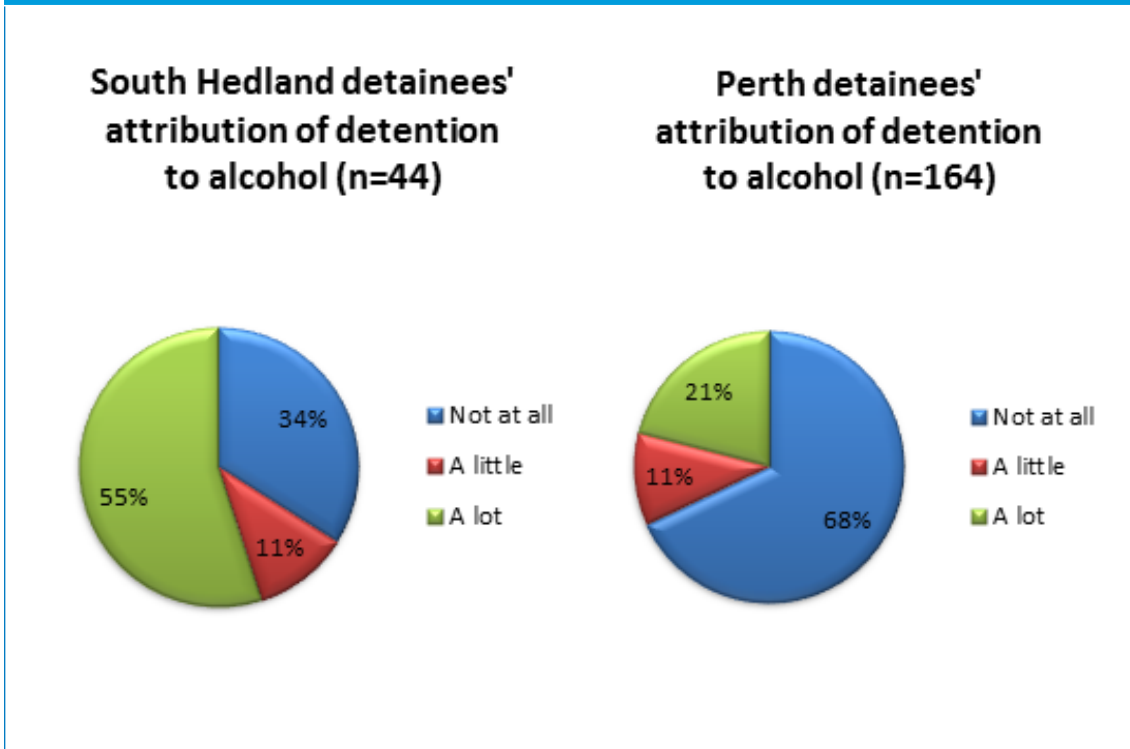
### Hospitalisation

About a quarter (22%) of South Hedland detainees responded yes when asked if they had been hospitalised or sought medical treatment in the last twelve months for any issue relating to their alcohol use. This was only marginally more than the Perth metropolitan cohort (18.4%). A Chi-square test of independence revealed that this difference was not sufficiently large to be statistically significant ( $\chi^2$  [1, N=199]=0.273,  $p=0.656$ ).

### Alcohol and crime

Detainees were asked to indicate to what extent they believed alcohol had contributed to the main reason for their detention on a four-point scale: not at all; a little; a lot; and 'don't know'. The 'don't know' responses were treated as missing values and analysis was conducted on the remaining data. Figure 17 shows the distribution of responses. More than half of the South Hedland sample (54.5%) felt that alcohol had contributed a lot to their current detention, while only about one third (34%) felt it had not contributed at all. Of the Perth sample, only about a fifth (20.7%) of detainees believed that alcohol had contributed a lot to their detention, while almost two thirds (34.1%) considered alcohol had not contributed at all. A Chi-square test showed detainees' beliefs on the degree to which alcohol had contributed to their current detention differed significantly ( $\chi^2$  [2, N= 208]=20.88,  $p<0.001$ ).

Figure 17. Attribution of alcohol use to current detention



Source: AIC DUMA collection 2012–13 [computer file]

### Alcohol use summary

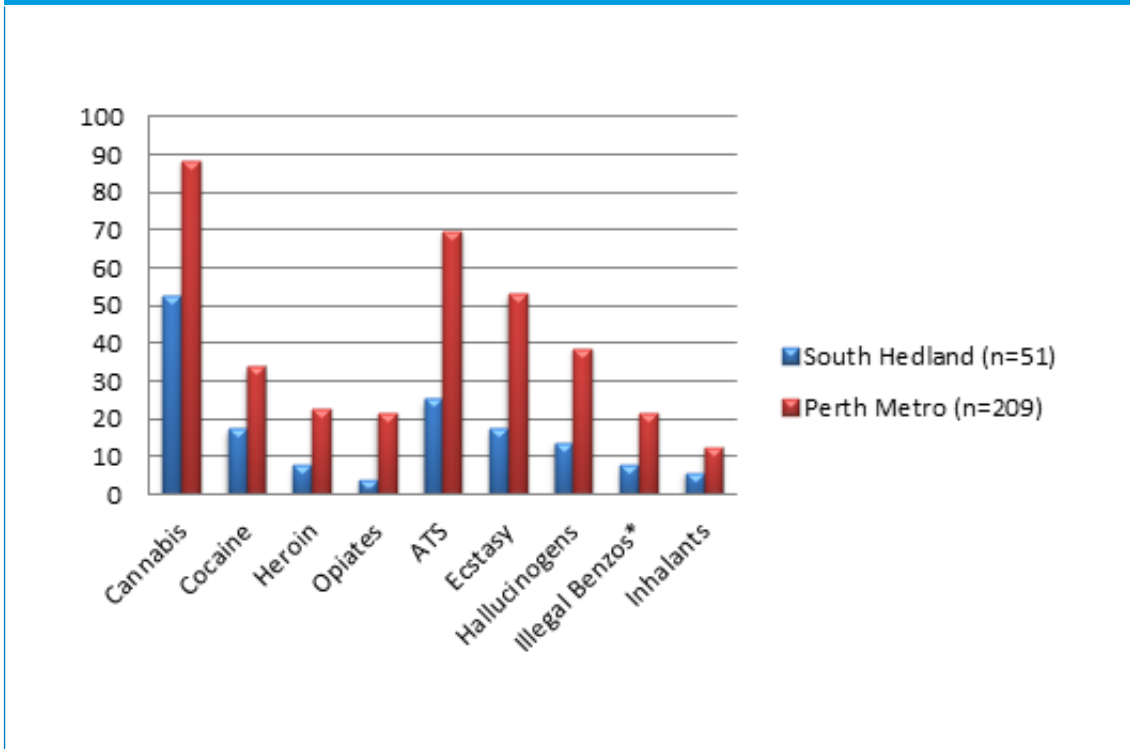
These findings show no significant difference between the Perth and South Hedland samples in terms of the age at which they first tried alcohol, the age of first excessive consumption and excessive consumption in the past year. However, the samples differ significantly in alcohol use within the past 48 hours; the frequency, quantity and type of alcohol consumed; the last place of consumption; and how strongly detainees attributed their detention to alcohol use.

### Illicit drugs

Detainees' responses relating to illicit and licit substance use were analysed to determine drug-use patterns in the South Hedland regional cohort and compare these with those of Perth detainees. To determine the types and prevalence of illicit substance use warranting further investigation, detainees were first asked if they had ever tried nine different types of illicit drugs (see Figure 18). Just over half the 51 South Hedland regional detainees (53%) had tried cannabis at some time; about one quarter (26%) had tried amphetamine-type stimulants (ATS) and nearly one fifth had tried cocaine and ecstasy (each 18%). Only small percentages of the regional detainees had ever tried the other five illicit substances (4%–14%).



Figure 18. Drugs ever tried by type



Source: AIC DUMA collection 2012–13 [computer file]

\*Benzodiazepine

Although the general pattern of illicit drug use in South Hedland detainees was quite similar by comparison with the Perth sample, illicit drug use overall was nowhere near as prevalent in the South Hedland sample. About 89 percent of metropolitan detainees had ever tried cannabis, 70 percent had ever tried ATS and just over half (53%) had ever tried ecstasy; 39 percent had ever tried LSD and just over one third (34%) had ever tried cocaine. A series of Chi-square tests revealed a significantly lower proportion of detainees from the regional site had ever used eight of the nine illicit substances. Inhalants were the sole exception, with only a small percentage of both cohorts ever having tried this drug (see Table 5). The results indicate that Perth detainees were two to six times more likely than South Hedland detainees to have ever tried all the illicit drug types investigated (except inhalants).

Because of the small numbers of detainees who had ever used many of the illicit substances included in the research, especially among the regional cohort, the following sections outlining drug usage patterns should be viewed as indicative only. While the findings are valid for the current samples of detainees at each site, the small sample sizes for some sub-samples of users preclude these findings from being generalised to broader detainee populations.

Table 6 provides a summary of illicit drug use by South Hedland regional and Perth detainees for each of the key drug-use indicators. The findings for each of these indicators are further outlined in the following text.

Table 6. Summary of overall alcohol and illicit drug use

	Ever tried	Average age first tried <sup>a</sup>	Average age of first excessive use <sup>b</sup>	Used in last 12 months	Average days used in last 30 days (mean) <sup>c</sup>	Felt dependent last 12 months	Used in last 48 hours
<b>Cannabis</b>							
South Hedland	52.9%* n=27	15.4 (2.44) n=26	15.7 (2.70) n=18	33.3%* n=17	4.7* days (10.31) n=50	11.8%* n=51	15.7%* n=8
Perth metro	88.5% n=185	14.4 (3.24) n=184	15.1 (3.18) n=142	60.6% n=126	9.3 days (12.43) n=209	32.5% n=209	34.9% n=73
Ratio	0.59	1.07	1.04	0.55	0.51		0.45
<b>Amphetamine Type Substances (ATS/Speed)</b>							
South Hedland	25.5%* n=13	18.1 (4.27) n=13	17.5 (5.32) n=6	9.8%* n=5	1.1* days (5.49) n= 51	2%* n=51	3.9%* n=2
Perth metro	69.9% n=146	18.2 (4.25) n=145	19.6 (5.73) n=105	43.5% n=91	3.7 days (7.97) n=208	17.2% n=209	15.9% n=53
Ratio	0.32			0.23			
<b>Ecstasy</b>							
South Hedland	17.5%* n=9	19.4 (4.53) n=9	20.3 (2.52) n=3	2.0%* n=1	0* days (0.00) n=51	0% n=51	0% n=0
Perth metro	53.1% n=111	19.5 (5.10) n=109	21.4 (7.26) n=122	15.9% n=33	0.05 days (0.27) n=207	1% n=207	1% n=2
Ratio	0.33						
<b>Heroin</b>							
South Hedland	7.8%* n=4	23.7 (4.16) n=3	25.0 (-) n=1	0% n=0	0* days (0.00) n=50	0% n=50	0% n=0
Perth metro	22.6% n=47	20.0 (4.57) n=46	22.3 (6.08) n=26	6.3% n=13	0.64 days (4.01) n=208	4.3% n=208	2.4% n=5
Ratio	0.35						
<b>Cocaine</b>							
South Hedland	17.6%* n=9	19.7 (4.56) n=9	21.5 (3.54) n=2	3.9% n=2	0.02 days (0.14) n=51	0% n=51	0% n=0
Perth metro	34% n=71	21.9 (6.22) n=71	23.9 (6.67) n=11	8.1% n=17	0.03 days (0.21) n=208	0.5% n=209	0% n=0
Ratio	0.52						

Opiates							
South Hedland	3.9%*	21.0 (5.66)	- (-)	0%	0* days (0.00)	0%	0%
	n=2	n=2	n=0	n=0	n=51	n=51	n=0
Perth metro	21.5%	23.3 (6.06)	25.1 (6.66)	7.2%**	0.43 days (3.06)	2.9%	1.4%
	n=45	n=44	n=22	n=15	n=209	n=209	n=3
Ratio	0.18						
Hallucinogens							
South Hedland	13.7%*	18.9 (1.57)	18 (-)	5.9%	0.02 days (0.14)	0%	0%
	n=7	n=7	n=1	n=3	n=51	n=51	n=0
Perth metro	38.8%	18.1 (3.87)	17.3 (2.34)	7.7%	0.04 days (0.26)	1%	0.5%
	n=81	n=78	n=18	n=16	n=209	n=209	n=0
Ratio	0.35						
Illegal Benzodiazepines							
South Hedland	7.8%*	21.8 (3.86)	- (-)	3.9%	0* days (0.00)	2%	0%
	n=4	n=4	n=0	n=2	n=51	n=51	n=0
Perth metro	21.5%	22.1 (6.92)	20.9 (5.50)	10.6%	0.22 (1.19)	2.4%	3.8%
	n=45	n=43	n=19	n=22	n=208	n=208	n=8
Ratio	0.36						
Inhalants							
South Hedland	5.9%	16.7 (3.22)	- (-)	2.0%	0.08 days (0.56)	2%	2%
	n=3	n=3	n=0	n=1	n=51	n=51	n=1
Perth metro	12.5%	16.0 (6.33)	16.4 (7.47)	2.9%	0.29 days (2.94)	1.4%	1.4%
	n=26	n=26	n=15	n=6	n=207	n=208	n=3
Ratio	0.47						

Source: AIC DUMA collection 2012–13 [computer file]

a: Only asked those participants who had reported 'ever tried'

b: For drugs, participants were asked when they first used the drugs three or more times a week

c: Detainees not using the drug have been coded as zero days so the average days used in the last 30 days is for the full samples of regional and metropolitan participants.

\*Indicates a statistically significant difference

## Age of first use

The average age at which South Hedland detainees first tried these illicit drugs ranged from around 15 years old for cannabis to 24 years old for heroin. Similarly, the average age at which these illicit drugs were used three or more days a week ranged from almost 16 years of age for cannabis to 25 years for heroin (for one detainee only). Only extremely small numbers of South Hedland detainees used any of these drugs excessively.

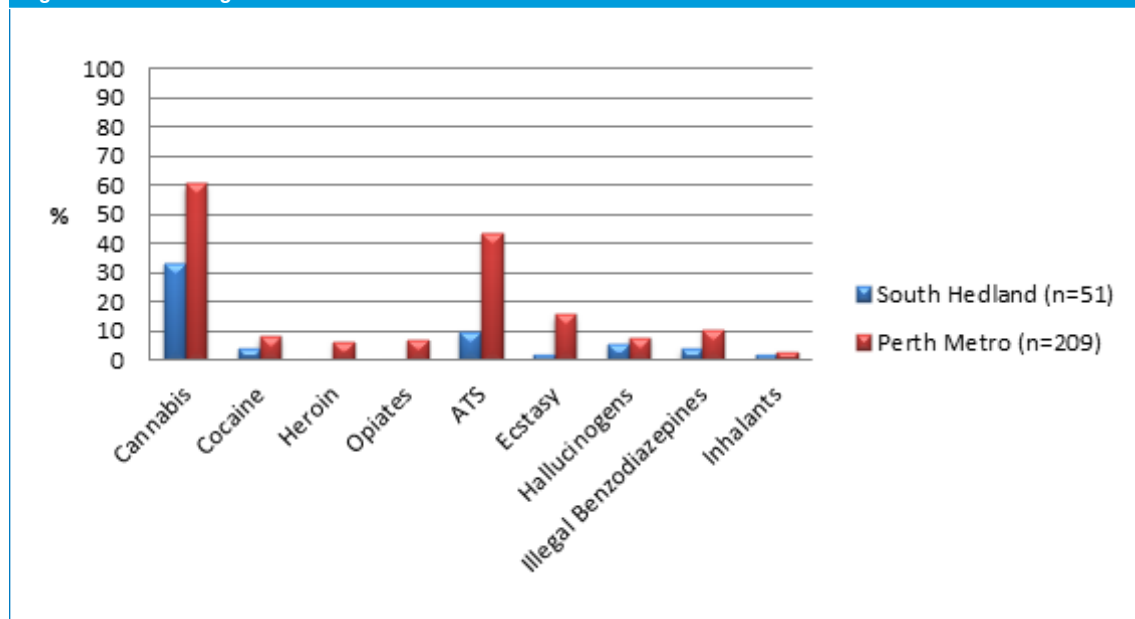
Similarly, Perth metropolitan detainees first tried these illicit drugs at an average age ranging from just over 14 years for cannabis to almost 24 years old for heroin. The average age at which the metropolitan cohort first used these substances excessively ranged from slightly over 15 years of age to just over 25 years of age for opiates. Although the average age of use varied somewhat between the regional and metropolitan samples of detainees a series of t-tests comparing the average ages of detainees, where members of both samples reported using a specific illicit substance, suggested there were no statistically significant differences between sites in the average age of first trying or of excessively using any of the illicit drugs. Age of first use and age of first excessive or regular use is shown in Table 6.

### Used in the last 12 months and 48 hours

If detainees reported they had ever tried illicit drugs, they were subsequently asked if they had used the drug(s) in the previous 12 months. The only illicit drug used by a substantive proportion of the South Hedland detainees in the last 12 months was cannabis (33%; Figure 19). Less than 10 percent of this cohort reported using any other illicit substances.

When compared with Perth detainees' levels of illicit drug use a notable difference was observed, with South Hedland detainees significantly less likely to report using cannabis in the last 12 months (regional 33% vs metropolitan 61%;  $\chi^2[1, N=208]=12.29, p<0.001$ ). Similarly, South Hedland detainees were significantly less likely to have used speed than Perth metropolitan detainees (regional 9.8% vs metropolitan 43.5%;  $\chi^2 [1, N=209]=20.04, p<0.001$ ); and ecstasy (regional 2.0% vs metropolitan 15.9%;  $\chi^2 [1, N=209]=6.99, p=0.008$ ). A Fisher's exact test of independence for opiate use found a marginally significant difference, with seven percent of metropolitan detainees using this drug compared to none of the regional detainees ( $p=0.048$ , FET).

Figure 19. Illicit drug use in the last 12 months



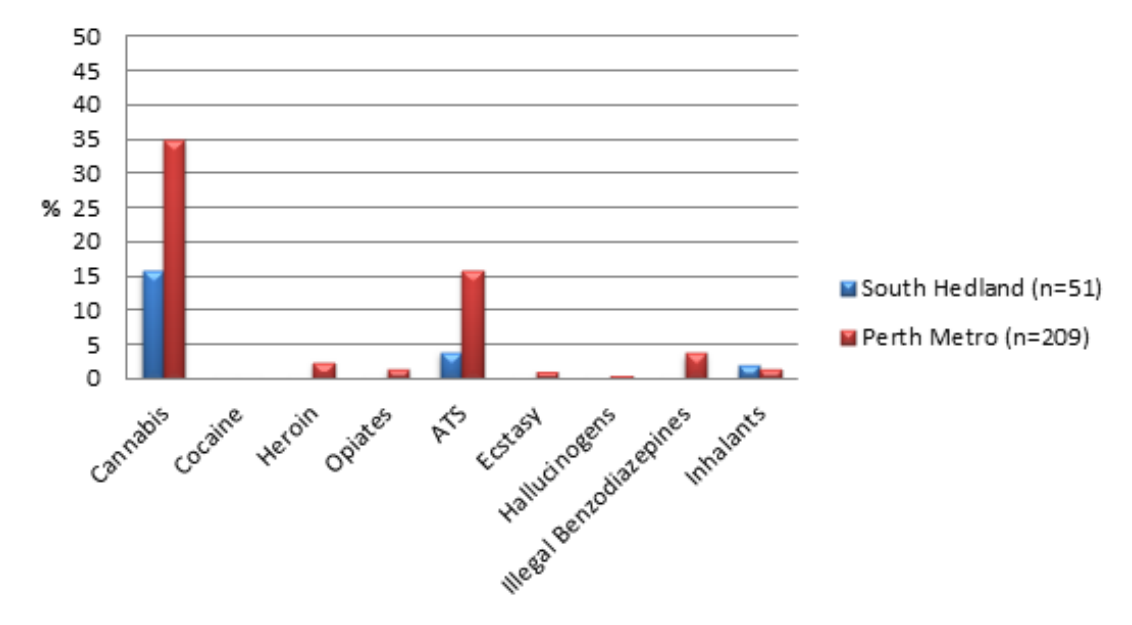
Source: AIC DUMA collection 2012–13 [computer file]

Detainees who reported using illicit drugs in the previous 12 months were asked if they had used that drug in the past 48 hours. As can be seen in Figure 20, illicit drug use among South Hedland detainees was very low overall, with six of the nine illicit substances not used by any detainees, and only between two percent and 16 percent of detainees having used the other three drugs. Cannabis was the main illicit substance this cohort reported using in the last 48 hours.

In contrast, a substantially higher level of use was reported by the Perth metropolitan sample, with just over one third of these detainees (35%) using cannabis and 16 percent using ATS. Cocaine was the only illicit substance none of this sample of detainees reported using within the last 48 hours. A significant difference

was found in cannabis use between samples, with 15.7 percent of South Hedland regional detainees reporting cannabis use in the previous 48 hours compared with 34.9 percent of Perth detainees ( $\chi^2 [1, N=209]=7.08, p=0.007$ ). Metropolitan detainees were also significantly more likely to have used speed in the previous 48 hours than regional detainees (15.9% vs 3.9%;  $\chi^2 [1, N= 209]=4.99, p=0.023$ ). A Fisher's exact test of independence, which suits small and heavily unequal sample sizes as evident in the use of the remaining illicit drugs, found no other significant differences. The overall patterns of illicit substance use in the prior 48 hours observed for both samples, however, suggest the use of illicit drugs is generally more prevalent among Perth detainees than South Hedland detainees (see Figure 20).

**Figure 20. drug use in the preceding 48 hours**



Source: AIC DUMA collection 2012–13 [computer file]

### Frequency of use

To determine frequency of drug use, detainees were asked on how many days during the last 30 days they used a drug. Detainees who stated they had never used the drug or not used it in the last 12 months were coded as having used the drug on zero days in the last 30 days. This allowed the entire cohort of regional and metropolitan detainees to be included in an evaluation of average illicit-drug usage levels for this period. The average number of days the drug was used in the previous 30 days was only calculated for those detainees who reported using it within that timeframe (see Table 6).

As indicated in Table 7, the vast majority of South Hedland regional detainees did not use illicit drugs in the 30 days prior to being detained. Cannabis was drug most commonly used, with use reported by about one quarter of these detainees (26%) on at least one day within the previous 30 days. The number of days the drug was used ranged from none to all 30 days, with an average of 4.7 days for the entire cohort of regional detainees and 14.6 days for those who reported using the drug within the last 12 months. ATS were the next most commonly used drugs, but only six percent of this sample of detainees reported using ATS on at least one day in the previous 30 days. The number of days used ranged from none to 28 days, with an average of 1.1 days for the entire cohort of regional detainees and 11.4 days for those who reported using the drug within the prior 12 months.

The Perth cohort's pattern of illicit drug usage in the previous 30 days was similar, although the proportion of this sample using cannabis and speed during this period was substantially higher. Notably, almost half the detainees (47%) reported using cannabis on at least one day in the previous 30 days and just over two thirds of this sample (68%) reported using ATS on at least one day in the last 30 days. The number of days both of these drugs were used ranged from zero to 30. One in every five metropolitan detainees (20%) used cannabis

on all 30 days, compared with only eight percent of the regional detainees. Heavy use of speed, however, was much lower, with only seven percent of the metropolitan detainees reporting use on all 30 days, while no regional detainees did. There was also a very small number of heavy users of heroin ( $n=3$ ), opiates ( $n=2$ ) and inhalants ( $n=2$ ) among the metropolitan sample.

The data for both cohorts on the average number of days of illicit substance use and drug use in the previous 12 months was heavily skewed; this, combined with the very small sample sizes of regional detainees who used most of these drugs in the previous 12 months, precluded reliable independent sample *t*-testing to establish whether the differences in the frequency of use are statistically significant.

Drug	Regional detainees				Metropolitan detainees			
	Range	% stating zero days	Average days used in last 30 days (all detainees) <sup>ab</sup>	Average days used in last 30 days (users only) <sup>bc</sup>	Range	% stating zero days	Average days used in last 30 days (all detainees) <sup>ab</sup>	Average days used in last 30 days (users only) <sup>bc</sup>
Cannabis	0–30	74.0%	4.68 (10.31) $n=50$	14.6 (13.87) $n=16$	0–30	46.9%	9.31 (12.43) $n=209$	15.3 (12.74) $n=127$
Cocaine	0–2	98.0%	0.02 (0.14) $n=51$	0.5 (0.71) $n=2$	0–2	97.1%	0.03 (0.21) $n=208$	0.5 (0.64) $n=15$
Heroin	0	100.0%	0.00 (0.00) $n=50$	$n=0$	0–30	94.7%	0.64 (4.01) $n=208$	10.3 (13.0) $n=13$
Opiates	0	100.0%	0.00 (0.00) $n=51$	$n=0$	0–30	95.2%	0.43 (3.06) $n=209$	6.0 (10.16) $n=15$
ATS	0–28	94.1%	1.12 (5.49) $n=51$	11.4 (8.40) $n=5$	0–30	68.4%	3.66 (7.97) $n=209$	8.4 (10.32) $n=91$
Ecstasy	0	100.0%	0.00 (0.00) $n=51$	0.00 (-) $n=1$	0–2	95.7%	0.05 (0.27) $n=207$	0.33 (0.60) $n=33$
LSD	0–1	98.0%	0.02 (0.14) $n=51$	0.33 (0.50) $n=3$	0–2	97.6%	0.04 (0.26) $n=209$	0.5 (0.82) $n=16$
Illegal Benzodiazepenes	0	100.0%	0.00 (0.00) $n=51$	0.0 (0.0) $n=2$	0–12	92.8%	0.22 (1.19) $n=208$	2.1 (3.17) $n=22$
Inhalants	0–4	98.0%	0.08 (0.56) $n=51$	4.0 (-) $n=1$	0–30	98.6%	0.29 (2.94) $n=207$	12.2 (16.25) $n=5$

Source: AIC DUMA collection 2012–13 [computer file]

a: Detainees who have never used the drug or not used the drug in last 12 months counted as using the drug zero days in the last 30 days

b: Standard deviation shown in parentheses

c: Average days for only detainees who reported to having used the drug in the last 12 months

## Drug dependency

Those who reported drug use were asked whether they ever felt they needed or were dependent on it. Very few South Hedland regional detainees reported feeling any dependence on illicit substances in the last 12 months. A sense of dependency on cannabis was that most frequently reported, with just over one in every 10 regional detainees (12%) responding positively. For all other drugs, only zero to two percent of detainees reported dependence.

The differences in responses largely reflected different levels of cannabis and ATS use in the two regions. The Chi-square analyses indicated significantly fewer South Hedland detainees reported feeling dependent on cannabis (12%) compared with the Perth metropolitan sample (33%;  $\chi^2 [1, N=260]=8.69, p=0.003$ ); and only two percent of regional detainees, compared with 17 percent of metropolitan detainees, reported feeling dependent on ATS ( $\chi^2 [1, N=260]=7.83, p=0.005$ ). The Fisher's exact tests of independence conducted on the results for other illicit drugs, with much smaller levels of use, revealed no significant differences in perceptions of dependency between the regional and metropolitan samples.

## How drugs contributed to detention

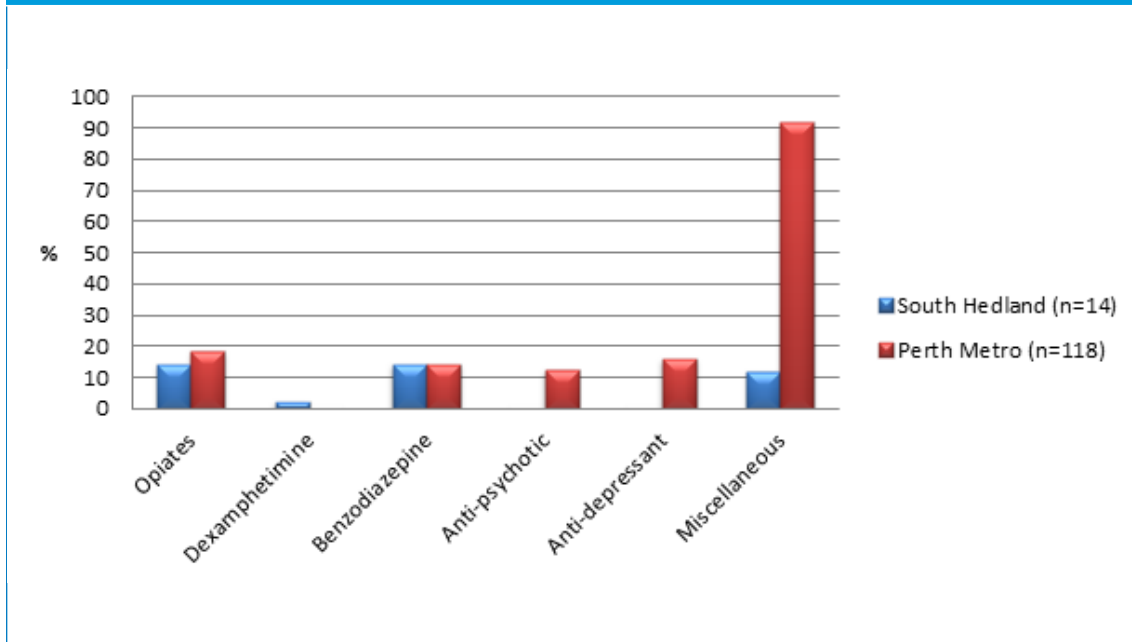
To determine whether the detainees attributed their detention to drug use, those who reported using a substance within the previous 48 hours were asked how much they believed that drug use contributed to the reason for their current detention, and what role the drug played in what had happened. Only very small numbers of regional detainees had used an illicit drug in the prior 48 hours, so these sample sizes are very small. The main drug used by this cohort was cannabis. Of the 14 detainees who reported using this drug in the previous 48 hours, almost two thirds (n=8) believed it had not contributed at all to their current detention; three felt it had contributed a little and only two considered it had contributed a lot (one could not recall).

In contrast, almost eight in every 10 metropolitan detainees (81%; n=90) stated cannabis use had not contributed to their detention, while five percent (n=6) felt it had contributed a little and 13 percent (n=14) felt it had contributed a lot. When the findings for the regional cohort were compared with the findings for the metropolitan sample using Fisher's exact test of independence, where both samples of detainees had used the respective drugs, no significant differences in perceptions between cohorts were detected.

## Licit drug use

Detainees were asked if they had taken any prescription or over-the-counter medications in the prior 30 days. Just over 50 percent of the total sample (120 Perth detainees and 18 South Hedland detainees) reported consuming licit drugs. A Chi-square test of independence revealed a statistically significant difference in illicit drug use between the two samples ( $\chi^2 [1, N=260]=8.46, p=0.004$ ). The Perth detainees (58%) were significantly more likely to have consumed prescription or over-the-counter medication than those in the South Hedland sample (35.5%). Detainees who reported taking licit medications were asked to identify what prescription or over-the-counter medications they had taken in the previous 30 days. The cell sizes were too small to conduct reliable significance tests; however, the categories of licit substances cited are documented in Figure 21.

Figure 21. Types of licit drugs used in the last 30 days



Source: AIC DUMA collection 2012–13 [computer file]

\*Percentages do not total 100% as participants could indicate more than one answer

## Drug use summary

The South Hedland and Perth samples do not differ significantly in terms of the age at which they first tried or excessively used illicit drugs, or in how much they believed the drug had contributed to their current detention. However, South Hedland detainees were significantly less likely to have ever tried all categories of drugs (excluding inhalants) or to have used cannabis and ATS in the prior 12 months and 48 hours. The Perth cohort was also significantly more likely to have used illicit drugs more frequently within the previous 30 days, and to feel dependent on cannabis and ATS, than the regional detainees. South Hedland detainees were also less likely to use licit prescription drugs and over-the-counter medications.

## The South Hedland drug market

To improve understanding of the illicit drug market in South Hedland, regional detainees were asked a series of questions regarding obtaining drugs. This information was limited due to low numbers of drug users in the South Hedland regional cohort. Participants were initially asked to indicate if they had purchased any drugs within the past 30 days, regardless of whether they had used the drug personally. Of the 51 participants, 14 reported buying cannabis in the last 30 days and three reported buying speed. No detainees reported buying cocaine, heroin or ecstasy in the past 30 days in South Hedland sample.

## Ease of purchase

The 14 South Hedland detainees who reported buying cannabis were asked how easy it was to buy compared with three months before. The majority (n=8) believed it was about the same, four participants reported it was easier to obtain, one thought it was harder to obtain and one did not know. When questioned about speed, one respondent thought it was easier to buy than three months before, one thought it was about the same and the other failed to answer.



## Quality of drug

Detainees who reported obtaining drugs were asked about their perceived quality. When asked if they thought the quality of cannabis had changed in the previous three months, two thought the quality was higher, five thought it had stayed the same, one believed it was lower, five thought it had fluctuated and one did not know. When questioned about the quality of speed, one respondent reported its quality had lessened, one thought it had fluctuated and the other failed to answer.

Detainees were also asked how they obtained the drugs. One of the three ATS users refused to answer any questions about the drug market. The other two reported buying from a regular supplier from a house (private residence) in South Hedland. One obtained it on one day, without paying cash; the other reported he had not paid cash in the past 30 days, as it was a previously purchased large amount. These two respondents purchased ATS in the form of ice and did not report using powder, liquid, tablet or other forms of ATS. The responses of the 14 cannabis users to the drug market questions are summarised in Table 7.

## Number of people selling drugs

Detainees were asked if they thought the number of people selling drugs in the area had changed within the previous three months. Six detainees reported an increase in the number of people selling cannabis; two indicated there had been no change; one reported a decrease in sellers; and two did not know. Both ATS users reported the number of dealers had increased in the prior three months.

**Table 8. South Hedland cannabis purchasing methods**

Obtained without cash (n=)	Paid cash (n=)	Type	Form	Amount paid in total	Place	Dealer <sup>1</sup>
10	5	Hydro	1 sachet	\$50	House	Regular
0	3	Hydro	2 foils	\$50	House	Sometimes
0	30	Hydro	1 stick	\$50	House	Sometimes
0	1	Hydro	1 ounce	\$550	House	Never
0	1	Hydro	1 gram	\$50	House	Never
0	2	Hydro	1 bag	\$30	House	Sometimes
30	0	Hydro	3 grams	\$150	House	Regular
0	1	Hydro	1 sachet	\$50	House	Sometimes
0	30	Hydro	1 bag	\$50	House	Regular
30	0	Hydro	1 gram	\$150	House	Regular
0	1	Bush	28 grams	\$400	Delivered	Sometimes
10	5	Hydro	1 sachet	\$50	House	Regular
0	30	Hydro	1 stick	\$50	House	Never

Source: AIC DUMA collection 2012–13 [computer file]

1: Detainee could select dealer used on a regular basis; sometimes (not regular); or never before (first-time purchase)

## Price fluctuations

Detainees were asked if they believed the price of the drug had changed over the previous three months. Of those who answered the cannabis price questions (n=12), six thought the price had increased and six thought the price had stayed the same. No one reported fluctuations or a decrease. When questioned about ATS, both participants reported the price had stayed the same.

## Risk of purchase

Detainees were asked about their perceptions of the risk of being caught by police when purchasing drugs. Four detainees reported that it was very risky, four somewhat risky and three thought it was not very risky; one did not respond. By contrast, most cannabis purchasers (n=8) reported the level of risk involved in buying the drug had remained the same, two believed it was more risky and two did not know. One ATS user believed it was somewhat risky to buy the drug, while the other user thought it was not at all risky; both reported the level of risk had remained constant.

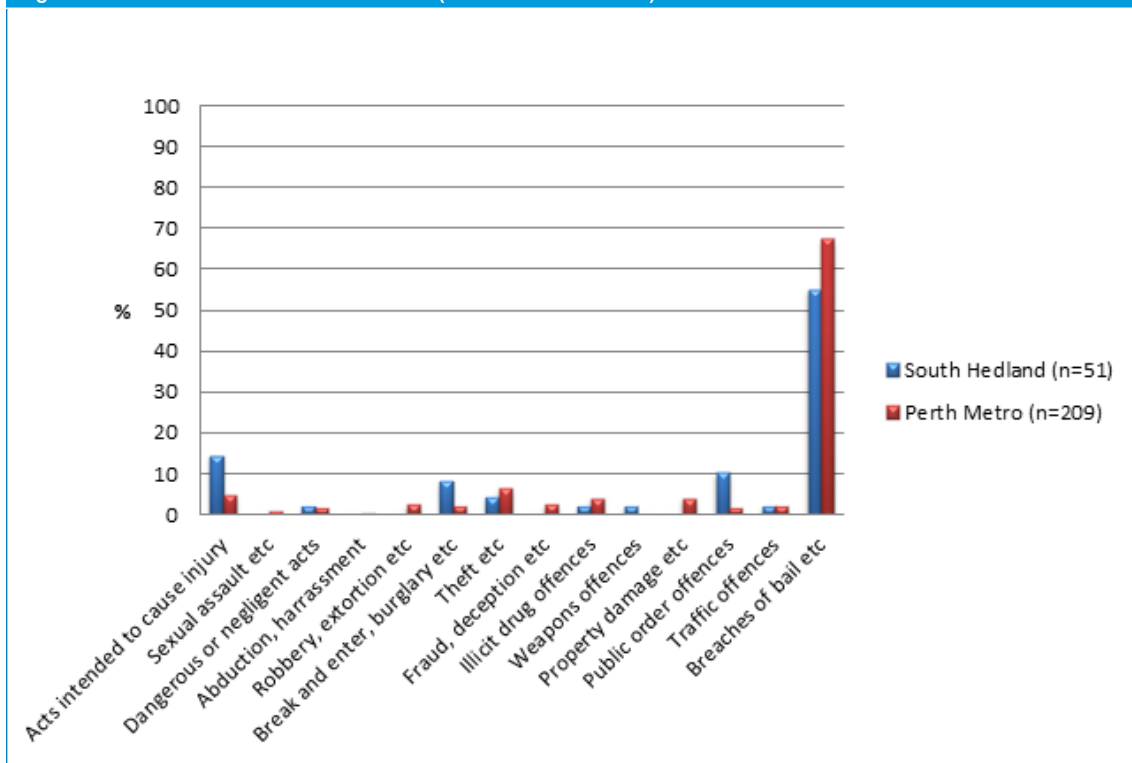
## Ability to purchase

Detainees were asked if at any time in the past 30 days they had tried to buy the drug and had the money to do so, but did not buy any. Only four respondents reported this had occurred. The two amphetamine users did not report being unable to purchase.

## Incidence of detainees' offences

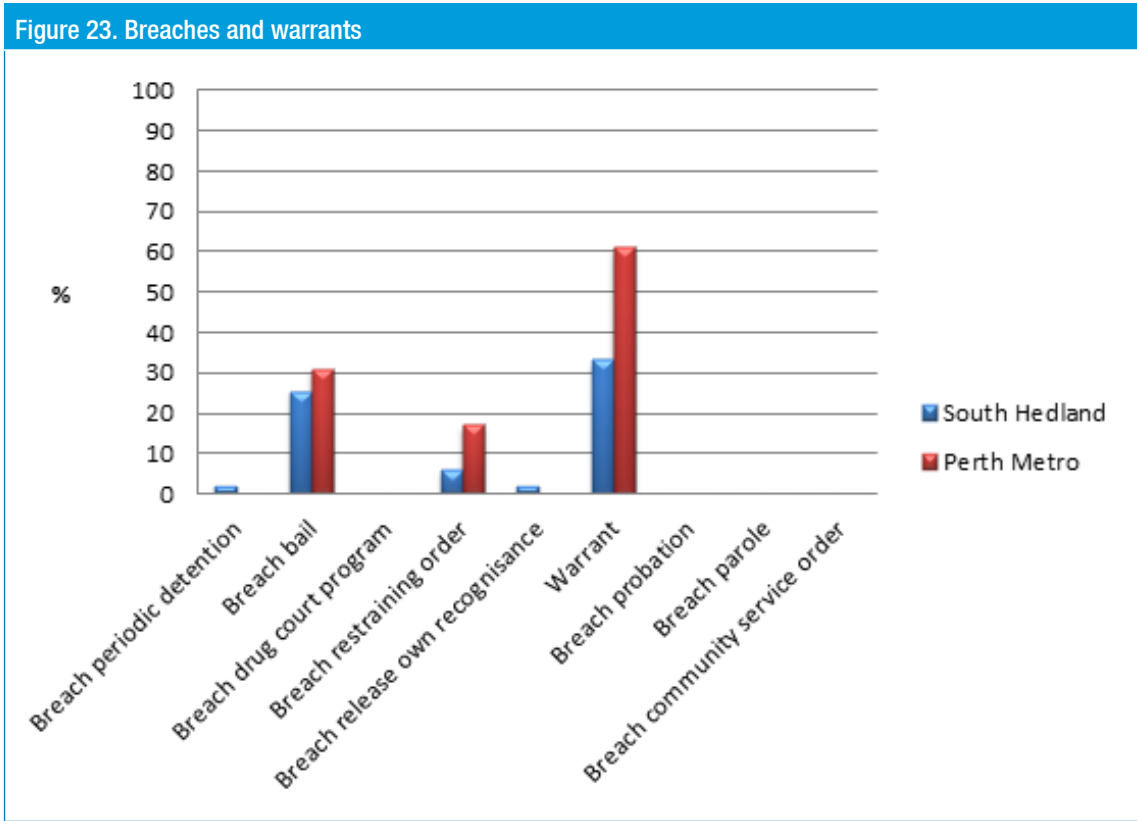
The proportions of South Hedland regional detainees and Perth metropolitan detainees committing the various classes of offences were compared using the standard ANZSOC categories. Chi-square tests of independence were conducted to detect any significant differences in the pattern of offences by regional and metropolitan detainees; however, the differences in the proportion of detainees in each cohort detained for various types of crime were too small for reliable statistical comparison. Most detainees across both samples were detained for offences against justice procedures. The South Hedland sample were most likely to be detained for breaches, followed by acts intended to cause injury, break and enter offences and public order offences (see Figure 22).

Figure 22. Reasons for current detention (most recent offence)



Source: AIC DUMA collection 2012–13 [computer file]

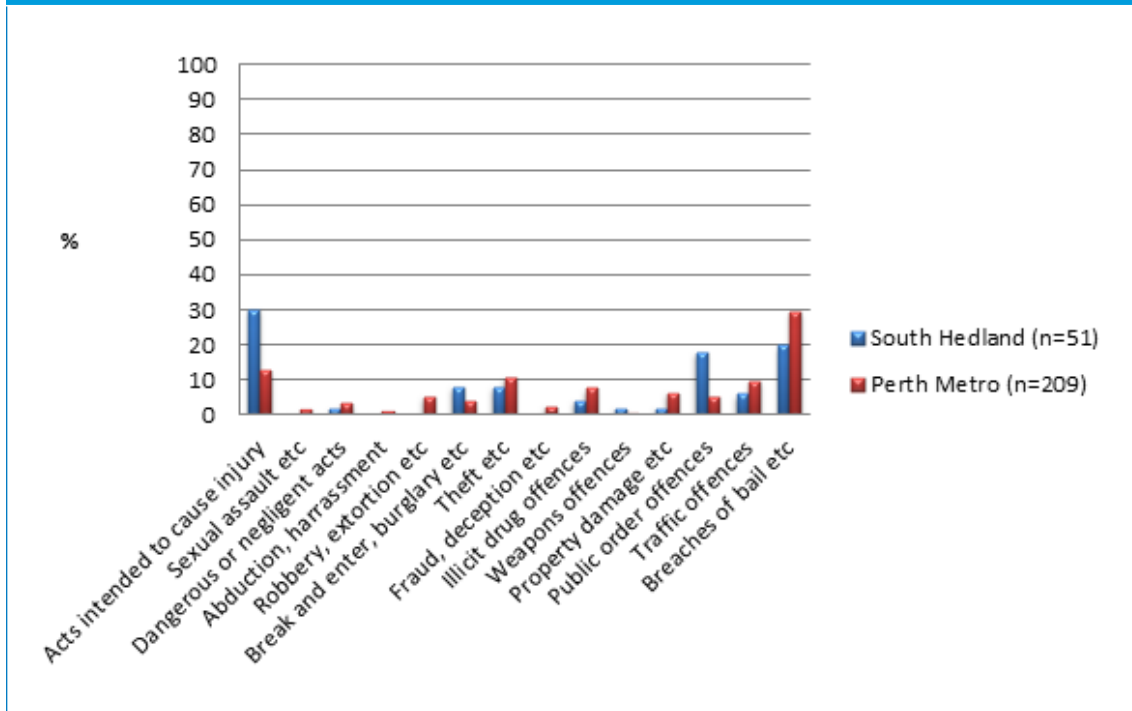
The large number of breaches and warrants was investigated to break down the categories participants were being detained for. There were few differences between the two sites, with both samples more likely to be detained for breaches of bail, breaches of restraining orders and warrant charges, as shown in Figure 23.



Source: AIC DUMA collection 2012–13 [computer file]

The very high incidence of various breaches classified as offences against justice procedures, government security and government operations was considered to be potentially problematic, by preventing the detection of true differences between offence types. It appeared likely that this class of crime could prevent sufficient discrimination between the two samples of detainees, as it essentially camouflaged the original offence for which the participant was detained. For those detainees charged with offences against justice procedures, government security and government operations, therefore, the first offence committed within the previous 12 months was used, where available, in place of this offence.

Figure 24. Crime against government substituted with next available charge



Source: AIC DUMA collection 2012–13 [computer file]

As Figure 24 illustrates, with prior offences substituted for offences against justice breaches where possible, in addition to breaches the South Hedland regional sample had been charged with acts intended to cause injury (30%), public order offences (18%) and break and enter offences (8%). The Perth metropolitan sample had been charged with acts intended to cause injury (10.6%), theft (10.7%), traffic offences (9.7%) and illicit drug offences (7.8%).

## Offence summary

In summary, most of the detainees in the South Hedland and Perth samples were detained for offences against justice procedures. However, when prior offences were substituted for breach offences (presumably breaches related to their original offence), South Hedland detainees were three times more likely to be detained for acts intended to cause injury. The other offences most commonly committed were break and enter offences and public order offences.

## Discussion

Patterns of drug use in detained populations in Australian capital cities have been well established, with the AIC's DUMA program collecting data since 1999. Additional sites in less populated areas such as Alice Springs have been examined but to date no such data has been collected in a regional location in Western Australia. There are demographic differences between outback locations in Western Australia, with a growing number of fly-in fly-out workers, and metropolitan areas. There have also been ongoing reports of alcohol and drug use problems in regional locations. As a result, this project aimed to:

- identify the demographic characteristics of the detained population of a regional mining community in Western Australia (South Hedland) and its patterns of crime, licit and illicit drug use and alcohol use;
- determine the differences between the regional detainee population and the metropolitan; and
- determine whether ongoing DUMA data collection would be sustainable at the South Hedland site.

In addressing these aims, the findings describe the profile of a typical regional detainee, allowing intervention and treatment programs to be tailored to this population and enabling recommendations to be made to government and health organisations.

The samples were drawn from police detainees at the South Hedland Police Station and from the ongoing DUMA collection at East Perth. Detainees who gave informed consent to participation in the study were interviewed during the fourth quarter of 2012 (East Perth), with the same questionnaire used for the South Hedland collection in mid-2013. The sample of 260 detainees provided data via semi-structured, interviewer-administered questionnaires designed to collect self-reported demographic and drug use information. Objective police data (for example detainee's charges, date and time of detention etc) were also recorded for each participant.

### Profile of a South Hedland detainee

The majority of South Hedland detainees were:

- male;
- aged 25–44;
- in a relationship;
- educated to year 10 or less;
- living in someone else's house or apartment (typically provided by Homeswest or housing commission);
- unemployed and not looking for work; and
- nearly two thirds had no dependent children.

This profile does not differ significantly from the Perth profile or the general profile of detainees nationally (Sweeney & Payne 2012) with the exception that South Hedland regional detainees were more likely to be of ATSI descent, to be in a relationship and to live in Homeswest accommodation than Perth detainees.

The demand for housing in the Pilbara has increased; this has been attributed to the presence of FIFO workers and an increase in population and wages (ABS 2009). The average cost of new residential buildings in the Pilbara, based on approvals, increased significantly from \$134,929 to \$415,549 between 2001 and 2007, making it difficult for those without employment to find quality rental properties or affordable housing.

The Pilbara is currently experiencing economic growth due to the resource sector. There are more males in the region (ABS 2009) and personal income levels have grown markedly. Generally, unemployment has fallen and the proportion of the population with tertiary qualifications has increased. The biggest increase has been in the proportion of the population holding certificate qualifications, which could be due to the growing demand for

skilled labour in the Pilbara (ABS 2009). Although this could have resulted in better outcomes generally for the South Hedland region, the South Hedland detainees were mostly unemployed and this economic growth was not reflected in the mostly Indigenous sample.

The higher number of ATSI than non-ATSI detainees in both samples supports previous findings that recognise ATSI populations as over-represented in the criminal justice system (Walker & McDonald 1995; Allard 2010; AIHW 2013a; AIHW 2013b). Recently, the Australian Institute of Health and Welfare (2013b) found that more than one in four imprisoned Australians were of ATSI descent, and imprisoned at 15 times the rate of non-ATSI Australians. ATSI detainees made up 76.5 percent of those interviewed in South Hedland whereas ATSI detainees made up just 31.6 percent of those interviewed in Perth. It was initially thought the significant difference in the number of ATSI detainees between South Hedland and Perth could be attributed to the demographics of the areas; however, in relation to the make-up of the Pilbara populace (16% ATSI) and the greater Perth populace, (which contains 38.9 percent of the state's ATSI people) it shows a vast over-representation of ATSI detainees in South Hedland (ABS 2012b). Although the over-representation of ATSI detainees in police custody and the broader criminal justice system is not a new issue, it raises concerns as to the factors contributing to this over-representation in South Hedland.

The Western Australian Department of the Attorney General (DoTAG) were interested in whether regional detainees possessed birth certificates. Nearly half of the South Hedland detainees (40%) did not have a birth certificate, and two percent did not know whether they had been issued one. Many ATSI people cannot easily obtain a driver's licence as they do not have a birth certificate for identification; it could therefore be surmised that this contributes to driving offences, including driving without a valid licence. Further investigation into the absence of official birth certificates in regional populations is necessary.

## Patterns of alcohol use

This study indicates the South Hedland regional cohort were significantly more likely than the Perth cohort to have consumed alcohol in the previous 48 hours, to have consumed alcohol more frequently and to have consumed alcohol at higher levels. This supports evidence that patterns of alcohol consumption differ between the South Hedland and Perth samples. The small number of women in the South Hedland cohort reported drinking a high number of standard drinks.

The presence of risky drinking behaviour can impact on home life, health, emergency and police resources (Collins & Lapsley 2008). Alcohol-related harm to both the individual and society is well-documented (Homel, McIlwain & Carvolth 2004; Nutt, King & Phillips 2010); identifying the alcohol consumption patterns of individuals and samples is therefore necessary to effective public health policy and practice, especially in guiding preventative and therapeutic interventions (Berry, Pidd, Roche & Harrison 2007). The National Health and Medical Research Council (NHMRC) has developed a standard drink measurement to enable individuals to monitor alcohol consumption. This defines a standard drink as 10 grams of alcohol and recommends that men and women drink no more than two standard drinks on any given day to reduce the lifetime risk of disease or injury. In addition, the NHMRC recommends that men and women do not drink more than four standard drinks on a single occasion to reduce the risk of an alcohol-related accident or injury.

Alcohol consumption in the Pilbara increased between 2001 and 2005 by 4.6 litres to 21.6 litres per person over 15 years of age per annum (ABS 2009). This project found the majority of both the South Hedland and Perth samples reported consuming alcohol in the previous 30 days. Detainees in South Hedland reported rates of alcohol consumption that constitute increased risk of harm on a single occasion (more than 4 standard drinks) and an increased risk of lifetime harm.

Approximately one fifth of the detainees (22% in South Hedland and 18.4% in Perth) had been hospitalised or sought medical treatment in the previous year for issues relating to their alcohol use. Detainees were asked, how much they thought alcohol consumption had contributed to the main reason for their detention. South Hedland detainees (54.5%) were 2.6 times more likely to state they thought alcohol contributed a lot to their offence than the metropolitan cohort (20.7%). Metropolitan detainees (68.3%) were two times

more likely to state they did not think alcohol contributed at all their offence than South Hedland detainees (31.4%). This may be partly due to higher rates of alcohol consumption among the South Hedland sample than the metropolitan; it does offer some insight, however, and has implications for treatment. South Hedland detainees were more likely to have consumed alcohol in the 30 days, and 48 hours, prior to their detention. They were more likely to be drinking full-strength beer, and consumed more standard drinks the last time they consumed alcohol than the Perth detainees. They were slightly more likely to have sought treatment for their alcohol use and to believe that alcohol had contributed to their current detention.

Although the number of women in both samples was small, their levels of alcohol consumption are of serious concern. The presence of Fetal Alcohol Syndrome or Fetal Alcohol Syndrome Disorder (FASD) was not measured or investigated as part of this study; however, Australian data are consistent with overseas research indicating Indigenous children are at considerably higher risk of FASD than non-Indigenous children (Payne et al. 2005). No assumptions can be made about the female participants in this study; however, the rates of alcohol consumption of the women in this research underscore the need to ensure women, families, health workers and the wider community are informed about the consequences of alcohol use in pregnancy (Payne et al. 2005).

Another concern related to the high rates of alcohol consumption by the South Hedland sample is the possible impact on immediate family members (Nutt et al. 2010; Reich 1997). It has been suggested that parents model drinking habits and their behaviour is copied by subsequent generations (Lyter & Lyter 2008; Thomas & Schlander 1996). Parents create a normative framework for consumption when they express opinions and set boundaries for alcohol use (Mares, Lichtwarck-Aschoff & Engels 2013). This framework initially acts as an external controller, but over time adolescents internalise the values and norms (Zimmer-Gembeck & Collins 2006). Moreover, the social learning model (Bandura 1986) shows parental alcohol use affects the acceptance of substance use by children and adolescents.

Most detainees in both samples had tried alcohol, and most had obtained alcohol prior to the legal drinking age. This finding is similar to research investigating alcohol consumption patterns among the general population (AIHW 2010). On average the Perth sample had tried alcohol at a slightly younger age, but the South Hedland sample was more likely to have consumed five drinks (males) or three drinks (females) or more on the same day at a slightly younger age. The South Hedland sample was more likely to have consumed more than the recommended amount of alcohol (4 standard drinks) at one time in the previous year. This is similar to the NHSDS findings, which indicate many individuals surveyed are consuming alcohol at levels the NHMRC advises are risky. These patterns of early alcohol use reflect Australia's widely accepted drinking culture (AIHW 2001) and support the need for early alcohol education and harm-minimisation campaigns.

The South Hedland cohort consumed more beer than any other type of alcohol, whereas the Perth sample reported consuming either beer or spirits the last time they drank. However, more than a quarter of detainees at both sites reported consuming more than one type of alcoholic beverage when they last drank. Furthermore, just six Perth detainees of all those surveyed reported drinking mid-strength beer the last time they drank alcohol, and no detainee at either site reported drinking light beer. The choice of alcohol strength has important implications for intoxication and influences the likelihood of individuals to commit offences while under the influence of alcohol (Nutt et al. 2010). These findings suggest further research to understand how detainees choose what alcohol they drink, and why mid-strength and light beers are particularly unpopular, is required. The findings also highlight the need to further investigate both supply and demand reduction strategies to assist in reducing the harmful use of alcohol in the Pilbara.

As in other Australian jurisdictions, the police (specifically the WA Police Licensing Enforcement Division) are responsible for regulating the supply of alcohol in partnership with the licensing authorities. Strict regulations are imposed on licensees and operators of licensed premises in an attempt to minimise the harms associated with high levels of drinking (Doherty & Roche 2003; Fleming 2008). Liquor-licensing laws prescribe sanctions and punishments (through fines and/or deregulation) to deter licensees and bar staff from breaching legislation and serving excessive amounts of alcohol to intoxicated patrons. The role of police in enforcing these regulations is particularly important in deterring excessive consumption and binge drinking.

These strategies are restricted to controlling alcohol consumption in licensed venues; they are effective if alcohol is being consumed on the premises. The two samples in this study reported low levels of drinking in licensed venues at their last drinking session. Holloway, Jayne and Valentine (2008) discuss the importance of investigating drinking in the domestic sphere, as policy and legislative debate was too focused on drinking in public places. The findings of this study support widening public policy on alcohol to address use in domestic spheres, as most detainees reported they last drank alcohol at home, at the residence of a family member or friend, or in a park or public place (over 93% at both sites). South Hedland detainees were significantly more likely to consume alcohol in a park or public place (38.1% vs 11%), with results revealing only 6.8 percent of South Hedland had consumed their last drink in a licensed venue. Perth metropolitan detainees were significantly more likely to consume alcohol at home (47% vs 22.7%).

Previous research has investigated alcohol consumption outside licensed venues, specifically revealing that 'pre-drinking' is becoming common among young adults both nationally and internationally (Wells, Graham & Purcell 2009). Pre-drinking or 'pre-loading' refers to planned heavy drinking, usually at home or someone else's home, prior to attending a social event. The practice has been attributed to a desire to become intoxicated and extend the evening, reduce social anxiety and bond with friends before going out, and avoid high drink prices at licensed premises. Wells, Graham and Purcell (2009) therefore argue that policies focused on reducing drinking at licensed premises may have the unintended consequence of displacing drinking to pre-drinking environments, possibly resulting in greater harms.

In Western Australia, drinking precincts are homogenised in central 'pubbing' and 'clubbing' areas. Alcohol can be expensive, and travel to and from venues adds to the overall cost of a night out. People do not have to go into town centres to socialise, as drinking in residential locations is common (Newburn & Shiner 2001; Holloway et al. 2008). The drinking patterns of detainees across both sites support previous findings that domestic drinking is a widespread, socially sanctioned practice, shaped by diverse social relations (Holloway, Jayne & Valentine 2008). Although alcohol-related issues in licensed venues and entertainment precincts remain an important topic, the legislation, policing and monitoring of alcohol use within the home and in public locations is a contemporary and complex social and policing dilemma worthy of further research. South Hedland detainees were more likely to consume alcohol in public places, which could have implications for policing, but tighter policing control may have the unintended consequence of increasing the number of South Hedland residents in detention. Identifying appropriate policing initiatives that contribute to more responsible and healthier drinking patterns appears to be a necessary area of investigation for future research.

## Patterns of drug use

This survey gathered information on a sample of detainees from one regional remote location and tracked how their drug use was different from an urban cohort's. While the number of drug users in this sample was lower than in the Perth cohort, the use of drugs of concern (ie alcohol, cannabis and amphetamine) generally followed a pattern similar to the general West Australian trend (AIHW 2011). Overall, while South Hedland detainees were more likely to record higher levels of alcohol consumption than the Perth cohort, they were less likely to consume illicit drugs. ATSI Australians constitute a small minority of the total Australian population, and only large-scale surveys would elicit large enough samples to make robust estimates of their illicit drug use (Putt & Delahunty 2006). The small number of Indigenous Australians in these samples does not allow a robust interpretation of findings on the prevalence of illicit drug use in detainees, or their generalisation to the wider population. This is consistent with other research which has identified logistic problems in gaining reliable information about illicit drug use in regional Indigenous communities.

The drug most commonly used by detainees in the past 12 months was cannabis, with approximately one third of South Hedland detainees reporting this. Of these, 15.7 percent also reported using cannabis in the previous 48 hours. There were no reports of heroin or opiate use, and low numbers of individuals reporting the use of cocaine, ecstasy and inhalants. These lower levels of the use of drugs other than cannabis may be due to a preference for alcohol and cannabis in this population, or to the lack of availability of those drugs in more



remote parts of the Pilbara. South Hedland detainees were also significantly less likely than Perth detainees to report feeling dependent on illicit drugs, and generally were less likely to believe drugs had contributed significantly to their detention.

Of the 51 South Hedland detainees interviewed, 14 had purchased cannabis and three reported buying ATS. Of the 14 South Hedland detainees who reported obtaining cannabis in the prior 30 days, four reported they had obtained it without cash. There was a general perception by the majority (n=8) of those who had bought either cannabis or ATS that the number of dealers had increased in the past three months—although two indicated no change, one a decrease of available dealers and two did not know. This may be because most users have a regular dealer. Over half the South Hedland sample believed the price of drugs had remained stable, although another six reported the price of cannabis had risen.

South Hedland regional detainees generally reported buying hydro cannabis, with only one report of purchasing bush. The two respondents who purchased ATS bought ice and did not report using powder, liquid, tablet or other forms of ATS. Detainees were also asked how much of the drug they purchased the last time they bought cannabis; their responses were recorded verbatim. They identified several units of measurement: sachet, stick, ounce, gram and foil. While one participant reported buying 28 grams, eight detainees reported buying only one unit of cannabis; one detainee reported two; and one detainee reported purchasing three units of the drug. This indicates that, with the exception of one detainee, participants generally bought small amounts of the drug at any one time. The price of drugs was difficult to determine as participants often discussed different measurements and quantities of the drugs (for example, a stick of cannabis or a cone). Seven of the 13 detainees reported paying \$50 for the quantity of cannabis they purchased. South Hedland regional detainees were also significantly less likely than Perth metropolitan detainees to have used licit prescription drugs or over-the-counter medications in the previous 30 days. Just over a third reported using licit drugs, categorised as opiates, benzodiazepines and miscellaneous over-the-counter medications.

In terms of polydrug use among the South Hedland detainees, 15 reported using alcohol and cannabis in the prior 30 days and three reported using alcohol, cannabis and ATS (35.3% of all detainees). Observed patterns of polysubstance use do not differ from the national profile of detainees, with nearly a third of detainees reporting using two or more drugs in the 30 days prior to being detained (Sweeney & Payne 2011). The current project found the majority of South Hedland detainees did not take illicit drugs within the previous 30 days. They were significantly less likely than the Perth detainees to have used both cannabis and ATS and, although the sample sizes were too small for meaningful comparisons, they were less likely to use heroin, opiates, ecstasy and illegal benzodiazepines. It is difficult to make conclusions about the nature and size of the local illicit drug market with only 14 detainees using cannabis and three using ATS, one of whom refused to answer most of the drug market grid questions. However, methods of obtaining illicit drugs were varied. Some detainees preferred one or two regular suppliers, and a few had tried a new supplier. The South Hedland detainees usually paid cash for hydro cannabis and bought relatively small quantities from a private residence. Given the higher rates of cannabis use in comparison to other drug use in the South Hedland detainee population, it was not surprising that polydrug use was mostly confined to cannabis and alcohol. The lower levels of recent illicit drug use (cocaine, heroin, opiates, ecstasy, illegal benzodiazepines and inhalants) reported may indicate these types of drugs were not a significant problem within the South Hedland detainee population in this collection period, or simply that they were not present in this detained sample at this time. The small numbers of participants cannot be generalised to the wider community and should be interpreted with consideration for other research that demonstrates a trend of heavy use of cannabis and increasing levels of amphetamine use (Putt & Delahunty 2006). The lower levels of illicit drug use reported should be explored further, as this collection was limited to one collection period; the small sample size did not capture the specific demographics of the Pilbara population. This does not diminish the reported need for drug-specific services in the Pilbara (Walker et al. 2013), nor does it minimise the challenges for police involved in reducing drug-related harm and supply to remote regions (Putt & Delahunty 2006).

## Alcohol, drugs & crime

The majority of detainees at both sites were detained for breaching some previously imposed condition or order. A breakdown of the breaches and warrants indicates the majority of detainees were breaching bail, restraining orders and/or warrants. Breaching bail often includes noncompliance with some type of conditional order, such as not reporting to a supervising case manager. To determine what was behind the breach and resulting detention, the detainee's prior offence was substituted; this further clarified the detainee's crime. Nearly a third (30%) of South Hedland detainees had been charged with committing acts to cause injury (compared to 12.6% of Perth metropolitan detainees), break and enter crimes (8% compared with 3.9%) and public order offences (18% compared with 5.3%).

Over half (57%) the South Hedland detainees reported having consumed alcohol in the 48 hours prior to their detention; the higher rate of acts intended to cause injury and public order offences among these detainees may be aligned with the psychopharmacological model of criminal behaviour (Goldstein 1985; Boyum & Kleinman 2003). Goldstein (1985) argued that taking drugs has a direct effect on individuals, who may become irrational, excitable or display violent behaviour due to the ingestion of the drug. Furthermore, intoxication can also result in loss of inhibition, cognitive-perceptual distortions and bad judgement (White & Gorman 2000). These elements of intoxication are linked to impulsivity and the inability to foresee consequences, which can also facilitate criminal behaviour (Bennett & Holloway 2005). However, there are usually moderating and/or mediating factors linking drugs to violent behaviour. These indirect social or environmental factors are influenced by where the drug use or crime takes place. For many South Hedland regional detainees, drug use (mostly of alcohol) usually took place in a public place or the home of family or friends. This suggests that alcohol consumption is within a social and social context. However, parks and public places are generally highly visible places where a user may be at greater risk of being apprehended for criminal activity, whereas violent behaviour in a private residence is less likely to be detected or reported.

Violent behaviour has also been linked with competition for drug territories and with enforcing payment of drug debts (systemic crime); in particular, there is the potential for violence to occur between buyers and sellers. Findings for this small group of users cannot be generalised to the wider community, but the lack of difficulty in obtaining drugs reported by South Hedland detainees suggests that drug market violence may be less of a problem for this sample. Furthermore, the most common substance reportedly used is alcohol, which is both legal and available. Consistent with the findings of Boyum and Kleiman (2003), the types of offences reported indicate that detainees' behaviour may have been affected by intoxication, weakening their self-control, inhibitions and foresight. The high number of breach offences across both sites could also be attributed to these factors.

Further restrictions on alcohol purchasing may reduce alcohol-related crime and violence in this region. However, this supply-reduction approach is more effective when used with demand reduction as part of an overall strategy. Without consultation and a multifaceted approach it could be viewed as another 'white' imposition on Indigenous people (Calladine 2009). Restrictions must have community support, with clearly agreed roles, for controlling daily alcohol consumption (Gray, Saggars, Sputore & Burbon 2000). Health professionals in the Pilbara view substance abuse as associated with 'diverse social factors such as boredom, lost roles, dispossession, despair, role modelling, low socioeconomic status, family dysfunction and mental health issues' (Walker, Stomski, Price & Jackson-Barrett 2013: 2). A holistic approach should therefore be considered, as restricting alcohol without addressing the underlying causes may be viewed as simplistic and ineffective (Calladine 2009). Furthermore, the town of South Hedland is not populated by one particular group of people; without community support, enforcing alcohol restrictions on all residents of South Hedland and surrounding areas would be difficult.

## Viability of the South Hedland site

South Hedland appears to be a suitable site for regional DUMA data collection in Western Australia, with adequate numbers processed through the watch house, a location that allows for effective and confidential detainee interviews, and local police willing to facilitate and cooperate with the project. The use of local interviewers trained to use the DUMA instrument would reduce the high costs associated with accommodation and flights to the region, and allow better monitoring of patterns and trends over time.

## Conclusion

This project aimed to establish the demographic characteristics and patterns of crime, drug and alcohol use in a sample of detainees in South Hedland by utilising the AIC's DUMA project, which provided an established methodology with consistently reliable results, to collect data. South Hedland detainees were likely to be:

- male;
- Aboriginal and/or Torres Strait Islander;
- aged approximately 32 years;
- educated to year 10 or less;
- married or in a de facto relationship;
- living in someone's Homeswest or housing commission house or apartment; and
- unemployed.

They did not differ substantially from the Perth sample with the exceptions of marital, residential and Indigenous status.

In terms of substance use, the South Hedland regional detainee sample was similar to the Perth metropolitan group in age at first alcohol use, age at first excessive consumption of alcohol, and excessive use of alcohol within the past year. However, regional detainees were significantly more likely to report alcohol use in the previous 48 hours, to use alcohol more frequently within the previous month and to consume a larger amount of alcohol the last time they drank. They were also more likely to attribute their current detention to alcohol use. While South Hedland detainees reported a higher level of alcohol use, they were less likely to have ever tried all categories of drugs (excluding inhalants) and less likely to have used illicit drugs in the prior 12 months and 48 hours. Alcohol, which is both legal and available, was the substance most used by South Hedland detainees.

The study found offences against justice procedures (breaches) were the most common reason for detention. Further investigation of the reasons for and consequences of breaching conditions in both regions is needed. There may be a way to facilitate bail or release orders to prevent re-presentation to detention centres; additional exploration of this area may provide vital clues to why so many participants are detained for breaches and warrants.

When the detainee's last recorded offence—presumably the offence to which their breach related—was substituted for the breach offence for which they were detained, South Hedland regional detainees were most likely to have been detained for acts intended to cause injury, break and enter offences and public order offences. Given the higher frequency and levels of alcohol consumption, and that South Hedland detainees were more likely to believe alcohol had contributed to their current detention, it is not unreasonable to link these offences to alcohol use. Cannabis was the drug with the next highest reported usage, with relatively few detainees reporting recent use of any other category of drug.

Information about the cannabis market was obtained successfully; however, due to the small number of South Hedland detainees reporting drug use, it was difficult to draw conclusions on the Pilbara drug market. Those who reported using cannabis usually paid cash, used hydro, and generally purchased small amounts from regular dealers. The low level of reported illicit drug use should be explored further, as this collection was limited to one period; the findings do not diminish the reported need for drug-specific services in the Pilbara nor minimise the challenges for police in reducing supply to remote areas and drug-related harms. The small sample did not capture the population of fly-in fly-out workers in the Pilbara, which is where the problem may be concentrated. This could be investigated in future research.

While there are reports that detected drug crime has increased in the Pilbara in recent years, the study found that the South Hedland regional sample presented some demographic differences to the Perth metropolitan

region, with higher levels of recent alcohol use and lower levels of illicit drug use. South Hedland detainees were also more likely to commit crimes against the person and public order offences, both of which have been linked to substance use. The findings suggest a holistic approach to dealing with the Pilbara's higher levels of substance use should be continued, with a focus on reducing demand through treatment and interventions, reducing the supply of alcohol through possible restrictions, and minimising the harm of high levels of alcohol use through education suitable for a largely Indigenous cohort.

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