

What do police data tell us about criminal methods of obtaining prescription drugs?

Laura Rodwell, Clare Ringland and Deborah Bradford

Recent reports suggest that the illicit use of prescription medicines, particularly pharmaceutical opioids (e.g. oxycodone), is increasing in Australia. This raises questions about how these drugs are channelled out of the medical system for unsanctioned use. The aim of the current study was to use police data to examine: (a) whether this increase is reflected in police crime data; (b) some of the criminal methods by which these medicines are obtained; and (c) which particular medicines have been most commonly sought through these methods over time. NSW Police Force narratives for events related to prescription drugs reported between 1995 and 2007 were reviewed. The offences of interest included: theft of prescription forms/pads, the presentation of forged or altered prescriptions to pharmacies, and theft of prescription drugs. Characteristics of the offences, including the types of medicines requested or stolen, were examined. The drugs most frequently sought through prescription fraud were benzodiazepines. However, in 2007 the most frequently sought drug was oxycodone. In relation to thefts, pharmacies were the most targeted premises type with opioids and benzodiazepines the most frequently stolen medicines. In 2004 and 2007 oxycodone appeared as one of the top five drugs obtained. This analysis of police data showed that a proportion of prescription drugs are diverted out of the medical system through fraud and theft-related offences and that offences involving oxycodone have increased in recent years. However, the overall number of police events related to prescription drugs was low, indicating that police data may not capture some of the key methods, such as prescription-shopping, by which prescription medicines are obtained for illicit use.

Keywords: prescription medicines, police data, illicit diversion, prescription fraud, opioids

INTRODUCTION

There is increasing concern among health and law enforcement agencies regarding the diversion of prescription opioids into the illicit drugs market (The Royal Australasian College of Physicians (RACP) 2009). This concern is primarily in response to the substantial increase in oxycodone supply over the last decade, and the growing suspicion that a significant proportion of this increase is related to illicitly obtained medicines. In 2007, Australia ranked fourth in oxycodone consumption per capita behind the United States, Canada and Denmark (International Narcotics Control Board 2008) and between 2001

and 2007, the total oxycodone base supply increased 10-fold in Australia (RACP 2009). These increases are likely due, in part, to increases in valid medical prescriptions related to an ageing and increasingly medication literate population, as well as changes in prescribing practices. There is, however, evidence that these increases also relate to the diversion of these drugs out of the medical system into the illicit drug market for non-medical consumption (Australian Institute of Health and Welfare (AIHW) 2008; RACP 2009; Stafford, Sindich & Burns 2009). This is highlighted in recent media reports outlining the arrest, in late 2008, of a woman from rural NSW for offences relating to the illegal supply of

approximately 2,500 oxycodone tablets, which she obtained through 'doctor-shopping' for prescriptions from various practitioners (Fife-Yeomans 2008).

WHAT ARE PRESCRIPTION OPIOIDS?

The primary medical use of both opiates and opioids is to provide relief for moderate to severe pain, particularly in the situation where less potent analgesics, such as paracetamol or non-steroidal anti-inflammatory drugs (NSAIDs) have not been effective (National Prescribing Service (NPS) 2006). While opiates are derived directly from the opium poppy, opioids

are drugs that have similar actions but are largely of a synthetic or semi-synthetic form. Morphine and codeine are examples of opiates. Examples of opioids include pethidine, oxycodone, fentanyl and methadone, as well as the illicit drug heroin (RACP 2009; National Drug and Alcohol Research Centre n.d.). In Australia, the majority of prescription opioids, as well as morphine are registered as drugs of addiction, or Schedule 8 drugs, which are governed by strict guidelines regarding appropriate prescribing and storage practices (*Poisons and Therapeutic Goods Act 1966*).

In recent years, the development of controlled release (i.e. longer acting) formulation prescription opioids/opiates such as oxycodone and morphine has enhanced the safety and efficacy of these drugs when they are taken in an appropriate therapeutic manner (i.e. ingested orally as prescribed by a medical practitioner) (RACP 2009). However, these sustained release tablets can be crushed for the purposes of snorting or dissolved in water and injected. These methods of administration override the controlled release mechanisms leading to rapid absorption of a large drug dose that would normally be delivered over many hours (National Drug Intelligence Center 2001).

ILLICIT USE OF PRESCRIPTION OPIOIDS

Australia

In late 2000 in Australia, the well-documented heroin drought occurred (Day et al. 2003). This raised questions around whether individuals who nominated heroin as their drug of choice would use other drugs as substitutes in light of the lack of available heroin. Evidence suggests that some heroin users took up cocaine and amphetamines (Degenhardt et al. 2005), while others increased benzodiazepine use (Day et al. 2003) during this period. The illicit use of prescription opioids also appears to have become an alternative for some individuals (Black et al. 2008). For example, data from an evaluation of the Sydney Medically Supervised Injecting

Centre (MSIC)¹ suggested that, from July 2005, there was an increasing trend in the proportion of injections involving pharmaceutical opioids and a decline in visits to inject heroin (National Centre in HIV Epidemiology and Clinical Research 2007). In fact, by early 2008 the percentage of all injections at the MSIC involving pharmaceutical opioids exceeded those involving heroin (Face Up 2009). These findings indicate that the use of pharmaceutical opioids has increased in recent years amongst some injecting drug users; however the extent to which this is related to the heroin shortage or to the increasing availability of these medicines is currently unclear.

While these data provide some evidence that prescription opioids are being used illegitimately, it is difficult to determine the extent to which these medicines are used for non-medical purposes. Some evidence of illicit use of these medicines among injecting drug using populations can be obtained from the Illicit Drugs Reporting System (IDRS), an annual survey of a sentinel group of approximately 1,000 injecting drug users carried out in the capital cities of Australia. The latest IDRS findings revealed that 27 per cent of those surveyed in NSW reported having used illicitly obtained oxycodone recently (i.e. in the six months preceding the interview) (Stafford et al. 2009). Reported 'licit' use of oxycodone, which relates to the individual obtaining a script directly from a doctor, not necessarily for legitimate symptoms, was reported by seven per cent of the sample. In total, 31 per cent of respondents in 2008 reported recent use of oxycodone and the majority of respondents indicated that oxycodone was either 'easy' or 'very easy' to obtain. Of the same sample, 31 per cent indicated they had recently used illicit morphine and 24 per cent reported recent use of illicit methadone (Stafford et al. 2009).

One limitation of the IDRS is that it is an opportunistic sample of injecting drug users based in the capital cities of Australia and estimates of prescription drug misuse cannot be extrapolated to the general population. The 2007 Australian

National Drug Strategy Household Survey (NDSHS, AIHW 2008) estimated that 2.5 per cent of the population have used pain killers or analgesics (e.g. codeine based drugs including Panadeine Forte®, Mersyndol®) for non-medical use in the 12 months leading up to the survey, while 0.2 per cent reported using opioids or opiates (e.g. morphine and pethidine)². While the proportion of respondents reporting use of opioids/opiates has remained stable since 2004, other markers of problematic pharmaceutical opioid use in the population have shown increases in recent years. For example, in 2006/2007 there was an increase recorded across Australia in hospital separations where the principal diagnosis was recorded as 'other opioid poisoning' (e.g. morphine, oxycodone)³. In NSW, numbers of hospital separations for other opioid poisoning (including morphine and oxycodone) have also increased over the last two years (Roxburgh & Burns 2009).

United States

In the United States, illicit use of prescription medicines has been documented more extensively than in Australia, with US population survey data indicating that non-medical use of prescription drugs has increased since the 1990s. In a comparison of two national surveys conducted 10 years apart⁴, Blanco et al. (2007) found that the prevalence of non-medical prescription drug abuse and/or dependence was approximately 0.5 per cent in the 2001-2002 survey period, reflecting an increase of 67 per cent from 1991 to 1992. Younger people with a lifetime history of drug use or a family history of alcohol use were more likely to report the abuse of and/or dependence on prescription drugs. In terms of use more generally, in the 2001-2002 survey 2.3 per cent of respondents reported non-medical prescription drug use in the year prior to the survey (independent of abuse or dependence), reflecting an increase of 53 per cent from the 1991-1992 survey (Blanco et al. 2007). In addition, results from the 2007 National Survey on Drug Use and Health estimate that approximately 5.2 million people (2.1% of the US population

of persons aged 12 or older) were using prescription pain relievers for non-medical purposes, and that from 2002 to 2007 there was an increase in use of these substances amongst persons 18 to 25 years of age (Substance Abuse and Mental Health Services Administration 2008).

This increasing misuse of prescription medicines has also been associated with increased health-related harms. For example, in a US study of emergency department visits for narcotic analgesics (e.g. drugs derived from natural or synthetic opiates), it was found that visits involving these medications increased by 117 per cent from 1994 to 2001, with oxycodone-related visits increasing by 352 per cent during this period (Drug Abuse Warning Network 2003). Furthermore, deaths from opioid analgesics in the US have increased substantially in recent years. Indeed, Paulozzi et al. (2006) estimate that between 1999 and 2002 the number of deaths attributed to non-heroin opioid poisoning increased by over 90 per cent, and that by 2002, deaths caused by opioid analgesic poisoning outnumbered those due to either heroin or cocaine. Collectively, these findings suggest that the increasing misuse of prescription opioids in Australia could soon be reflected in increases in both morbidity and mortality.

MEANS OF OBTAINING PRESCRIPTION DRUGS FOR ILLICIT USE

Australia

A critical concern related to the consumption of illicitly obtained prescription opioids is the means by which they are being obtained by non-legitimate users and the methods of diversion to the black market. While there is currently a lack of data regarding how pharmaceutical opioids are diverted to the illicit drug market in Australia (RACP 2009), a practice believed to be a common method of procurement is doctor- or prescription-shopping. This is where an individual attends either one doctor or a number of doctors presenting

with symptoms of pain or asking directly for a specific drug for the purpose of obtaining a prescription for the drug. Medicare Australia (2009) has defined prescription-shopping in Australia as:

Where a person, within any 3 month period, has had supplied to them:

- a) PBS items prescribed by 6 or more different prescribers (excluding specialists and consultant physicians);
- b) a total of 25 or more Target PBS items; or
- c) a total of 50 or more PBS items.

Where target items are analgesics, antiepileptics, anti-Parkinson medicine, psycholeptics, psychoanaleptics (including antidepressants) and all other nervous system medicine.

Medicare Australia (2009) has set up a prescription-shopping program, where doctors can register and submit queries regarding patients whose medicine-seeking practices are of concern. If the particular patient has been identified under the prescription-shopping program (i.e. they have met the above criteria), the doctor then receives details regarding the number of doctors the individual has visited in the past three months, as well as the number and type of PBS medicines they have received. While this service may be useful in assisting doctors to identify prescription drug-seeking patients, this service is currently only available to doctors who have registered, and not to pharmacists who may suspect prescription-shopping. Also, this program is limited to the extent that there is a lag period of four to six weeks for data on patient prescriptions to be listed and there is no information available regarding prescription medicines that do not qualify for a PBS benefit (e.g. private prescriptions) (Medicare Australia 2009).

In Australia, the 2007 National Drug Strategy Household Survey (AIHW 2008) included a question about where individuals sourced particular substances for illicit use. When asked about analgesics, only three per cent admitted doctor-shopping or forging scripts, while just over half (53.3%) reported that they sourced these by 'buying at a shop', and around 30 per cent reported they

received them from a friend or relative. For tranquillisers, 15 per cent admitted to doctor-shopping or forging scripts, with 55 per cent reporting they received them from a friend or relative. It should be noted that, whilst indicating broad methods of diversion, as these drug categories include non-prescription drugs, these data are indicative rather than true estimates. Indeed, these findings may underestimate the proportion of individuals who obtain prescription opioids, and/or benzodiazepines through doctor-shopping or forged prescriptions. Additionally, there is no indication of how the respondents' friends or relatives obtained the drug initially. In relation to the incidence of prescription fraud, the RACP (2009) reports that in Victoria, the number of forged prescription reports where opioids were mentioned increased from 37 in 2001 to 100 in 2006. During this period, opioids overtook benzodiazepines as the most frequently mentioned drug in forged prescription reports.

United States

Further information about sources of illicitly obtained prescription opioids can be taken from two US studies reporting the results of focus group discussions with drug-using populations (Inciardi et al. 2007, 2009). Results of these investigations found a diverse range of sources for prescription medicines including: street dealers/pill brokers, script forgers (called script 'doctors'), doctor-shopping, pharmacy/hospital theft, and buying scripts from acquaintances and friends and family. These discussions also identified the elderly, and patients with pain as primary sources for prescription medicines (Inciardi et al. 2009), including mentions of instances where a person on a medical pension would obtain a prescription from a doctor and resell the drugs for illicit use (Inciardi et al. 2007). Similarly, in a recent Canadian review El-Aneed et al. (2009) noted that doctor-shopping, prescription forgery, illegal prescribing by health care providers, theft of drugs, and obtaining drugs from family and friends are common methods of channelling prescription drugs out of the medical system for non-legitimate use. These findings are

further substantiated by official sources that have identified prescription fraud and doctor-shopping as major sources of the illicit diversion of controlled prescription medicines (United States Government Accountability Office 2009; National Drug Intelligence Center 2009).

THE CURRENT STUDY

As noted above, previous research has found increases in the use of pharmaceutical opioids, as well as indications of diversion and a range of harms. Despite this, in Australia there is currently little information about how various prescription drugs (e.g. pharmaceutical opioids) are sourced for non-medical use (RACP 2009).

The primary aim of the current study is to examine what police data tell us about the trends in criminal methods (e.g. fraud, theft, break, enter and steal, and robbery offences) of obtaining prescription medicines. In particular, this bulletin examines whether the frequency of police recorded events involving oxycodone and other prescription opioids (including morphine and codeine) has changed across the period from 1995 to 2007. Given the dynamic nature of the illicit drug market, a secondary aim is to describe the trends over time related to other prescription drugs, particularly benzodiazepines.

These aims will be achieved by:

1. Assessing the change in frequency of medicine types requested through altered and forged prescriptions during the timeframe.
2. Exploring the type and frequency of medicines targeted in thefts on different premises types across the nominated years.

METHOD

EVENT IDENTIFICATION AND SELECTION

The NSW Police Force's Computerised Operating Policing System (COPS) is the primary source of police data. Within this system, police officers record events,

which can relate to one or more incidents. Each unique event contains a free-text narrative, which provides a description of what occurred during the incident/s. In addition to the narrative, information relating to characteristics of each incident is recorded in standard data fields. These fields can include information on the alleged offender and victim as well as what offence was allegedly committed, where it took place, what property was obtained through the offence, as well as whether any objects were used (e.g. weapons).

Events deemed relevant for this study were those that included at least one incident that met each of the following criteria:

- occurred at a pharmacy or on a health premises (e.g. doctor's surgery, medical centre, hospital, vet surgery etc.); and
- included a stealing, fraud, robbery or break, enter and steal offence; and
- identified a drug, prescription form/pad or drug safe as an object either used in the offence or obtained through the commission of the offence (i.e. through a theft).

Trends in the relevant offences and in the associated objects (i.e. medicines and prescription pads) obtained in the commission of those offences were examined using the COPS data. The drug classifications in COPS data are more applicable to illicit drugs (e.g. cannabis, ecstasy) than to prescription medicines. Thus a more detailed examination of narratives was required to obtain specific medicine information. To this end, events reported in the years 1995, 1998, 2001, 2004 and 2007 were retrieved, corresponding to 2029 narratives. Following review and coding, 28 events were excluded due to being duplicates or not meeting the inclusion criteria (according to premises type, offence type or object). As such, 2001 events were available for further analysis.

NARRATIVE CODING

For each selected event, the corresponding narrative and property fields in COPS were read by one of

the three authors and the following information was extracted and recorded onto a coding template:

- Premises type: dental surgery; doctor's surgery; hospital; pharmacy; other (specified).
- Offence type/s: stolen prescription form/pad; forged prescription; altered prescription; steal during open hours; break, enter and steal; robbery; other (specified)⁵.
- Drug/s: including information on the name of each drug (entered as free text), whether the drug was actually obtained (e.g. a script may have been forged to obtain morphine but not filled due to the suspicion of the pharmacist), as well as the form, quantity and strength.
- Other stolen goods (money and/or non-drug goods).

Each police-recorded event could contain multiple incidents relating to different offence types (such as the theft of a prescription pad and the presentation of a forged prescription) or multiple incidents relating to different occasions of the same offence type (such as the presentation of forged prescriptions at multiple pharmacies). For example, case study 1 details an event where the accused stole a prescription pad and presented a forged prescription on multiple occasions. To reflect this, each event was coded to identify whether the specified offence was successful (e.g. the drug/s were obtained), unsuccessful (e.g. the drug/s were not obtained) or both successful and unsuccessful (e.g. the drug/s were obtained on some occasions and not on others).

Under the general term 'prescription fraud', there were two distinct types of offences, relating to whether the prescription was forged or altered. A forged prescription was defined as a blank prescription filled out in an attempt to pass it as a legitimate prescription. An altered prescription was defined as a legitimate prescription provided by a doctor that either had another drug added to it or had details relating to the prescribed drug changed, such as

strength, quantity or form (e.g. tablet to capsule).

Following the completion of coding, a cross-validation of the coding was conducted to ensure consistency. Approximately 15 per cent of each coder's allocated narratives were also coded by the other authors in the cross-validation. Discrepancies were discussed and resolved.

A Microsoft Access database was developed to enter the coded data. The database was designed to allow for the entry of multiple premises and offence types, as well as multiple drugs per event. Following entry, data were validated through a 20 per cent check against the coding sheets in addition to logical validation checks (e.g. checking that a successful forgery was associated with an obtained drug).

In the narratives, drugs were often referred to by brand name, rather than by generic name or the name of the active medicine. As such it was necessary to map all entered drugs to generic names. This was done by compiling product information from MIMS Online and the Australian Medicines Handbook (AMH). In addition, drugs were coded according to the Anatomical Therapeutic Chemical (ATC) classification, so that groups of medicines, such as benzodiazepines, could be easily identified and examined. Throughout the remainder of this bulletin, opiates and opioids will collectively be referred to as opioids.

TRENDS

Prescription fraud and theft

The number of events per year that involved the presentation of at least one forged or altered prescription was counted and broken down into whether or not medicines were dispensed (successful or unsuccessful). In both cases there was a report made to the police following the alleged fraud. If an event included both successful and unsuccessful occurrences, the event was counted as having been successful in obtaining a medicine fraudulently.

Initially, each medicine that was requested at least once within an event⁶ was counted and the top five medicines⁷ per year for prescription fraud were identified. These medicines were counted regardless of whether they were related to a successful or unsuccessful fraud. Trends in key opioids and benzodiazepines were graphed across the years using the same count per event method used to generate the top five medicines.

Similarly, the number of events per year involving the theft of prescription pads or single prescription forms was counted. This was broken down into those events where a prescription form/pad was reported stolen, and those where there was a report to police that involved both a forgery and the theft of the prescription form/pad that was believed to be used in the forgery.

Theft of medicines

All events involving offences of stealing, robbery and break, enter and steal in which a drug was recorded as a stolen object in COPS were explored⁸. As with counts of prescription fraud and thefts, the number of theft-related events per year was counted. The premises types where the theft offences occurred were also examined.

Some events involved situations where the offender was apprehended on the premises while attempting to steal the medicine or other object. For coding

purposes this was coded as unsuccessful (i.e. they did not obtain the medicine). However, for the purposes of analysis the fact they attempted to obtain the medicine was the information taken into account.

The medicines involved in the theft offences, regardless of whether they were obtained, were counted using the same method to that of prescription fraud, with the top five medicines involved in theft offences identified.

CASE STUDIES

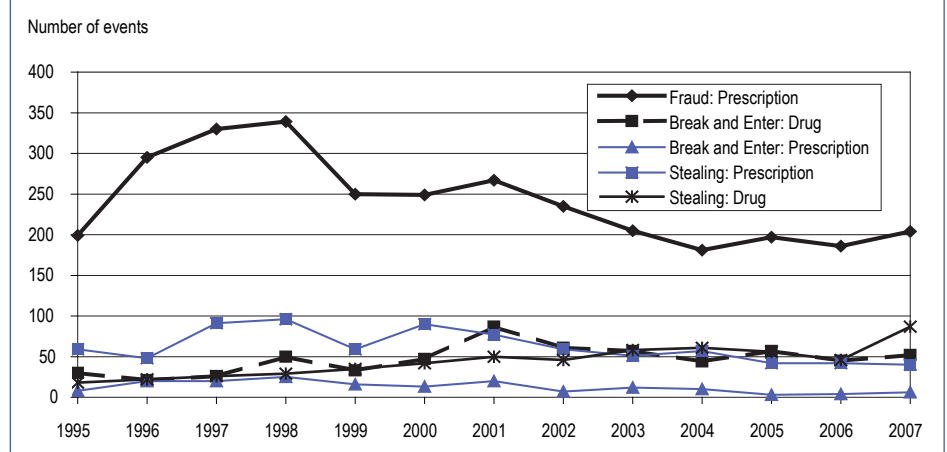
To provide further context and depth, a series of case studies are provided throughout the results. These are summaries of the police narratives coded from COPS.

RESULTS

TRENDS IN OFFENCES OVER TIME

Figure 1 presents the overall trends in the specified offences (fraud, break, enter and steal, stealing) over time. As shown in the figure, the number of events involving prescription fraud exceeded all other categories of 'pharmaceutical-related' offences across the period of observation. There is no indication of any increases in pharmaceutical-related offences across the years. The number of prescription fraud events peaked in 1998 and has dropped off and stabilised since this time point. The number of events where a

Figure 1. Trends in pharmaceutical-related offences, NSW, 1995 to 2007 (COPS data)



break ,enter and steal or stealing offence occurred appears relatively stable across the period.

PRESCRIPTION FRAUD AND THEFT

Forged and altered prescriptions

Table 1 presents the number of events in each year that involved at least one incident of forgery or alteration of a prescription. Overall, the majority (87%) of events involved forged rather than altered scripts. Eighty per cent of reported attempts at obtaining medicines through a forged or altered prescription were unsuccessful (i.e. the medicines were not dispensed). The years with the highest numbers of events involving forgery or alteration of prescriptions were 1998 and 2001. The other three years had similar frequencies.

Table 2 presents the five medicines most frequently involved in events related to prescription forgery and/or alterations, by year. With the exception of 2007, in each year the top three medicines were benzodiazepines. Oxycodone was the drug most frequently involved in prescription fraud in 2007. A list of brand and alternative names for the medicines within the benzodiazepine and opioid categories are provided in the Appendix.

Figures 2 and 3 present the trends of specific opioid and benzodiazepine medicines respectively, requested through prescription fraud between 1995 and

2007. As shown in Figure 2, the numbers of fraudulent requests for pethidine were lower in 2004 and 2007 than in earlier years. Fraudulent requests for methadone also declined across the years. The only medicine seen to increase markedly across the time period was oxycodone,

with increases between 1998 and 2001 and a larger increase between 2004 and 2007 (from 16 to 42 events). Case studies 1 and 2 describe events where prescriptions were forged to obtain oxycodone (case study 1) and morphine (case study 2).

Table 1. Number of events involving at least one forged and/or altered prescription, by year

Year	Number of events					
	Forged		Altered		All	
	Total	Successful	Total	Successful	Total	Successful
1995	180	41	28	3	208	44
1998	310	58	48	4	358	62
2001	245	49	36	6	281	55
2004	157	31	29	1	186	32
2007	175	45	28	5	203	50
Total	1067	224	169	19	1236	243

Figure 2. Number of events where each medicine was requested at least once through a forged or altered prescription - Opioids

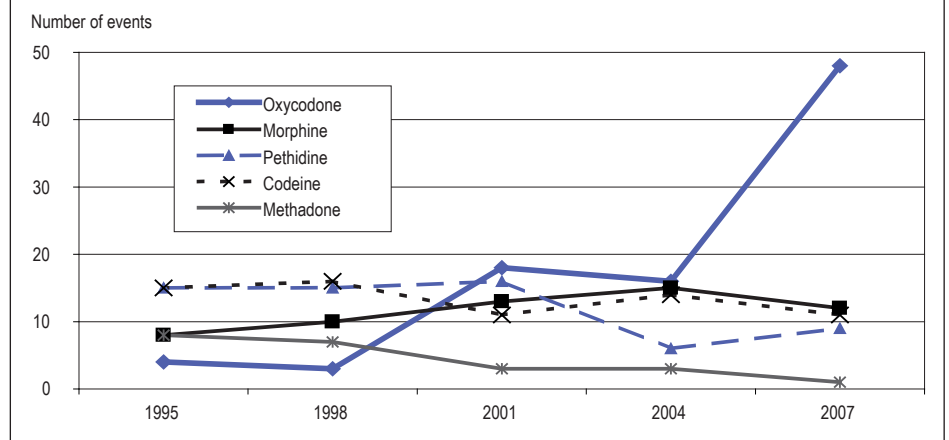


Table 2. Top five medicines involved in prescription forgery and/or alteration offences across the years, according to number of events (in brackets)

Rank	Year				
	1995	1998	2001	2004	2007
1	Flunitrazepam (49)	Flunitrazepam (113)	Temazepam (84)	Diazepam (46)	Oxycodone (48)
2	Oxazepam (27)	Temazepam (67)	Diazepam (35)	Oxazepam (42)	Diazepam (40)
3	Temazepam (19)	Diazepam (32) Oxazepam (32)	Oxazepam (32)	Temazepam (30)	Oxazepam (24)
4	Diazepam (17)	Codeine (16)	Flunitrazepam (22)	Oxycodone (16)	Alprazolam (23)
5	Pethidine (15) Codeine (15)		Oxycodone (18)	Morphine (15)	Clonazepam (12) Morphine (12)

In the table above, opioids are shaded; benzodiazepines are unshaded.

Case Study 1. Stolen prescription pad and several forged prescriptions for OxyContin®

A woman (the accused) entered a pharmacy and presented a prescription for 20 tablets of OxyContin (80mg strength), a strong painkiller. The name on the prescription was not the name of the accused and had been filled out fraudulently by the accused from a stolen prescription pad. However, the pharmacist believed the prescription to be valid and dispensed the medication.

The following day, the accused and a man (the co-accused) entered another pharmacy where the accused presented a second fraudulent prescription for OxyContin tablets. Upon receiving the prescription, pharmacy staff rang the medical centre and found out that the issuing doctor was no longer employed and that the prescription was stolen. Pharmacy staff contacted police, however, prior to the arrival of the police the accused and co-accused left the pharmacy.

Later that same afternoon, the accused went to a third pharmacy and presented another fraudulent prescription for OxyContin. The pharmacy staff questioned the accused about the prescription and conducted checks about its validity that revealed the prescription was stolen and forged. While these checks were taking place the accused left the pharmacy. Approximately one hour later, the accused went to a fourth pharmacy and presented another fraudulent script for OxyContin using the same stolen prescription pad. The prescription was filled and the drugs were obtained by the accused. A short time later, police were called to a residence in relation to the co-accused sitting in a stolen car. Upon searching the car, police found the rest of the stolen prescription pad along with 14 other prescriptions filled out in various names for OxyContin. When police entered the residence, they found the accused overdosed after injecting OxyContin. The accused was then taken to hospital.

A few weeks later, the accused was interviewed and admitted to getting the prescription pad from the co-accused and filling in the prescriptions for herself because she was addicted to OxyContin.

Case Study 2. Repeated forged prescriptions for morphine

Over a 10-month period, the accused obtained 42 fraudulent prescriptions for various quantities of morphine from one pharmacy. These prescriptions were filled out in the name of the accused and appeared to be issued by various doctors across metropolitan Sydney. However, investigations revealed that the listed issuing doctors had not authorised the prescriptions and that they were forgeries. When contacted, some of the doctors also noted that they have had prescription pads stolen in the past. The accused was subsequently interviewed and admitted to writing the prescriptions out to obtain morphine for himself.

Case Study 3. Attempted altered prescription for valium

The accused man entered a medical centre and demanded to see a doctor immediately. The doctor who saw the accused provided a prescription for Diazepam (Valium®). At this time, the accused demanded a quantity of 50 tablets, however the doctor only authorised 12 tablets.

After leaving the medical centre, the accused went to a pharmacy and passed in a prescription for 50 tablets of Diazepam. The chemist noticed that the quantity of the medication had been altered and called the issuing doctor to come to the pharmacy. On arrival at the pharmacy, the doctor confirmed that the 50 tablets listed had not been authorized and that the script had been altered. However, when the doctor arrived the accused left the pharmacy leaving the altered prescription behind. The chemist then called police, however police were unable to locate the accused.

Figure 3. Number of events where each medicine was requested at least once through a forged or altered prescription - Benzodiazepines

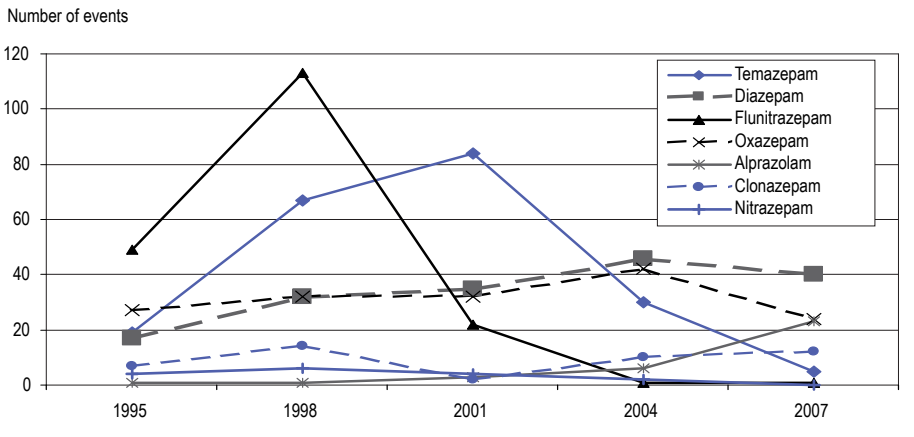


Figure 3 shows the number of events where benzodiazepines were requested at least once. Overall, the number of forgeries and alterations relating to benzodiazepines was higher than that relating to opioids. A particular benzodiazepine of interest in Figure 3 is flunitrazepam, more commonly known by the brand names of Rohypnol® and Hypnodorm®. As shown in the figure, in 1998 approximately 110 events involved the forgery or alteration of a prescription to obtain this drug, with a rapid decline following this peak. The trend of temazepam is also worth noting,

particularly the increases observed in 1998 and 2001, and the decrease thereafter. Across the time period, diazepam increased steadily, levelling off after 2004. Case study 3 describes a situation where a prescription was altered in an attempt to obtain Valium® (diazepam).

Prescription theft

The forgery of prescriptions requires the use of a blank prescription pad or single prescription. Table 3 shows the number of events where a stolen prescription pad or single script was recorded as stolen. This

is separated into two columns describing instances where only the prescription was stolen and instances where a forged prescription was presented and reported. Most events involved both a theft of prescription and recorded use of the script in a forgery. It should be noted that if a prescription pad was stolen this may have led to multiple forgeries, i.e. when each single prescription is presented. These prescriptions may have also been sold on the street for others to use in a forgery.

Prescription theft peaked in 1998, with the two lowest years being 2004 and 2007. Events relating only to stolen prescriptions are considerably lower

Table 3. Number of events per year that involved a stolen prescription pad or prescription/s and associated forgery

Year	Stolen only	Stolen and recorded use	Total
1995	34	81	115
1998	62	124	186
2001	47	92	139
2004	38	62	100
2007	26	61	87
Total	207	420	627

Table 4. Number of theft-related events by year

Year	Theft-related offence				Total
	Break, enter and steal	Steal during open hours	Robbery	Other theft ^a	
1995	35	19	3	2	59
1998	59	16	10	15	100
2001	94	27	8	14	143
2004	52	37	7	20	116
2007	51	29	9	50	139
Total	291	128	37	101	557

^a The majority of 'Other theft' involved steal from secure locker/safe and leave without payment.

Table 5. Premises types involved in theft-related offences

Premises type	n (%)
Pharmacy	295 (53)
Doctor's surgery/medical centre	107 (19)
Hospital	83 (15)
Veterinary surgery	24 (4)
Other premises type	48 (9)
Total	557 (100)

Case Study 4. Bought stolen prescription pads to obtain drugs fraudulently for illicit use

The accused woman went to a chemist and presented two prescriptions for benzodiazepines (Normison®, Valium and Xanax®) which both appeared to be endorsed by the same doctor. The prescriptions were filled by the pharmacist and obtained by the accused.

Later that same day, the pharmacist checked the prescriptions again as he admitted to having concerns that the handwriting on the scripts did not belong to the issuing doctor. The pharmacist contacted the issuing doctor and faxed a copy of the scripts to the doctor. The doctor then confirmed that he did not supply the scripts to the accused and contacted police to attend the pharmacy.

After police attended the pharmacy and obtained the scripts, they went to the address listed on the forms and found the accused. When searched, the police found another prescription form filled out with the details of the accused for more Normison and Valium. In addition, the accused was in possession of several medications including: Normison, Valium, Xanax, Dolased® and Duromine®.

The accused agreed to a police interview, in which she admitted that she bought two prescription pads from a junkie for \$20 each, which the junkie then filled out on behalf of the accused. The accused admitted that she knew the prescriptions were stolen, but that she needed the medication because her own prescription medications had run out. The accused further stated that she is addicted to prescribed substances.

Case Study 5. Armed robbery targeting prescription medications

A pharmacist and pharmacy assistant were attending to two customers at the service counter in their pharmacy when the accused walked up to the counter and pointed a gun at both pharmacists. The accused instructed everyone to "get down, no one move, don't touch anything". At the same time, the co-accused entered the pharmacy and attempted to close the doors at the front entrance of the pharmacy.

The accused then went to the employee side of the counter and demanded that the pharmacy assistant open the cash register. When the cash register was opened, the accused began taking the money out. At that time, the co-accused went to the dispensary area of the pharmacy and demanded that the pharmacist help him in locating the safe containing prescription drugs and particularly, the morphine-based medication MS-Contin®. The pharmacist opened the safe and was instructed by the co-accused to fill his backpack with drugs from the safe. The drugs put into the bag included large quantities of various drugs such as: MS-Contin, Endone®, Pethidine, Ritalin®, Oxycodone, Dexamphetamine, Methadone, Hypnodorm® and Morphine.

After obtaining the drugs, the co-accused asked where the rest of the money in the pharmacy was held and instructed the pharmacist to put this money into the backpack. In total, approximately \$6000 cash and \$1000 worth of restricted prescription medications was stolen.

A short time later, both the accused and co-accused have run from the store and were seen by a witness entering a vehicle. The police then attended the pharmacy to investigate.

than those also involving a forgery, with a similar pattern of frequencies across years. Again, 1998 involved the most events, with 2007 being the lowest. Case study 4 involves an incident where the accused bought a blank prescription and filled out the prescription in an attempt to fraudulently obtain drugs.

THEFT OF MEDICINES

Table 4 shows the number of break, enter and steal, steal during open hours, robbery, and other theft offences where a drug was recorded as a stolen object, by year. The highest number of total theft offences coded occurred in 2001. With the exception of 1995, the other years had similar numbers of total theft-related offences, with 2007 having the second highest number of theft-related offences.

Table 6. Top five drugs involved in theft-related events by year, according to number of events (in brackets)

Rank	Year				
	1995	1998	2001	2004	2007
1	Pethidine (19)	Morphine (26)	Temazepam (34)	Morphine (25)	Diazepam (25)
2	Diazepam (16)	Pethidine (23)	Morphine (27)	Diazepam (17)	Oxycodone (16)
3	Morphine (15)	Diazepam (19)	Diazepam (25)	Oxycodone (16)	Morphine (15)
4	Codeine (9)	Temazepam (18)	Pethidine (22)	Pethidine (11)	Temazepam (11)
5	Oxazepam (8)	Oxazepam (12) Codeine (12)	Oxazepam (16)	Temazepam (10)	Oxazepam (9)

In the table above, opioids are shaded; benzodiazepines are unshaded.

The range of locations (premises types) where the theft offences occurred is presented in Table 5. More than half of all coded theft offences occurred in pharmacies, with nearly one in five occurring in a doctor's surgery or medical centre. The remaining locations included hospitals, veterinary surgeries and other premises types.

Table 6 shows the type of medicines most commonly involved in theft-related events by year. In 1995, 1998 and 2001, pethidine, morphine, diazepam and oxazepam were consistently in the top five. Oxycodone appears in the top five in 2004 and 2007, with morphine and diazepam respectively being the number one drugs in these two years. Case study 5 provides an example of an armed robbery where a number of prescription medicines were targeted.

DISCUSSION

Illicit use of prescription medicines is a growing problem both internationally and in Australia. In light of this increasing problematic use, it is critical to determine how these medicines are obtained for non-medical consumption. Reliable information outlining the ways in which these medicines are sourced for illicit use is currently lacking in Australia. The purpose of this bulletin was to examine police records of criminal incidents involving prescription drugs in an effort to describe both the methods by which these drugs are obtained and the types of drugs targeted through these identified offences.

OVERALL OFFENCE TRENDS OVER TIME

Over the period 1995 to 2007, the number of prescription fraud events exceeded all other pharmaceutical-related offence categories examined in this study (stealing, break, enter and steal). However, there was no evidence that any of the offences under investigation were increasing in frequency over time. Indeed, there was some evidence from these data that the number of police recorded events involving prescription fraud decreased slowly from the late 1990s onwards, whereas the frequency of all other offence categories remained relatively stable over this time period.

PRESCRIPTION FRAUD

Analyses of prescription fraud (relating to the presentation of forged/altered prescriptions) across time showed that these offences peaked in 1998 and that most of these incidents related to cases where prescriptions were forged in their entirety rather than altered from legitimate prescriptions. The vast majority of these detected prescription forgeries were unsuccessful. It is important to note, however, that the number of successful forgeries that have not been brought to official attention cannot be estimated from the current data. Our figures therefore significantly underestimate the actual number of occasions where forgeries are successful.

The drugs most frequently sought through prescription fraud were benzodiazepines,

and, to a lesser extent, opioids. The most frequently mentioned benzodiazepine was flunitrazepam (Rohypnol and Hypnodorm), which peaked in 1998 and declined considerably thereafter. This decline is likely related to the reclassification of flunitrazepam in 1998 as a Schedule 8 drug, thereby increasing controls that limited the availability and prescribing of this medicine. The other notable trend observed for benzodiazepines relates to the peak in forged/altered prescriptions for temazepam in 2001, and the subsequent decline thereafter. This observed peak in 2001 may relate to increased use of benzodiazepines associated with the heroin shortage (Day et al. 2003) and a preference amongst some injecting drug users for using easily injectable temazepam gel capsules (Breen et al. 2004). The subsequent decline in later years is likely attributable to restrictions placed on the availability of this medicine in May 2002, followed by the removal of temazepam capsules from the Australian market in early 2004 (Degenhardt et al. 2008)⁹.

For opioids, the only drug to show a consistent increase across the period of observation was oxycodone, with an increase observed between 1998 and 2001 and a steep increase between 2004 and 2007. These increases in events involving oxycodone are likely related to a range of factors including the introduction of higher dose controlled-release formulations of oxycodone in Australia in 1999, and wider usage of this drug for treatment of severe pain.

THEFT OF PRESCRIPTION PADS

Most events involving stolen prescription forms/pads were related to the use of prescription forms in a forgery. Only a minority of incidents were reported where only the prescription pad was stolen and no forgery reported. This may be due to the fact that many incidents where prescription pads are stolen are more likely to be identified and reported when used to utter a forged prescription. Consequently, we cannot determine from these data the number of prescription forms/pads that are stolen, successfully filled and not reported to police.

The number of incidents involving a stolen prescription pad has been decreasing since 1998. One possible explanation for this finding may be that illicit drug users were less inclined to use prescription forgery to obtain less desirable benzodiazepines after controls were tightened around flunitrazepam and temazepam capsules were restricted, and subsequently removed from the Australian market. Additionally, these decreasing numbers may be related, to some extent, to decreased use of handwritten prescriptions and substantial increases in the use of computer-generated prescribing by doctors in recent years¹⁰. Nevertheless, these findings suggest that doctors should maintain vigilance in ensuring that blank prescriptions are securely maintained and that suspected thefts are reported.

THEFTS OF MEDICINES

Several types of opioids (e.g. pethidine, morphine, oxycodone) and benzodiazepines (diazepam, temazepam, oxazepam) were commonly obtained through stealing, break, enter and steal and robbery offences across the period of observation. These drugs were obtained mostly from pharmacies and to a lesser extent, doctor's surgeries and medical centres. Incidents where oxycodone was obtained through these means have featured more frequently in the last two periods of observation (2004 and 2007).

SUMMARY AND CONCLUSIONS

The findings from the current bulletin provide some evidence that prescription medicines are being diverted from the medical system through prescription forgeries and theft-related offences. Additionally, this bulletin has shown that the frequency of recorded police incidents involving oxycodone, a drug that has attracted mounting attention in the community, has increased over the last decade. It is important to note, however, that overall numbers of events related to the procurement of prescription medicines was low across all offences.

While these findings provide important information regarding some of the means by which prescription drugs may be obtained for illicit consumption and the particular drugs targeted, there are a number of limitations to the current study which must be acknowledged. Firstly, this study only examines incidents of thefts, robberies and fraud that were reported to police. Due to our reliance on police data, we were unable to look at other ways of obtaining prescription drugs for illicit consumption, such as doctor- and pharmacy-shopping and the diversion of medicines from legitimate to non-legitimate users. Furthermore, incidents were only included in this study if an object of interest (i.e. a prescription or drug) was specified in the COPS record. In relation to thefts, the number of offences included in the study represented only a small proportion of offences overall. Many relevant records may have been excluded from our analysis due to absent and incomplete recording of objects. There was also a high number of 'unknown' drug types recorded, particularly within the forged prescription category. With increasing concern over the illicit use of prescription medicines, detailed and consistent recording of medicines is of paramount importance. Ideally police data systems and approaches to coding would be modified so that prescription medicines are coded individually by name, rather than as 'other drug'. Only then can prescription medicine-related theft, fraud,

and possession be monitored and trends identified in a timely manner, and a more targeted response developed.

When considering the trends associated with different drug types, particularly those involved in prescription fraud it is important to be mindful that these trends may, to some extent, also reflect a community awareness of the problems associated with a particular drug. For example, the problems associated with the flunitrazepam product Rohypnol in the late 1990s were widely publicised which may have increased the likelihood of a pharmacist detecting and reporting fraudulent attempts to obtain this drug compared to other 'lower profile' prescription medicines. More recently, the increased media coverage and attention from law enforcement and health agencies towards oxycodone and other prescription opioids may be having a similar effect on detections of prescription fraud for these medicines.

The total numbers of drugs reported in prescription fraud and thefts in this bulletin are small compared to the extent of non-medical use of prescription drugs. One possible reason for this may be that there are difficulties in accurately coding the number of instances where prescription drugs are obtained or requested through illegal means. This could relate to difficulties in determining the exact number of occasions that a drug has been requested or obtained through prescription fraud, particularly across multiple pharmacy locations, or challenges in amassing an accurate inventory of drugs stolen through a theft or robbery.

Another more likely explanation for the small numbers in the current study is that most prescription drugs used for non-medical purposes are not being obtained through fraud or theft-related offences, but are instead being sourced by prescription-shopping. As reviewed earlier, recent research suggests that prescription-shopping is among the most common methods of diverting prescription drugs out of the medical system for illegitimate consumption (El-Aneed et al. 2009; Inciardi et al. 2007). The extent of the

prescription-shopping problem in Australia is difficult to estimate. Further research examining this issue in more depth is necessary to gain a more comprehensive understanding of this growing problem.

ACKNOWLEDGEMENTS

The authors would especially like to thank Jim Baldwin, NSW Police Force for his generous assistance with the narratives used in this study. Thank you to Don Weatherburn and Craig Jones for their feedback on earlier versions of this paper; and to Florence Sin for desktop publishing this report. We would also like to thank our anonymous reviewers for their constructive and helpful comments.

NOTES

1. The MSIC is a supervised injecting facility that aims to reduce the injection-related harms associated with illicit drugs.
2. In the 2007 survey there was no specific mention of oxycodone.
3. Roxburgh and Burns (2009) define a hospital separation as "an episode of care for an admitted patient" (p.1).
4. The surveys analysed were The National Longitudinal Alcohol Epidemiologic Survey (conducted in 1991-1992) and the National Epidemiologic Survey on Alcohol and Related Conditions (conducted in 2001-2002).
5. Other offence types included: steal from secure locker/safe; steal from medical trolley; theft by employee; leave without payment (for dispensed scripts); steal from delivery truck; and unaccounted for but believed stolen.
6. Though this may have underestimated the number of times a forged or altered prescription was presented for a drug, this counting scheme was necessary due to the inconsistencies in the recording and counting of drugs in COPS.
7. An initial examination of these top five medicines revealed they were dominated by benzodiazepines which motivated an additional focus of these medicines in the results.
8. When looking at the total number of events recorded in COPS that related to these offence types and occurred on a health related premises, a substantial proportion of events were found not to have an object of any type recorded. On examining the narratives for a sample of these events (i.e. those with no object recorded) it was found that the majority referred to stolen money and cosmetic products, recorded as 'untraceable property'. However, some events in which no object was recorded did involve the theft of medicines. Only through reading the narratives could these events be identified. Therefore, as COPS data fields were used to identify events for inclusion in this study, not all relevant events are captured in the data presented and these results should be interpreted with caution.
9. We thank one of our anonymous reviewers for bringing this to our attention.
10. A survey of general practitioners in Australia, conducted in 2006 found that over 85 per cent used computers for prescribing (McInnes et al. 2006). In 1997, only 15 per cent of general practitioners used computers (Kidd & Mazza 2000).

REFERENCES

- Australian Institute of Health and Welfare (AIHW) 2008, *2007 National drug strategy household survey: first results*, Australian Institute of Health and Welfare, Canberra.
- Australian Medicines Handbook (AMH), *ASCEPT*, The Pharmaceutical Society of Australia and the Royal Australian College of General Practitioners, updated bi-annually.
- Black, E, Roxburgh, A, Degenhardt, L, Bruno, R, Campbell, G, de Graaff, B, Fetherston, J, Kinner, S, Moon, C, Quinn, B, Richardson, M, Sindicich, N & White, N 2008, *Australian Drug Trends 2007, Findings from the Illicit Drug Reporting System, Australian Drug Trends Series No. 1*, National Drug and Alcohol Research Centre, Sydney.
- Blanco, C, Alderson D, Ogburn, E, Grant, BF, Nunes, EV, Hatzenbuehler, ML & Hasin, DS, 2007, 'Changes in the prevalence of non-medical prescription drug use and drug use disorders in the United States: 1991-1992 and 2001-2002', *Drug and Alcohol Dependence*, vol. 90, pp. 252-260.
- Breen, C, Degenhardt, L, Bruno, R, Roxburgh, A & Jenkinson, R 2004, 'The effects of restricting publicly subsidised temazepam capsules on benzodiazepine use among injecting drug users in Australia', *Medical Journal of Australia*, vol. 181, pp. 300-304.
- Day, C, Topp, L, Rousen, D, Darke, S, Hall, W & Dolan, K 2003, 'Decreased heroin availability in Sydney in early 2001', *Addiction*, vol. 98, pp. 93-95.
- Degenhardt, L, Day, C, Dietze, P, Pointer, S, Conroy, E, Collins, L & Hall, W 2005, 'Effects of a sustained heroin shortage in three Australian States', *Addiction*, vol. 100, pp. 908-920.
- Degenhardt, L, Roxburgh, A, Van Beek, I, Hall, WD, Robinson, MKF, Ross, J & Mant, A 2008, 'The effects of the market withdrawal of temazepam gel capsules on benzodiazepine injecting in Sydney, Australia', *Drug and Alcohol Review*, vol. 27, pp. 145-151.
- Drug Abuse Warning Network 2003, *The DAWN Report: Narcotic analgesics, Substance Abuse and Mental Health Services Administration*, Office of Applied Studies, Rockville, MD.
- El-Aneed, A, Alaghebandan, R, Gladney, N, Collins, K, MacDonald, D & Fischer, B 2009, 'Prescription drug abuse and methods of diversion: the potential role of a pharmacy network', *Journal of Substance Use*, vol. 14 no.2, pp. 75-83.
- Face Up 2009, *Newsletter of the Sydney Medically Supervised Injecting Centre (MSIC)*, Issue 9, Sydney, New South Wales.
- Fife-Yeomans, J 2008, 'Using cancer drug to make hillbilly heroin', *The Daily Telegraph*, 27 October.

Inciardi, JA, Surratt, HL, Cicero, TJ & Beard, RA 2009, 'Prescription opioid abuse and diversion in an Urban Community: The results of an ultrarapid assessment', *Pain Medicine*, vol. 10, no. 3, pp. 537-548.

Inciardi, J, Surratt, HL, Kurtz, SP & Cicero, TJ 2007, 'Mechanisms of prescription drug diversion among drug-involved club and street-based populations', *Pain Medicine*, vol. 8 no. 2 pp. 171-183.

International Narcotics Control Board 2008, 'Narcotic drugs: estimated world requirements for 2009; statistics for 2007', United Nations, New York .

Kidd, M, Mazza, D 2000, 'Clinical practice guidelines and the computer on your desk', *Medical Journal of Australia*, vol. 173, pp. 373-375.

McInnes, D, Saltman, D, Kidd, M 2006, 'General practitioners' use of computers for prescribing and electronic health records: results from a national survey', *Medical Journal of Australia*, vol. 185, pp. 88-91.

Medicare Australia 2009, Australian Government Medicare Australia, Canberra, viewed 18 August 2009, <http://www.medicareaustralia.gov.au/provider/pbs/prescription-shopping/index.jsp>

MIMS Online, MIMS Australia, bi-monthly updating.

National Centre in HIV Epidemiology & Clinical Research (NCHECR) 2007. Sydney Medically Supervised Injecting Centre Evaluation Report No. 4: Evaluation of service operation and overdose-related events. National Centre in HIV Epidemiology and Clinical Research, University of New South Wales, Sydney, NSW.

National Drug and Alcohol Centre (NDARC) n.d., Heroin Fact Sheet, NDARC, Sydney, viewed 8 September 2009, <[http://ndarc.med.unsw.edu.au/NDARCWeb.nsf/resources/NDARCFact_Drugs7/\\$file/Heroin+fact+sheet.pdf](http://ndarc.med.unsw.edu.au/NDARCWeb.nsf/resources/NDARCFact_Drugs7/$file/Heroin+fact+sheet.pdf)>

National Drug Intelligence Center. OxyContin Diversion and Abuse. January 2001, viewed 4th September , 2009, <http://www.usdoj.gov/ndic/pubs/651/abuse.htm>.

National Drug Intelligence Center. National Prescription Drug Threat Assessment 2009, viewed 13th November, 2009, <http://www.justice.gov/ndic/pubs33/33775/33775p.pdf>.

National Prescribing Service (NPS) 2006. Analgesic choices in persistent pain. Prescribing Practice Review No. 35. NPS Surry Hills NSW.

Paulozzi, LJ, Budnitz, DS & Xi Y 2006, 'Increasing deaths from opioid analgesics in the United State', *Pharmacoepidemiology and Drug Safety*, vol. 15, pp. 618-627.

The Royal Australasian College of Physicians (RACP) 2009. Prescription Opioid Policy: Improving management of chronic non-malignant pain and prevention

of problems associated with prescription opioid use, Sydney.

Roxburgh, A, & Burns, L 2009, Drug –related hospital stays in Australia 1993-2007, National Drug and Alcohol Research Centre, Sydney.

Stafford, J, Sindicich, N & Burns, L 2009, Australian Drug Trends 2008, Findings from the Illicit Drug Reporting System (IDRS), Australian Drug Trends Series No. 19, National Drug and Alcohol Research Centre, Sydney.

Substance Abuse and Mental Health Services Administration (SAMSHA) 2008, Results from the 2007 National Survey on Drug Use and Health: National Findings, Office of Applied Studies, Rockville, MD.

United States Government Accountability Office (GAO) 2009, Medicaid: Fraud and abuse related to controlled substances identified in selected states, Report to Congressional Requesters, GAO-09-957.

APPENDIX: BRAND NAMES OF MEDICINES WITHIN OPIOID AND BENZODIAZEPINE CATEGORIES

Table A1: Opioids

Generic	Brand Names
oxycodone	Endone®, OxyContin®, OxyNorm®, Percodan® Prolodone®
morphine	Anamorph®, Kapanol®, MS Contin®, Ordine®
pethidine	Meperidine®
codeine-containing	Actacode®, Codalgin Forte®, Mersyndol®, Mersyndol Forte®, Panadeine®, Panadeine Forte®, Veganin®
methadone	Physeptone®

Table A2: Benzodiazepines

Generic	Brand Names
temazepam	Euhypnos®, Normison®, Temaze®
diazepam	Antenex®, Ducene®, Valium®, Valpam®
flunitrazepam	Rohypnol®, Hypnodorm®
oxazepam	Alepam®, Murelax®, Serepax®
alprazolam	Kalma®, Xanax®
clonazepam	Paxam®, Rivotril®
nitrazepam	Alodorm®, Mogadon®