FINAL REPORT 2008

INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS

FINAL REPORT 2008

Suzanne Nielsen
Raimondo Bruno
Susan Carruthers
Jane Fischer
Nicholas Lintzeris
Mark Stoove

This report was commissioned by the Ministerial Council on Drug Strategy through the Cost Shared Funding Model with the Victorian Department of Human Services
INVESTIGATORS

Dr Suzanne Nielsen, Turning Point Alcohol and Drug Centre
Dr Raimondo Bruno, School of Psychology, University of Tasmania
Dr Susan Carruthers, National Drug Research Institute, Curtin University of Technology
Ms Jane Fischer, Centre for Drug and Alcohol Studies (CDAS), Alcohol and Drug Service, Queensland Health
Dr Craig Fry, Murdoch Childrens Research Institute
Associate Professor Nick Lintzeris, Sydney South West Area Health Service
Dr Mark Stoove, Centre for Population Health, Burnet Institute

NATIONAL COORDINATOR

Dr Suzanne Nielsen, Senior Research Fellow, Turning Point Alcohol and Drug Centre

PROJECT STAFF

Ms Sanja Pahoki, Senior Research Assistant; Ms Heidi Strickland, Research Assistant, Turning Point Alcohol and Drug Centre
Ms Michelle Kilpatrick, Research Fellow, Ms Barbara deGraaff, Research Fellow; School of Psychology, University of Tasmania
Dr Jocelyn Grace, Research Fellow, National Drug Research Institute, Curtin University of Technology
Ms Wendy Ducat, Research Assistant; Mr Frank Togiatama, Research Assistant, Centre for Drug and Alcohol Studies (CDAS), Alcohol and Drug Service, Queensland Health

PROJECT ADVISORY COMMITTEE MEMBERS

Chris Hardy, Dr Craig Fry, Gwenda Cannard, Irvine Newton, Dr Malcolm Dobbin, Dr Mark Stoove, Dr Michael Aufgang, Dr Michael McDonough, Rose McCrohan, Sarah Lord, Sue Harrison

This report was commissioned by the Ministerial Council on Drug Strategy through the Cost Shared Funding Model with the Victorian Department of Human Services
TABLE OF CONTENTS

List of Tables .................................................................................................................. vi
List of Figures ................................................................................................................... vii
Abbreviations .................................................................................................................. viii
Acknowledgements ......................................................................................................... ix

1. Executive summary ....................................................................................................... 1
   Background and rationale ............................................................................................ 1
   Study purpose and aims .............................................................................................. 1
   Study methodology ..................................................................................................... 2
   Key findings ................................................................................................................ 3

2. Background and methodology ..................................................................................... 9
   Background rationale to the current study .................................................................. 9
   Study aims and objectives ......................................................................................... 10
   Study methodology ................................................................................................... 11
   Jurisdictional characteristics in alcohol and drug treatment services ...................... 15

3. Findings of review of literature .................................................................................... 19

4. Findings of focus group and regional/rural telephone interviews ....................... 42
   Focus groups ............................................................................................................. 42
   Regional/rural telephone interviews ....................................................................... 48

5. Findings of survey of drug treatment clients .......................................................... 58
   Demographics of the sample ..................................................................................... 58
   Illicit alcohol and drug use ......................................................................................... 60
   Pharmaceutical drug use ......................................................................................... 62
   Pharmaceutical misuse and treatment ..................................................................... 77
   Perceptions of pharmaceutical use .......................................................................... 79
   Harms ......................................................................................................................... 81
   Dependence ............................................................................................................. 84
   Physical and mental health ....................................................................................... 84
   Health services utilisation ....................................................................................... 87
   Health service refusal ............................................................................................. 88
   Criminal activity ...................................................................................................... 89

6. Case file review .......................................................................................................... 90
   Key themes from case file review ............................................................................ 97

7. Key themes and conclusions ...................................................................................... 100
   Patterns and extent of diversion and misuse of pharmaceuticals amongst AOD clients .................................................................................................................. 100
   Associated health harms and health service utilisation from diversion and pharmaceutical drug misuse ........................................................................................................... 101
   Effect of pharmaceutical misuse on client presentations, treatment requirements, adherence and outcomes for alcohol and drug dependence treatment .................................................................. 102
   Jurisdictional-specific differences in the extent and characteristics of pharmaceutical misuse amongst AOD clients ................................................................................. 106
   Relationship between patterns of pharmaceutical drug diversion and characteristics of drug treatment service system in specific jurisdictions ........................................................................ 107
   Methodological considerations ............................................................................... 108
   Conclusions and recommendations ......................................................................... 110

8. References .................................................................................................................. 115
# LIST OF TABLES

Table 1 - Sample recruited for survey of drug treatment clients .......................................................... 13
Table 2 - Pharmacotherapy numbers by jurisdiction .............................................................................. 15
Table 3 - Percent of IDU reporting morphine use in the previous 6 months by jurisdiction 2001-2007 ........ 22
Table 4 - Proportion of IDU reporting using benzodiazepines by jurisdiction 2000-2007 .......................... 23
Table 5 - Proportion of IDU reporting injecting benzodiazepines in the previous 6 months by jurisdiction 2000-2007 .......................................................... 24
Table 6 - Pharmaceuticals identified as being misused by rural KE ............................................................. 49
Table 7 - Characteristics of participants ..................................................................................................... 59
Table 8 - Illicit drug and alcohol use history and use in the 4 weeks before entering treatment ................. 60
Table 9 - AUDIT scores presented by the drug type leading to treatment ................................................. 61
Table 10 - Drug leading treatment by jurisdiction, % (n) ........................................................................ 62
Table 11 – Pharmaceutical drug use history of the sample ........................................................................ 63
Table 12 - Prescription opioid and benzodiazepine use in the 4 weeks before entering treatment ......... 64
Table 13 - Prescription opioid use in the 4 weeks before entering treatment ............................................ 67
Table 14 - Mean days of benzodiazepine use for participants who reported using benzodiazepines in the 4 weeks before entering treatment ........................................ 68
Table 15 - Mean days of prescription opioids use by type of treatment entered ........................................ 71
Table 16 - Mean days of benzodiazepines use by type of treatment entered ........................................... 72
Table 17 - Usual source of prescription opioids used in the 4 weeks before entering treatment ............. 72
Table 18 - Usual source of benzodiazepines in the four weeks before entering treatment ........................ 73
Table 19 - Supply to others of own prescribed drugs in 28 days before treatment entry .......................... 75
Table 20 - Factors that facilitated or delayed treatment entry for pharmaceutical misusers ......... 75
Table 21 - Factors that helped or delayed treatment entry by jurisdiction ............................................... 77
Table 22 - Misuse of opioid substitution treatments and subsequent treatment entry ....................... 77
Table 23 - Non adherence to pharmacotherapy treatment by jurisdiction .............................................. 78
Table 24 - Effect of pharmaceutical use on treatment ............................................................................. 79
Table 25 – Positive aspects about pharmaceutical use ............................................................................. 80
Table 26 - Negative aspects about pharmaceutical use ........................................................................... 81
Table 27 - Harms relating to pharmaceutical opioid misuse ................................................................. 82
Table 28 - Harms related to injection of pharmaceutical opioids ............................................................ 82
Table 29 - Harms relating to benzodiazepine (BZD) misuse ................................................................. 83
Table 30 - Harms related to injection of benzodiazepines ........................................................................ 83
Table 31 - Psychological distress ............................................................................................................. 85
Table 32 - Physical and mental health component scores ...................................................................... 87
Table 33 - Criminal activity of the sample in previous month .............................................................. 89
Table 34 - Mean Opiate Treatment Index Crime Scores .............................................................. 89
Table 35 - Summary of case files examined ............................................................................................... 91

VI
LIST OF FIGURES

Figure 1 - Past year initiates for specific illicit drugs amongst people 12 years and older, 2006. National Survey on Drug Use and Health: National Findings, United States........................................................................................................... 20

Figure 2 - Use of ‘as prescribed’ (AP) and ‘non/not as prescribed’ (NAP) prescription opioids in the 4 weeks before entering treatment.................................................................................................................. 65

Figure 3 - Use of ‘as prescribed’ (AP) and ‘non/not as prescribed’ (NAP) benzodiazepines in the 4 weeks before entering treatment........................................................................................................... 66

Figure 4 - Relationships between not as prescribed use of benzodiazepines and prescription opioids in the four weeks before entering treatment ........................................................................................................... 69

Figure 5 - Relationships between as-prescribed use of benzodiazepines and prescription opioids in the 4 weeks before entering treatment ........................................................................................................ 70

Figure 6 - Usual source of prescription opioids by jurisdiction .................................................................................................................. 73

Figure 7 - Mean K10 scores by primary drug problem leading to treatment.................................................................................................................. 85

Figure 8 - Mean SF-12 Component Scores by primary drug leading to treatment episode .................................................................................................................. 86
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADHD</td>
<td>Attention Deficit Hyperactivity Disorder</td>
</tr>
<tr>
<td>AOD</td>
<td>Alcohol and Other Drug</td>
</tr>
<tr>
<td>AP</td>
<td>As Prescribed</td>
</tr>
<tr>
<td>ATSI</td>
<td>Aboriginal/Torres Strait Islander</td>
</tr>
<tr>
<td>BMT</td>
<td>Buprenorphine Maintenance Treatment</td>
</tr>
<tr>
<td>BZD</td>
<td>Benzodiazepine</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>DHS</td>
<td>Department of Human Services</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>HIC</td>
<td>Health Insurance Commission</td>
</tr>
<tr>
<td>IDRS</td>
<td>Illicit Drug Reporting System</td>
</tr>
<tr>
<td>IDU</td>
<td>Injecting Drug User</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>KE</td>
<td>Key Expert</td>
</tr>
<tr>
<td>MMT</td>
<td>Methadone Maintenance Treatment</td>
</tr>
<tr>
<td>NAP</td>
<td>Non or Not As Prescribed</td>
</tr>
<tr>
<td>NDSHS</td>
<td>National Drug Strategy Household Survey</td>
</tr>
<tr>
<td>NSP</td>
<td>Needle and Syringe Program</td>
</tr>
<tr>
<td>NSW</td>
<td>New South Wales</td>
</tr>
<tr>
<td>OST</td>
<td>Opioid Substitution Treatment</td>
</tr>
<tr>
<td>OTC</td>
<td>Over The Counter</td>
</tr>
<tr>
<td>PBS</td>
<td>Pharmaceutical Benefits Scheme</td>
</tr>
<tr>
<td>PO</td>
<td>Pharmaceutical Opioid</td>
</tr>
<tr>
<td>QLD</td>
<td>Queensland</td>
</tr>
<tr>
<td>SD</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>SDS</td>
<td>Severity of Dependence Scale</td>
</tr>
<tr>
<td>TAS</td>
<td>Tasmania</td>
</tr>
<tr>
<td>TM</td>
<td>Treatment</td>
</tr>
<tr>
<td>VIC</td>
<td>Victoria</td>
</tr>
<tr>
<td>WA</td>
<td>Western Australia</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

The project has been made possible through the valuable contributions of a number of people and organisations. The research team would like to thank the following:

**Queensland**
Hospital Alcohol and Drug Services, Royal Brisbane and Women's Hospital
Peel Street Clinic, Brisbane South Community Health, Queensland Health
Melaleuca Clinic, Alcohol and Drug Service, Chermside Community Health Centre, Queensland Health
Mirikai Residential Rehabilitation Service, Gold Coast Drug Council
Moonyah Community Detoxification Unit, Salvation Army
Queensland Injectors Health Network
Roma Street Clinic, Alcohol and Drug Service, 'Biala' City Community Health Centre, Queensland Health

**Tasmania**
The Salvation Army Bridge Program, New Town
Alcohol and Drug Service, New Town
Tasmanian Council on AIDS, Hepatitis and Related Disease
The Link Youth Health Service

**Victoria**
Next Door
The Windana Society Therapeutic Community
The Salvation Army Basin Centre
Turning Point Alcohol and Drug Centre
Lesley Ann Curran Place, Uniting Care Moreland Hall
Maroondah Addictions Recovery Project
Open Family
Wellington House
Dr Monica Cooper & Lygon Court Medical Clinic
Upper Hume Community Health Service
Ovens and King Community Health Service
Grampians Community Health Centre
Western Region Alcohol and Drug Centre
Sunraysia Community Health Service
Barwon Health
South West Healthcare
Rural Doctors Association of Victoria
Community pharmacies

**Western Australia**
Next Step Drug and Alcohol Services
West Australian Substance Users Association
Western Australian AIDS Council
Cyrenian House
Community Drug Service Teams in the northern, southern and eastern suburbs of Perth
Community pharmacies

Finally the authors would like to thank all of the participants including drug treatment clients and key experts who contributed their knowledge and experience to the study.
1. EXECUTIVE SUMMARY

Background and rationale
There is international evidence that pharmaceuticals are being increasingly misused. In the United States problematic pharmaceutical use and associated harms are greater than those seen with illicit drugs. A recent parliamentary report suggested that this is also a significant problem in Australia, yet misuse and related harms from pharmaceuticals has not been adequately described.

For the purposes of this study, ‘pharmaceutical misuse’ is defined as:

“Use by individuals that occurs without a prescription, or other than intended by the prescriber. In the instance of over the counter purchase, use other than for the instructions on the label or the intended purpose.”

Study purpose and aims
The two main objectives of this project were to:

- Investigate the role of pharmaceutical drug use and misuse in clients presenting for treatment at alcohol and drug treatment agencies.
- Examine the nature and extent of diversion and misuse of pharmaceutical drugs, and any associated health harm, within this group.

The results will be used to inform the development of a national intentional misuse of pharmaceuticals prevention strategy, screening tools for identifying problematic pharmaceutical use in clients presenting to treatment, and appropriate treatment for managing pharmaceutical misuse within treatment settings.

There were five key research areas which this study set out to address:

1. What are the patterns and extent of diversion and misuse of pharmaceuticals among alcohol and drug dependent clients?
2. What are the associated health harms from diversion and pharmaceutical drug misuse?
3. What effect does pharmaceutical drug misuse have on client presentations, treatment requirements, adherence and outcomes for alcohol and drug dependence treatment?
4. Are there jurisdiction-specific and regional differences in the extent and characteristics of pharmaceutical misuse among alcohol and drug dependent clients?
5. Is there an association between patterns of pharmaceutical drug diversion and characteristics of the drug treatment service system in specific jurisdictions?
Study methodology
The study consisted of the following:

- Literature review
- Focus groups
- Regional/rural telephone interviews
- Survey of drug treatment clients
- Review of clinical case files

Literature review
A review of available national and international literature on pharmaceutical misuse was conducted. Literature was examined that informed areas such as the extent of diversion and misuse of pharmaceuticals amongst different populations, patterns of pharmaceutical misuse within Australia and characteristics of pharmaceutical misusers.

Focus groups
Focus groups were conducted with Key Experts (KE) in metropolitan locations in Queensland (n=12), Victoria (n=6), Western Australia (n=6) and Tasmania (n=6). These were conducted in order to describe and document participants’ understanding of the impact of pharmaceutical misuse upon client treatment needs and treatment outcomes within and between jurisdictions, and to aid in the development of the survey. Participants were selected from a population of current alcohol and drug treatment professionals including youth and adult alcohol and drug treatment agencies, forensic alcohol and drug treatment professionals, medical practitioners, community pharmacists and drug user representative organisations within their respective jurisdiction.

The broad themes of interest were:

- Patterns and nature of presentation to treatment
- Role of pharmaceutical drugs in clients presenting for treatment
- Impact of pharmaceutical drug misuse on treatment
- Jurisdictional specific issues

Regional/rural telephone interviews
Semi-structured telephone interviews were conducted with KE working in rural and regional areas of Victoria (n = 8) Queensland (n = 12), Tasmania (n = 6) and Western Australia (n = 6) using the same interview schedule as in the focus groups. As with the focus groups, participants were selected from a population of current alcohol and drug treatment professionals, albeit working in rural/regional areas.
Survey of drug treatment clients
A face-to-face semi-structured survey was administered to a sample of recent entrants to pharmacotherapy, inpatient detoxification and residential rehabilitation treatment modalities. A criteria for eligibility was self-reported misuse of pharmaceuticals prior to treatment entry. A total of 305 clients were interviewed. The following domains were examined:

- Socio-demography
- Drug use history
- Licit and illicit procurement of pharmaceuticals
- Self-reported harms from pharmaceutical misuse
- Mental and physical health
- Reasons for seeking treatment
- Implications pharmaceutical misuse for treatment

Review of clinical case files
A retrospective clinical case note analysis of selected case files of individuals reporting pharmaceutical misuse was also undertaken (n=25) to further investigate the role of pharmaceutical drugs in treatment needs and outcomes.

Key findings

Focus groups
Pharmaceutical opioids and benzodiazepines were identified as the most commonly misused prescription drugs, with a broad range of treatment presentations, such as dependence developing from medical use and pharmaceutical drugs being used as a substitute for illicit drugs. KEs also reported a group of pharmaceutical misusers who did not present for treatment at traditional alcohol and drug treatment services, with these primary pharmaceutical misusers being thought to be a ‘hidden population’ of pharmaceutical misusers. Comorbidities including chronic pain and psychiatric disorders were noted as being prevalent amongst pharmaceutical misusers.

A range of barriers to treatment entry for clients were identified, particularly a lack of awareness of the potential for pharmaceutical misuse and dependency, and a perception of stigma attached to attending traditional alcohol and drug services. A range of difficulties with delivering treatment were also identified, including complications with treatment that arise from pharmaceutical misuse (such as secondary benzodiazepine dependence), the lack of treatment options available, and lack of resources to manage comorbidities.
Regional/rural telephone interviews

The main pharmaceuticals reportedly being misused in regional/rural areas were prescription opioids and benzodiazepines, consistent with patterns experienced by focus group KEs in metropolitan areas.

Rural KEs reported that prescription opioids were being used in unsanctioned ways such as in place of opioid substitution treatments or as a substitute for heroin where these drugs were unavailable. This highlights the importance of greater access to evidence based pharmacotherapies such as methadone and buprenorphine.

In many cases treatment entry was reported to be a result of external factors rather than a decision to seek treatment by the individual. Individuals misusing pharmaceuticals appeared to be a heterogeneous group with many different and often complex presentations, including individuals who did not identify as ‘drug users’, having often obtained their pharmaceuticals through legitimate sources.

Failure to detect pharmaceutical dependence or identify comorbidities upon treatment entry was noted to affect treatment outcomes.

Survey of drug treatment clients

The majority of the sample surveyed reported patterns of frequent misuse of pharmaceutical opioids and benzodiazepines. More than half the sample reported daily benzodiazepine use in the 4 weeks before treatment entry, and a third of the sample reported daily use of prescription opioids in 4 weeks prior to treatment entry. Using pharmaceutical medication ‘as prescribed’ was only reported by a minority of the sample. Less than 10% of the sample reported only ‘as prescribed’ use of prescription opioids; 14% of the sample reported only ‘as prescribed’ use of benzodiazepines. Some differences between jurisdictions were detected in drug use, route of administration and sources of prescription drugs. This may be primarily related to characteristics of the drug markets in each jurisdiction and the existing culture of pharmaceutical misuse in the area.

While a common source of pharmaceuticals was direct prescription from medical practitioners, this varied across drug type. The majority of prescription opioids were accessed illicitly by the individual drug user rather than by direct prescription. Many participants accessed pharmaceuticals from a range of sources, including friends or dealers. Similarly, while direct prescriptions were a primary source for some drug classes such as benzodiazepines, the majority of these participants used these drugs in manners other than as prescribed. Misuse of pharmaceuticals did reduce as a result of treatment, with the greatest reductions seen in use of prescription opioids. This suggests that existing treatments can be effective for some patients in reducing pharmaceutical misuse.

Two thirds of the sample showed moderate to severe mental health impairment, being greater than that seen in Australian IDU and in the general population.

A range of harms (including dependence, withdrawal, effects on memory and a range of injecting related harms) were experienced by participants, although only a minority of these harms resulted in a medical intervention. Among the benzodiazepines, alprazolam misuse was particularly associated with harmful experiences such as seizures, traffic accidents and crime related harm.
Review of clinical case files
A range of presentation types were identified from the case files. Some cases of illicit opioid use appear similar to primary heroin users in terms of treatment approach and outcomes, however a separate group of pharmaceutical misusers appears to exist with complex comorbidities (such as chronic pain or psychiatric disorders), some of which the AOD treatment does not appear to address, and likewise, current treatment systems may not have capacity to address. As a result, these untreated comorbidities may adversely affect treatment outcomes.

Benzodiazepine dependence was specifically noted to complicate treatment, and particularly to negatively impact on the management of alcohol withdrawal.

Directions for future research
- Research is needed to describe pharmaceutical misuse practices and perceptions of pharmaceutical misuse in a cross-sectional community and potentially 'hidden' sample, including clients who attend pharmacies and GPs but not drug treatment services.
- Prospective follow up studies of pharmaceutical misusers are required to better understand the natural history and trajectory of problematic pharmaceutical misuse.
- Further research needs to be conducted to establish which treatment strategies are effective for pharmaceutical misusers.
- Research is needed to better understand the link between psychiatric comorbidity and chronic pain to pharmaceutical misuse.

Recommendations
1. Identification and treatment of pharmaceutical misuse

Monitoring medication adherence
The results of this study indicate that most pharmaceutical use in the drug treatment population occurs in a non prescribed, or not as prescribed way. It is important to detect non-prescribed use and drug seeking behaviour (eg seeing multiple prescribers and pharmacies), which is currently able to be detected from data collected in surveillance studies such as the Illicit Drug Reporting System and retrospective prescription monitoring. However, in addition it is also important to detect cases where people are using their own prescribed medications in an unintended way (non-adherence) in order to reduce the incidence of problems associated with pharmaceutical misuse.

Better screening for pharmaceutical misuse
Benzodiazepine dependence is not often detected at treatment entry. In AOD treatment services, client assessments need to screen for use of a range of pharmaceuticals, and clients should be asked if their use of pharmaceuticals is in a non or not as prescribed way rather than solely enquiring about use per se. Included in this screening should be
medications that are not currently routinely considered, such as over the counter codeine containing analgesics, as misuse of these drugs appears to be an emerging issue.

**Development of best practice clinical guidelines for delivering AOD treatment in the context of polydrug pharmaceutical dependence**

The complications of delivering AOD treatment where secondary benzodiazepine dependence also exists requires an evidence base for the management of concurrent opioid or alcohol dependence with benzodiazepine dependence. The need for guidelines for the management of alcohol withdrawal with concurrent benzodiazepine dependence is specifically indicated from the findings of this study.

**Monitoring harms associated with specific pharmaceuticals**

Alprazolam appeared to be more problematic than other benzodiazepines with disproportionate harms associated with alprazolam use. Monitoring to establish the extent of alprazolam misuse and related harms is warranted to inform consideration of whether a specific and perhaps regulatory response is required.

### 2. Identification and treatment of physical and/or mental health comorbidities

**Better screening for comorbidities**

There appears to be a subgroup of pharmaceutical misusers with chronic pain and psychiatric disorders. There is empirical evidence to suggest that the effectiveness of substance use treatment is diminished when existing comorbidities are not identified and/or effectively addressed. The inclusion of a brief screening for pain and psychiatric disorders in all clients seeking AOD treatment (including those attending community prescribers) should be considered.

**Addressing co-morbidity through treatment**

A range of educational and treatment strategies needs to be developed and additional resources and linkages to other specialist services need to be established to more effectively address psychiatric comorbidities and chronic pain. Significant psychological distress was reported amongst this treatment sample; treatment to reduce psychological distress may reduce some drivers of pharmaceutical misuse. In addition training is required to enable better management of pain in opioid dependent patients.

**Linkages between services**

Better linkages between pain and AOD services is required as long waiting lists for specialist pain services are noted to negatively affect the success of alcohol and drug treatment. Streamlined referral between agencies could facilitate better outcomes for both pain management and treatment of pharmaceutical dependence.

### 3. Training, screening and referral for non-AOD health professionals

**GPs and pharmacists to intervene in problematic pharmaceutical use**

The role of GPs and pharmacists in reducing problematic pharmaceutical use was highlighted in the findings of this study. Health professionals should determine medication adherence
when medications are prescribed and dispensed. In order to better detect problematic pharmaceutical use, patients should be routinely asked about medication adherence to establish if patients are taking their medication as prescribed.

An education and training program for non-AOD health professionals should encompass:

i) Characteristics of pharmaceutical misuse, including screening processes, risks and perceived benefits associated with use.

ii) Clinical care issues including pain management, identifying aberrant drug-related behaviours, practical approaches to addressing drug seeking behaviour, refusal of inappropriate requests and, and most importantly, appropriate referral pathways where problematic use is detected.

iii) Ongoing monitoring for adherence, aberrant drug-related behaviours and diversion.

Training for health professionals should include clear referral pathways for patients when problematic pharmaceutical use is identified, rather than merely refusing to continue prescribing drugs.

4. Rural and jurisdictional differences

Additional resources and different treatment approaches for regional/rural areas

Distinct patterns appear to exist in regional/rural areas and in different jurisdictions. This means that strategies, including education and treatment approaches, may require tailoring to the needs of particular areas.

It is clear from the findings of this study that in current treatment systems in regional/rural areas as well as capital cities in some jurisdictions there are problems due to:

- Lack of pharmacotherapy prescribers.
- Pressure on current GPs.
- Prescription opioids being used in place of opioid substitution treatment.

Daily attendance at pharmacies for supervised dosing of pharmacotherapies is even more problematic in geographically isolated areas. Alternative ways for delivering treatment to effectively address needs and the particular barriers to treatment in rural areas should be considered.

5. The hidden population of pharmaceutical misusers

Key experts indicate we are only seeing the ‘tip of the iceberg’ of pharmaceutical misuse

Research is essential to develop a better understanding of:

- The extent of pharmaceutical misuse in the community.
- The range of pharmaceutical related problems.
- How to develop appropriate interventions to increase awareness and treatment uptake.
Existing AOD services may not be appropriate for all people misusing pharmaceuticals, and hence treatment options must be developed that can attract those not attending traditional AOD services. This may include different ways of delivering treatment such as the expansion of buprenorphine-naloxone treatment in a less restrictive treatment model.

Better access to information for prescribers and pharmacists about medication history, such as real-time online prescription recording systems, as recommended in the DCPC report (Drugs and Crime Prevention Committee, 2007), may assist in the reduction of inappropriate prescribing and in the detection of pharmaceutical misuse and dependence.

Given the lack of awareness of pharmaceutical misuse that is thought to exist in the general population, education and information for the general public should be considered.
2. BACKGROUND AND METHODOLOGY

Background rationale to the current study
Every year in Australia large quantities of pharmaceutical drugs are prescribed and some of these are subsequently misused. Some pharmaceuticals are either not used as directed or are diverted to someone other than the prescription holder. There has been a substantial increase in prescription drug misuse and related harms overseas (Compton and Volkow, 2006; Lipman and Jackson, 2006; Paulozzi et al, 2006), as well as evidence of increasing prescription and illicit use in Australia (Degenhardt et al, 2006). Although there is concern that pharmaceutical misuse may lead to adverse physical and health outcomes, this is at present inadequately described.

For the purposes of this study, ‘pharmaceutical misuse’ is defined as:

“Use by individuals that occurs without a prescription, or other than intended by the prescriber. In the instance of over the counter purchase, use other than for the instructions on the label or the intended purpose.”

The Ministerial Council on Drug Strategy commissioned the project as a cost shared funding model. The Department of Human Services (Victoria) sought tenders in 2007 for research to enhance understanding of pharmaceutical misuse amongst drug treatment clients. The request for tender, for which the current study was developed (RFT T0607032), sought to investigate the role of pharmaceutical drugs in clients presenting for treatment to alcohol and drug treatment agencies across at least three jurisdictions, and to examine the nature and extent of diversion and misuse of pharmaceutical drugs, and associated health harms, within this group.

The background for this tender was that:

- Large quantities of psychoactive drugs are supplied in Australia each year and diversion to illicit use is widespread. Drugs such as opioids and benzodiazepines cause dependence, adversely affect behaviour and are diverted, misused, injected and trafficked.

- The wide availability and low cost of powerful, packaged pharmaceutical grade drugs of assured dose may make them attractive for misuse.

- Some indication of the cost of the intentional misuse of pharmaceutical drugs is suggested by an estimate of the cost of diversion of Pharmaceutical Benefits Scheme (PBS) prescription drugs by ‘doctor shoppers’ who are identified as attending fifteen or more general practitioners a year in order to obtain large quantities of PBS drugs. Doctor shopping is estimated to cost Medicare Australia more than 30 million dollars a year.

- Economists who have calculated the economic cost of drug abuse in Australia have been unable to include an estimate of the cost of misuse of pharmaceuticals. They
comment that further research is necessary in order to quantify the costs associated with abusive consumption of pharmaceutical drugs.

- Misuse of pharmaceuticals and the adverse consequences resulting from this misuse is at present inadequately described and recognised. It is a complex problem that requires a comprehensive, systematic and national response.

- Misuse of pharmaceutical drugs contributes to polydrug use and complicates the treatment of other alcohol and drug problems. Pharmaceutical drug misuse has the potential to have an adverse effect on the management of polydrug use and retention of clients in treatment.

This project sought to inform these areas including the impact of jurisdictional differences on presentations and patterns of use.

**Study aims and objectives**

**Objectives**

The objectives of this project were to:

- Investigate the role of pharmaceutical drug use in clients presenting for treatment at alcohol and drug treatment agencies.

- Examine the nature and extent of diversion and misuse of pharmaceutical drugs, and any associated health harms within this group.

- Inform the development of:
  - A national prevention strategy on misuse of pharmaceuticals.
  - A screening tool for detecting pharmaceutical misuse in clients presenting for alcohol and drug treatment.
  - Treatment protocols for managing pharmaceutical misuse within treatment settings.

**Research questions**

There were five research questions which this study set out to inform:

1. What are the patterns and extent of diversion and misuse of pharmaceuticals among alcohol and drug dependent clients?

2. What are the associated health harms from diversion and pharmaceutical drug misuse?

3. What effect does pharmaceutical drug misuse have on client presentations, treatment requirements, adherence and outcomes for alcohol and drug dependence treatment?

4. Are there jurisdiction-specific differences in the extent and characteristics of pharmaceutical misuse among alcohol and drug dependent clients?
5. Is there an association between patterns of pharmaceutical drug diversion and characteristics of the drug treatment service system in specific jurisdictions?

**Study methodology**

**Literature review**

A review of available national and international literature on pharmaceutical misuse was conducted. A set of key words was developed from examination of the research questions. Literature was examined that informed the areas of: extent of diversion and misuse of pharmaceuticals amongst different populations, patterns of pharmaceutical misuse within Australia, characteristics of pharmaceutical misusers, effect of pharmaceutical misuse on treatment outcomes, and harms and health service utilisation associated with pharmaceutical misuse. Keywords were used to perform searches for published literature through electronic databases (such as PUBMED, PsycINFO and MEDLINE), and further literature was then sourced through backward searching and forward searching of references and authors (Levy and Ellis, 2006).

The study team was also familiar with grey literature and reports through previous studies investigating aspects of pharmaceutical misuse.

Relevant papers and reports were chosen from reviewing abstracts of papers and information that was identified through these methods.

**Focus groups**

**Objectives**

The purpose for holding the focus groups was to:

- Describe and document participants’ understanding of the impact of pharmaceutical misuse upon treatment needs and client treatment outcomes within and between jurisdictions.

- Inform the final sampling frame quotas (e.g. treatment modalities, primary drugs of dependence) for the later survey of drug treatment clients.

- Aid in the development of the structured questionnaire for the treatment clients.

**Sampling**

Each focus group comprised of between six-twelve participants.

Four focus groups were conducted with Key Experts (KE) in metropolitan locations in Queensland (n=12) Victoria (n=6), Western Australia (n=6) and Tasmania (n=6).

Participants were selected from the population of current alcohol and drug treatment professionals including youth and adult alcohol and drug treatment agencies, forensic alcohol and drug treatment professionals, medical practitioners, community pharmacists and drug user representative organisations in their respective jurisdiction.
Participants were invited on the basis of regular contact with and/or specialised knowledge of illicit drug users, drug treatment seekers and pharmaceutical misuse and related issues of concern.

**Procedures**
Members of the project team facilitated each focus group in accordance with a standard protocol.

The broad themes of interest were:

- Patterns and nature of presentation to treatment.
- Role of pharmaceutical drugs in clients presenting for treatment.
- Jurisdictional specific issues.

A member of the project team recorded the main themes/content of the discussion on a visible whiteboard/butchers paper. Participants had the opportunity to check and amend the focus group record in situ. Focus group data were analysed using the techniques of content and thematic analysis.

**Regional/rural telephone interviews**
Semi-structured telephone or face to face interviews were conducted with KE working in rural and regional areas of Victoria (n = 8) Queensland (n = 12), Tasmania (n = 6) and Western Australia (n = 6).

**Objectives**
The purpose of conducting telephone interviews was to investigate the situation in rural/regional areas, relating to:

- Patterns and nature of presentation to treatment.
- Role of pharmaceutical drugs in clients presenting for treatment.
- Jurisdictional specific issues.

**Sampling**
Between 6-12 participants were recruited in each jurisdiction.

As with the focus groups, participants were selected from the population of current alcohol and drug treatment professionals, albeit working in rural/regional areas.

**Procedures**
Qualitative interviews were conducted either via telephone or face to face in a private setting approved by the interviewee. The key informant interview schedule covered the same themes as the focus groups, but also included additional questions of rural/regional specific issues.
Interviewers made detailed notes during the interview and KEs were given the opportunity to review the interview notes for accuracy and to clarify report as necessary.

Survey of drug treatment clients
A survey was administered to a sample of recent entrants to pharmacotherapy, inpatient detoxification and residential rehabilitation treatment modalities. The objective was to describe the nature of pharmaceutical misuse and its impact on treatment.

Sampling
A purposefully selected convenience sample of clients attending one of three types of drug treatment service (i.e. pharmacotherapy, inpatient detoxification and residential rehabilitation) was recruited.

Inclusion criteria for participation in the survey of drug treatment clients was:

- Aged 16 years or over.
- Able to provide informed consent in English.
- Had commenced treatment at an alcohol and drug treatment agency or substitution pharmacotherapy service provider within the past six months.
- Self reported to have used pharmaceutical medications at least monthly for the past six months.

Quota Sampling
As this study is exploratory in nature and in order to adequately describe issues of pharmaceutical misuse across treatment modalities and jurisdictions, quota sampling was used.

The breakdown of participants (n = 305) by treatment modality and jurisdiction is described in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>Victoria (Melbourne)</th>
<th>Tasmania (Hobart)</th>
<th>WA (Perth)</th>
<th>QLD (Brisbane)</th>
<th>NATIONAL TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacotherapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methadone</td>
<td>28</td>
<td>8</td>
<td>23</td>
<td>27</td>
<td>86</td>
</tr>
<tr>
<td>Buprenorphine/Suboxone</td>
<td>19</td>
<td>11</td>
<td>17</td>
<td>14</td>
<td>61</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>38</td>
<td>4</td>
<td>2</td>
<td>26</td>
<td>70</td>
</tr>
<tr>
<td>Residential Rehabilitation</td>
<td>23</td>
<td>19</td>
<td>8</td>
<td>38</td>
<td>88</td>
</tr>
<tr>
<td>TOTAL</td>
<td>108</td>
<td>42</td>
<td>50</td>
<td>105</td>
<td>305</td>
</tr>
</tbody>
</table>

Note that despite considerable effort, recruitment of the population of interest in some states was slower than expected. Subsequent oversampling in some jurisdictions and treatment types was initiated so that meaningful analysis of the data could be undertaken.

Procedures and data analysis
Data collection was undertaken from January – July 2008.
In order to access the required numbers of participants in each treatment modality, a wide range of recruitment sites were used. These included government and non-government services and community pharmacies.

The following domains were included in the survey:

1. Socio-demography
2. Drug use history
3. Licit and illicit procurement of pharmaceuticals
4. Self reported harms from pharmaceutical misuse
5. Reasons for seeking treatment
6. Implications of pharmaceutical misuse for treatment

Each participant was reimbursed $30 for time, out-of-pocket and travel expenses. Individual interviews took approximately 60 minutes to conduct.

Case file reviews
A retrospective clinical case note analysis of selected case files of individuals reporting pharmaceutical misuse was also undertaken (n = 25) to further investigate the role of pharmaceutical drugs on treatment needs and outcomes.

Sampling
Case files were selected based on their characteristics fitting into one of four types of presentations:

- Primary pharmaceutical opioid dependent person presenting for inpatient detoxification.
- Primary pharmaceutical opioid dependent person presenting for outpatient opioid substitution treatment.
- Primary heroin dependent person presenting for outpatient opioid substitution treatment also reporting non or not as prescribed benzodiazepine use.
- Alcohol dependent person presenting for inpatient detoxification, also reporting non or not as prescribed benzodiazepine use.

Procedures and data analysis
Following informed consent of the participant, medical records of the treatment episode from the treatment agency were photocopied, de-identified (all names removed from the copies), and independently analysed by two researcher clinicians for the likely impact of the participant’s pharmaceutical misuse upon their treatment requirements and treatment outcomes. Key themes regarding the impact of pharmaceutical misuse upon treatment needs and outcomes were described first independently and then compared with results being agreed upon by both researcher clinicians.
Jurisdictional characteristics in alcohol and drug treatment services

There are some substantial differences in the characteristics of alcohol and drug treatment services across Australia. The characteristics of each of the states participating in this study (Victoria, Tasmania, Queensland and Western Australia) are described below, and findings presented in Chapter 4 are interpreted in Chapter 5 in view of some of these differences.

Differences in pharmacotherapy numbers across different jurisdictions are described in Table 2.

Table 2 - Pharmacotherapy numbers by jurisdiction (Australian Institute of Health and Welfare, 2008)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>13,596</td>
<td>6,630</td>
<td>2,676</td>
<td>1,957</td>
<td>512</td>
<td>607</td>
<td>48</td>
<td>27,669</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>2,752</td>
<td>1,548</td>
<td>1,633</td>
<td>246</td>
<td>73</td>
<td>33</td>
<td>34</td>
<td>8,925</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine/naloxone</td>
<td>—</td>
<td>2,873</td>
<td>—</td>
<td>619</td>
<td>15</td>
<td>75</td>
<td>32</td>
<td>3,974</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16,348</td>
<td>11,051</td>
<td>4,309</td>
<td>2,822</td>
<td>600</td>
<td>765</td>
<td>114</td>
<td>38,568</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>83.2</td>
<td>80.0</td>
<td>52.1</td>
<td>69.3</td>
<td>64.2</td>
<td>85.3</td>
<td>79.3</td>
<td>42.1</td>
<td>71.7</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>16.8</td>
<td>14.0</td>
<td>37.9</td>
<td>3.7</td>
<td>21.7</td>
<td>12.2</td>
<td>10.8</td>
<td>29.8</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine/naloxone</td>
<td>—</td>
<td>26.0</td>
<td>21.9</td>
<td>21.1</td>
<td>14.1</td>
<td>2.5</td>
<td>9.8</td>
<td>28.1</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Per cent of all clients by jurisdiction</td>
<td>42.4</td>
<td>28.7</td>
<td>11.2</td>
<td>7.3</td>
<td>6.6</td>
<td>1.6</td>
<td>2.0</td>
<td>3.3</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>83.9</td>
<td>59.6</td>
<td>51.2</td>
<td>64.8</td>
<td>62.5</td>
<td>86.5</td>
<td>75.9</td>
<td>53.0</td>
<td>71.4</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>16.1</td>
<td>26.8</td>
<td>38.8</td>
<td>18.8</td>
<td>30.9</td>
<td>13.5</td>
<td>24.1</td>
<td>30.6</td>
<td>23.2</td>
<td></td>
</tr>
<tr>
<td>Buprenorphine/naloxone</td>
<td>—</td>
<td>13.6</td>
<td>16.4</td>
<td>8.6</td>
<td>—</td>
<td>16.4</td>
<td>3.5</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Per cent of all clients by jurisdiction</td>
<td>42.3</td>
<td>27.8</td>
<td>12.0</td>
<td>7.5</td>
<td>5.5</td>
<td>1.6</td>
<td>2.0</td>
<td>3.3</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

(a) In New South Wales and in Queensland, clients prescribed buprenorphine/naloxone are counted under buprenorphine
(b) The number of clients on the program is represented by a ‘snapshot/specifed’ day in June, except for Western Australia, where the number of clients treated through the month of June is reported
Note: Each state and territory uses a different method to collect data on pharmacotherapy prescription and dosing. These differences may result in minor discrepancies if directly comparing one jurisdiction with another jurisdiction.

Victoria
Pharmacotherapy

In Victoria, most alcohol and drug treatment services are provided through non-government organisations funded by the state. Private medical practitioners provide some services, such as methadone and buprenorphine prescribing, with almost all people on methadone and buprenorphine/buprenorphine-naloxone seeing a private prescriber and attending a community pharmacy for dosing. Some private hospitals and centres provide drug treatment, predominantly to patients with private health insurance. A small number of specialist pharmacotherapy services exist in metropolitan areas patients for patients with more complex treatment requirements.

A person can start on pharmacotherapy with any prescriber who has completed a training course, and be dosed at any approved pharmacy. There is no requirement to attend an
alcohol and drug clinic. There is reasonable access to pharmacotherapies in most areas, however in some parts of Melbourne and in rural/regional areas of Victoria there is more difficulty in accessing this treatment due to a lack of prescribers and pharmacies that offer the service. There are approximately 11,000 people in pharmacotherapy treatment in Victoria with about 60% on methadone.

Withdrawal
Detoxification can be completed on an inpatient basis through private or public services, an outpatient basis (attending a clinic for medication/seeing a counsellor) or at home with the assistance of a home based withdrawal nurse. There are a number of different inpatient withdrawal services. Waiting time to enter is approximately one week. People can self refer or be referred by other treatment services.

Residential rehabilitation
There are a number of residential rehabilitation services in Victoria. Virtually all of these services have a waiting list and the majority have a requirement to be drug free upon entry. The mean waiting times are reported to be just under a week, though waiting lists of several weeks at some services exist.

Tasmania
Pharmacotherapy
Buprenorphine/buprenorphine-naloxone or methadone can be started by appropriately registered/qualified private GPs, however there is very limited capacity to start new clients with private prescribers so virtually all new clients are started by government prescribers. Government prescribers are currently only located in the southern part of the state, with limited treatment access in other areas. Waiting lists are extremely long due to the small number of prescribers, with only small numbers of patients initiated onto pharmacotherapy each year. There are approximately 600 people in opioid substitution pharmacotherapy treatment in Tasmania, and approximately 80% receive methadone.

Withdrawal
Residential detoxification occurs primarily in the public service, but a small number is undertaken in private hospitals. The majority of inpatient withdrawals are completed in the public service, located in the southern part of the state. In the state service, there is a waiting list of up to a fortnight, partly due to limited hours of availability of medical staff. The majority of detoxification episodes are alcohol related (approximately 60%, with the remaining 40% primarily due to opioids including re-stabilisation of people on pharmacotherapies). People can self refer, or referrals can be made by GPs or drug services in the community. Outpatient withdrawal services are also available in the north of the state supported by GPs in conjunction with state government alcohol and drug services.

Residential rehabilitation
Two services exist, one in the south of the state and one in the north. The service in the north is an extended, non medical, religion-based service with a small number of beds. The service is open to all people dealing with substance dependence; however, clients must be free of drugs prior to entry (via detoxification or abstention). The service in the south is open to all
people dealing with substance dependence, and in the past 12 months, the majority of admissions have related to alcohol, followed by cannabis, methamphetamines and opioids.

There are a small number of beds resulting in extended waiting lists, on average 16 weeks. Entry can be from referral or via inpatient detoxification. The service in the south has a requirement for the patient to be detoxified; and to not have had any acute mental health admissions for the three weeks prior to entry.

**Queensland Pharmacotherapy**

Queensland Health is the main provider of opioid treatment services in Queensland. However some services are also provided through the private sector, particularly in the south east of the state.

In Queensland methadone and buprenorphine/buprenorphine-naloxone are both available from opioid treatment services, with buprenorphine/buprenorphine-naloxone available for both detoxification and maintenance treatments. Across the State there are approximately 4,500 people on opioid substitution treatment of whom approximately 60% are on methadone. However, most pharmacotherapy clinics are oversubscribed, thus clients may wait some weeks or even longer to join a program. Opioid substitution treatment (OST) is available through either public or private sector clinics (mostly GPs or private psychiatrists). OST is also available at the Brisbane Watchhouse, but only if the client is already registered on a program and the prescriber is willing to prescribe to them. Pregnant opioid dependent women are stabilised on methadone (with their consent) by the Clinical Forensic Medical Unit's Forensic Medical Officers. Within the custodial system opioid treatment is only available to women. All prescribers in the public or private sector are required to complete a one day opioid treatment training program, complemented by a day’s exposure to an opioid treatment clinic. Most clients are dosed at community pharmacies once they are stabilised on their OST, although access to 7 day pharmacies is limited in many parts of the state.

**Withdrawal**

Inpatient opioid detoxification is available at public hospitals however most patients would be referred to the only publicly funded detoxification service at the Royal Brisbane and Women’s Hospital, HADS, which has 20 beds. Patients are able to self refer or can be referred by other health professionals. There are some private detoxification beds available at a small number of private hospitals in south east Queensland. There are no detoxification beds available in the north of Queensland, although there is a detox unit at Cairns Base Hospital which has around six chairs, caring for patients by day, who return home to sleep at night. As an alternative, outpatient detoxification is available at Biala City Community Health Centre which is staffed seven days a week.

**Residential rehabilitation**

There are a number of residential rehabilitation services in Queensland, all of which are provided by non-government agencies, generally funded by the state but sometimes with federal money for specific services. All of these services have a waiting list and the majority have a requirement to be drug free upon entry. There are no residential rehabilitation services that will accept patients on OST. Most residential rehabilitation services aim to have clients complete a 3-6 month program.
Western Australia
Pharmacotherapy
There are approximately 3,000 people in OST in Western Australia, with about 70% of those being on methadone and the remainder on buprenorphine or buprenorphine-naloxone. Pharmacotherapy services comprise 7 clinics located in the Perth metropolitan area and a coordinated community pharmacotherapy program. Over half of the clients in pharmacotherapy treatment see a private prescriber. Virtually all clients are dosed in a community pharmacy.

Withdrawal
A government provided inpatient detoxification service is available in Perth, as well as a 42 bed residential rehabilitation service operated by a non-government organisation.

Residential rehabilitation
Approximately half of the treatment budget in WA is allocated to non-government organisations that predominantly provide residential rehabilitation services.

Methadone and buprenorphine treatment across jurisdictions
Approximately 60% of all patients across all jurisdictions are treated with methadone with the balance treated with buprenorphine or buprenorphine-naloxone. The percentage of methadone treatment compared to buprenorphine or buprenorphine-naloxone is highest in Tasmania at about 85%, though anecdotal evidence suggests that most new clients starting on pharmacotherapy in Tasmania are more frequently being started on buprenorphine-naloxone.
3. FINDINGS OF REVIEW OF LITERATURE

Introduction
Misuse of prescription drugs has gained increasing government and media attention in Australia and internationally over recent years. Non-medical use of analgesics and pain relievers is the third most common class of drugs used by Australians in the previous 12 months, behind cannabis and ecstasy (Australian Institute of Health and Welfare, 2007b). Pharmaceutical drugs are also very accessible, with 15% of the Australian population reporting being offered or having the opportunity to use analgesics or pain-killers for non medical purposes in the previous 12 months, with cannabis the only substance reported to be more accessible (Australian Institute of Health and Welfare, 2008d). This makes the misuse of pharmaceutical drugs an important problem which needs a more comprehensive understanding.

The non medical use of prescription drugs has increased significantly internationally. In the United States (US) prescription misuse has been described to be at epidemic levels (Compton and Volkow, 2006; Lipman and Jackson, 2006). Non-medical prescription drug use in the US increased by 67% between 1991-1992 and 2001-2002, with the greatest increases being seen in prescription opioids (Blanco, 2007). In the US prescription drugs are the second most commonly used drug among people aged 12-17 (Substance Abuse and Mental Health Services, 2007).

Along with an increased misuse of prescription drugs, there have been reports in the US of an increase in associated harms. Mortality associated with pharmaceutical opioids use has exceeded that documented on heroin or cocaine use (Paolozzi et al, 2006). Emergency room presentations involving psychotropic drugs doubled from 1994 to 2001 (Zacny et al, 2003). Large increases in the use of hydrocodone and oxycodone products have also been reported.

A number of factors may contribute to an incomplete understanding of the extent of pharmaceutical misuse. This includes the commonly expressed belief as reported by North American college students that pharmaceutical drugs are not harmful (Quintero, 2006). In submissions to a parliamentary enquiry in Victoria, Australia, similar views were expressed suggesting that prescription drugs are not thought of as ‘drug problems’, and the perception exists that doctors would not give people drugs that are not safe (Drugs and Crime Prevention Committee, 2007). This perception has also been reported in a qualitative research study on benzodiazepines where injecting drug users considered benzodiazepines safer than illicit drugs because they knew the content of the drugs they were injecting (Fountain et al, 1999). Another case study was reported in the media which described a situation of severe dependence and side effects relating to pharmaceutical use (Guilliatt, 2008). Dependence to pharmaceuticals was only realised when an attempt to cease medication was made. This media report emphasises that dependency on pharmaceuticals can occur unwittingly and may never be detected.

More detail was provided by a literature review that examined the misuse of prescription drugs, misuse amongst different populations as well as the harms associated with prescription drug use.
International data on prescription drug misuse
Non medical use of prescription pain relievers represents the most frequent drug class used by new initiates aged 12 and over in the United States (see Figure 1) (Substance Abuse and Mental Health Services, 2007). Non medical use of pharmaceutical drugs was reported by 2.6 million people aged 12 and older in 2006. The numbers using pharmaceutical stimulants increased significantly, by over 30% compared to 2005 figures (Substance Abuse and Mental Health Services, 2007).

Figure 1 - Past year initiates for specific illicit drugs amongst people 12 years and older, 2006. National Survey on Drug Use and Health: National Findings, United States

Pharmaceutical misuse, primarily benzodiazepine use, has been reported amongst injecting drug users in a number of countries including the United States (Hartog and Tusel, 1987), United Kingdom (Ruben and Morrison, 1992), Canada (Haydon et al, 2005), Israel (Gelkopf et al, 1999) and Australia (Darke, 1994; Darke et al, 1995; Ross and Darke, 2000; Fry and Bruno, 2002; Breen et al, 2004).

National mortality data in the United States revealed large increases in unintentional drug poisonings with opioid analgesics accounting for many of these deaths (Paulozzi et al, 2006). These increases coincided with a large increase in the sale of prescription opioids (Paulozzi et al, 2006). Large numbers of emergency department presentations attributed to prescription opioids and benzodiazepines use have also been reported. Of the nearly half a million emergency department visits in 2004, 61% involved either benzodiazepines or prescription opioids (Novak and Ball, 2006).
An examination of poison centre data in the US revealed that hydrocodone, oxycodone and methadone were the most commonly reported prescription opioids used (Hughes et al, 2007), with emergency department statistics showing a similar pattern.

Current benzodiazepine misuse amongst samples of methadone patients has also been found to be common in several countries (Stitzer et al, 1981; Hartog and Tusel, 1987; Garretty et al, 1997; Gelkopf et al, 1999).

The concurrent use of intravenous buprenorphine and temazepam has at times, exceeded heroin use. A large black market in buprenorphine and temazepam was identified in Glasgow almost twenty years ago. The increased use of these pharmaceuticals was associated with a reduced cost and greater availability compared to heroin at the time (Hammersley et al, 1990).

The International Narcotics Control Board noted that pharmaceutical misuse and trafficking was problematic in many countries across various continents such as Africa, Asia, North America and Europe (INCB, 2008). High rates of misuse and trafficking were reported for benzodiazepines, pharmaceutical opioids, pharmaceutical stimulants and ketamine. In some countries the abuse of narcotic pharmaceutical preparations has surpassed the abuse of illicitly manufactured drugs (INCB, 2008).

**Prescription drug misuse in Australia**

In Australia the two main classes of pharmaceuticals commonly misused are the psychoactive drugs opioids and benzodiazepines. The injection and other misuse of benzodiazepines and pharmaceutical opioids by Injecting Drug Users (IDU) has been increasing in most Australian jurisdictions (Australian Bureau of Criminal, 2002; Department of Human Services, 2002; Black et al, 2008), and it is predicted the market may continue to expand (Australian Bureau of Criminal, 2002; Department of Human Services, 2002; Strategic Crime Analysis, 2002). The increased prevalence of benzodiazepine and pharmaceutical opioid misuse has been attributed to their increased availability and the ease with which they can be obtained from doctors or trafficked on the street, as well as their affordability and consistency (Strategic Crime Analysis, 2002). Benzodiazepines, for instance, are among the most commonly prescribed drugs in Australia with more than three million prescriptions being issued under the PBS in 2003 (Commonwealth Department of Health & Ageing, 2004).

In Australia, morphine prescription per person in the 15-54 year old age group has almost doubled from 1995 to 2003 (Degenhardt et al, 2006). Amongst IDU the non-medical use of morphine appears to be related to the availability of illicit opioids, with highest levels of use reported in jurisdictions such as the Northern Territory where illicit drugs are not commonly available (O’Brien et al, 2007). The Illicit Drug Reporting System (IDRS) conducts interviews with a sentinel population of IDU to monitor trends with illicit drug use. Findings from the IDRS in recent years suggest that morphine use by IDU within the six months prior to the survey is high (around half of the national sample), and increasing in many jurisdictions (Table 3). Most morphine and oxycodone was reportedly acquired illicitly and injected rather than taken orally (O’Brien et al, 2007; Black et al, 2008).
Illicit use and injection of buprenorphine became widespread following its introduction as a treatment for opioid dependence in 2001, although this varied significantly between Australian jurisdictions (Kinner, 2002; Jenkinson, 2004). In Victoria, illicit buprenorphine use has been reported more frequently compared with other jurisdictions (Jenkinson et al, 2005). However, as the amount of buprenorphine prescribed in other states increased, the diversion of buprenorphine has also subsequently increased.

Table 3 - Percent (%) of IDU reporting morphine use in the previous 6 months by jurisdiction 2001-2007 (Black et al 2008)

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>13</td>
<td>22</td>
<td>23</td>
<td>29</td>
<td>27</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td>ACT</td>
<td>59</td>
<td>37</td>
<td>50</td>
<td>40</td>
<td>37</td>
<td>57</td>
<td>56</td>
</tr>
<tr>
<td>VIC</td>
<td>32</td>
<td>51</td>
<td>42</td>
<td>53</td>
<td>42</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>TAS</td>
<td>72</td>
<td>76</td>
<td>72</td>
<td>52</td>
<td>59</td>
<td>32</td>
<td>56</td>
</tr>
<tr>
<td>SA</td>
<td>43</td>
<td>46</td>
<td>43</td>
<td>42</td>
<td>37</td>
<td>51</td>
<td>44</td>
</tr>
<tr>
<td>WA</td>
<td>32</td>
<td>52</td>
<td>41</td>
<td>46</td>
<td>52</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>NT</td>
<td>83</td>
<td>86</td>
<td>82</td>
<td>87</td>
<td>80</td>
<td>51</td>
<td>52</td>
</tr>
<tr>
<td>QLD</td>
<td>35</td>
<td>39</td>
<td>42</td>
<td>50</td>
<td>52</td>
<td>53</td>
<td>58</td>
</tr>
<tr>
<td>National Average</td>
<td>43</td>
<td>50</td>
<td>47</td>
<td>49</td>
<td>44</td>
<td>52</td>
<td>53</td>
</tr>
</tbody>
</table>

Buprenorphine misuse has the potential to negatively affect the delivery of OST. Of those injecting buprenorphine, almost half of the participants reported using buprenorphine obtained from another source (Jenkinson et al, 2005). This can jeopardise community pharmacy services where the majority of buprenorphine is dispensed, with the pharmacist placed in a role of policing for buprenorphine diversion, creating great tensions within the delivery system of buprenorphine and in some cases resulting in pharmacies ceasing to provide this service (Nielsen et al, 2007a). Anecdotal reports suggest some pharmacies and prescribers will not offer the buprenorphine mono product, only offering the buprenorphine-naloxone formulation, due to concerns about diversion. In Western Australia the buprenorphine-naloxone combination product is now the standard preparation to be used, with the buprenorphine mono product only used in special circumstances (Drug and Alcohol Office, 2007).

Methadone injection has also been reported, with methadone also being prone to diversion from medical treatment programs to the black market. Injection of both the syrup and tablet forms of the drug have been found to be widespread among IDU in many jurisdictions in Australia (Darke et al, 2002). Jurisdictions where unsupervised doses are less diluted report higher levels of injection (Darke et al, 2002; Fiellin and Lintzeris, 2003; Jenkinson et al, 2005).

National surveillance studies have only recently begun to collect data specifically on the use of the opioid analgesic, oxycodone. In 2007, 28% of the national sample reported recent use (in the last six months) (Black et al, 2008). In 2006 the highest levels of illicit oxycodone use were in Western Australia (42%) and Tasmania (29%). In 2007 oxycodone use increased with 28% of the national sample reporting recent use, with the highest levels reported in Western Australia (44%) and Queensland (29%), and increases in all states and territories except South Australia (Black et al, 2008). Over the three years that data has been collected on licit
versus illicit oxycodone use, it appears that licit use of oxycodone amongst IDU remains relatively low and stable. Five per cent of the national IDRS sample reported using licit oxycodone in 2006 and 2007 (Black et al, 2008).

Misuse of benzodiazepines often occurs as part of a pattern of polydrug use. Individuals with a history of alcohol or drug use are reported to be more prone to inappropriate use of benzodiazepines (Rall, 1992). Injecting drug users (IDU) may use benzodiazepines as a substitute when heroin or other opioids are not available, or to increase the effects of heroin or other opioids (Australian Bureau of Criminal Intelligence, 2002; Jaffe, 1992). In a study of patients entering treatment in Germany, significantly more benzodiazepines were reported to be used by patients dependent on prescription opioids (methadone and codeine) compared with heroin (Backmund et al, 2005).

Benzodiazepine use in the previous 6 months has been consistently reported by around two thirds of the IDRS participants (Black et al, 2008). There has been an increase in frequency of use in the national sample. In 2003, use was a median of 24 days out of the past 180 days; in 2007 use was a median of 48 out of the past 180 days with a frequency of approximately twice a week (Black et al, 2008). The patterns of misuse of benzodiazepines vary across Australian jurisdictions, with highest recent use in 2007 reported in Tasmania (87%), and the lowest use reported in Queensland (50%) and the Northern Territory (52%) (Black et al, 2008).

Most Australian data on benzodiazepine misuse by IDU has originated from Darke and colleagues in Sydney. This work has provided important data regarding the prevalence of lifetime and recent benzodiazepine misuse amongst IDU and identified significant health harms and dependence arising from benzodiazepine misuse (Darke, 1994; Ross and Darke, 2000; Darke et al, 2002; Darke et al, 2003). Benzodiazepine use amongst IDU has been reported to be frequent (Darke, 1992; Darke et al, 2002; Darke et al, 2003) but varies across jurisdictions (see Table 4 and Table 5). Benzodiazepine use is widespread among heroin users who are both in and out of treatment, and around 25% of heroin users are believed to be benzodiazepine dependent (Darke, 1992; Ross and Darke, 2000). A study of new treatment entrants in Australia showed that 52% of persons entering treatment for heroin dependence reported using benzodiazepines in the previous month (Ross et al, 2005). The proportion of IDU reporting benzodiazepine use and injection is shown in Table 4 and 5.

**Table 4 - Proportion of IDU reporting using benzodiazepines by jurisdiction 2000-2007 (Black et al 2008)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>61</td>
<td>56</td>
<td>57</td>
<td>61</td>
<td>67</td>
<td>65</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>ACT</td>
<td>77</td>
<td>66</td>
<td>62</td>
<td>61</td>
<td>59</td>
<td>62</td>
<td>60</td>
<td>68</td>
</tr>
<tr>
<td>VIC</td>
<td>74</td>
<td>78</td>
<td>73</td>
<td>80</td>
<td>82</td>
<td>73</td>
<td>71</td>
<td>67</td>
</tr>
<tr>
<td>TAS</td>
<td>78</td>
<td>85</td>
<td>83</td>
<td>90</td>
<td>85</td>
<td>86</td>
<td>83</td>
<td>87</td>
</tr>
<tr>
<td>SA</td>
<td>85</td>
<td>57</td>
<td>57</td>
<td>52</td>
<td>55</td>
<td>63</td>
<td>73</td>
<td>67</td>
</tr>
<tr>
<td>WA</td>
<td>72</td>
<td>51</td>
<td>77</td>
<td>62</td>
<td>72</td>
<td>73</td>
<td>75</td>
<td>71</td>
</tr>
<tr>
<td>NT</td>
<td>29</td>
<td>53</td>
<td>53</td>
<td>52</td>
<td>56</td>
<td>53</td>
<td>51</td>
<td>52</td>
</tr>
<tr>
<td>QLD</td>
<td>60</td>
<td>64</td>
<td>56</td>
<td>50</td>
<td>57</td>
<td>51</td>
<td>69</td>
<td>50</td>
</tr>
<tr>
<td>National Average</td>
<td>63</td>
<td>64</td>
<td>65</td>
<td>64</td>
<td>67</td>
<td>66</td>
<td>87</td>
<td>66</td>
</tr>
</tbody>
</table>
Table 5 - Proportion of IDU reporting injecting benzodiazepines in the previous 6 months by jurisdiction 2000-2007 (Black et al 2008)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>13</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>13</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>ACT</td>
<td>15</td>
<td>14</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>VIC</td>
<td>36</td>
<td>40</td>
<td>21</td>
<td>15</td>
<td>16</td>
<td>6</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>TAS</td>
<td>36</td>
<td>37</td>
<td>38</td>
<td>31</td>
<td>30</td>
<td>23</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>SA</td>
<td>5</td>
<td>9</td>
<td>13</td>
<td>8</td>
<td>9</td>
<td>2</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>WA</td>
<td>21</td>
<td>14</td>
<td>30</td>
<td>12</td>
<td>12</td>
<td>7</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>NT</td>
<td>12</td>
<td>27</td>
<td>17</td>
<td>30</td>
<td>20</td>
<td>21</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>QLD</td>
<td>16</td>
<td>27</td>
<td>25</td>
<td>11</td>
<td>8</td>
<td>7</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>National Average</td>
<td>21</td>
<td>24</td>
<td>21</td>
<td>17</td>
<td>14</td>
<td>8</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

The well documented decrease in the availability of heroin in some areas of Australia at the end of 2000 is likely to have contributed to an increase in pharmaceutical misuse (Topp et al, 2002; Victorian Department of Human Services, 2002). Dobbin (2002) claims that during the ‘heroin drought’ major unprecedented changes in drug misuse by dependent heroin users occurred, including the misuse of prescribed opioids and benzodiazepines. ‘Pills’ (pharmaceutical drugs), including temazepam and other benzodiazepines, morphine tablets or other prescribed opioids are used to potentiate and extend the sedative effects of heroin and methadone and are also used as heroin substitutes (Waltzman, 1999; Rouen, 2001; Dobbin, 2002). Miller, Fry and Dietze (2001) reported that IDU in Melbourne used pharmaceutical drugs more frequently after the ‘drought’ and many reported commencing injection of pharmaceuticals during the ‘drought’.

The national drug household survey has detected a significant increase in the non medical use (in the previous 12 months) of tranquiliser and sleeping pills in persons aged 14 yrs and over, from 1.0% in 2004 to 1.4% in 2007 (Australian Institute of Health and Welfare, 2008d). This represents more than a quarter of a million Australians reporting misuse of these medications.

**Main classes of pharmaceuticals used for non medical purposes**

**Opioids**

Opioids have a range of well established pharmacological effects including euphoria, pain relief, sedation, decreased pupil size, slow heart rate, cough suppression, decreased gastrointestinal motility, delayed gastric emptying and respiratory depression (Gutstein and Akil, 2006).

Clinically, opioids are used for a wide range of conditions including treatment of pain such as cancer pain, as cough suppressants, as antidiarrhoeal medication and for substitution treatment for other opioid dependence (Mattick et al, 2004; Gutstein and Akil, 2006).

The pharmaceutical opioids most frequently used to treat pain in Australia include codeine, morphine and oxycodone. Methadone and buprenorphine are the main pharmacotherapies used to treat opioid dependence.
Repeated administration of opioids can result in physical dependence, which is associated with unpleasant physiological effects during withdrawal. Drugs that have a shorter onset of action and half life are generally associated with more severe withdrawal symptoms of shorter duration. Opioids with longer half lives are generally associated with a more protracted withdrawal phase with milder opioid withdrawal symptoms.

**Benzodiazepines**
Benzodiazepines are commonly used for sedation and anxiety disorders, (Baldessarini, 2006), as well as for pre-medications prior to surgery (Borchardt, 1999), for epilepsy and alcohol withdrawal.

The effects of benzodiazepines are known to be mediated by their binding to benzodiazepine receptors (Bloom, 2006) which are located predominantly in the central nervous system (CNS) (Greenblatt et al, 1983). This binding enhances the actions of GABA, an inhibitory neurotransmitter. The results of increasing this inhibitory chemical in the CNS are sedation and general cognitive impairment (Verster and Volkerts, 2004).

Most therapeutic uses of benzodiazepines are related to their anxiolytic, muscle relaxant and sleep promoting effects. The effects of therapeutic doses of benzodiazepines on physiological parameters including respiration have been examined in non-opioid maintained subjects. Administration of therapeutic doses of diazepam to healthy controls has been demonstrated to induce significant impairment of mental alertness and cognitive performance without producing significant effects on respiration (Mak et al, 1993; Bond, 1993). This cognitive impairment is significant, with even low doses of benzodiazepine sufficient to impair driving ability (Verster et al, 2002).

In addition to impairing cognitive performance, it is well recognised that benzodiazepines have an effect on memory, specifically of newly learned material following benzodiazepine administration (Curran, 1986; Verster and Volkerts, 2004).

Benzodiazepine-induced memory impairment can be beneficial in a surgical setting, preventing recall of unpleasant or traumatic experiences related to surgical procedures. Memory impairment in an outpatient setting which may occur when benzodiazepines are used to treat panic and anxiety disorders may have the potential to negatively impact on the ability to perform daily tasks. This may be particularly relevant to patients in a drug rehabilitation setting undergoing cognitive behavioural therapies which require learning new skills (Curran, 1986).

Chronic benzodiazepine use can lead to dependence, with withdrawal symptoms such as insomnia and anxiety often being similar to the symptoms the drugs are used to treat (Charney et al, 2006).

**Pharmaceutical stimulants**
Pharmaceutical stimulants are used for appetite suppression, for narcolepsy and in the treatment of Attention Deficit Hyperactivity Disorder (ADHD).

Dexamphetamine and methylphenidate are the main stimulants used to treat ADHD. These drugs result in the stimulation of the CNS, with an increase in motor activity and mental
alertness (Psychotropic Drug Guidelines Subcommittee, 2003). Side effects can include dry mouth, anxiety and insomnia.

Other pharmaceutical stimulants commonly used include phentermine, which is used as an appetite suppressant for weight loss.

**Other classes of psychotropic drugs**

Antidepressants have their action in the CNS by working on serotenergic or adrenergic pathways to modify levels of neurotransmitter chemicals in the brain. Antidepressant medications are used to treat a variety of conditions including depression, anxiety, obsessive-compulsive disorders, panic disorder and chronic pain (Psychotropic-Drug-Guidelines, 2003).

The most common classes of antidepressants are serotonin selective reuptake inhibitors (SSRIs), monoamine oxidase inhibitors and tricyclic antidepressants (TCAs).

Antipsychotic drugs fall into two main classes, the newer atypical antipsychotics and the older conventional antipsychotics. Older (typical) antipsychotics are associated with greater sedation, and also greater occurrence of side effects such as extrapyramidal side effects (neurological side effects that can cause involuntary movements).

**Pharmaceutical use amongst different populations**

**Pharmaceutical misuse by IDU**

The use of prescription opioids was investigated amongst street based drug users in New York (Davis and Johnson, 2008). The most common prescription drugs used were methadone, oxycodone, hydrocodone and codeine, all being used by at least 30% of those interviewed. Reasons for prescription opioid use amongst these IDU were for pain, withdrawal and euphoria (Davis and Johnson, 2008). Use of buprenorphine was much lower than reported in Melbourne, Australia with only 4% reporting using a buprenorphine containing product compared to 57% reporting lifetime use in a Melbourne sample (Jenkinson et al, 2005; Davis and Johnson, 2008).

Pharmaceutical misuse amongst IDU in Australia varies across different jurisdictions, and is described in more detail earlier in this report.

**Pharmaceutical misuse by people in alcohol and drug treatment**

Many heroin users who are on methadone maintenance programs have also been found to be physically dependent on both opioids and benzodiazepines (Jaffe, 1992). Benzodiazepine use amongst methadone maintenance treatment samples has been reported at between 51-100% (Stitzer et al, 1981; Hartog and Tusel, 1987; Barnas et al, 1992; Iguchi et al, 1993; Gelkopf et al, 1999). Benzodiazepine use amongst buprenorphine treatment samples has been less frequently examined. A recent Australian study reported benzodiazepine use amongst buprenorphine treatment samples at similar levels to those reported amongst methadone treatment samples (Nielsen et al, 2007b).

Much of the focus of pharmaceutical misuse has been on opioids and benzodiazepines, however, as the illicit drug market changes there is the potential for other classes of pharmaceuticals to impact on the market. Evidence suggests similar levels of polydrug and pharmaceutical misuse exist for amphetamine and heroin users in Sydney (Darke and Hall, 1995), Melbourne (Jenkinson and O’Keefe, 2004) and nationally (Breen, 2004).
Other groups using pharmaceuticals include persons dependent on alcohol and those with chronic pain conditions. Abuse and misuse have not been well documented in these populations, partly because of the difficulties in untangling therapeutic use from illicit misuse in these complex groups. In an Australian sample of 112 people entering treatment for alcohol dependence 59% reported benzodiazepine use and 56% reported antidepressant use in the 6 months before entering treatment, although it is not possible to determine if use was non-prescribed (Holt et al, 2005).

A Swedish study examined dependence on psychotropic prescription drugs in outpatient (n = 130) and long-term inpatient (n = 23) alcoholics (Johansson et al, 2003). This study revealed that 14% of the outpatient sample and 35% of the inpatient sample were dependent on psychotropic prescription drugs. The most common class of drug being misused was benzodiazepines. Dependence on prescription opioids was reported but less frequently than benzodiazepines. Several cases of zolpidem and zopiclone dependence were also reported. The rates of dependence to psychotropic prescription drugs were significantly higher than the control group of patients attending a primary health care centre in the same region.

**Pharmaceutical misuse by chronic pain patients**

A large review conducted recently examined the prevalence of abuse/addiction and aberrant drug-related behaviours in chronic pain populations (Fishbain et al, 2008). This review examined 67 reports that met predetermined criteria of pharmaceutical misuse: (i) development of addiction/abuse; (ii) aberrant drug related behaviours and (iii) urine toxicology. The review found that rates of addiction were very low (3.27%) amongst chronic pain patients, and that development of addiction was even lower (0.19%) in chronic pain patients who were preselected to have no history of addiction/abuse. Reporting of aberrant drug-related behaviours was slightly more frequent (11.5%), but again very low in the population who were preselected for treatment with no history of addiction/abuse (0.59%). These findings suggest that rates of iatrogenic dependence in chronic pain patients are very low, and even lower where there is no history of addiction. Rates of aberrant drug-related behaviour were higher than rates of dependence, and were noted by the authors as a potential red flag for developing addiction.

In addition, the important concept of pseudo-addiction was raised. Pseudo-addiction is a term used to describe aberrant behaviours linked to inadequate pain management (Weissman and Haddox, 1989). Fishbain et al (2008) note that pseudo-addiction was not considered in studies reporting aberrant drug-related behaviours, suggesting that some of these aberrant behaviours may have represented under-treated pain and the true rate of aberrant behaviours could have been over estimated. In addition to pseudo-addiction, the phenomenon of hyperalgesia, where opioid administration can result in a lowered pain threshold can also appear as increasing opioid tolerance (Compton et al, 2003; Mitra, 2008). Hyperalgesia could also contribute to what appears to be drug seeking or aberrant behaviours.

**Pharmaceutical misuse by student populations**

Misuse of pharmaceuticals has been reported to be increasing amongst adolescents (Levine, 2007). A web based survey of students in Michigan examined pharmaceutical use in 1,086 12-18 year olds (Boyd et al, 2006b). This study examined medical and non medical use of four classes of prescription drugs including sleep medication, sedative/anxiety medication, stimulant medication for ADHD and pain medication. Medical use exceeded non medical use
for all classes with pain medication being the most frequently reported medication to be used medically (by 33% of the sample) and non medically (by 12% of the sample). Non medical use of the other three classes was reported at 2-3% of the sample. Motivation for pharmaceutical use was a theme explored in this web-based survey of students using prescription drugs. Amongst adolescents, reasons reported for non medical use of prescription drugs was often for the intended use of the drug (for example, for sleep or for pain) though experimental use was less frequently reported (Boyd et al, 2006b). Those who did report using prescription medications for experimenting or ‘to get high’ appeared to be at greater risk of substance abuse.

A qualitative study of university students in the US also found that prescription opioids and benzodiazepines were the most frequently misused prescription drugs, with prescription stimulants also being frequently mentioned (Quintero, 2006). A review of prescription stimulant use suggests that use of stimulants as ‘study drugs’ occurs in 4% of teens and emerging adults (Sussman et al, 2006).

The reasons given by university students for self medicated prescription drug use (average age 22 years old) included sleep, pain relief, a way of dealing with academic demands, as well as social/recreational use (Quintero, 2006). Prescription drugs were used in combination with alcohol to increase the intoxication effects, and that combining alcohol and prescription drugs in this way could reduce the amount of alcohol required and consequently the cost of alcohol (Quintero, 2006). Quintero (2006) reported that participants did not appear to be aware of the risks of combining prescription drugs and alcohol in this way.

Amongst university students the main motivations reported for using prescription drugs were similar to that seen in college students, being used to relieve pain, to experiment and to get high (McCabe et al, 2007).

**Prescription drug misuse in Australian secondary school students**

The 2005 Australian Secondary Students’ Alcohol and Drug (ASSAD) survey was conducted with 22,694 students in year levels 7 to 12 (White and Hayman, 2006). Amongst these students analgesics were the most commonly used substance (licit or illicit). Ninety per cent of students aged 12 years and older had used analgesics in their lifetime.

Over two thirds of secondary school students had used analgesics in the four weeks prior to the survey while 40% of students had used analgesics in the week prior to the survey. Females were more regular users, with just over half of female students aged 15 years and over reporting analgesic use in the week prior to the survey. Around one third of males aged 15 years and over reported analgesic use in the same time period.

Use amongst older students appeared stable, however lifetime use amongst younger students had decreased compared to previous years. A limitation of this data is that the survey instrument does not distinguish between medical and non medical use for analgesics. As such it is not possible to determine how much of this use may be misuse.

The use of sedatives for non medical reasons is also examined in this study. Fifteen per cent of students reported lifetime misuse of tranquilisers. Around 4-5% of students aged 13 and above had used tranquillisers in the month prior to the survey, and around 2–3% had used them in the week before the survey. Misuse of sleeping medication was lower than earlier
surveys in 1996 and 1999, but had not changed from the 2002 findings (White and Hayman, 2006).

**Sources of pharmaceuticals**

**Diversion and procurement**

The current literature suggests a wide range of sources are utilised to obtain prescription drugs, with sources varying between demographic groups (Boyd et al, 2006a; Boyd et al, 2007; Inciardi et al, 2007). Most literature regarding sources of pharmaceuticals for non medical use is from studies in the US.

The most common source of pharmaceuticals for non medical use, reported by 56% of a US sample, was from a friend or relative for free (Substance Abuse and Mental Health Services, 2007). These pharmaceuticals were predominantly diverted from legal scripts by the friend or relative. Other less common sources of pharmaceuticals were from drug dealers and the internet.

In a web-based study of 9,000 undergraduate students the most common source of prescription drugs for illicit use was peers, followed by family members, with very few students reporting drug dealers as a source (McCabe and Boyd, 2005).

A sample of 10 – 18 year old public school students from the Detroit district most frequently reported family as a source, with friends, dealers, and stealing from the home medicine cabinet also being reported (Boyd et al, 2006a).

Twenty four per cent of secondary school students who were prescribed sedatives/sleeping pills, pain or stimulant medications reported trading, selling or giving away their medications (Boyd et al, 2007). A smaller number of students in this study reported having their medications taken from them against their will (Boyd et al, 2007).

Different groups of drug users report a variety of sources of prescription drugs (Inciardi et al, 2007). Inciardi et al (2007) ran a series of focus groups with four different subpopulations of drug users asking about sources of prescription drugs. Sources of prescription drugs included: the on-selling of prescriptions acquired by elderly people; street dealers; doctors; illegal sales in small pharmacies; acquaintances who sell their personal prescriptions; doctor shopping; friends and family members; sex workers’ clients; disability patients and personal prescriptions (Inciardi et al, 2007).

Some prescription drugs are sourced from over the border in Mexico and are brought into the US (Valdez, 1997). Valdez’s ethnographic study revealed a range of demographic characteristics of the ‘drug tourist’, people travelling to Mexico to seek prescription drugs, primarily benzodiazepines but also pain and prescription weight loss medication. Prescription medications can be brought into the United States with a Mexican prescription, and in some towns near the border of Mexico and the US, a significant trade in prescription drugs has been identified. Approximately 80% of people acquiring prescription drugs in this way were acquiring benzodiazepines, with 40% being for the high potency benzodiazepine flunitrazepam (Rohypnol®).

In the US media there have been reports of ‘Pharmers markets’, where prescription drugs are traded, bought or shared in social settings (Quintero, 2006). Other sources already mentioned
earlier as reported by college students include friends and family, pharmacies, Mexican pharmacies, the internet and individual dealers (Quintero, 2006).

A Vancouver study claimed that doctors, dealers and robbery were the primary sources of prescription drugs in Canada (Haydon et al, 2005).

A popular tactic employed by drug users to obtain prescription drugs is seeing multiple prescribers and pharmacies, commonly referred to as ‘doctor shopping’. Doctor shopping has been reported amongst drug users in the United Kingdom and Australia (Fountain, 1998; Kamien, 2004). The criteria for doctor shopping or ‘prescription shoppers’ as it is called by the Australian Health Insurance Commission is described by Kamien (2004) as being “supplied drugs by more than six different prescribers in a three month period, or being prescribed more than 25 target pharmaceutical benefits, or 50 pharmaceutical benefits in total”. By this definition there were 22,000 prescription shoppers in 2003, however it should be noted that as this system does not detect non-PBS prescriptions or non-Medicare consultations, this figure is likely to be an underestimation.

Internet
The number of online pharmacies, including those that do not require prescriptions, has increased significantly over the past decade (Forman, 2006; Weiss, 2006).

While some states in the US have now legislated that a physical examination needs to be part of an online doctor-patient relationship (Brand, 2007), there are online prescribers who do not comply with such regulations and online pharmacies that advertise that a prescription is not required. Investigations have revealed that prescription drugs, including oxycodone and morphine can be obtained with relative ease without prescriptions in the United States (Forman, 2006).

However, two studies examining the internet as a source of prescription drugs in the United States found that despite the participants reporting easy access to prescription drugs via the internet, drug acquisition was not frequently reported amongst samples of people in treatment for drug dependence (Gordon et al, 2006; Rosenblum et al, 2007). In a sample of people in a residential treatment program (n = 100) 29% identified the internet as a potential source of drugs, however only 9% had used this source in the past month (Gordon et al, 2006). Reasons reported for not using the internet as a source of drugs included cost, availability of drug of choice and fear of being identified.

In a large study of prescription opioid misuse amongst methadone maintenance patients (n = 5663), 67% reported prescription opioid abuse in the past month while only 3% reported that they used the internet as a source of prescription drugs (Rosenblum et al, 2007). As the authors note however, it is not known if dealers, who were reported as a source by 86% of participants, used the internet for drug acquisition.

Australian surveillance studies are yet to report on the internet as a source of prescription drugs for drug users or key informants (O’Brien et al, 2007), though current questions in these surveillance studies do not specifically ask about the internet as supply source. Such surveillance studies may prove to be a useful way to monitor these trends in the future.
While the internet is not currently the main source for obtaining prescription drugs, it has the potential to be a major route of acquisition in the future. Reports indicate that there are hundreds of internet sites that provide prescription drugs with few restrictions and up to 95% of these appear to provide products without requiring an actual prescription (Lipman and Jackson, 2006). Search engines such as Yahoo and Google make ‘no prescription’ drug websites readily accessible to the public (Forman et al, 2006), making it possible that internet pharmacies may represent a greater source of pharmaceutical drugs in the future.

Prescription supplies over the internet have some disadvantages that may be a disincentive for their use. Drugs sourced in this way can be seized by customs or may be delayed in arrival and the potential exists for the purchaser to be identified as a drug user. Additionally pharmaceuticals from overseas internet pharmacy sites may be counterfeit (Rudolf, 2004). As suggested by Gijsbers and Whelan (2004), until these potential disadvantages of internet supply are overcome, and while subsidised medicines are relatively easy to acquire from prescribers, the internet market may remain a small part of the total market (Gijsbers and Whelan, 2004). In some countries such as the US however, prescriptions sourced over the internet are a fraction of the price of those bought locally (Castronova, 2006). It is yet to be examined whether reducing the cost of medications will play a role in reducing online prescription acquisition.

Predictors of non medical use of pharmaceuticals

Despite a significant increase in the non medical use of prescription drugs, the characteristics of people who misuse pharmaceuticals is not well described. There are a number of reasons that may contribute to this.

Pharmaceutical misusers:

- May not encounter the same legal problems as illicit drug users and hence may not come into contact with the legal system, as their drug supply is generally able to be sourced legally.

- May not present to traditional treatment services as they are able to access their medications through prescribers.

- May not identify that they have a problem with the misuse of pharmaceuticals because their medication is prescribed and it is sanctioned by a prescriber and therefore not perceived as ‘harmful’.

- May perceive pharmaceuticals to be ‘safer’ than illicit drugs, and hence less concerned about their drug use.

- May not identify with traditional alcohol and drug services designed primarily to meet the needs of street based drug users.

A study of a nationally representative cross-sectional sample (n = 43,093) of American adults identified some predictors of prescription drug dependence (McCabe, 2007). One predictor was early onset of non medical prescription drug use. This study found that of those reporting non medical use of prescription drugs at or before the age of 13, approximately 42% went on
to develop prescription drug abuse and dependence. In people who initiated non medical prescription drug use after the age of 21, rates of dependence were at 17%.

Associations between mental health disorders and a history of illicit drug use have also been found to be associated with prescription (particularly opioid) misuse. People with mental health disorders are twice as likely to report prescription opioid misuse (Dowling et al, 2006; Sullivan et al, 2006). These findings are consistent with the documented higher rates of substance use amongst populations with neglected or unmet mental health needs (Harris and Edlund, 2005). Sullivan et al (2006) conclude that screening for and treating of psychiatric disorders may be required before initiating opioid treatments.

**Prescription opioid users**

A study conducted in Vermont, Canada compared the characteristics of primary heroin users with prescription opioid users who were receiving outpatient methadone treatment. (Sigmon, 2006). There were not significant differences between these groups for age, gender or employment, with the only demographic differences identified being income from illegal sources, which was greater in the heroin-using group. Prescription opioid users reported significantly lower levels of intravenous use, and used lower equivalent amounts of opioids. Prescription opioid users had a lower Addiction Severity Index (ASI) score, suggesting lower levels of opioid dependence. Fewer family and social problems were also detected by the ASI subscale. Sigmon (2006) concluded that these characteristics suggested that prescription opioid users may have more positive treatment outcomes compared to primary heroin users, and are potentially more suitable for antagonist treatments.

An earlier study by Brands et al (2004) examining prescription opioid abuse amongst methadone maintenance patients in Toronto also compared the characteristics of prescription opioid users with those of heroin users. The study found that people using prescription opioids and not heroin were older and reported a longer duration of opioid use compared to those using a combination of prescription opioids and heroin or just heroin (Brands et al, 2004). Those presenting who only used heroin and not prescription opioids used lower amounts of benzodiazepines and alcohol compared with those presenting who used prescription opioids. Rates of reported overdose were similar amongst the groups though rates of injecting were lower among people who only used prescription opioids.

The data in both of these studies suggests there may be an overrepresentation of pain related issues amongst prescription opioid users, with many people in these studies initially prescribed opioids for pain (Brands et al, 2004; Sigmon, 2006). The authors noted that this information was not collected systematically making it difficult to draw definitive conclusions from this data (Brands et al, 2004).

**Benzodiazepine users**

Some populations of chronic benzodiazepine use have been described. A larger population based study of approximately 280,000 adult attendees of a health care service in Washington State revealed 3.8% received at least one benzodiazepine script during the 6 month study period. Rates of any use and continual use were higher in older age groups and amongst females (Simon et al, 1996). A separate study of approximately 10,000 Canadians also found an association with older females and benzodiazepine use (Neutel, 2005).
Characteristics of patients seeking treatment for benzodiazepine abuse or dependence has been described (Busto et al., 1986). This study found at least two subgroups of benzodiazepine users presenting for treatment. People who used benzodiazepines only were older and took lower doses of benzodiazepine compared to people who used multiple substances. People using benzodiazepines only were more likely to report difficulty in stopping their use, with those using multiple substances more frequently reporting dose escalation. Similar conclusions were drawn from a study of 2,440 patients, which found most recipients of a long term benzodiazepine script did not increase their dose, though a small subset (1.6%) did increase their dose (Soumerai et al., 2003). This subgroup were characterised by concurrent antidepressant use, or use of multiple pharmacies in order to acquire their prescription medication.

**Harms related to pharmaceutical misuse**

**Harms from injection of pharmaceuticals**

Health harms associated with the injection of drugs intended for oral use only have been documented in recent years both in Australia and internationally (Breen, 2002; Dobbin, 2002; Feeney and Gibbs, 2002; Dobbin et al., 2003; Feeney and Fairweather, 2003; Aboltins et al., 2005; Loo et al., 2005). Commonly reported injection related health harms include vascular damage, blood clots and increased risk of overdose.

The increased risk of opioid related overdose associated with concurrent benzodiazepine use has been well established. A study of factors associated with the risks of non-fatal overdose among IDU in Melbourne found that the use of benzodiazepines in the 12 hours prior to the overdose increased overdose risk 28 times over those not reporting benzodiazepine use in this period (Dietze et al., 2005). Darke, Topp and Ross (2002) reported that benzodiazepine injectors also had higher levels of polydrug use, needle-sharing behaviour, psychological distress and an increased risk of heroin overdose, as well as higher rates of vascular morbidity, amputations and mortality.

Having injected benzodiazepines in the previous six months was in itself a significant predictor of injection-related health problems (Darke et al., 2002). Some of the consequences of injecting pharmaceuticals such as buprenorphine and temazepam have been reported in Australia (Breen et al., 2004; Aboltins et al., 2005) and internationally (Ruben and Morrison, 1992; Del Giudice, 2004; Loo et al., 2005). Severe harms from long term injection of pharmaceuticals which can result in the accumulation of tablet ingredients in the lungs, known as ‘contin lung’, are anecdotally reported.

While injecting per se may result in serious vascular and/or cutaneous complications, particular substances, and more specifically particular forms of these substances, are frequently the focus of interest for adverse outcomes of pharmaceutical misuse. For example, high rates of harmful outcomes associated with injecting temazepam gel-capsules (Ruben and Morrison, 1992; Mackenzie et al., 2000; Dobbin, 2001; Aitken and Higgs, 2002; Feeney and Gibbs, 2002) or complications stemming from the injection of methadone syrup or sublingual buprenorphine tablets (Darke et al., 2002; Dobbin et al., 2003; Feeney and Fairweather, 2003; Aboltins et al., 2005) have all attracted attention. Many tablets contain ingredients such as talc which can be harmful to inject. In addition, oral drug suspensions may contain microparticles which act as microemboli. If lodged in tissue these small particles
can cause problems with circulation and swelling, and if occurring in a limb, compartment syndrome can lead to further serious complications (Del Giudice et al, 2005).

**Harms related to cognitive effects of pharmaceuticals**

Long term benzodiazepine users have significant cognitive impairment across a range of cognitive domains (Barker et al, 2004). Dependence from medical treatment (iatrogenic dependence) is common with benzodiazepines due to the dependence liability of this class of drugs (Taylor et al, 2005; Denis et al, 2006). Iatrogenic dependence may occur following therapeutic use of benzodiazepines for a range of psychiatric conditions including anxiety and panic disorder as well as for the treatment of insomnia. Effects of benzodiazepines such as disinhibition, paradoxical hostility and anterograde amnesia (Daderman and Lidberg, 1999; Dobbin, 2001) have been linked to criminal behaviour and contribute to further harms for both the user and the community.

Some prescription drugs may have psychopharmacological effects that influence behaviour, and withdrawal from some prescription drugs may also contribute to mood swings and violence (Marshall, 1992; Rall, 1992; Bloom, 2006).

**Other health harms**

Health harms related to the use of over the counter analgesics containing ibuprofen and codeine have been documented in a number of case reports (Chetty et al, 2003; Dyer et al, 2004; Lambert and Close, 2005; Dutch, 2008). These harms include changes in blood potassium which can cause heart abnormalities, and gastric ulcers, both of which may have fatal consequences.

A number of case reports have identified serious harms resulting from prescription medications obtained from the internet (Levesque, 2004; Lineberry and Bostwick, 2004). The harms included dependence, seizures from toxicity, and tardive dyskinesia (involuntary repetitive movements) resulting in lifelong impairment from ingesting drugs which were wrongly advertised. In these cases the lack of opportunity for prescriber intervention was implicated in the occurrence of adverse effects.

**Fatal consequences of pharmaceutical misuse**

Polydrug use, in particular benzodiazepine use, has been implicated in heroin and methadone-related deaths (Zador and Sunjic, 2000; Gerostamoulos et al, 2001; Caplehorn and Drummer, 2002; Ernst et al, 2002). A strong link was also identified between PBS prescription use and overdose in young people with a significant escalation of 'doctor shopping' reported in the years before death in a study of young heroin users (Martyres et al, 2004). Similarly, benzodiazepine use has been implicated as a significant risk factor for non-fatal heroin overdose (Gutierrez-Cebollada et al, 1994; Neale, 2000; Dietze et al, 2005).

A meta-analysis of five observational studies found that methadone maintenance reduces the mortality of heroin dependent people by 75% (Caplehorn et al, 1996). However, the maintenance programs themselves contribute to some fatal drug toxicity cases from prescribed methadone and diverted methadone syrup, particularly early in treatment programs (Caplehorn and Drummer, 2002). Many overdose deaths where methadone has been implicated have been found to be due to a cocktail of benzodiazepine and opioid use (Caplehorn and Drummer, 2002). Significantly Caplehorn and Drummer (2002) also found
that benzodiazepines were more likely to have contributed to methadone toxicity deaths among methadone maintenance patients compared to those using diverted methadone.

Mortality associated with pharmaceutical opioid misuse has now exceeded that observed with heroin or cocaine use in the United States (Paulozzi et al, 2006).

**Crime and health service utilisation costs associated with pharmaceutical misuse**

Two main types of crime are associated with pharmaceutical misuse; crime associated with the procurement of pharmaceuticals, and crime committed whilst under the influence of pharmaceuticals. The Australian Crime Commission (ACC) (2002; 2006) reported that doctor shopping for procurement of illicit pharmaceutical drugs was widespread in Australia, most commonly reported as benzodiazepine and/or opioid acquisition. Of the total PBS medicines obtained by doctor shoppers, 36% were benzodiazepines, 15% were codeine compounds and eight per cent were opioid analgesics (Health Insurance, 2003).

Heroin users have high levels of health service utilisation prior to entering treatment, with the main GP prescribed medication being benzodiazepines (Darke et al, 2003). A primary source of pharmaceutical drugs is from GPs and as a result, there may be a significant financial cost to the community and a huge burden placed on the health care system when people acquire pharmaceutical drugs by ‘doctor shopping’ and visiting a range of prescribers and pharmacies, each of whom may be unaware of supply by other health professionals.

According to the Australian Bureau of Criminal Intelligence (2002) the reduced availability of heroin around the period referred to as the ‘heroin drought’ resulted in IDU targeting pharmacies with thefts and ram-raids to obtain pharmaceuticals, as well as falsifying prescriptions and doctor shopping (Australian Bureau of Criminal, 2002). Traffickers and drug users have also assaulted or threatened medical patients in order to acquire drugs or prescriptions, sold their own legitimately obtained prescriptions and drugs, and swapped their prescribed drugs for illicit drugs (Australian Bureau of Criminal, 2002; Department of Human Services, 2002; Dobbin, 2002).

The use of benzodiazepines has been implicated in disinhibited and uncharacteristic behaviour, and loss of memory of events occurring whilst intoxicated (Rall, 1992; Bonn, 1998; Dobbin, 2001). Dobbin (2001) reported that benzodiazepine intoxication can produce feelings of over confidence and invincibility in heroin users, potentially increasing the likelihood of committing criminal offences that may not normally be undertaken. Daderman and Lidberg (1999), who studied five forensic patients, reported all of those studied demonstrated paradoxical reactions to flunitrazepam when it was used in combination with alcohol and other drugs (Daderman and Lidberg, 1999). The reactions included hostility and anterograde amnesia. Daderman and Lidberg reported that, in comparison to the behaviour based on their ordinary psychological characteristics, the patients’ crimes were extremely violent, and were characterised by an inability to think clearly or to have empathy with their victims. Similar paradoxical responses have been reported about other benzodiazepines, such as alprazolam and diazepam (French, 1989; Rudorfer et al, 1989).

The costs of prescription drug misuse in the United States was estimated to be 181 billion dollars in 2002 (Manchikanti, 2006). Included in this estimate were costs associated with emergency room visits, lost productivity, law enforcement and crime.
Treatment for pharmaceutical misuse
Treatment utilisation research
Some research has emerged examining factors associated with treatment entry and utilisation with illicit drug users (Festinger et al., 1996; Booth et al., 1998; Neale et al., 2007). These studies have found that accelerated (same day) intake for people seeking treatment for cocaine dependence may lead to better treatment attendance rates (Festinger et al., 1996). Removing cost barriers assisted treatment entry for a sample of IDU in Denver, Colorado (Booth et al., 1998).

A qualitative study of 75 IDU in the UK identified a number of factors that may facilitate treatment entry including more providers of treatment, especially in small towns and rural areas (in particular opioid substitution treatment), a greater range of support in the types of treatment offered; reduced waiting lists; greater confidentiality; greater hours of access; and non-judgemental attitudes from clinicians were all important factors in greater access to and benefit from treatment services (Neale et al., 2007).

Research in illicit drug using populations has also shown some populations may be less likely to access treatment. A study of 742 methadone maintenance clients in the Netherlands identified that ethnic minorities may be underrepresented in methadone treatment and spend less days in treatment, which is of concern as shorter treatment can predict poorer outcomes (Verdurmen et al., 2004). A study of 173 methamphetamine users in Sydney revealed some socio-demographic factors linked to people being less likely to receive treatment for methamphetamine dependence (McKetin and Kelly, 2007). These factors included being female, being born outside Australia, being in full time employment and being smokers rather than injectors. Additionally those people who were receiving treatment for a primary heroin dependence were unlikely to receive treatment for methamphetamine dependence as well (McKetin and Kelly, 2007).

Although cross-sectional comparisons of treatment and non-treatment samples have tended to show few differences on measures of physical health (Hartnoll and Power, 1989; Eland-Goossensen et al., 1998b; Wright et al., 1999), studies have shown that physical health problems are commonly cited as important reasons for wanting to cut down or stop drug use (Hando et al., 1997), wanting treatment (Vincent et al., 1999), or entering treatment (Jamieson et al., 1984; Oppenheimer et al., 1988; Brooke et al., 1992; Sterk et al., 2000; Treloar et al., 2004). Those people with prior treatment experience report more health problems than those with no prior treatment experience (Wright et al., 1999) and prospective research has indicated that people entering treatment have more medical problems than those not entering treatment (Kwiatkowski et al., 2000). Further, treatment samples have been found to express higher levels of ‘concern’ and ‘need for help’ in relation to their physical health than non-treatment samples (Power et al., 1992).

The evidence regarding the relationship between physical health and treatment utilisation, however, is also not entirely consistent. Eland-Goossensen et al (1998) found the non-treatment sample expressed concern and need for help with physical health more often than the treatment sample. Further, low levels of concern about the physical consequences of drug use have been reported among amphetamine users, suggesting that physical health problems do not necessarily precipitate treatment seeking among this drug using population
(Fleming, 2001). Indeed, with non treatment seeking young males, physical health problems have been known to be ‘recounted with pride’ (Klee and Morris, 1994).

Health service utilisation and prescription drug use appears to be common in heroin users prior to treatment entry (Darke et al, 2003), though often the principal drug of concern is not pharmaceutical drugs in this population. While there appears to be a growing body of research examining treatment entry for illicit drug users, the role of pharmaceutical misuse in treatment entry does not appear to have been explicitly explored.

**Available treatments for pharmaceutical misuse**

Treatment modalities available to users of pharmaceuticals include:

- Long-term residential rehabilitation
- Short term withdrawal
- Counselling
- Pharmacotherapy treatments (for opioid dependence)

Whilst treatments are available for benzodiazepine use, comparatively small numbers of people present to Victorian AOD treatment services seeking treatment for use of these drugs. Findings from the National Minimum Data Set showed that in 2006-2007 benzodiazepine was the principal drug of concern in only 1.6% of closed treatment episodes, and a drug of concern in 8% of closed treatment episodes (Australian Institute of Health and Welfare, 2008a). The most common treatment type sought by primary benzodiazepine users was outpatient treatment (67%), with residential treatment representing 20% of episodes. Withdrawal management (detoxification) was the main treatment type received (35%) with counselling being accessed by 33% of primary benzodiazepine users (Australian Institute of Health and Welfare, 2008a).

Failure to present for treatment for benzodiazepine dependence may be related to a number of possible factors including lack of established pharmacotherapies for benzodiazepine dependence, lack of benzodiazepine specific treatment services and failure to recognise the need to treat benzodiazepine dependence. As prescription medications are often perceived as ‘safe’ it has been suggested that dependent persons may neither recognise they have a drug use problem nor present for treatment (Drugs and Crime Prevention Committee, 2007).

Two meta-analyses have examined treatment for benzodiazepine mono-dependence (Denis et al, 2006; Oude Voshaar et al, 2006). These studies found transfer to a long acting benzodiazepine and gradual tapering to be effective. It should be noted that these studies excluded people with polydrug dependence, which means that results cannot be generalised to polydrug users.

Population based interventions have been found to be effective for general population treatment samples (Cormack et al, 1994; Morgan and Chrystyn, 2002). Morgan et al (2002) found that a significant reduction in benzodiazepine usage resulted from a low level intervention that consisted of a letter from the patient’s prescriber advising patients to reduce their benzodiazepine intake. Previously Cormack et al (1994) compared a letter only to a letter plus information sheets and found both intervention groups significantly reduced client
benzodiazepine usage compared to the control, and that the added information sheets did not result in a greater effect. Both these studies suggest that simple interventions are important and cost effective. These minimal interventions could be an ideal first step in addressing pharmaceutical misuse at a population level, with more tailored interventions requiring further evaluation.

Some strategies for managing benzodiazepine misuse amongst methadone patients have suggested that clonazepam maintenance could be a potential treatment option for those unable to detoxify from benzodiazepines (Weizman et al, 2003), though the cognitive effects of long term benzodiazepine use requires further evaluation (Barker et al, 2004).

Few studies have focused on treatment outcomes for primary pharmaceutical opioid misusers. One barrier to treatment identified in the DCPC (2007) report was that pharmaceutical drug users may not present for treatment at a drug treatment service they identify as being solely for IDU (Drugs and Crime Prevention Committee, 2007). In the US where indicator data shows pharmaceutical opioid dependence exceeds illicit drug use, using office based buprenorphine-naloxone treatment has been proposed to be an acceptable treatment option for this group (Sullivan and Fiellin, 2008). This approach could be applied in Australia; however the restrictions around daily dispensing requirements at treatment initiation may be a disincentive to start treatment. If different cohorts of pharmaceutical users are identified it may be necessary to rethink the delivery of treatments for opioid dependence rather than use a ‘one size fits all’ approach, where the current model was expanded primarily to address the increasing treatment needs of IDU.

**Preventing pharmaceutical misuse**
**Systems in place for doctors and pharmacists**

Some systems have been put in place to monitor prescription drug use and detect overuse of prescription medications.

In British Columbia, Canada an online system was developed, ‘Pharmanet’, one of the first ‘real time’ prescription monitoring systems. This system allows access to an up-to-date prescription record at the time of prescribing and dispensing (British Columbia Government, 2007). When a prescription is presented in a pharmacy, the dispensing pharmacist has access to the prescription records for that patient for the previous 14 months, allowing a check of medication history, detection of potential interactions, and the opportunity to detect overuse of prescription drugs. Prescribers that choose to participate in the program can also access this information.

Similar programs have been considered in other locations. An electronic patient record system has been explored in Australia to allow prescribers, pharmacists, hospitals and the Health Insurance Commission access to medication information (Wrobel, 2003). Electronic prescribing is also being currently examined in a number of jurisdictions, though feasibility issues still need to be explored (Bomba and Land, 2006; Lapane et al, 2007). Electronic prescription monitoring was also recently recommended by an Australian parliamentary inquiry into prescription drug misuse (Drugs and Crime Prevention Committee, 2007).

In the United States, concern about prescription drug misuse has resulted in the implementation of the National All Schedules Prescription Electronic Reporting Act
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

(NASPER), which enables electronic reporting of prescriptions for controlled substances (Fishman et al, 2004). Additionally, a national Prescription Drug Monitoring Program (PDMP) has been established. While such programs allow collection of data that may identify doctor shoppers or GPs writing large numbers of prescription drugs liable to abuse, it currently does not appear to allow real-time feedback of information to prescribers or pharmacies. What this monitoring does offer is the opportunity to track ‘rogue prescribers’ and ‘doctor shoppers’. Retrospective surveillance of benzodiazepine prescribing in New York was shown to cause a dramatic reduction in benzodiazepine prescribing without large increases in the prescribing of other classes of drugs. However, it was noted by the authors (Ross-Degnan et al, 2004) that the largest decrease in benzodiazepine use was noted for non problematic benzodiazepine users (Ross-Degnan et al, 2004).

With the exception of the Pharmanet program in Canada, most prescription monitoring is retrospective, and information available to prescribers is delayed or out-of-date by the time it is received. Furthermore, such monitoring programs are only capturing data on prescriptions written and supplied within the jurisdiction’s medical system, which excludes supplies through sources such as international pharmacies.

In Australia much prescription monitoring occurs retrospectively through the Pharmaceutical Benefits Scheme (PBS). Whilst this system enables the identification of those using larger amounts of PBS drugs, private prescriptions would not be detected through this mechanism. Anecdotal reports suggest that private prescriptions for larger amounts of pharmaceuticals may result in less overall financial cost than several PBS scripts for smaller quantities. The potential for harms associated with acquiring these drugs in large quantities requires further consideration.

Formulations of pharmaceuticals to prevent abuse

Some new formulations or reformulations of existing products have been explored to reduce pharmaceutical misuse (Mansbach and Moore, 2006). Matrix formulations in which the drug is not released from the preparation if the tablet is crushed (Woolf and Hashmi, 2004) could be applied to reduce the misuse of long acting formulations of morphine and oxycodone.

Temazepam was reformulated in the United Kingdom in response to intravenous misuse (Ruben and Morrison, 1992). However, the new formulation was still used intravenously and resulted in even greater injecting harms. This highlights the importance of thoroughly assessing the impact of drug formulations that are intended to prevent intravenous use and other harms.

Another strategy that is already in use is agonist/antagonist combination products. In these formulations, the antagonist results in an adverse effect if the drug is injected, while the antagonist is inactive if used as intended by an oral or sublingual route (Woolf and Hashmi, 2004). An example of one such formulation used in Australia is Suboxone®, a product containing buprenorphine and naloxone. The combination product was developed to reduce intravenous use (Fudala et al, 1998). This product was introduced in Australia following significant reports of injection of the buprenorphine mono product (Jenkinson et al, 2005; Aitken et al, 2008). There is some early evidence that intravenous use of the combination product is occurring and further evaluation of the diversion of this combination product may be required (Jenkinson and Quinn, 2007).
Other proposed strategies under development include the use of irritants that become active when a pharmaceutical is used non-oraly, though the implications and potential harms relating to use requires further consideration (Wooff and Hashmi, 2004).

In addition to these concerns, information on how to tamper with formulations are easily accessible on the internet (Cone, 2006), questioning the value of some re-formulation strategies.

**Supervised dispensing**

Tensions exist between the availability and potential misuse of unsupervised doses in opioid substitution treatment and the restrictive nature of supervised dosing for pharmacotherapy clients. In Australia, methadone and buprenorphine are prescribed under direct supervision at a specified location, such as a clinic or pharmacy. There are, however, circumstances where a clinician can authorise a takeaway dose that can be self-administered by a client at a later date.

With the provision of greater takeaway doses comes the risk of unsanctioned use of these pharmaceuticals. When prescribing or dispensing takeaway doses there is a need to consider issues of clinical safety, the promotion normalisation, the protection of program integrity, sound medical decision-making on the part of the clinician, patient preferences, clinician values, and the availability of resources. The ability for services to be effective, accessible and attractive to treatment users (as well as to prescribers and pharmacists) whilst minimising inappropriate use of opioid substitutes, requires a careful balance of these issues.

Take away doses pose some risks, including opioid substitutes being sold or given to other individuals, self administration by injection potentially resulting in toxicity, bacterial infection and the spread of blood borne viruses, accidental overdose/death of the client or a third person, risks of use alongside other substance use, and child safety issues where children are exposed to take aways (Lintzeris et al, 1999; Hall et al, 2000; Brunelle and Rotily, 2002; Darke et al, 2002; Ernst et al, 2002; Fiellin and Lintzeris, 2003; Hickman et al, 2003; Humeniuk et al, 2003; Seymour et al, 2003). These risks must be balanced with the benefits of reducing the restrictions and attendance requirements of supervised OST.

**Conclusion**

Benzodiazepines and pharmaceutical opioids are the primary pharmaceuticals misused and described in the Australian literature. The increasing use of oxycodone has been described in the IDU population. Given the high levels of misuse and harm reported in the US in relation to this drug, the monitoring of the use and potential misuse of oxycodone is an important emerging trend which needs further examination.

A review of the literature from the United States shows that the use of other pharmaceuticals such as stimulants may be common in specific populations including students. There is a limit in detailed research in Australia exploring pharmaceutical misuse in student or other populations.

Some populations of pharmaceutical misusers remain hidden, and the extent of misuse amongst the general population remains unknown.
The pathways to problematic use and sources of pharmaceuticals vary according to different populations. Amongst student populations, family and peers appear to be the primary source of pharmaceuticals. Some studies have reported street based markets and doctor shopping as common sources for pharmaceuticals in other populations.

Predictors of pharmaceutical misuse vary between populations, with pain related issues identified in some cases for prescription opioid abuse, and older females being overrepresented in benzodiazepine dependent samples. There is a gap in the literature which needs to be addressed about the trajectory into problematic pharmaceutical use, and for whom use may be problematic.

A range of harms related to pharmaceutical use are described in the literature, though harms relating to injection of pharmaceuticals are better described than other harms.

A review of the literature suggests that pharmaceutical misuse is a growing problem, with large numbers of identified harms. However, there is still much that is not known about pharmaceutical misuse. Pathways into pharmaceutical misuse are not well described, particularly amongst drug treatment samples. Use of pharmaceuticals amongst sub-populations also needs to be better understood, and treatment options for more complex polydrug using client groups do not have an evidence base.

Finally the effect of pharmaceutical misuse on people seeking treatment for substance use is not well documented. How pharmaceutical misuse might delay treatment entry, affect treatment effectiveness and adherence and how client and drug using characteristics may interact with these outcomes requires further investigation.
4. FINDINGS OF FOCUS GROUP AND REGIONAL/RURAL TELEPHONE INTERVIEWS

Focus groups
Focus groups were conducted in the four participating jurisdictions (Victoria, Tasmania, Western Australia and Queensland). Six to twelve participants participated in each group.

Participants were selected from the population of current alcohol and drug treatment professionals, invited on the basis of regular contact with and/or specialised knowledge of illicit drug users, drug treatment seekers and pharmaceutical misuse and related issues.

The focus groups discussed four main themes:

- Patterns and nature of presentation to treatment.
- Role of pharmaceutical drugs in clients presenting for treatment.
- Regional specific issues.

Summary of focus group findings
- Pharmaceutical opioids and benzodiazepines were the most commonly misused pharmaceuticals.
- A range of patterns in pharmaceutical misuse exist and this was reflected in the broad range of presentations to treatment.
- Comorbidities including chronic pain and psychiatric disorders were noted to be prevalent amongst pharmaceutical misusers, with issues in accessing pain specialists identified as problematic.
- Concern exists that there is a large hidden population of pharmaceutical misusers in the general population.
- The potential reasons for pharmaceutical misuse included current prescribing practices, pharmaceuticals being of lower cost and more readily available than illicit substances and self medication.
- A range of barriers to treatment for clients were identified, particularly lack of awareness of the potential for pharmaceutical misuse and dependency.
- A range of difficulties with delivering treatment were also identified, including complications with treatment that arise from pharmaceutical misuse (including secondary benzodiazepine dependence), the lack of treatment options available, and lack of resources to manage comorbidities.
• A need for education and training for general practitioners, pharmacists and treatment clinicians was also identified, in particular in pain management, addiction medicine and the effects of pharmaceutical misuse.

Patterns and nature of presentation to treatment
Main pharmaceuticals misused

Opioids:
• Long acting morphine and oxycodone products (MS Contin®, Kapanol®, Oxycontin®).
• Opioid substitution pharmacotherapies (methadone and buprenorphine products).
• Codeine containing combinations (both prescription and over the counter preparations).

Benzodiazepines:
• Valium®, Serepax® and Xanax®.
• Benzodiazepine misuse was noted to be a significant problem.

Patterns of pharmaceutical misuse
Pharmaceuticals were used in a range of ways:
• As a primary drug of dependence.
• In conjunction with alcohol, cannabis or in combination with opioids and benzodiazepines.
• As a substitute for other illicit drugs.

Benzodiazepines were used by alcohol and stimulant users:
• To manage withdrawal symptoms caused by alcohol dependence.
• To counter the effects of stimulants for easing the comedown.

Opioids were often reported to be misused intravenously whereas benzodiazepines were reported to be frequently misused orally and also intravenously.

Several potential harms have been noted:
• Injection of the tablet forms of pharmaceutical preparations often resulted in vein damage and infection at the injecting site.
• The effect of benzodiazepines on memory and inhibitions.
• Combined CNS depressant effects of using benzodiazepines with opioids leading to overdose.
Potential reasons for pharmaceutical misuse

Prescribing practices:

- Little awareness of potential for dependency/harms amongst prescribers.
- Over prescribing practices by general practitioners.

Lower cost and better availability (compared to illicit drugs):

- Cheaper and easier to obtain.
- Of known strength and quality.

Improved functioning:

- Self medicating for either mental health or withdrawal from other drugs.
- Dependence as a consequence of treatment for pain or for anxiety.

Role of pharmaceutical drugs in clients presenting for treatment

Presentation characteristics
There was a range of different ways that pharmaceuticals drugs may play a role in treatment presentations:

- Clients may present with opioid dependence after treatment for legitimate pain.
- Referrals of clients where prescribing had ceased due to concerns of misuse or regulatory prescribing restrictions.
- Illicit drug users substituting or combining pharmaceuticals with illicit drug use.
- Clients whose therapeutic use had continued for longer periods than intended or in higher doses than prescribed. This group were noted to have no contact with illicit drug users generally or with treatment services.

Pharmaceuticals may not be the primary drug of concern in all presentations. However, dependence on benzodiazepines was often identified after treatment commencement for other alcohol or drug dependence.

It was felt that little was known about pharmaceutical misuse. This was partly due to the perceived amount of people who misused pharmaceuticals who may not be in contact with treatment services and are unaware of their dependency, with the view expressed that we may only be seeing the “tip of the iceberg”.

Awareness of pharmaceutical misuse

A broad range of awareness levels was reported to exist amongst clients. Some clients were felt to be very aware of their dependence on pharmaceuticals, whilst others were oblivious until a hospital admission or a problem with ‘supply’ occurred.

Although clients were considered knowledgeable about the different effects of pharmaceutical drugs, their knowledge about potential harms was considered to be poor.
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

Barriers to treatment
Barriers for treatment for pharmaceutical users identified included:

- Clients having to ‘jump through hoops’ to prove their willingness and motivation to gain access to treatment.
- Waiting lists.
- Lack of recognition: Many users did not self-identify as having a problem with pharmaceuticals because the drugs had been prescribed and therefore use was perceived as medically sanctioned.
- Stigma of illicit drug users: Pharmaceutical drug users did not identify with illicit drug users. This issue created potential problems when treatment was provided within a treatment service used predominantly by injecting and illicit drug users.

Some barriers to treatment relating to service delivery were also reported to exist, including:

- Limited resource capacity within some services.
- Treatment entry perceived to be largely involuntary (e.g. legal, child safety, significant others, DDU recommended assessment/investigation).
- Exclusion due to pharmaceutical misuse: Some opioid dependent people who use benzodiazepines may be excluded from pharmacotherapy treatment as prescribers may be unwilling to prescribe medication due to the risks associated with combined opioid and benzodiazepine use.
- Limited treatment options:
  - Limited treatment referral options were identified for pharmaceutical misusers.
  - One KE reported there was no expedited access to treatment if pain medications were ceased by a prescriber, and felt that clients may get different treatment depending on socio-economic status.
  - Access to treatment varied with location and availability of finances or private health insurance. Difficulty in accessing public pain management clinics was also identified with six month waiting lists reported.
- The complexity of treating benzodiazepine dependence was recognised, often requiring a protracted length of treatment.
- Not all services had the knowledge or resources to work with pharmaceutical misusing clients.
- For patients with chronic pain, the difficulties in managing pain were felt to be a barrier to treating the opioid dependence.
Pharmaceutical misuse impact on treatment
Pharmaceutical misusers were reported to be a potentially difficult group to treat. Factors reported to complicate treatment included:

- Mental health and comorbidities and management of ongoing pain.
- Benzodiazepine dependence in combination with other drugs of dependence.
- An increased risk in the use of opioid and benzodiazepine combinations may impact on the safety of providing pharmacotherapy treatment.

Some difficulties were specifically associated with benzodiazepine use:

- Benzodiazepines were perceived by many clients as an ‘entitlement’, given that BZD are legal medications and are often prescribed.
- Management of secondary benzodiazepine dependence in opioid dependent people varied with benzodiazepine dependence complicating treatment of opioid withdrawal.
- Benzodiazepine use and its adverse effects on memory and behaviour were problematic in the treatment setting.

Difficulty was also noted in applying standard treatment protocols regardless of whether a person was using prescribed or illicit drugs.

Some participants reported that contracts and daily dispensing of medications were used to control supply of prescription drugs. Contracts may state that a client will not seek prescriptions from other prescribers while in treatment. However, the use of such restrictions was noted to affect client engagement.

Education and training needs were indentified for prescribers:

- Limited training in pain and addiction medicine was reported.
- The time pressure GPs are under was perceived to create potential difficulties in conducting thorough assessments.
- It was thought GPs may sometimes be under pressure from dependent patients to prescribe, and may not have the skills to effectively manage this pressure.
- There is a need to work with GPs to reduce overprescribing.

Regional-specific issues
There were similarities across all jurisdictions in the main pharmaceuticals reported as misused. In some states the misuse of pharmaceuticals was felt to be fairly prevalent. In Queensland a pattern of increased availability and misuse of long acting morphine products was noted.

Increased availability of some pharmaceutical opioids was reported in rural areas of Queensland. In one area where mandatory testing for illicit drugs was conducted for
employees working in mining, prescription drugs were reported to be used to get around mandatory drug testing.

Barriers to treatment differed across jurisdictions. Some KE reported a lack of access to specialist services (including pain services). In some areas better links needed to be established between treatment services.

Changes in enforcing regulations around prescribing of some drugs of dependence were having a particular impact on treatment services in Tasmania.
Regional/rural telephone interviews
Semi-structured telephone or face to face interviews were conducted with KE working in rural and regional areas of Victoria, Queensland, Tasmania and Western Australia. Between 6-12 participants were recruited in each jurisdiction, and as with the focus groups, participants were selected from the population of current alcohol and drug treatment professionals.

Interviewers made detailed notes during the interview. Due to the nature of data collection a greater amount of data was collected from regional/rural respondents compared with metropolitan focus groups.

The themes explored with regional/rural participants were the same as those explored with the focus groups. These were:

- Patterns and nature of presentation to treatment.
- Role of pharmaceutical drugs in clients presenting for treatment.
- Regional specific issues.

Many of the findings in regional rural areas were consistent with key findings in the focus groups regarding pharmaceutical misuse more generally, however there were some issues specific to regional/rural areas that were identified.

Summary of regional/rural interview findings
- The main pharmaceuticals reportedly being misused are prescription opioids and benzodiazepines.
- Prescription opioids are used as substitutes for both heroin and OST.
- In many cases treatment entry was a result of external factors rather than a decision to seek treatment by the individual.
- Many people accessing traditional AOD treatment services do not see themselves as drug users, having often obtained their pharmaceuticals through legitimate sources.
- Pharmaceutical misusers appeared to be a heterogeneous group with many different and often complex presentations.
- Clients seem to be a different population to the traditional AOD treatment population, which means that traditional treatment services may not be appropriate.
- Dependence on pharmaceuticals may not be detected on treatment entry, suggesting a place for screening for dependence on pharmaceutical drugs and potential chronic pain issues.
There are difficulties in retaining these clients in treatment with easy availability of pharmaceuticals often affecting willingness to remain engaged with treatment providers.

Patterns and nature of presentation to treatment

- In all regional areas pharmaceutical opioids and benzodiazepines were mainly reported.
- The most common pharmaceutical opioids noted were long acting morphine and oxycodone products. Diazepam and alprazolam were the most common benzodiazepines reported.
- Pharmaceutical stimulants were mentioned in three out of four jurisdictions.
- Over the counter pain medication, specifically ibuprofen-codeine and paracetamol-codeine preparations were also mentioned in all jurisdictions (see Table 6).

### Table 6 - Pharmaceuticals identified as being misused by rural KE

<table>
<thead>
<tr>
<th>Drug class</th>
<th>Name of active ingredient</th>
<th>Brand names noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription opioids</td>
<td>Morphine</td>
<td>Ms Contin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kapanol</td>
</tr>
<tr>
<td></td>
<td>Oxycodone</td>
<td>Oxy Contin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Endone</td>
</tr>
<tr>
<td></td>
<td>Methadone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buprenorphine</td>
<td>Subutex</td>
</tr>
<tr>
<td></td>
<td>Paracetamol-codeine</td>
<td>Panadeine Fort</td>
</tr>
<tr>
<td>Over the counter opioids</td>
<td>Ibuprofen-codeine</td>
<td>Nurofen Plus</td>
</tr>
<tr>
<td></td>
<td>Paracetamol-codeine- doxylamine</td>
<td>Mersyndol</td>
</tr>
<tr>
<td></td>
<td>Paracetamol-codeine</td>
<td>Panadeine</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Diazepam</td>
<td>Valium</td>
</tr>
<tr>
<td></td>
<td>Alprazolam</td>
<td>Xanax</td>
</tr>
<tr>
<td></td>
<td>Oxazepam</td>
<td>Murelax, Serepax</td>
</tr>
<tr>
<td></td>
<td>Nitrazepam</td>
<td>Mogadon</td>
</tr>
<tr>
<td></td>
<td>Temazepam</td>
<td>Normison</td>
</tr>
<tr>
<td>Benzodiazepine ‘like’ drugs</td>
<td>Zolpidem</td>
<td>Stilnox</td>
</tr>
<tr>
<td>Pharmaceutical stimulants</td>
<td>Methylphenidate</td>
<td>Ritalin</td>
</tr>
<tr>
<td></td>
<td>Dexamphetamine</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>Antipsychotics</td>
<td>Seroquel, Xyprexa, Risperidone</td>
</tr>
<tr>
<td></td>
<td>Antidepressants</td>
<td>Deptran</td>
</tr>
</tbody>
</table>

Patterns of use

**Drug substitution**

- Morphine and oxycodone were used interchangeably, depending upon which was available.
- Substituting morphine for heroin, with a number of informants noting a lack of heroin in regional and rural markets.
- Over the counter and Schedule 4 pharmaceutical opioids were used in place of Schedule 8 opioids.
• The use of prescription opioids as a ‘defacto’ substitution treatment program in areas where opioid substitution treatment was not accessible was also often mentioned (limited availability of pharmacotherapy was reported in many regional/rural areas).

**Polydrug use**

• Most presentations involved polydrug use.

• The most commonly reported combination was opioids and benzodiazepines.

• It was noted that pharmaceuticals were often used with alcohol or cannabis.

**Routes of administration**

• Some intravenous use of pharmaceutical opioids.

• Oral and intravenous use of benzodiazepines.

**Reasons for use**

**Prescribing practices**

• Participants reported cases of iatrogenic dependence developing as a result of prescribing cultures.

• GPs were perceived to be under time constraints, which limited patient assessments and exploration of alternative treatments.

**Price and availability**

• Relatively cheap price and ease of availability of pharmaceutical opioids combined with a lack of heroin in regional/rural areas were commonly linked to misuse of these drugs.

• More than one informant noted the high value of pharmaceuticals added to their attractiveness for misuse. An example mention by one KE was a prescription costing approximately $5 reported to be able to be on sold for up to $2,400.

• Prescription opioids were being used instead of heroin, as they are considered cheaper and more accessible.

• On selling was noted to also occur amongst people not identified as drug users themselves (e.g. pensioners) due to their high value.

**Improved functioning**

• Some pharmaceuticals were taken for easing the negative effects of other drugs. For example benzodiazepines were used to self medicate negative effects of amphetamine use and to self medicate withdrawal symptoms from other opiates.

**Awareness**

A range of levels of drug knowledge was reported amongst pharmaceutical misusers:

• Some pharmaceutical users were understood to have a good awareness of the drugs they were using.
Some pharmaceutical users seemed to be well educated in the prescription drugs they sought and were aware of the market.

People were less sure of what they were getting with diverted pharmacotherapies, and this resulted in a preference for oxycodone, morphine or paracetamol/codeine products.

A lack of awareness of dependency capabilities of pharmaceuticals:

- A number of participants felt clients receiving prescribed medications often failed to see themselves as dependent on these medications, or saw the medications as ‘safer’ than illicit drugs.

- A lack of understanding and awareness of the harms and problems that are associated with taking over the counter pain relievers and benzodiazepines not as prescribed or for long periods of time.

A lack of awareness of adverse effects was noted with pharmaceutical users:

- Some clients seemed to have much less awareness of short and long term risks including dependence and other side effects.

- Clients also had perceptions that pharmaceutical misuse was a ‘harmless problem’ with confidence that their doctor would not give them something that was potentially dangerous or harmful.

Role of pharmaceutical drugs in clients presenting for treatment

A range of populations sought treatment:

- A group who would be more likely to see a GP rather than a drug treatment service.

- An older group of benzodiazepine users.

- Females were reported to more frequently misuse benzodiazepines and pain medications than males.

- In Western Australia some individuals seeking prescription opioids were noted to be a transient population, coming from other areas such as Darwin.

- People whose addiction had developed initially because of chronic pain were identified as primary pharmaceutical opioid users.

- While prescription drug misuse was not always noted to affect therapeutic decision making generally, some polydrug users (using illicit drugs and pharmaceuticals) were noted to be complex clients with varied treatment needs.
The dominant reasons for people presenting for treatment were:

- Issues with supply including:
  - Prescribers refusing to prescribe.
  - The primary prescriber had retired and other prescribers were unwilling to continue supply.
- Legal issues.
- Cost had become prohibitive.
- Home or work pressures had contributed to a need to seek treatment.

Treatment barriers:

- Prescription drug users may be harder to identify and less likely to come forward for treatment.
- Some pharmaceutical users may approach drug treatment services because of the difficulty in getting their needs met in the community. Conversely some people may be dependent on pharmaceuticals but may not present to drug treatment services as they receive prescription drugs from their GP and have no reason to contact drug treatment services.

**Impact of pharmaceutical drug misuse on treatment**

Pharmaceutical misusers were noted to have a variety of presentation characteristics:

- Co-occurring pain or mental health comorbidity.
- Dependence resulting from therapeutic use.
- Good awareness of pharmaceuticals they were using.
- Lack of insight regarding dependence to pharmaceuticals.
- May not identify as drug users.
- Poor health and being ‘tired of the lifestyle’ were also noted, however it seemed from responses that treatment entry was often crisis driven and motivated by external factors rather than being driven by an individual’s incentive to change their drug using behaviour.

Challenges for therapeutic relationships:

- People using pharmaceuticals were not reported to identify themselves as ‘drug users’ and it was also noted that some pharmaceutical drug users may not present to drug services that are oriented towards illicit drug users.
Characteristics identified by regional and rural participants included:

- Denial of problems (believing they genuinely needed medications for pain relief).
- Showing little insight and expressing the attitude that pharmaceuticals not “as bad as other drugs”.
- Beliefs that pharmaceuticals were safer than illicit drugs.
- Pharmaceutical misusers were thought to regard illicit substance users as ‘druggies’, and did not perceive themselves as ‘drug addicts’.
- A divide existed between pharmaceutical misusers and users of other drug types with pharmaceutical misusers seeing themselves as “not like those junkies” and that they had a genuine medical problem and were only using medication prescribed by a doctor. This may affect whether a client would present to a traditional alcohol and drug service, even though treatment for illicit drugs may be similar to treatment for pharmaceuticals.

Treatment complications:

- Many people presenting with pharmaceutical misuse had a number of co-occurring conditions such as chronic pain and mental health issues.
- Some pharmaceutical misusers were reported to have chaotic presentations, using multiple substances and having a high level of comorbidity.
- Pharmaceutical misusers may be using pharmaceuticals to self medicate mental illness.
- Treatment presentation was noted to occur after a significant period of pharmaceutical misuse.
- Some presentations were related to a non pharmaceutical substance (e.g. alcohol) with it later becoming evident that pharmaceuticals were the primary problem.

Difficulties with chronic pain management:

- Participants reported that pharmaceuticals were either used initially for pain relief with a subsequent dependency developing or were used for the mind/mood altering qualities.
- In some cases the pain conditions started before the dependency on pharmaceuticals.
- Chronic pain or an initial injury were identified as a feature in some pharmaceutical misusers, which resulted in complex treatment issues with managing pain and opioid dependence.
Challenges for therapeutic decision-making:

- Pharmaceutical misuse may only be one factor that affects therapeutic decision-making (other factors include psychosocial needs).
- Stricter boundaries for pharmaceutical misusers were noted with contracts around behaviour (e.g. regular urine drug screens, only collecting benzodiazepines from one prescriber). Restricting supply in this way was noted by some KE to be of limited use due to ease of access to pharmaceuticals elsewhere.

Common approaches to addressing pharmaceutical misuse:

- Daily/weekly dispensing of prescriptions.
- Limited unsupervised dosing.
- Contracts to prevent individuals in treatment seeking out other prescribers.
- Treatment decisions not impacted by pharmaceutical use, which may be due in part to prescription drugs being more commonly available in regional/rural areas than illicit drugs.
- Licit or illicit opioids did not affect treatment plan. Risk of overdose from mixing pharmaceuticals was noted to result in more cautious prescribing.
- Decisions made to confirm suspicions (e.g. urine screens, consultation with DDU).
- Risk of diversion noted to affect prescribing decisions. Daily dispensing at pharmacies was used to try and prevent diversion. One KE noted that further diversion may result in prescribing of pharmacotherapies with supervised dosing.

Effect of benzodiazepine use on treatment:

- Benzodiazepine use was noted to complicate treatment.
- A reluctance to prescribe benzodiazepines noted by a number of KE.
- Treatment plans of transferring benzodiazepine users onto long term benzodiazepine plans and then reducing dose were reported.
- The protracted nature of benzodiazepine withdrawal compared to other drug withdrawal may affect treatment retention.

Retaining clients in treatment:

- Continual seeking of pharmaceuticals was identified to impact on treatment retention.
- Refusal to supply further benzodiazepines may result in clients disengaging in treatment.
- Poorer retention was linked to non-supply of prescription drug by treatment providers and ability to find alternative supplies of drugs (e.g. prescribing GP or black market). Conversely another KE noted that there were limited pharmacies in their area, resulting in the dependence on ‘black market’ morphine if a client was excluded from a methadone program.

- The availability of illicit pharmaceuticals may impact on treatment retention, with clients dropping out of treatment if there is an alternate supply available. The easy availability of pharmaceuticals means that if the treatment provider does not supply these drugs, they can easily be sourced elsewhere.

- Some services reported that both users of over the counter pain relievers and transient populations using pharmaceuticals were noted to have poorer treatment retention, only attending a limited number of appointments.

- Motivation was noted to be important in treatment success.

Chronic pain:

- Difficulties were reported retaining clients in treatment when their pain is not properly managed.

- Pain patients had reported poor treatment from doctors who regarded them as ‘druggies’ and queried if pain symptoms were genuine.

- Treatment becomes increasingly complex when chronic pain and opioid dependency are both present in a patient’s presentation.

Problems identified with daily dispensing at pharmacies:

- Daily dispensing of pharmaceuticals to reduce misuse is a service that is not funded, and as such pharmacists generally provide this service without receiving payment.

- Daily dispensing was also problematic for pharmacists in that it resulted in more frequent contact with difficult clients.

- It was felt some pharmacies did not understand the requirements of daily dispensing and there were reports of pharmacists supplying medications without a script.

- A standard agreement with pharmacies does not exist. Treatment needs are negotiated between the pharmacist and client on a patient-by-patient basis, with generally limited capacity for pharmacies to provide access to other types of treatment.

- A “one prescriber – one pharmacy” approach was identified by a number of KE as essential in managing pharmaceutical misuse.
Regional-specific issues

Victoria

Patterns of use:

- Prescription drug misuse appeared to be a significant problem in regional and rural areas. Heroin availability reduced as the distance from Melbourne increased.

- Most KE reported that heroin was not a drug of choice, with those being treated with pharmacotherapies being primarily dependent on morphine or oxycodone.

Treatment barriers:

- The vast majority of KE described a severe shortage of services, with waiting lists for treatment places and pharmacies being the primary barrier to treatment.

- One noted outcome of long waiting lists was that people were missing the window of opportunity to enter treatment because when they were motivated to seek help, there was no treatment available.

- Two geographical barriers were identified, the distance required to travel to services, and the unwillingness of services to accept referrals from other regions.

Queensland

Treatment barriers:

- The major theme which emerged was the lack of rehabilitation and detoxification services.

- Persons seeking treatment needed to travel substantial distances and were often unable to do so because of a lack of transport access.

Western Australia

Patterns of use:

- Northern area KEs reported that the main problem drugs were alcohol, tobacco and cannabis.

- Some services specifically noted that alcohol rather than pharmaceutical misuse was the main problem.

- Limited access to pharmaceuticals was noted, particularly for Indigenous people. In one region a rise in amphetamine use was associated with an increase in benzodiazepine use. One KE noted poor pharmacy access for methadone treatment was linked with illicit morphine use.

Tasmania

Patterns of use:

- A larger number of clients were seen to be presenting with pharmaceutical misuse as the primary presenting issue than was the case in other Australian jurisdictions.
- Some presentations were related to changes in requirements for prescribing prescription opioids (referred to as Section 22). Clients originally prescribed opioids as part of pain management were taking them for longer than clinically expected, and, based on the judgement of a clinical panel, were required to be medically assessed by an independent clinician.

- A culture was perceived to exist in this jurisdiction around prescribing, with prescribing of benzodiazepines and some opioids felt to be at a higher rate than the national average.

Treatment barriers:

- Some barriers to treatment were identified that were specific to regional areas of Tasmania, including intake being currently closed for treatment in North/North West Tasmania.

- Some pharmacotherapy programs were unable to initiate pharmacotherapy with new clients unless they were assessed as being high risk. For others, a lack of staff limited the capacity of services to initiate and stabilise clients on pharmacotherapy treatments.
5. FINDINGS OF SURVEY OF DRUG TREATMENT CLIENTS

A face-to-face semi-structured survey was administered to a sample of recent entrants to pharmacotherapy, inpatient detoxification and residential rehabilitation treatment modalities, all of whom had reported misuse of pharmaceuticals prior to treatment entry.

Drug treatment clients were surveyed in the four participating jurisdictions (Victoria, Tasmania, Western Australia and Queensland).

Summary of key findings

- Most of the sample reported using pharmaceutical opioids and benzodiazepines with considerable frequency, either non prescribed or not as prescribed.

- Some differences between jurisdictions were detected in drug use, route of administration and sources of prescription drugs. This may be primarily related to characteristics of the drug markets in each jurisdiction, particularly with regard to the extent of heroin availability and street based markets and the culture of pharmaceutical opioid use.

- While a common source of prescription drugs was medical practitioners, it is important to note that most pharmaceutical opioids were accessed illicitly by the individual drug consumer rather than by direct prescription.

- Most of this sample used pharmaceuticals not as prescribed in the time leading up to treatment. Seven per cent of people using pharmaceutical opioids and 14% of those using benzodiazepines used only as prescribed.

- Two thirds of the sample showed moderate to severe levels of impairment due to mental health problems, and some participants reported using pharmaceuticals in not as prescribed manners to self medicate a range of mental health related conditions or drug withdrawal.

- A range of harms (including dependence, withdrawal, effects on memory and a range of injecting related harms) were reported, although only a minority of these harms resulted in a medical intervention. Among the benzodiazepines, alprazolam was particularly associated with the experience of harmful outcomes.

- Pharmaceutical drug use reduced as a result of pharmacotherapy treatment.

- The potential role of GPs and pharmacists in addressing pharmaceutical misuse was highlighted with individual comments from participants indicating that they may have sought help sooner if a health professional had intervened.

Demographics of the sample

Three hundred and five people reporting pharmaceutical misuse prior to alcohol and drug treatment participated in the survey.
The sample was 66% (n = 193) male, with a mean of 32.0 (S.D. 8.6) years old (see Table 7). Seven per cent of the sample identified as Aboriginal or Torres Strait Islander and 89% of the sample were born in Australia. Ninety seven per cent of the sample spoke English at home.

About 22% of the sample had completed a Year 12 level or higher of formal education and about three quarters of the sample were unemployed. Most of the sample were living in their own house (including renting) and receiving a government benefit for sickness or disability.

**Table 7 - Characteristics of participants**

<table>
<thead>
<tr>
<th></th>
<th>VIC (n = 108)</th>
<th>TAS (n = 42)</th>
<th>WA (n = 50)</th>
<th>QLD (n = 105)</th>
<th>Total (n = 305)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in years (SD)</td>
<td>32.7 (7.9)</td>
<td>35.7 (8.7)</td>
<td>30.6 (8.0)</td>
<td>30.3 (9.1)</td>
<td>32.0 (8.6)</td>
</tr>
<tr>
<td>Male (%)</td>
<td>61</td>
<td>55</td>
<td>64</td>
<td>69</td>
<td>63</td>
</tr>
<tr>
<td>English spoken at home (%)</td>
<td>93</td>
<td>100</td>
<td>98</td>
<td>100</td>
<td>97</td>
</tr>
<tr>
<td>Aboriginal / Torres Strait Islander (%)</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Completed year 12 (%)</td>
<td>21</td>
<td>19</td>
<td>24</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Unemployed (%)</td>
<td>79</td>
<td>86</td>
<td>56</td>
<td>76</td>
<td>75</td>
</tr>
<tr>
<td>Living in own flat/house (%)</td>
<td>60</td>
<td>71</td>
<td>69</td>
<td>55</td>
<td>58</td>
</tr>
<tr>
<td>Receiving government benefits (%)</td>
<td>81</td>
<td>83</td>
<td>52</td>
<td>82</td>
<td>77</td>
</tr>
</tbody>
</table>

There were some differences in demographic characteristics across the jurisdictions. Tasmania had a greater proportion of female participants than other states. A smaller proportion of the Western Australian participants reported social disadvantage (unemployment, receiving social benefits).

Participants were similar in age and gender to alcohol and drug treatment recipients in Australia, though a slightly lower percentage of Aboriginal and Torres Strait Islanders were recruited to this sample (Australian Institute of Health and Welfare, 2007a).

**Current and previous treatment**

Almost half of the sample (48%) was currently in pharmacotherapy treatment, 23% in inpatient detoxification and 29% in residential rehabilitation (see Table 1).

Of the participants in pharmacotherapy, 86 were in methadone treatment, with a mean daily dose of 65.5mg. Twenty one people were receiving buprenorphine treatment, with a mean dose of 10.8mg, and 40 people were in buprenorphine-naloxone treatment receiving a mean daily dose of 11.6mg.

Most of the sample (84.3%) had been in some form of drug treatment before. The most common treatment previously tried by 63% of the sample (n = 193) was ‘cold-turkey’ detoxification, followed by inpatient detoxification (47%, n = 142) and methadone treatment (44%, n = 134).

Previous experience differed between the jurisdictions with Victoria having the highest proportion of participants that had previously been in treatment (92%), and Western Australia having the lowest proportion (69%)(χ² (3,303) = 13.11, p .004).
## Illicit alcohol and drug use

### Table 8 - Illicit drug and alcohol use history and use in the 4 weeks before entering treatment

<table>
<thead>
<tr>
<th></th>
<th>Heroin</th>
<th>Amphetamines</th>
<th>Cannabis</th>
<th>Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Speed</td>
<td>Base</td>
<td>Ice/Crystal</td>
</tr>
<tr>
<td>Ever used (%)</td>
<td>89</td>
<td>95</td>
<td>45</td>
<td>78</td>
</tr>
<tr>
<td>Ever injected (%)</td>
<td>83</td>
<td>84</td>
<td>37</td>
<td>65</td>
</tr>
<tr>
<td>Prev. month* use (%)</td>
<td>71</td>
<td>44</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>No of days used (28)</td>
<td>21</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Prev. month* IV use (%)</td>
<td>70</td>
<td>39</td>
<td>8</td>
<td>37</td>
</tr>
<tr>
<td>No of days used IV (28)</td>
<td>20</td>
<td>7</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

### Victoria

|              | Ever used (%)| 60 | 83 | 55 | 67 | 98 | 98 |
|              | Ever injected (%)| 57 | 74 | 48 | 57 |       |    |
|              | Prev. month* use (%)| 2  | 26 | 10 | 19 | 64 | 47 |
|              | No of days used (28) | 6  | 13 | 17 | 11 | 23 | 18 |
|              | Prev. month* IV use (%)| 2  | 24 | 10 | 19 |       |    |
|              | No of days used IV (28) | 6  | 13 | 16 | 11 |       |    |

### Tasmania

|              | Ever used (%)| 90 | 46 | 27 | 78 | 62 | 56 |
|              | Ever injected (%)| 86 | 38 | 14 | 70 |       |    |
|              | Prev. month* use (%)| 76 | 22 | 8  | 68 | 44 | 48 |
|              | No of days used (28) | 19 | 10 | 11 | 11 | 21 | 14 |
|              | Prev. month* IV use (%)| 74 | 18 | 6  | 60 |       |    |
|              | No of days used IV (28) | 19 | 12 | 15 | 10 |       |    |

### Western Australia

|              | Ever used (%)| 75 | 87 | 57 | 73 | 98 | 93 |
|              | Ever injected (%)| 73 | 74 | 51 | 55 |       |    |
|              | Prev. month* use (%)| 41 | 33 | 18 | 27 | 61 | 71 |
|              | No of days used (28) | 16 | 7  | 8  | 8  | 16  | 13 |
|              | Prev. month* IV use (%)| 36 | 27 | 16 | 22 |       |    |
|              | No of days used IV (28) | 16 | 7  | 9  | 8  |       |    |

* Used in 4 weeks before treatment entry
Heroin, amphetamines, alcohol and cannabis were all frequently reported as used in the sample (see Table 8). The lowest history of and current use of heroin was in Tasmania. Alcohol and cannabis use was reported less often in Western Australia.

The Alcohol Use Disorders Identification Test (AUDIT) results
The AUDIT was developed by the World Health Organization as a screening tool for excessive drinking. The mean AUDIT score for the sample was 14.6 (S.D. 13.8) out of a maximum of 40. Total scores of 8 or more are recommended as indicators of hazardous and harmful alcohol use, as well as possible alcohol dependence (Babor et al., 2001) suggesting that there is a significant level of harmful drinking in this survey sample. The level of drinking varied between people presenting for different treatment types, the highest level, as expected, being for those presenting with alcohol as the primary drug of concern (see Table 9). The AUDIT scores for those presenting for treatment of opioid dependence (illicit or licit) were lower (p < 0.01) than those seen in those presenting for stimulant, cannabis or alcohol treatment, though mean scores still represent hazardous and harmful alcohol use amongst opioid users.

Table 9 - AUDIT scores presented by the drug type leading to treatment (n = 285)

<table>
<thead>
<tr>
<th>Drug class leading to treatment</th>
<th>AUDIT Score</th>
<th>95% CI</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>35.3</td>
<td>33.9 - 36.7</td>
<td>4.5</td>
<td>43</td>
</tr>
<tr>
<td>Benzodiazepine</td>
<td>16.2</td>
<td>9.0 – 23.4</td>
<td>15.5</td>
<td>20</td>
</tr>
<tr>
<td>Heroin</td>
<td>8.9</td>
<td>7.0 – 10.9</td>
<td>10.4</td>
<td>109</td>
</tr>
<tr>
<td>Pharmaceutical opioid</td>
<td>8.2</td>
<td>6.1 – 10.4</td>
<td>9.3</td>
<td>72</td>
</tr>
<tr>
<td>Stimulant (Illicit)</td>
<td>18.2</td>
<td>13.5 - 22.9</td>
<td>12.4</td>
<td>29</td>
</tr>
<tr>
<td>Other</td>
<td>19.7</td>
<td>12.1 - 26.2</td>
<td>11.1</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: AUDIT scores 8-15 reflect risky or hazardous drinking; 16-19 high risk drinking; and 20 or more reflect clear harm and high likelihood of dependence.

Principal drug of concern for treatment episode
The main drug people sought treatment for was heroin (40% of the sample), followed by pharmaceutical opioids (25%), alcohol (14%), illicit stimulants (10%) and benzodiazepines (7%) (see Table 10). While few people were seeking treatment for benzodiazepines, the most common drug reported by 37% of the sample to also be causing concern was benzodiazepine.
Within the sample the primary drug leading people to treatment in Victoria (55%) and WA (76%) was heroin. This differed from Tasmania (57%) and Queensland (35%) where pharmaceutical opioids were the primary drug leading to treatment entry. Treatment presentations related to stimulants were less common in Victoria compared with the other three jurisdictions examined.

### Pharmaceutical drug use

Almost 90% of all participants reported ever using prescription opioids in a non or not as prescribed (NAP) way, with a similar amount reporting NAP benzodiazepine use. Just under half the sample have reported lifetime NAP use of an over the counter analgesic (Table 11). Lifetime NAP use of pharmaceutical stimulants was also reported by half the sample.

About one third of the sample (33%, n = 101) reported using prescription opioids daily in the four weeks before entering treatment, with a mean of 14 days of use in the 28 days before entering treatment (see Table 12). The prescription opioid most used was morphine, with oxycodone the next most commonly reported. MS Contin® was the main brand of morphine, reported by 59.6% of morphine users. Oxy Contin® was the main brand of oxycodone, reported by 72.3% of those using oxycodone. Consistent with these findings, the prescription opioid used on the most recent occasion of use was most commonly morphine (45.7%), followed by oxycodone (19.5%).

The types of PO and BZD used varied by jurisdiction, with NAP methadone and morphine use being highest in Tasmania, and buprenorphine-naloxone use being more common in Victoria and Queensland. The highest proportion of use of NAP oxycodone was in WA. Diazepam, alprazolam and oxazepam were frequently used in Victoria, with almost 80% of the Victorian sample who used benzodiazepines reporting use of diazepam in the 4 weeks before entering treatment.
### Table 11 – Pharmaceutical drug use history of the sample (n = 305)

<table>
<thead>
<tr>
<th>% (n)</th>
<th>VIC</th>
<th>TAS</th>
<th>WA</th>
<th>QLD</th>
<th>Whole sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prescription opioids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As prescribed</td>
<td>95 (n=103)</td>
<td>76 (n=32)</td>
<td>36 (n=18)</td>
<td>69 (n=72)</td>
<td>74 (n=225)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>95 (n=103)</td>
<td>88 (n=37)</td>
<td>80 (n=40)</td>
<td>87 (n=91)</td>
<td>89 (n=271)</td>
</tr>
<tr>
<td><strong>Benzodiazepines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As prescribed</td>
<td>94 (n=102)</td>
<td>83 (n=35)</td>
<td>46 (n=23)</td>
<td>76 (n=80)</td>
<td>79 (n=240)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>98 (n=106)</td>
<td>93 (n=39)</td>
<td>58 (n=29)</td>
<td>89 (n=93)</td>
<td>88 (n=267)</td>
</tr>
<tr>
<td><strong>Pharmaceutical stimulants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As prescribed</td>
<td>9 (n=10)</td>
<td>10 (n=4)</td>
<td>6 (n=3)</td>
<td>15 (n=16)</td>
<td>11 (n=33)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>54 (n=58)</td>
<td>74 (n=31)</td>
<td>22 (n=11)</td>
<td>46 (n=48)</td>
<td>49 (n=148)</td>
</tr>
<tr>
<td><strong>Antidepressants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As prescribed</td>
<td>77 (n=82)</td>
<td>79 (n=33)</td>
<td>28 (n=14)</td>
<td>67 (n=70)</td>
<td>66 (n=199)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>36 (n=39)</td>
<td>10 (n=4)</td>
<td>2 (n=1)</td>
<td>26 (n=27)</td>
<td>24 (n=71)</td>
</tr>
<tr>
<td><strong>Antipsychotics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As prescribed</td>
<td>38 (n=41)</td>
<td>38 (n=16)</td>
<td>2 (n=1)</td>
<td>41 (n=43)</td>
<td>33 (n=101)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>38 (n=41)</td>
<td>17 (n=7)</td>
<td>2 (n=1)</td>
<td>33 (n=34)</td>
<td>27 (n=83)</td>
</tr>
<tr>
<td><strong>Over-the-counter sleeping tablets/capsules</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As directed</td>
<td>19 (n=20)</td>
<td>10 (n=4)</td>
<td>0 (n=0)</td>
<td>7 (n=7)</td>
<td>10 (n=31)</td>
</tr>
<tr>
<td>Not as directed</td>
<td>36 (n=38)</td>
<td>5 (n=2)</td>
<td>0 (n=0)</td>
<td>15 (n=15)</td>
<td>19 (n=55)</td>
</tr>
<tr>
<td><strong>Over-the-counter analgesics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As directed</td>
<td>74 (n=79)</td>
<td>41 (n=17)</td>
<td>18 (n=9)</td>
<td>58 (n=60)</td>
<td>55 (n=165)</td>
</tr>
<tr>
<td>Not as directed</td>
<td>52 (n=56)</td>
<td>41 (n=17)</td>
<td>6 (n=3)</td>
<td>47 (n=49)</td>
<td>41 (n=125)</td>
</tr>
</tbody>
</table>
### Table 12 - Prescription opioid and benzodiazepine history of use in the 4 weeks before entering treatment (n = 305)

<table>
<thead>
<tr>
<th></th>
<th>Lifetime use</th>
<th>Use in four weeks prior to treatment entry (mean days reported for those that use in the four weeks prior to treatment entry)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As prescribed %</td>
<td>Not as prescribed %</td>
</tr>
<tr>
<td><strong>Pharmaceutical opioids</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methadone syrup</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>Phosphate tablets</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>37</td>
<td>43</td>
</tr>
<tr>
<td>Buprenorphine-naloxone</td>
<td>29</td>
<td>18</td>
</tr>
<tr>
<td>Morphine</td>
<td>27</td>
<td>73</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>19</td>
<td>66</td>
</tr>
<tr>
<td>Tramadol</td>
<td>26</td>
<td>39</td>
</tr>
<tr>
<td>Panadeine Forte</td>
<td>27</td>
<td>22</td>
</tr>
<tr>
<td><strong>Any prescription opioid</strong></td>
<td>73</td>
<td>88</td>
</tr>
<tr>
<td><strong>Benzodiazepines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxazepam</td>
<td>41</td>
<td>65</td>
</tr>
<tr>
<td>Diazepam</td>
<td>73</td>
<td>80</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>Temazepam</td>
<td>49</td>
<td>64</td>
</tr>
<tr>
<td>Alprazolam</td>
<td>30</td>
<td>66</td>
</tr>
<tr>
<td>Nitrazepam</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td><strong>Any benzodiazepine</strong></td>
<td>79</td>
<td>88</td>
</tr>
</tbody>
</table>
The main pharmaceuticals used were examined by drug type. Of the participants using benzodiazepines, the drug most commonly and frequently used was diazepam with 18 out of previous 28 days (see Table 12). Alprazolam and oxazepam were the next most commonly used in a not-as-prescribed manner by 38% (frequency: 12 out of 28 days) and 27% (frequency: 14 out of 28 days) of the sample respectively. The benzodiazepine last used by participants was most often diazepam (51%) followed by alprazolam (16%).

Most use of prescription opioids and benzodiazepines in the four weeks before treatment was ‘non or not as prescribed’ (NAP). As shown in Figure 2, a minority of people using prescription opioids reported using them as prescribed (7%) in the four weeks before entering treatment.

For participants using prescription opioids, some form of opioid was used on about half of the days in the four weeks before entering treatment. This is compared with benzodiazepines, where people using benzodiazepines in the four weeks before treatment used them a mean of 75% of days before entering treatment. Of the 244 people who used a benzodiazepine in the four weeks before entering treatment (as prescribed or NAP), 155 (64%) reported that they did so every day. This is compared with 102 (45%) of the 214 people who used pharmaceutical opioids (as prescribed or NAP), who reported using them every day in the four weeks before treatment entry.

As with prescription opioids, only a minority of participants using benzodiazepines (14%) reported using them as prescribed, with the participants most commonly (48%) report only NAP use in the 4 weeks prior to treatment (see Figure 3).
Two thirds of the sample had ever used antidepressants as prescribed, and just under a quarter had ever used them NAP. In the month before entering treatment, 28% (86 people) reported using prescribed antidepressants and approximately 10% of the sample reported using them NAP in this time.

One third of the sample had ever been prescribed antipsychotics, and 27% (83 people) had used them in a NAP way. Nine per cent of the sample reported misuse of antipsychotics in the 4 weeks prior to treatment entry.

Most of the sample reported lifetime use of antidepressants (66%), with about one quarter ever using them in a NAP way. Recent misuse of antipsychotics was less common. Approximately 12% of the sample reported using prescribed antipsychotics and 9% reported using NAP antipsychotics in the 4 weeks before entering treatment.

Almost half the sample had used non prescribed pharmaceutical stimulants, however recent use was much less frequent. Only one participant had used ‘as prescribed’ pharmaceutical stimulants in the month before entering treatment and 8% (n=24) participants reported using NAP pharmaceutical stimulants in the 4 weeks before treatment. Pharmaceutical stimulants were mainly administered by injection.

Approximately one third (36%) of the total sample reported using an over the counter analgesic in the 4 weeks before entering treatment, with approximately 10% of the sample using them daily. The most common brand reported was Nurofen Plus® (used by 48% of those using an over the counter analgesics). Panadeine® was the next most common brand, reported to be used by 36% of those using over the counter analgesics.
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

Prescription drug use by jurisdiction
Prescription opioids

Frequency of use of prescription opioids and benzodiazepines was examined by jurisdiction with mean days used only among participants who reported use in the four weeks before treatment entry (Table 13).

There were some jurisdictional differences in the frequency of use of prescribed and not as prescribed opioids as well as differences between the route of administration. Although participants in Victoria and Queensland reported greater mean days of oral ‘as prescribed’ use of prescription opioids, differences between the jurisdictions were not statistically significant. However jurisdictional differences existed in overall reported frequencies of NAP oral prescription opioid use, with Queensland participants reporting a greater frequency of NAP use compared to Western Australian and Tasmanian participants, F(3,212) = 11.72, p < .001; but a stronger pattern of predominantly intravenous prescription opioid use in Tasmania; F(3,210) = 15.147, p < .0001; and total use of prescription opioids in any form in Tasmania F(3,210) = 4.044, p = .008. These differences may have important effects on harms experienced by users in these jurisdictions.

Table 13 - Mean days of prescription opioid use for participants who reported using prescription opioids in the 4 weeks before entering treatment

<table>
<thead>
<tr>
<th></th>
<th>VIC (n = 88) Mean (SD)</th>
<th>TAS (n = 30) Mean (SD)</th>
<th>WA (n = 29) Mean (SD)</th>
<th>QLD (n = 69) Mean (SD)</th>
<th>Total (n = 216) Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As prescribed</td>
<td>7 (11)</td>
<td>4 (8)</td>
<td>3 (8)</td>
<td>7 (11)</td>
<td>6 (10)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>11* (10)</td>
<td>6 (10)</td>
<td>3 (8)</td>
<td>15* (12)</td>
<td>11 (11)</td>
</tr>
<tr>
<td>Injected</td>
<td>5 (8)</td>
<td>18* (12)</td>
<td>12* (9)</td>
<td>13 (12)</td>
<td>11 (11)</td>
</tr>
<tr>
<td>Total days used</td>
<td>17 (10)</td>
<td>22 (10)</td>
<td>14 (10)</td>
<td>20 (11)</td>
<td>18 (11)</td>
</tr>
</tbody>
</table>

*Benzodiazepines

Victorian participants reported fewer mean number of days of ‘as prescribed’ benzodiazepine use compared to Western Australian participants, F(3,240) = 5.132, p = .002 (Table 14). Conversely, Victorian participants reported greater mean number of days of NAP benzodiazepine use compared with Queensland participants F(3,238) = 3.508, p = .016. There was no significant difference detected in intravenous benzodiazepines (F(3,239) = .983, p = .402) with low frequencies in all jurisdictions. Queensland participants reported a lower frequency of any use of benzodiazepines in the four weeks before entering treatment compared to all other states (F(3,240) = 6.231, p < .001).
Table 14 - Mean days of benzodiazepine use for participants who reported using benzodiazepines in the 4 weeks before entering treatment

<table>
<thead>
<tr>
<th></th>
<th>VIC (n = 100) Mean (SD)</th>
<th>TAS (n = 38) Mean (SD)</th>
<th>WA (n = 28) Mean (SD)</th>
<th>QLD (n = 78) Mean (SD)</th>
<th>Total (n = 244) Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As prescribed</td>
<td>8 (11)</td>
<td>12 (14)</td>
<td>18* (14)</td>
<td>12* (13)</td>
<td>11 (13)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>16* (11)</td>
<td>15* (12)</td>
<td>11 (12)</td>
<td>12 (11)</td>
<td>14 (12)</td>
</tr>
<tr>
<td>Injected</td>
<td>1 (3)</td>
<td>2 (5)</td>
<td>1 (3)</td>
<td>1 (3)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Total days used</td>
<td>23 (9)</td>
<td>23 (9)</td>
<td>25 (7)</td>
<td>18* (11)</td>
<td>22 (10)</td>
</tr>
</tbody>
</table>

*Form most frequently used

In Victoria oral NAP benzodiazepines were the form most frequently used. This was in contrast to WA where oral as prescribed benzodiazepine use was the form used most often. Similar frequencies of AP and NAP oral use of benzodiazepines were found in Queensland and Tasmania (see Table 14).

Combined use of prescription drugs

Most of the sample (76%) reported that they had taken pharmaceuticals in combination with other drugs. The drugs most commonly combined were opioids and benzodiazepines. The most common specific drugs combined were heroin and diazepam, though combinations of pharmaceuticals with cannabis and alcohol were also mentioned.

There were some key themes in the reasons for combining drugs:

- *Increasing the effects of drug of choice*. (low quality heroin was specifically noted as a factor, as was cost and availability of drug of choice).
- *To ‘knock myself out’* was also a common theme, with participant comments indicating they were seeking to numb themselves.
- *Seeking better pain relief*. Getting rid of pain was also reported.
- *Reducing drug withdrawal symptoms*.

Participants reporting NAP use of prescription opioids or benzodiazepines were more likely to report using both NAP prescription opioids and benzodiazepines in the four weeks before entering treatment than just one of the other drug class, with more than half of participants (52%) who had ever used either drug reporting using both in the four weeks before entering treatment $\chi^2(1,281) = 7.864, p = .005$, (see Figure 4).
Figure 4 - Relationships between not as prescribed use of benzodiazepines and prescription opioids in the four weeks before entering treatment (n=281)

This association with use of one drug class predicting the use of the other was not with AP use of prescription opioids and benzodiazepines (see Figure 5). This differential association, with NAP users typically using both classes is consistent with previous studies, which report use of one drug to enhance the effect of another drug. This is more likely to occur in a NAP use situation compared to where medication is being used as prescribed in a therapeutic context.
Substituting drugs

Substituting pharmaceuticals for other drugs was also common, being reported by 46% of the sample (n = 140). Prescription opioids were the main drugs substituted for other drugs; benzodiazepines were also often reported.

The overwhelming majority of the sample reported that heroin was the main drug for which pharmaceuticals were substituted, reported by 57% (n=80/140) of people who substituted pharmaceuticals for any other drug.

The primary reasons reported for substituting with pharmaceutical drugs were:

1. *Drug of choice was unavailable*
2. *Lack of money*

One participant reported they substituted pharmaceuticals because they ‘*did not want to get caught in a drug using lifestyle*’. The perceived ‘legal’ nature of pharmaceuticals was also nominated as a benefit of NAP pharmaceutical use, reported later in the findings (see Table 25).
Pharmaceutical use and treatment entry

Prescription opioids

Table 15 shows the mean number of days of pharmaceutical opioid use in the four weeks leading up to treatment entry across those seeking treatment for different primary drugs of dependence. No significant difference was found for number of days prescribed pharmaceutical opioids were used across different primary drugs of dependence ($F(3,212) = 1.10 \ p = .35$). People seeking treatment for pharmaceutical opioids, however, reported significantly more days of NAP use of pharmaceutical opioids compared to those presenting for heroin and other drug dependence ($F(3,211) = 6.88 \ p < .001$).

The frequency of injecting ($F(3,210) = 21.4 \ p < .001$) and the frequency of use of any form of pharmaceutical opioid ($F(3,210) = 14.9 \ p < .001$) for those presenting for pharmaceutical opioid dependence was higher than for all other substance dependent groups (see Table 15).

Almost half of the total sample (48%, $n = 147$) reported injecting a pharmaceutical opioid at least once in the 4 weeks prior to entering treatment.

<table>
<thead>
<tr>
<th>Use of prescription opioids in the four weeks prior to treatment entry</th>
<th>Principal drug leading to treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of prescription opioids in the four weeks prior to treatment entry</td>
<td>Heroin (n = 96) Mean (SD)</td>
</tr>
<tr>
<td>As prescribed</td>
<td>5 (9)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>8 (10)</td>
</tr>
<tr>
<td>Injected</td>
<td>8 (9)</td>
</tr>
<tr>
<td>Total days used</td>
<td>15 (10)</td>
</tr>
</tbody>
</table>

Benzodiazepines

Table 16 shows the mean number of days of benzodiazepine use in the four weeks leading up to treatment entry for people seeking treatment for different primary drugs of dependence. No significant difference was found for number of days used prescribed benzodiazepines across different primary drugs of dependence ($F(3,240) = 1.40 \ p = .24$).

Similar to the findings for pharmaceutical opioids, people seeking treatment for benzodiazepines reported significantly more days of NAP use of benzodiazepines compared to all other substance dependent groups ($F(3,238) = 7.79 \ p < .001$). In contrast to the findings for pharmaceutical opioids, there was no significant difference in the frequency of injecting benzodiazepines ($F(3,210) = 2.39 \ p = .70$), although frequency was higher for those presenting with benzodiazepine dependence. The lack of statistical difference here may be due to the lower frequencies of benzodiazepine injecting across the whole sample (see Table 15).
Table 16 - Mean days of use of benzodiazepines (BZD) in 4 weeks before treatment entry by type of treatment entered (reported by participants)

<table>
<thead>
<tr>
<th>Use of benzodiazepines in the four weeks prior to treatment entry</th>
<th>Principal drug leading to treatment</th>
<th>Total days used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Heroin (n = 97) Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td></td>
<td>Pharmaceutical opioids (n = 56) Mean (SD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BZD (n = 20) Mean (SD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other (n = 70) Mean (SD)</td>
<td></td>
</tr>
<tr>
<td>As prescribed</td>
<td>12 (13)</td>
<td>11 (13)</td>
</tr>
<tr>
<td>Not as prescribed</td>
<td>13 (11)</td>
<td>11 (12)</td>
</tr>
<tr>
<td>Injected</td>
<td>1 (4)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Total days used</td>
<td>23 (9)</td>
<td>20 (11)</td>
</tr>
</tbody>
</table>

Source of pharmaceuticals
Usual source for prescription opioids
Participants were asked for all sources of pharmaceuticals used in the four weeks before treatment entry, and to nominate the usual source. The usual source of pharmaceutical opioids most often reported was either by seeing a doctor with a real symptom (30%), or purchasing from a dealer (29%) (see Table 17).

Table 17 - Usual source of prescription opioids used in the 4 weeks before entering treatment (n = 182)

<table>
<thead>
<tr>
<th>Usual source</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General practitioner (real symptom)</td>
<td>55</td>
<td>30</td>
</tr>
<tr>
<td>Buy: dealer</td>
<td>53</td>
<td>29</td>
</tr>
<tr>
<td>Buy: friend</td>
<td>35</td>
<td>19</td>
</tr>
<tr>
<td>Gift</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>Swap</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>General practitioner (feigned symptom)</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Steal</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Usual sources for prescription opioids varied markedly between jurisdictions (see Figure 6). Purchasing prescription opioids from a friend or ‘off the street’ was the predominant source in all states except Victoria, where seeing a GP (with a real or fake symptom) was the primary source used. Gifting of pharmaceutical opioids was also more common in Victoria than the other jurisdictions. It is notable that, in all jurisdictions, most prescription opioids were not sourced directly from a prescriber (53 – 85%), indicating that a significant black market exists.
Participants were asked about the source of drug on the last occasion they had used a prescription opioid. Most commonly, these were ‘gifts’ from a friend or partner (34%), or the person’s own prescription supply (23%). Illicit purchases, either from a friend or partner (21%) or from ‘the street’ (17%) were also commonly reported. This clearly demonstrates that the vast majority of prescription opioid use was not coming directly from a prescriber.

Figure 6 - Usual source of prescription opioids by jurisdiction

Source on last use occasion for prescription opioids
Participants were asked about the source of drug on the last occasion they had used a prescription opioid. Most commonly, these were ‘gifts’ from a friend or partner (34%), or the person’s own prescription supply (23%). Illicit purchases, either from a friend or partner (21%) or from ‘the street’ (17%) were also commonly reported. This clearly demonstrates that the vast majority of prescription opioid use was not coming directly from a prescriber.

Usual source for benzodiazepines
Participants were asked about their usual sources of benzodiazepines in the four weeks prior to treatment entry (see Table 18). The main source reported was by seeing a prescriber with a real symptom, accounting for almost two thirds of all supply (61%). Although seeing a GP with a real symptom was also first ranked, when compared to pharmaceutical opioids 61% of benzodiazepines were sourced in this way compared to only 30% for prescription opioids.

Table 18 - Usual source of benzodiazepines in the four weeks before entering treatment

<table>
<thead>
<tr>
<th>Usual source</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General practitioner (real symptom)</td>
<td>126</td>
<td>61</td>
</tr>
<tr>
<td>Buy from dealer</td>
<td>23</td>
<td>11</td>
</tr>
<tr>
<td>Buy from friend</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>Gift</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>General practitioner (feigned symptom)</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Steal</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Swap</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Some variations existed in the sourcing of benzodiazepines between jurisdictions (see Figure 7)
While the main source in each state was a GP, gifting was the second most used source of benzodiazepines in Victoria, reported as the usual source by 19% of the sample. This was in contrast to other states where gifting was much less commonly reported, and a larger illicit market (purchasing from friends or the street) seemed to exist. The higher rates of gifting of both benzodiazepines and prescription opioids in Victoria may be indicative of a larger street-based drug market, particular for injecting drugs, where pharmaceuticals are often anecdotally reported as being supplied alongside the purchase of other drugs to potentiate their effect.

Source on last use occasion for benzodiazepines
The last reported source for benzodiazepines was notably different from those reported for prescription opioids. On the last occasion of use, two-fifths had used benzodiazepines prescribed directly to them (41%), with gifting from friends or partners accounting for 37% of supply. Less than 10% of the sample reported purchasing benzodiazepines from a friend, and less than six per cent reported purchasing benzodiazepines from the street.

From examining both the usual and last use source data it appears that benzodiazepines may have a smaller black market involved in their supply compared to prescription opioids. As such there may be more opportunity for prescriber identification and intervention in addressing benzodiazepine misuse with individuals presenting for prescriptions.

Diversion of prescribed pharmaceuticals to others
Participants who were prescribed a pharmaceutical in the 4 weeks before entering treatment were asked if they supplied their own pharmaceuticals to others in that time (see Table 19). In the month before treatment 37% reported giving their own prescribed pharmaceutical away to someone else, 22% reported swapping their pharmaceutical for another drug and 12% reported selling a pharmaceutical that they had been prescribed.
There was an association between the likelihood of participants ‘giving away’ their prescribed pharmaceuticals and jurisdiction ($\chi^2 (3, 232) = 17.369, p = .001$). Victorian participants more commonly reported giving away their own prescribed pharmaceuticals. This is consistent with participants who reported source of pharmaceutical opioids and benzodiazepines, suggesting the gifting of pharmaceuticals is more commonplace in Victoria than in other jurisdictions involved in the study. The proportions reporting selling or swapping prescribed drugs did not appear to vary across jurisdictions examined.

Table 19 - Supply to others of own prescribed drugs in 28 days before treatment entry, reported by participants who were prescribed a prescription drug in that time

<table>
<thead>
<tr>
<th>Supply to others</th>
<th>VIC (n = 92) %</th>
<th>TAS (n = 32) %</th>
<th>WA (n = 18) %</th>
<th>QLD (n = 90) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give away</td>
<td>53</td>
<td>25</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Sell</td>
<td>10</td>
<td>6</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>Swap for other drugs</td>
<td>23</td>
<td>19</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

Pharmaceutical misuse and treatment entry

The main reason given for treatment entry was being “sick of the drug using lifestyle”, reported by 42% of the sample.

A range of factors were explored to see if they had an effect on treatment entry (see Table 20). Commonly identified facilitators to treatment entry included the effects of drug use on family and work, cost of drugs, and previous good experience and knowledge of treatment. In terms of factors that delayed treatment entry, waiting lists and attendance requirements were the most commonly identified. These factors varied little according to the type of drug for which the person was seeking treatment.

Table 20 - Factors that facilitated or delayed treatment entry for pharmaceutical misusers

<table>
<thead>
<tr>
<th>Factors that facilitated treatment entry (%)</th>
<th>Factors that delayed treatment entry (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug use affecting partner/family</td>
<td>Waiting list to enter treatment</td>
</tr>
<tr>
<td>70</td>
<td>33</td>
</tr>
<tr>
<td>Drug use affecting work/studies</td>
<td>Attendance requirements of treatment</td>
</tr>
<tr>
<td>57</td>
<td>24</td>
</tr>
<tr>
<td>Financial issues</td>
<td>Lack of local services</td>
</tr>
<tr>
<td>48</td>
<td>21</td>
</tr>
<tr>
<td>Cost of drug of choice</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Previous good experience of treatment</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Knowledge of treatment options</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>
Some comments from participants indicated that their perceptions of treatment may have delayed their treatment entry, potentially highlighting the importance of making sure accurate information about treatment is available. Responses from participants when asked about the things that could have helped them access treatment sooner included:

“Positive attitudes amongst peers. People around me are very negative about [the] program.”

“Highlighting the benefits of the program in the community would have helped.”

Not all pharmaceutical users may be in contact with other users, meaning that this potential source of information about treatment options may not exist. For those people not in touch with drug using peers, there were other issues with a lack of knowledge highlighted by these comments:

“I didn’t know who to ring up and where to go. Little information about where to go and who to see. Was not connected to a drug using subculture so found it hard to get info regarding services available.”

“If I hadn’t have been to detox before I wouldn’t have known where to go.”

“If I had known more about programs i.e. able to access psychologists/counsellors, [I] would have accessed [them] sooner... been more open.”

“If I had known I could do this at home I would have tried earlier.”

Other additional comments from participants when asked about things that may have facilitated treatment entry highlighted the importance of pharmacist or prescriber intervention. For example:

“If the pharmacist and doctor had picked up on something sooner, I would still be getting them if I hadn’t come by myself. It would have been nice if the chemist had’ve asked if I needed help.”

“[People] should have to get a script for over the counter medications. [It is] too easy to get [medications] and become addicted.”

One participant indicated they would have entered treatment sooner “if doctors weren’t so willing to write prescriptions”.

These comments indicate the potential positive impact that prescribers and dispensers of pharmaceuticals may have if they are more proactive in ensuring that patients understand the potential for dependence, in monitoring for signs of dependence and also in informing about referral pathways.

**Jurisdictional differences in barriers to treatment**

Factors affecting treatment varied between jurisdictions (see Table 21). In Tasmania waiting lists were reported as delaying treatment entry for more than half the sample, and a quarter of the Tasmanian sample identified that increasing the range of options for treatment would facilitate treatment entry. In Victoria, a previous good experience and range and knowledge of
treatment options seemed to assist treatment entry. This may be related to a greater proportion of the Victorian sample having experienced treatment before. A perceived lack of local services was reported as a barrier to treatment by participants in most jurisdictions. Few of the factors examined appeared to impact on treatment entry in Western Australia.

Table 21 - Factors that helped or delayed treatment entry by jurisdiction

<table>
<thead>
<tr>
<th>Factors delaying treatment entry</th>
<th>VIC (n = 108) %</th>
<th>TAS (n = 42) %</th>
<th>WA (n = 50) %</th>
<th>QLD (n = 105) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting list</td>
<td>30 (n=32)</td>
<td>52 (n=22)</td>
<td>10 (n=5)</td>
<td>40 (n=41)</td>
</tr>
<tr>
<td>Lack of local services</td>
<td>24 (n=25)</td>
<td>36 (n=15)</td>
<td>0 (n=0)</td>
<td>23 (n=23)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factors facilitating treatment entry</th>
<th>VIC (n = 108) %</th>
<th>TAS (n = 42) %</th>
<th>WA (n = 50) %</th>
<th>QLD (n = 105) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous good experience</td>
<td>65 (n=70)</td>
<td>24 (n=10)</td>
<td>2 (n=1)</td>
<td>37 (n=38)</td>
</tr>
<tr>
<td>Range of treatment options</td>
<td>42 (n=45)</td>
<td>10 (n=4)</td>
<td>0 (n=0)</td>
<td>22 (n=22)</td>
</tr>
<tr>
<td>Knowledge of treatment options</td>
<td>51 (n=55)</td>
<td>26 (n=11)</td>
<td>0 (n=0)</td>
<td>30 (n=31)</td>
</tr>
</tbody>
</table>

Pharmaceutical misuse and treatment

Use of NAP OST and treatment entry

While numbers were small there was a trend for participants who were using illicit methadone or buprenorphine +/- naloxone before treatment entry to receive the same opioid for substitution treatment (see Table 22).

It is possible that a positive experience with illicit use of opioids used for opioid substitution treatment may lead to people seeking the drug for formal treatment. This is consistent with findings of studies with buprenorphine, where positive experiences with buprenorphine in detoxification lead to better retention in post withdrawal treatment episodes (Lintzeris et al, 2002).

Table 22 - Misuse of opioid substitution treatments and subsequent treatment entry, reported by participants who entered OST

<table>
<thead>
<tr>
<th>Not as prescribed opioid substitution treatment use in the four weeks before treatment</th>
<th>Treatment type</th>
<th>Methadone %</th>
<th>Buprenorphine +/- naloxone %</th>
<th>Inpatient detoxification %</th>
<th>Residential rehabilitation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone (n=43)</td>
<td></td>
<td>53 (n=23)</td>
<td>16 (n=7)</td>
<td>21 (n=9)</td>
<td>9 (n=4)</td>
</tr>
<tr>
<td>Buprenorphine-naloxone (n=28)</td>
<td></td>
<td>11 (n=3)</td>
<td>40 (n=11)</td>
<td>29 (n=8)</td>
<td>21 (n=6)</td>
</tr>
<tr>
<td>Buprenorphine (n=40)</td>
<td></td>
<td>33 (n=8)</td>
<td>71 (n=17)</td>
<td>17 (n=4)</td>
<td>46 (n=11)</td>
</tr>
</tbody>
</table>
Non adherence to opioid substitution pharmacotherapy treatments

Five types of non adherence to pharmacotherapy treatment were examined: spitting out or not taking a supervised dose as intended, injecting pharmacotherapy treatment, selling pharmacotherapy to others, giving away or swapping pharmacotherapy (Table 23). There were some marked jurisdictional differences in pharmacotherapy treatment non-adherence among the participants surveyed. Compliance to pharmacotherapy treatment was high in Tasmania and Western Australia, injecting of pharmacotherapy treatments was most often reported in Queensland, and overall, non adherence was highest in Victoria.

Frequency of non adherence

Participants who did not take their dose ‘as intended’ under supervision did so a mean of seven times in four weeks. Participants who injected their pharmacotherapy did so a mean of ten times in four weeks.

Table 23 - Non adherence to pharmacotherapy treatment by jurisdiction

<table>
<thead>
<tr>
<th>Non adherence to pharmacotherapy</th>
<th>VIC (n = 48) %</th>
<th>TAS (n = 19) %</th>
<th>WA (n = 40) %</th>
<th>QLD (n = 41) %</th>
<th>Total (n = 147) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spat out/not taken supervised as intended</td>
<td>30 (n=14)</td>
<td>0 (n=0)</td>
<td>8 (n=3)</td>
<td>20 (n=8)</td>
<td>17 (n=25)</td>
</tr>
<tr>
<td>Injected pharmacotherapy</td>
<td>19 (n=9)</td>
<td>5 (n=1)</td>
<td>10 (n=4)</td>
<td>29 (n=12)</td>
<td>18 (n=26)</td>
</tr>
<tr>
<td>Sold pharmacotherapy to others</td>
<td>4 (n=2)</td>
<td>0 (n=0)</td>
<td>0 (n=0)</td>
<td>15 (n=6)</td>
<td>5 (n=8)</td>
</tr>
<tr>
<td>Gave away dose</td>
<td>34 (n=16)</td>
<td>0 (n=0)</td>
<td>0 (n=0)</td>
<td>15 (n=6)</td>
<td>16 (n=22)</td>
</tr>
<tr>
<td>Swapped</td>
<td>13 (n=6)</td>
<td>5 (n=1)</td>
<td>0 (n=0)</td>
<td>15 (n=6)</td>
<td>9 (n=13)</td>
</tr>
</tbody>
</table>

Change in pharmaceutical use after treatment entry

Participants who had entered pharmacotherapy treatment (i.e. non-residential treatment: n = 147) were questioned about their use of pharmaceuticals after entering treatment and this was compared to their level of use prior to treatment entry. These questions were not asked of people in detoxification or residential rehabilitation as these treatments predominantly occur in an inpatient setting where access to pharmaceuticals would be limited.

Use of non or not as prescribed (NAP) prescription opioids and benzodiazepines both reduced significantly after entry to pharmacotherapy treatment, with the greatest difference seen in the reduction of prescription opioids.

Use of prescription opioids in a NAP way in the previous 4 weeks reduced from 77% of participants prior to treatment entry to 41% when in treatment, McNemar test (1,294) = 7.67, p = .006).
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

Use of NAP benzodiazepines also reduced from 65% in the four weeks prior to treatment entry to 58% in the past 4 weeks of being in treatment, McNemar test (1, 294) = 7.95, p = .005.

These findings suggest a positive impact of pharmacotherapy treatment on prescription drug use, particularly on prescription opioid use as would be expected with an opioid substitution pharmacotherapy.

Effect of pharmaceutical use on current treatment
Impact of pharmaceutical misuse on treatment is explored in more detail with KEs in focus groups and telephone interviews (Chapter 4) and in the case file reviews (Chapter 6). Participants in pharmacotherapy treatment were also asked about the impact of their pharmaceutical misuse on their treatment (see Table 24). The most common impact reported was difficulty remembering appointments (29%).

Table 24 - Effect of pharmaceutical use on treatment

<table>
<thead>
<tr>
<th>Impact of pharmaceutical use on treatment</th>
<th>Reported (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Found it difficult to remember appointments</td>
<td>29</td>
</tr>
<tr>
<td>Attended appointments intoxicated</td>
<td>19</td>
</tr>
<tr>
<td>Missed does of pharmacotherapy</td>
<td>16</td>
</tr>
<tr>
<td>Behaviour lead to dose refusal</td>
<td>9</td>
</tr>
<tr>
<td>Disagreement around requests for pharmaceuticals</td>
<td>9</td>
</tr>
</tbody>
</table>

These findings were consistent with the difficulties that KEs reported regarding impact of pharmaceutical misuse on treatment, specifically the adverse effects of benzodiazepines on memory and behaviour being problematic in the treatment setting.

Perceptions of pharmaceutical use
Participants were asked to identify up to three things that they liked or did not like about using pharmaceutical drugs. In general, these reasons fell into four main categories, the drugs facilitated mood adjustment, provided intoxication, were easier to access than other drugs and had less associated stigma than other illicit drugs (see Table 25). More specifically, two fifths of participants reported that the positive things about pharmaceutical use was their ability to reduce anxiety with one quarter reporting they liked them because the drugs made them ‘feel better’. Over one quarter of participants reported that they liked pharmaceuticals because they numbed or blocked all feelings. A number also reported that pharmaceuticals offered the possibility of self medication for anxiety, pain, sleep or withdrawal symptoms. A few participants noted they liked pharmaceuticals because they believed they could not overdose on them, which may reflect a need for further education regarding the risks of pharmaceutical drugs.
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

Table 25 – Positive aspects about pharmaceutical use, as identified by participants

<table>
<thead>
<tr>
<th>Good things about pharmaceuticals</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self medication/mood adjustment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxing/for anxiety</td>
<td>128</td>
<td>42</td>
</tr>
<tr>
<td>Feel better/good/nice buzz</td>
<td>83</td>
<td>27</td>
</tr>
<tr>
<td>Self medicate withdrawal symptoms</td>
<td>63</td>
<td>21</td>
</tr>
<tr>
<td>Help for sleep or pain relief</td>
<td>52</td>
<td>17</td>
</tr>
<tr>
<td>Feel normal/stabilise</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td><strong>Access</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to get</td>
<td>59</td>
<td>19</td>
</tr>
<tr>
<td>Cheap</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td><strong>Intoxication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numb/escape/stoned ‘out of it’</td>
<td>79</td>
<td>26</td>
</tr>
<tr>
<td>Clean/safe/known amount</td>
<td>67</td>
<td>22</td>
</tr>
<tr>
<td>Increase effects of other drugs</td>
<td>32</td>
<td>10</td>
</tr>
<tr>
<td>Substitute or similar effect for illicit drug</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td><strong>Stigma</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Less stigma</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

A large number of negative aspects of pharmaceutical use were also identified, the key theme being associated with dependence and withdrawal effects (see Table 26). Another theme was concerns with side effects on health including liver, injection injuries and memory.
Table 26 - Negative aspects about pharmaceutical use, as identified by participants

<table>
<thead>
<tr>
<th>Bad things about pharmaceuticals</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Addictive/dependence</td>
<td>113</td>
<td>37</td>
</tr>
<tr>
<td>Withdrawal/comedown effects</td>
<td>59</td>
<td>19</td>
</tr>
<tr>
<td><strong>Social/psychological harms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other side effects including effect on life</td>
<td>46</td>
<td>15</td>
</tr>
<tr>
<td>Effect on personality and disinhibition</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>Don’t like effects/way makes me feel</td>
<td>34</td>
<td>11</td>
</tr>
<tr>
<td>Effects on memory</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Guilt and effect on family/friends</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Stigma</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td><strong>Physical harms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty injecting or injecting related side effect</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Liver damage and other physical health concerns</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>Effects of intoxication</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Risks of overdose</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too hard to get/going to chemist/doctor</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>Too easy to get</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td><strong>Legal harms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High cost</td>
<td>23</td>
<td>8</td>
</tr>
<tr>
<td>Link with crime/stealing/lying</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Black-market/mixing with users</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Being recorded by government</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

**Harms**

**Prescription opioids**

Participants were asked about harm relating to misuse of pharmaceutical opioids in the 4 weeks before treatment entry (Table 27 and Table 28). The most common harms reported from prescription opioids were dependence and withdrawal. Most participants experiencing harm reported that they usually injected their opioids, suggesting those that inject prescription opioids may be identified as a high risk group for experiencing harm (including non-injection related harm).
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

Table 27 - Harms relating to pharmaceutical opioid misuse (n = 201)*

<table>
<thead>
<tr>
<th>Experienced harm</th>
<th>Required medical intervention %</th>
<th>Required hospitalisation %</th>
<th>Of those experiencing harm, % usual route injected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal</td>
<td>53</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>Overdose</td>
<td>63</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Dependence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggressive behaviour towards others</td>
<td>29</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Loss of memory</td>
<td>42</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Psychosis</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Traffic accident</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Assaulted while intoxicated</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Arrested related to crime while under the influence</td>
<td>8</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Loss of property</td>
<td>24</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

*Reported by participants who used a NAP pharmaceutical opioid in the four weeks before treatment entry

Table 28 - Harms related to injection of pharmaceutical opioids (n = 153)*

<table>
<thead>
<tr>
<th>Experienced harm</th>
<th>Required medical intervention %</th>
<th>Required hospitalisation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain during injection</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>'Dirty hit'</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Abscess</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>Blood infection</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Lung infection</td>
<td>1</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Heart infection</td>
<td>1</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Nerve problem (numbness, tingling)</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Difficulty injecting</td>
<td>30</td>
<td>&lt; 1</td>
</tr>
</tbody>
</table>

*Reported by participants who injected a pharmaceutical opioid in the four weeks before treatment entry
Participants were asked about the opioid implicated in the harm for each harm occasion. The majority of harms (including injection related harms) were attributed to morphine. This is consistent with morphine being the main opioid that was reported to be used and injected.

**Benzodiazepines**

Participants who reported misuse of benzodiazepines were asked about harms that had occurred in relation to benzodiazepine misuse in the 4 weeks prior to treatment entry (Table 29). The most common harms relating to benzodiazepines were loss of memory (65%), dependence (51%) and withdrawal (37%).

**Table 29 - Harms relating to benzodiazepine (BZD) misuse (n = 209) reported by participants who misused BZD in the four weeks prior to treatment entry**

<table>
<thead>
<tr>
<th>Harms</th>
<th>Experienced harm %</th>
<th>Required medical intervention %</th>
<th>Required hospitalisation %</th>
<th>Of those experiencing harm, % that usually inject BZDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawal</td>
<td>37</td>
<td>12</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Overdose</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Dependence</td>
<td>51</td>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Aggressive behaviour towards others</td>
<td>33</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Loss of memory</td>
<td>65</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Psychosis</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Seizure</td>
<td>10</td>
<td>3</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Traffic accident</td>
<td>10</td>
<td>1</td>
<td>&lt;1</td>
<td>1</td>
</tr>
<tr>
<td>Assaulted while intoxicated</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Arrested related to crime while under the influence</td>
<td>15</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
</tr>
<tr>
<td>Loss of property</td>
<td>30</td>
<td>n/a</td>
<td>n/a</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

While data indicates that diazepam was the main benzodiazepine used by the sample, a large proportion of individuals reporting seizures (55%), traffic accidents (50%), and crime (30%), while under the influence of benzodiazepines, identified that alprazolam was the main benzodiazepine involved (ahead of diazepam and other benzodiazepines). As such, there was a disproportionately high level of harm associated with alprazolam use.

A small number (n = 22) of participants reported injection of benzodiazepines (see Table 30). Among the people who injected benzodiazepines, approximately one quarter to one third reported injection related harms.

**Table 30 - Harms related to injection of benzodiazepines (n = 22) reported by participants who injected BZD in the four weeks prior to treatment entry**

<table>
<thead>
<tr>
<th>Injection-related harms</th>
<th>Experienced harm %</th>
<th>Required medical intervention %</th>
<th>Required hospitalisation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain during injection</td>
<td>27</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dirty hit</td>
<td>18</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Abscess</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>23</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Nerve problem (numbness, tingling)</td>
<td>23</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Difficulty injecting</td>
<td>36</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Dependence

The severity of dependence scale (SDS) is a valid and reliable tool for measuring dependence for a range of illicit drugs including amphetamines, heroin, cannabis and benzodiazepines (Gossop et al, 1995; Gossop et al, 1997; Topp and Mattick, 1997). While a cut off score for pharmaceutical opioid dependence has not been determined, scores of 4-5 and above are generally considered indicative of dependence (Topp and Mattick, 1997).

Mean SDS scores for opioid dependence were 7.4 (SD 5.2) for participants who had ever used pharmaceutical opioids (n = 227), and 7.7 (SD 5.2) for participants who had used pharmaceutical opioids in the 4 weeks before entering treatment (n = 205). This mean SDS score suggests people using pharmaceutical opioids are generally classified as dependent users.

Mean SDS scores for participants who had ever used benzodiazepines (n = 251) was 6.25 (SD 5.0), and 6.3 (SD 5.0) for participants who had used benzodiazepines in the 4 weeks before treatment (n = 235). A cut-off score of 3 has previously been suggested to be indicative of benzodiazepine dependence (Ross and Darke, 1997), which means the mean SDS scores of this group indicate dependence.

Physical and mental health

The Kessler-10 (K10) is a 10 item questionnaire used to measure psychological distress. The overall mean K10 score for the sample was 27.09 (SD 10.5) indicating a high degree of mental health distress within the sample, with the highest mean score in those presenting for treatment of benzodiazepine dependence or alcohol dependence (Figure 7). Almost half of the sample (45%) reported very high psychological distress, which is statistically significantly higher than the 28% of IDU surveyed in the 2007 IDRS study (Black et al, 2008) and 4% of the general Australian population (Australian Bureau Statistics, 2006) reporting such a degree of distress (See Table 31). K10 scores for an equivalent AOD treatment sample that do not use pharmaceuticals is not currently available, and would be important for comparison of psychological distress in usual AOD treatment samples.

The general physical and mental health of the alcohol sample was assessed using the SF-12. Following scoring guidelines, physical and mental health component summary scores were calculated for the group and these are shown in Figure 8. At the time of the interview, the average physical health component score for the group was 46.0 (SD=10.8). The average mental health component score was 35.2 (SD=12.6). A higher score on the SF-12 indicates better health. The results of the SF-12 study show that while physical health is comparable to that seen in the general population, participants in this study had generally poorer mental health scores compared to those seen in the Australian population (Australian Bureau Statistics, 1998). Overall 40% of the sample rated their health as fair or poor. About one quarter (23%) of the sample reported their health to be very good or excellent, lower than the general population estimates of 56% (Australian Institute of Health and Welfare, 2008b).
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

Figure 7 - Mean K10 scores by primary drug problem leading to treatment

Table 31 - Psychological distress as measured with the K10 in the current study compared to an IDU sample and the general Australian population

<table>
<thead>
<tr>
<th></th>
<th>Current Study Sample (n=305)</th>
<th>Frequent Injector Sample (IDRS, 2007) (n=828)</th>
<th>Australian General Population (ABS, 2006) (n=19,600)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>No or low distress</td>
<td>18 (95%CI 14-22)</td>
<td>21 (95%CI 18-24)</td>
<td>63* (95%CI 62-64)</td>
</tr>
<tr>
<td>score (10-15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate distress</td>
<td>16 (95%CI 12-20)</td>
<td>23 (95%CI 20-26)</td>
<td>24* (95%CI 23-25)</td>
</tr>
<tr>
<td>score (16-21)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High distress</td>
<td>22 (95%CI 17-27)</td>
<td>28 (95%CI 25-31)</td>
<td>9* (95%CI 8-10)</td>
</tr>
<tr>
<td>score (22-29)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very high distress</td>
<td>45 (95%CI 39-51)</td>
<td>28* (95%CI 25-31)</td>
<td>4* (95%CI 3-5)</td>
</tr>
<tr>
<td>score (30-50)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Significantly different (p<0.05) when compared to the current study sample
In addition to reporting the mean score for participants’ physical and mental health, category scores for the SF-12 were also applied to the data in order to determine the severity of impairment of physical and mental health for the sample. Categories for disabilities have previously been established (Burns et al., 2001). Component scores of 50 and over were classed as not impaired, 40-49 as mildly impaired, 30-39 as moderately impaired and less than 30 as severely impaired. Table 32 presents this information for the whole group as well as a breakdown of primary drug of concern at treatment entry, and compares the results of the sample to the general Australian population.

The highest proportion of severe impairment on the physical component scores were detected amongst the participants using pharmaceutical opioids. This may relate to a specific subpopulation of users with high chronic pain given that almost half of this group using prescription opioids reported no impairment of physical health. Consistent with the K10 scores (Figure 7), more than half of all benzodiazepine and alcohol treatment participants had mental health component scores indicative of severe mental impairment as measured by the SF-12. Over two thirds of the whole sample showed moderate to severe mental health impairment, considerably higher than estimates of the general population (12%).
Table 32 - Physical and mental health component scores for the sample compared to general population

<table>
<thead>
<tr>
<th>Level of Impairment</th>
<th>Pharm. opioids (n = 75) %</th>
<th>BZD (n = 20) %</th>
<th>Alcohol (n = 43) %</th>
<th>Heroin (n = 119) %</th>
<th>Stimulant (n = 30) %</th>
<th>Whole sample (n=305) %</th>
<th>General pop⁴⁰ %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>43</td>
<td>45</td>
<td>33</td>
<td>44</td>
<td>60</td>
<td>44</td>
<td>62</td>
</tr>
<tr>
<td>Mild</td>
<td>24</td>
<td>15</td>
<td>42</td>
<td>24</td>
<td>17</td>
<td>26</td>
<td>21</td>
</tr>
<tr>
<td>Moderate</td>
<td>20</td>
<td>30</td>
<td>19</td>
<td>24</td>
<td>20</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>Severe</td>
<td>13</td>
<td>10</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Mental health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>16</td>
<td>0</td>
<td>7</td>
<td>19</td>
<td>30</td>
<td>16</td>
<td>71</td>
</tr>
<tr>
<td>Mild</td>
<td>20</td>
<td>15</td>
<td>7</td>
<td>15</td>
<td>20</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Moderate</td>
<td>29</td>
<td>30</td>
<td>35</td>
<td>27</td>
<td>23</td>
<td>29</td>
<td>8</td>
</tr>
<tr>
<td>Severe</td>
<td>35</td>
<td>55</td>
<td>51</td>
<td>39</td>
<td>27</td>
<td>39</td>
<td>4</td>
</tr>
</tbody>
</table>

Self medication of psychological distress

Participants were asked if they had taken a pharmaceutical (non or not as prescribed) to help cope with any of the symptoms described in the K10 (e.g. feeling tired, stressed, nervous, hopeless, restless or depressed). Almost half of the sample (47%, n = 144) reported that they had taken a pharmaceutical in a NAP way in the four weeks before entering treatment to relieve at least one of these symptoms. Of those 88% (n = 126) reported that taking the pharmaceutical drug relieved their symptoms, although 35% (n = 50) said that some symptoms were made worse by taking the drug. The main drug class used to self medicate these symptoms were benzodiazepines. Pharmaceuticals were commonly taken to relieve anxiety, depression and nervousness.

These findings may indicate a role for better screening and treatment of psychological distress to reduce self medication such as reported in this study.

Health services utilisation

Participants were asked about their use of a range of health services in the four week prior to treatment entry. The health service used most was visiting a GP, with almost three quarters of the sample visiting a GP in the four weeks before treatment entry. Of the 224 participants (73%) who indicated they had visited a GP, approximately 10% visited on average once a week and 5 participants indicated they visited a GP at least once a day. This appears to be a higher rate of attendance at GPs, in comparison with 23% of the general Australian population who report seeing a GP in the 2 week period prior to the National Health Survey (Australian Bureau Statistics, 2006), though the time periods are not directly comparable.

Participants entering treatment in relation to alcohol or benzodiazepine dependence appeared to be the highest consumers of health services. A summary of health service utilisation by participants is presented in Table 33.
Table 33: Health service utilisation of the total sample and by treatment type, % (n)

<table>
<thead>
<tr>
<th>In the 4 weeks before entering treatment:</th>
<th>Alcohol (n = 43) %</th>
<th>BZD (n = 20) %</th>
<th>Heroin (n = 120) %</th>
<th>Pharmaceutical opioids (n = 78) %</th>
<th>Illicit stimulant (n = 31) %</th>
<th>Total (n = 305) %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance</td>
<td>28 (n=12)</td>
<td>20 (n=4)</td>
<td>9 (n=11)</td>
<td>9 (n=7)</td>
<td>13 (n=4)</td>
<td>13 (n=39)</td>
</tr>
<tr>
<td>Treated in emergency</td>
<td>13 (n=4)</td>
<td>15 (n=3)</td>
<td>10 (n=12)</td>
<td>10 (n=8)</td>
<td>13 (n=4)</td>
<td>13 (n=39)</td>
</tr>
<tr>
<td>Admitted to hospital</td>
<td>21 (n=9)</td>
<td>20 (n=4)</td>
<td>8 (n=10)</td>
<td>12 (n=9)</td>
<td>16 (n=5)</td>
<td>12 (n=38)</td>
</tr>
<tr>
<td><strong>Medical practitioner visits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General practitioner</td>
<td>86 (n=36)</td>
<td>95 (n=19)</td>
<td>68 (n=82)</td>
<td>76 (n=59)</td>
<td>60 (n=18)</td>
<td>73 (n=224)</td>
</tr>
<tr>
<td>Medical specialist</td>
<td>12 (n=5)</td>
<td>30 (n=6)</td>
<td>5 (n=6)</td>
<td>14 (n=11)</td>
<td>0 (n=0)</td>
<td>10 (n=29)</td>
</tr>
<tr>
<td>Dentist</td>
<td>7 (n=3)</td>
<td>10 (n=2)</td>
<td>10 (n=12)</td>
<td>7 (n=6)</td>
<td>10 (n=3)</td>
<td>9 (n=27)</td>
</tr>
<tr>
<td>Other health prof.</td>
<td>12 (n=5)</td>
<td>0 (n=0)</td>
<td>4 (n=5)</td>
<td>12 (n=9)</td>
<td>3 (n=1)</td>
<td>7 (n=22)</td>
</tr>
<tr>
<td><strong>Psychological medicine visits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>7 (n=3)</td>
<td>10 (n=2)</td>
<td>6 (n=7)</td>
<td>13 (n=10)</td>
<td>3 (n=1)</td>
<td>8 (n=25)</td>
</tr>
<tr>
<td>Psychologist</td>
<td>26 (n=11)</td>
<td>15 (n=3)</td>
<td>6 (n=7)</td>
<td>9 (n=7)</td>
<td>13 (n=4)</td>
<td>11 (n=34)</td>
</tr>
<tr>
<td>Social/welfare worker</td>
<td>30 (n=13)</td>
<td>25 (n=5)</td>
<td>19 (n=23)</td>
<td>22 (n=17)</td>
<td>19 (n=6)</td>
<td>23 (n=69)</td>
</tr>
<tr>
<td>Other therapist</td>
<td>19 (n=8)</td>
<td>30 (n=6)</td>
<td>13 (n=16)</td>
<td>15 (n=12)</td>
<td>6 (n=2)</td>
<td>16 (n=48)</td>
</tr>
<tr>
<td><strong>Tests</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood test</td>
<td>43 (n=18)</td>
<td>20 (n=4)</td>
<td>18 (n=22)</td>
<td>29 (n=23)</td>
<td>17 (n=5)</td>
<td>24 (n=72)</td>
</tr>
<tr>
<td>Urine Test</td>
<td>30 (n=13)</td>
<td>35 (n=7)</td>
<td>18 (n=22)</td>
<td>28 (n=22)</td>
<td>17 (n=5)</td>
<td>24 (n=72)</td>
</tr>
<tr>
<td>Xray/scan</td>
<td>23 (n=10)</td>
<td>15 (n=3)</td>
<td>13 (n=15)</td>
<td>21 (n=16)</td>
<td>13 (n=4)</td>
<td>15 (n=47)</td>
</tr>
</tbody>
</table>

**Health service refusal**

Eighty eight participants (29% of the sample) had ever been refused access to a prescriber (21% of the whole sample, n=64) or pharmacy (19% of the whole sample, n=59) at some stage in their life. As such, the majority of the sample had not experienced refusal to access a doctor or pharmacy.

Where access to a prescriber was refused, half of the participants reported this experience resulted in attendance at another service where they did receive the treatment/medication they were seeking, and only a small number reported seeking the drug on the black market (n=3) or seeking an illicit drug (n=4).

A similar pattern was seen with pharmacy refusal where a third of affected participants (32%) went to another pharmacy to receive the medication (n = 19), and smaller numbers reported sourcing the pharmaceutical drug from the black market (n = 2) or using an illicit drug instead (n=8).

It appeared the main outcome of health service refusal was attending another service, with few participants reporting that refusal at a health service resulted in illicit drug use.
Criminal activity

Criminal activity was measured with the criminal activity section of the Opioid Treatment Index. Table 34 provides a summary of self-reported criminal activity in the month prior to the interview. Crime scores varied by drug type leading to treatment (see Table 35).

Table 34 - Criminal activity of the sample in previous month (n = 300)

<table>
<thead>
<tr>
<th>Crime in past month:</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property crime</td>
<td>57</td>
<td>19</td>
</tr>
<tr>
<td>Drug dealing</td>
<td>55</td>
<td>18</td>
</tr>
<tr>
<td>Fraud</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Violent crime</td>
<td>19</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 35 - Mean Opiate Treatment Index Crime Scores

<table>
<thead>
<tr>
<th>Class of drug leading to treatment</th>
<th>Opiate Treatment Index Crime Score</th>
<th>% reporting any crime in the past month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Heroin</td>
<td>1.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Pharmaceutical opioid</td>
<td>0.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Alcohol</td>
<td>1.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Benzodiazepine</td>
<td>0.5</td>
<td>1.4</td>
</tr>
<tr>
<td>Cannabis</td>
<td>2.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Stimulants</td>
<td>1.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>1.1</td>
<td>2.0</td>
</tr>
</tbody>
</table>
6. CASE FILE REVIEW

A retrospective clinical case note analysis of selected case files of individuals reporting pharmaceutical misuse was undertaken (n = 25) to further investigate the role of pharmaceutical drugs on treatment needs and outcomes.

Summary of key findings

- Some cases of pharmaceutical opioid use appear similar in treatment and outcomes to primary heroin use.

- A separate group of pharmaceutical misusers appears to exist with complex comorbidities (such as chronic pain or psychiatric disorders), some of whom treatment does not appear to address, and current treatment systems may not have the capacity to address. Untreated comorbidities may have considerable adverse effects on treatment.

- Benzodiazepine dependence may be under-detected. If undetected, benzodiazepine withdrawal has the potential to negatively impact on treatment outcomes, and complicate alcohol withdrawal. Almost three quarters of case file reviews (72%) involved long term benzodiazepine use/misuse.

Implications of findings

- To improve treatment outcomes the following are required:
  - Resources to enable specialist assessment (multidisciplinary approach).
  - Improved screening to detect pharmaceutical misuse.
  - Treatment planning to address pharmaceutical misuse as well as concurrent comorbidities.
  - Better linkages with chronic pain and mental health services.
  - Greater engagement of community prescribers and better capacity to provide consultation models between community providers and the specialist AOD sector.

- Long term pharmaceutical dependence (opioids or BZDs) requires long term treatment approaches such as OST for opioid dependence and gradual benzodiazepine reductions for benzodiazepine dependence. In many jurisdictions the current AOD treatment system has limited capacity to deliver these long term treatments, with current inpatient treatment being delivered in isolation and considered less than adequate to manage the longer term treatment needs of these clients.
### Table 36 - Summary of case files examined

<table>
<thead>
<tr>
<th>Treatment characteristics</th>
<th>Patient details</th>
<th>Substance use</th>
<th>Pertinent medical/psych/social issues</th>
<th>Treatment</th>
<th>Impact of prescription drug use (PDU) on treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient detoxification (Alcohol and BZD)</td>
<td>44 yr old male, no fixed address</td>
<td>10 yr history of regular alcohol use (100-150gm/day). BZD: alprazolam 1mg twice a day &amp; occasional extra BZD (multiple benzodiazepines) Daily cannabis use 20 yr</td>
<td>Alcohol &amp; BZD intoxication harms: suicidal threats, behavioural issues, motor vehicle accident. History of depression Was working 6/12 earlier. No prior alcohol or drug treatment</td>
<td>Inpatient admission 7/7 Symptom triggered alcohol withdrawal scale (minimal withdrawal). Alprazolam tapered off, and transferred to diazepam. Discharged on 5mg diazepam twice a day.</td>
<td>Admission primarily for alcohol dependence. No history of withdrawal complications. Symptom triggered regime despite BZD dependence. Management of BZDs appears to have occurred in isolation from routine GP (change to diazepam)</td>
</tr>
<tr>
<td>Inpatient alcohol detoxification. BZD &amp; methadone dependent</td>
<td>29 yr old female, self referred for treatment</td>
<td>On methadone program (30mg), and diazepam 20mg daily. Reports drinking alcohol up to 80gm/day past 5 yrs. Cannabis ½ gm day. Irregular heroin use.</td>
<td>History of depression (prescribed antidepressant). Lives with partner. No recent AOD treatment</td>
<td>Patient admitted &amp; underwent alcohol detoxification (minimal withdrawal). Alcohol withdrawal treated using symptom-triggered regime despite BZD dependence. Stabilised on 20mg diazepam &amp; 30mg methadone</td>
<td>Unclear role of admission. No change in BZD/opiates &amp; no history of severe alcohol dependence warranting admission.</td>
</tr>
<tr>
<td>Alcohol and BZD inpatient detoxification</td>
<td>37 yr old female</td>
<td>Diazepam (20mg / day &amp; 30mg oxazepam at night from GP) and alcohol (140-200 gm / day)</td>
<td>History of death of child a few years earlier. Recent fall when intoxicated and fractured ribs, blackouts</td>
<td>Admitted for detoxification. Alcohol detoxification unremarkable. Discharged on same dose of BZD as on admission</td>
<td>Use of alcohol withdrawal scale despite benzodiazepine dependence, anxiety and panic attack during admission (possibly related to benzodiazepine dependence)</td>
</tr>
<tr>
<td>Opioid detoxification (illicit morphine)</td>
<td>23 yr old male, working in manual occupation</td>
<td>Morphine IV 100-200mg daily, cannabis 2-3g daily</td>
<td>History of car accident approximately 10 years ago, current suicidal ideation</td>
<td>Patient refused buprenorphine, treated with symptomatic medication</td>
<td>Difficult to assess impact on treatment as patient self discharged against advice on day 2</td>
</tr>
<tr>
<td>Pharmaceutical opioid detoxification</td>
<td>29 yr old female with partner and one child</td>
<td>Over the counter (OTC) and prescribed codeine and Tramadol (up to 2000mg daily)</td>
<td>Codeine prescribed for back pain, violent partner, anxiety and depression (history of self harm), gastrointestinal condition also</td>
<td>Inpatient buprenorphine withdrawal</td>
<td>Chronic pain history but no follow up</td>
</tr>
<tr>
<td>Inpatient detoxification pharmaceutical opioid and BZD, chronic pain</td>
<td>53 yr old female previous history of IV amphetamine and heroin use, chronic pain back injury for last 12 months</td>
<td>IV Morphine (180-220mg daily) and 60-120mg Oxazepam daily</td>
<td>Chronic back pain, history of depression, recent hallucinations</td>
<td>Buprenorphine withdrawal and BZD withdrawal (transfer to diazepam)</td>
<td>Felt diazepam was not working, swapped to Temazepam. Chronic pain did not appear to be addressed</td>
</tr>
<tr>
<td>Treatment characteristics</td>
<td>Patient details</td>
<td>Substance use</td>
<td>Pertinent medical/psych/social issues</td>
<td>Treatment</td>
<td>Impact of prescription drug use (PDU) on treatment</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>--------------------------------------</td>
<td>-----------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>IV methadone and BZD dependence</td>
<td>29 yr old male</td>
<td>IV methadone (50-100mg daily), taking three benzodiazepine (30-50mg diazepam, 5-6mg alprazolam and 2-3mg flunitrazepam)</td>
<td>Anxiety and significant forensic history, suicidal</td>
<td>Buprenorphine withdrawal and benzodiazepine stabilisation</td>
<td>Difficult to assess impact on treatment as patient absconded day 2</td>
</tr>
<tr>
<td>Poly drug detoxification</td>
<td>23 yr old female, recently came to Australia with stimulant dependence</td>
<td>Oxycodone or morphine (dependent on availability), Panadeine forte. Diazepam 30mg / day for past 10/7 from GP, Alcohol binge drinking, 4 yr history of cocaine dependence until 2/12 when arrived in Australia</td>
<td>Patient presents as ‘suicidal’. Death of friend 5 years ago preceded substance misuse, self harming, intellectual disability, duodenal ulcer, depression and hallucinations (on Seroquel 125mg)</td>
<td>9/7 Inpatient withdrawal for polydrug use. Diazepam reduction, did not appear to have significant opioid withdrawal during admission</td>
<td>Significant incident during admission resulted in psych referral and assessment, self harming while inpatient – psychiatric comorbidity. Diazepam not ceased prior to discharge, so unclear as to whether withdrawal experienced.</td>
</tr>
<tr>
<td>Inpatient detoxification admission</td>
<td>43 yr old male, unemployed</td>
<td>2 year history of Nurofen plus abuse / dependence. On buprenorphine-naloxone for 6 months on doses up to 8-12mg daily. Reduced to 6mg at time of admission.</td>
<td>Pervious hospital admission relating to complications from Nurofen plus (gastrointestinal bleed, hyponatraemia etc), Multiple psychiatric diagnosis: panic attack, depression, suicidal ideation, schizoaffective disorder, bipolar, borderline personality disorder. On sertraline, Olanzapine, valproate. No record of chronic pain.</td>
<td>Initial plan to detoxification off buprenorphine-naloxone &amp; then planned residential rehabilitation admission. Inpatient admission not linked directly to residential rehabilitation admission. Patient discharged on 4mg buprenorphine-naloxone after 6 days and went home.</td>
<td>Unclear purpose for inpatient treatment. Query confidence with prescription opioids of community prescriber (less common in this jurisdiction). Benzodiazepine seeking during withdrawal problematic (suggesting a role for screening for dependence). Specialist outpatient consultation may have averted admission.</td>
</tr>
<tr>
<td>Inpatient detoxification admission</td>
<td>22 yr old female, 3 children with DHS involvement, family history of substance misuse</td>
<td>Codeine dependent (prescription and over the counter, amount unclear) prior to buprenorphine induction 2/52 prior to admission. Patient on 3mg buprenorphine daily prior to admission. Recent BZD use but not noted to be dependent on admission</td>
<td>Depression treated with sertraline. Unclear history of irritable bowel syndrome. No mention of pain complaints in patients notes.</td>
<td>7/7 admission. Patient admitted for “detoxification from Panadeine forte, Nurofen Plus and buprenorphine maintenance”. Inpatient stabilisation of buprenorphine – dose increased to 5mg at discharge. Patient requested BZDs throughout admission, suggesting undisclosed recent use</td>
<td>Unclear purpose for inpatient treatment. Query confidence with prescription opioids of community prescriber (less common in this jurisdiction). Benzodiazepine seeking during withdrawal problematic (suggesting a role for screening for dependence). Specialist outpatient consultation may have averted admission.</td>
</tr>
<tr>
<td>Treatment characteristics</td>
<td>Patient details</td>
<td>Substance use</td>
<td>Pertinent medical/psych/social issues</td>
<td>Treatment</td>
<td>Impact of prescription drug use (PDU) on treatment</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>--------------------------------------</td>
<td>-----------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Inpatient detoxification for codeine dependence (OTC codeine products)</td>
<td>39 yr old female, self referred</td>
<td>Using 30-40 paracetamol-codeine tablets (over the counter) daily. Also prescribed Diazepam 5mg daily</td>
<td>History of agoraphobia, panic attacks, depression. Takes OTC pain relievers when feeling stressed. History of taking excess BZD for anxiety</td>
<td>Inpatient buprenorphine withdrawal</td>
<td>Previous relapse appeared related to prescribing of opioids for pain. May need to be addressed with future management of client. Need for management of anxiety to prevent relapse</td>
</tr>
<tr>
<td>OTC codeine and benzodiazepine detoxification</td>
<td>42 yr old female with 2 children</td>
<td>OTC codeine (12-16) tablets daily, alprazolam 5mg daily, endone recently</td>
<td>Chronic pain, liver disease, anxiety disorder and depression, Gastro-Oesophageal Reflux Disease (query contribution of ibuprofen to gastrointestinal symptoms)</td>
<td>Inpatient detoxification from codeine with symptomatic meds. Reduction of alprazolam</td>
<td>Chronic pain not noted to be addressed, also psych comorbidity</td>
</tr>
<tr>
<td>BZD, alcohol and Cannabis detoxification</td>
<td>21 yr old female, abusive parent, temporary accommodation, never attempted withdrawal before</td>
<td>Alprazolam 4mg, Panadeine forte when BZD not available, daily alcohol and cannabis 2g daily</td>
<td>History of self harm, eating disorder and suicidal ideation, recent overdose (not reported if accidental/deliberate)</td>
<td>Diazepam reduction</td>
<td>Complex client, challenging behaviourally as inpatient. Significant psych comorbidity may contribute to this.</td>
</tr>
<tr>
<td>Inpatient detoxification, then outpatient substitution treatment</td>
<td>43 yr old female, disability pension, lives with partner and children</td>
<td>2-3 yr history of prescription opioid use. (Oxycontin, methadone tablets, Licit &amp; illicit sources. IV use. Panadeine forte (up to 100/day) Diazepam 40-50mg / day (weekly pick up) Temazepam (20-30mg at night most nights) Seeking to withdraw</td>
<td>Childhood sexual abuse. States past history of abuse and recent death of family member. States past history of suicidal &amp; depression. No contact with mental health services.</td>
<td>14 day admission Buprenorphine and diazepam withdrawal. Unable to tolerate withdrawal so stabilised on buprenorphine maintenance. Diazepam reduction, continued as outpatient. Counselling on discharge</td>
<td>Prescription drug use primary cause for presentation. No history of chronic pain. Prescribed methadone tabs, oxycontin, Pan forte for ~2 yrs. No prior alcohol and drug or mental health contact. Detoxification attempt unsuccessful. Stabilised on buprenorphine-naloxone and diazepam &amp; continued as outpatient.</td>
</tr>
<tr>
<td>Treatment characteristics</td>
<td>Patient details</td>
<td>Substance use</td>
<td>Pertinent medical/psych/social issues</td>
<td>Treatment</td>
<td>Impact of prescription drug use (PDU) on treatment</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>--------------------------------------</td>
<td>-----------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>IV prescription opioids (morphine, oxycodone, Physeptone). IP detoxification changed to Buprenorphine-naloxone OTP after diagnosis of acute liver related illness.</td>
<td>37 yr single male</td>
<td>Started using stimulants since aged 19. Regular use until aged 21 after death of child. Period of BZD use (6/12). Then stopped BZD &amp; started IV opioids On + off use for 10 yrs. Since 2003 daily use: IV morphine / oxycontin / 100-300mg /day. Previously sought maintenance pharmacotherapy</td>
<td>Death of child, History of depression. Diagnosis acute liver condition 3 suicide attempts some years ago.</td>
<td>IP admission for opiate detoxification Also stimulants 1-2 times / week, BZDs 1-2 / week, inc IV alprazolam. Plan was buprenorphine reduction. Diagnosis acute liver condition on admission. Transferred to outpatient buprenorphine-naloxone after 3/7 inpatient stay.</td>
<td>Current treatment appropriate. Treatment for opioid dependence comparable to heroin dependence with buprenorphine-naloxone. Unclear as to why pharmacotherapy not initiated earlier, as patient appears to have requested on 2-3 occasions before, but only provided with counselling.</td>
</tr>
<tr>
<td>Opioid maintenance treatment</td>
<td>34 yr old male, No fixed address</td>
<td>Methadone, alcohol and benzodiazepine related drug (illicit BZD not noted as reason for case selection)</td>
<td>Nil noted</td>
<td>Methadone maintenance, prescribed benzodiazepine like’ drug for sleep</td>
<td>No evidence in file of urine drug screen(UDS) to detect illicit BZD use, patient on large number of unsupervised doses and appears to be at risk of overdose due to prescription drug use and alcohol use.</td>
</tr>
<tr>
<td>Morphine dependence, chronic pain – maintenance treatment</td>
<td>42 yr old male, 10 year history of substance use</td>
<td>Morphine IV (illicit), prescribed diazepam and alprazolam, amphetamine use</td>
<td>Panic disorder, acquired brain injury, chronic pain (back)</td>
<td>Methadone maintenance treatment</td>
<td>Documentation of BZD use/prescribing unclear, pain management not noted</td>
</tr>
<tr>
<td>Opioid maintenance treatment</td>
<td>31 yr old male</td>
<td>Cannabis dependent, heroin dependent. During admission prescribed opioids and BZD</td>
<td>Panic attack</td>
<td>Buprenorphine-naloxone maintenance</td>
<td>Seeking benzodiazepines and prescription opioids during treatment. Little evidence in file of screening/UDS to determine current use. Prescribed alprazolam for panic but no evidence of referral for further treatment to address panic.</td>
</tr>
</tbody>
</table>
# INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS

## Turning Point Alcohol and Drug Centre

<table>
<thead>
<tr>
<th>Treatment characteristics</th>
<th>Patient details</th>
<th>Substance use</th>
<th>Pertinent medical/psych/social issues</th>
<th>Treatment</th>
<th>Impact of prescription drug use (PDU) on treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent on codeine (using OTC products), BZD dependent, alcohol abuse, maintenance treatment</td>
<td>30 yr old male, recent overdose on OTC codeine resulting in referral</td>
<td>Ibuprofen-codeine (96 tablets daily), Diazepam 20mg daily, occasional IV morphine, alcohol when no BZD</td>
<td>Anxiety disorder, social phobia and depression, injury 18 months ago resulted in prescribing of prescription codeine (+ paracetamol). OTC codeine misuse followed this.</td>
<td>Inpatient stabilisation onto buprenorphine with ongoing maintenance treatment and counselling</td>
<td>Initial rapid BZD reduction problematic (possibly a role for slower outpatient reduction), significant comorbidities. No current pain</td>
</tr>
<tr>
<td>Morphine dependence – maintenance treatment</td>
<td>29 yr old, employed</td>
<td>Morphine IV (illicit)</td>
<td>Financial issues</td>
<td>Buprenorphine maintenance</td>
<td>Appeared to be case of primary prescription opioid dependence in absence of other significant comorbidities (similar to illicit opioid dependence in features and outcome)</td>
</tr>
<tr>
<td>Prescription opioid dependent – maintenance treatment</td>
<td>27 yr old male</td>
<td>Oxycontin 200-300mg daily, occasional IV amphetamine</td>
<td>Nil noted</td>
<td>Buprenorphine-naloxone maintenance</td>
<td>Case of primary prescription opioid dependence, similar in feature and outcome to heroin dependence. Some use of oxycodone on top of Buprenorphine-naloxone during stabilisation, noted due to being ‘cheap and available’</td>
</tr>
<tr>
<td>Opioid substitution treatment (outpatient)</td>
<td>36 yr male, lives with young son</td>
<td>Presenting for treatment with 10yr history of IV morphine (60mg twice a day or more) daily use. Past methadone script; 3 prior detoxification attempts in previous 2 yrs with buprenorphine. Now seeking maintenance treatment (buprenorphine) Past history of amphetamine use (IV) Olanzapine &amp; diazepam 20mg prescribed for anxiety/depression Recreational cannabis in past, alprazolam abuse 1 yr previous</td>
<td>2001: psychotic episode ‘anxiety/depression’, for which prescribed Olanzapine, diazepam by psychiatrist Partner died of drug overdose some years ago</td>
<td>Commenced outpatient buprenorphine, stabilising on 8mg / day after several days. Transferred to community pharmacy after ~ 2months. Reports stopped morphine use. No unsupervised dosing initiated at 3 months.</td>
<td>Opioid substitution treatment appropriate. 3 recent unsuccessful detoxes (within past year). Opioid of abuse IV MS Contin (source?). No report of BZD/Olanzapine abuse</td>
</tr>
<tr>
<td>Treatment characteristics</td>
<td>Patient details</td>
<td>Substance use</td>
<td>Pertinent medical/psych/social issues</td>
<td>Treatment</td>
<td>Impact of prescription drug use (PDU) on treatment</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>--------------------------------------</td>
<td>------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>IV MS Contin for outpatient buprenorphine-naloxone treatment</td>
<td>27 yr female, employed</td>
<td>Cannabis 16; stimulants since aged 20 Alcohol binges 20-23; Morphine 26 Injecting Morphine &amp; occasionally methadone (Physeptone tabs) daily. Amounts not documented. Also cannabis – no other drugs</td>
<td>Nil sig medical/psychiatric history noted.</td>
<td>Initiated on buprenorphine-naloxone (6-8mg). Continued episodic IV morphine/Physeptone over next month, and dose increased progressively (2mg increments) to 14mg buprenorphine-naloxone, dispensed at alt day 28mg. No unsupervised dosing.</td>
<td>Opioid substitution treatment appropriate.</td>
</tr>
<tr>
<td>Inpatient transfer from methadone to buprenorphine-naloxone with BZD reduction, chronic pain</td>
<td>42 yr old female, requesting transfer to buprenorphine-naloxone</td>
<td>Methadone (40mg), Tramadol and alprazolam with occasional IV amphetamines</td>
<td>Significant medical history including chronic pain; significant psych history of, anxiety disorder and history of sexual abuse</td>
<td>Benzodiazepine withdrawal with transfer to diazepam and reduction and transfer to buprenorphine-naloxone</td>
<td>Assessment or plan for managing pain not noted – patient did not stabilise on buprenorphine-naloxone, self terminated treatment and commenced using larger dose of Tramadol.</td>
</tr>
<tr>
<td>Prescription morphine, BZDs. Chronic pain Inpatient detoxification</td>
<td>42 yr male</td>
<td>Long term use Morphine (long acting) (up to 80mg / day, but reduced to 60mg / day at admission). Tramadol 50mg daily BZDs: 40mg diazepam &amp; oxazepam at night Cannabis: daily (helps with pain). History of heavy alcohol use but not in preceding 4/12</td>
<td>Car accident aged approximately 20 years ago. Since then pain. No history of long term opioid use recorded in notes. Olanzapine 10mg daily (reason for use not documented). Depression Rx Mirtazapine 30mg Previous history of drug induced psychosis&gt;10yrs ago</td>
<td>Admitted IP 7/7. Unclear outcome: Morphine (long acting) reduced from 60mg to 40mg daily as inpatient. Diazepam reduced from 40mg to 10mg as inpatient but only reached 10mg on day of DC so not stabilised on this. Post-discharge: Relapse prevention group, anger management, back to GP to continue morphine, BZD &amp; other drugs. Patient stated didn’t want to detox from cannabis &amp; discounted alcohol problem</td>
<td>Goal of admission not clearly noted (patient not detoxed). Query if patient could have been reduced as outpatient. Chronic pain not noted to be assessed at all throughout admission.</td>
</tr>
</tbody>
</table>
Key themes from case file review

Primary illicit prescription drug use

- In some circumstances, prescription opioids are being used in a dependent pattern by people in a similar pattern to heroin/other illicit opioids. Treatment is accordingly little different to treating heroin dependence (e.g. buprenorphine/methadone/occasional detoxification) with similar treatment outcomes. This is for cases where there is no significant chronic pain or psychiatric comorbidity, and particularly the case in areas where there is good familiarity with prescription opioids as a primary drug of dependence.

Chronic pain

- In circumstances where there is chronic pain and prescription opioid dependence, the AOD treatment does not appear to address the chronic pain, but treats the patient as though they are only opioid dependent. This is exemplified as follows:

  - There is little evidence of assessment or description of pain issues in medical records. This includes little assessment of patients’ experience of pain (where, how severe, when, what works, what exacerbates etc.) underlying medical condition, prior treatment attempts for pain, other service providers involved (other than prescribing GP of pain medications, and even this is not always documented).

  - It also appears as though treatment plans are made without adequate consultation with other health professionals re: ongoing treatment, particularly of co-morbid pain issues. This includes primary care and relevant specialists involved with the patient’s care.

  - Given the complicating comorbidity of chronic pain, the treatment plans for this group were sometimes inappropriate; with short term inpatient detoxification (7-10 days) to withdraw from long term high dose prescription opioids without recognition of the emergence of pain and likely impact upon ongoing symptoms and treatment requirements. Whilst this may reflect services trying to be patient-centred, the existence of significant comorbidities suggests that more comprehensive treatment planning is required prior to embarking upon treatment episodes such as short term detoxification

- In some of the case files it is possible that either chronic pain was not considered to be a current problem, or that pain was considered by the clinician as a way of “legitimising” requests for opioids rather than addressing the presenting issue. This highlights the difficulties in managing prescription drug misuse where there is potential therapeutic need for the drug in question as opposed to management of illicit drug use.
Benzodiazepines
Benzodiazepine dependence also represents a treatment challenge. Two main areas of concern were noted:

- Detoxification was often attempted despite the time available for an inpatient stay being insufficient given the extended nature of benzodiazepine withdrawal. Brief inpatient detoxification is not recommended for high dose benzodiazepine dependence. Whilst there may be a role for inpatient stabilisation, this should:
  - Be part of a broader treatment plan, with clear engagement of community providers (especially prescribing doctors). Any attempt at continued outpatient reductions should be in the context of safeguards to minimise further abuse and doctor shopping, and should involve HIC consent, contracts, limited dispensing. In short, a range of strategies need to be put in place BEFORE a patient attempts an inpatient admission.
  - Not affect doses of benzodiazepine or contribute to the early discharge of patients without an adequate period of stabilisation (at least 3-4 days if using diazepam). Without a stabilisation period, patients are likely to return home and encounter withdrawal – with all the risks of seizures and other complications and the increased risk of relapse.
  - Involve the management of alcohol withdrawal in the context of BZD dependence. Several detox units use a symptom-triggered alcohol detoxification regime – this is inappropriate in the context of BZD dependence. Better guidelines and training on alcohol withdrawal are required.
- The absence of ongoing plans to address psychiatric comorbidity was also noted in many cases. In the absence of significant supports and management of psychiatric comorbidity (particularly anxiety and depression) the outcomes from BZD withdrawal are unlikely to be successful.

Summary of themes
- Prescription drug use is multi-faceted – in some circumstances, prescription opioids and benzodiazepines are drugs of misuse/dependence without significant pain, medical or psychiatric comorbidity. In such cases, traditional alcohol and drug approaches may be appropriate.
- In other cases, the use of these medications is linked to underlying comorbidities (pain, psychiatric, other medical). Often, it can be difficult to assess the extent of the severity of underlying conditions, and usually requires specialist assessment – which is beyond the skills and training of most AOD workers. Treatment plans for this group require specialist assessment skills (e.g. clinical nurse consultants, addiction medicine specialists, psychologists, psychiatrists, chronic pain specialists), and it is apparent that the AOD sector is not adequately resourced and networked to provide these service.
There needs to be better coordination between AOD treatment services and other service providers (for example, chronic pain, GPs, mental health) in managing this patient population with assessment, development and implementation of treatment plans. For example, it was noted that there was the use of short inpatient admissions (detoxification episodes of 1 week or less) in attempts to manage high dose BZD withdrawal without clear treatment plans for relapse prevention and management of psychiatric comorbidities. Some services have noted that these additional specialist resources are simply not available to them, for example referrals to pain clinics may have waiting lists of up to one year.

The AOD service model needs to be reconsidered to accommodate complex patients with significant chronic pain and mental health comorbidities. In some jurisdictions, services offered (e.g. detoxification) may reflect poor availability of more appropriate services (e.g. opioid substitution treatment), reflecting in turn service system limitations.

Better capacity for outpatient consultation models between community providers and the specialist AOD sector is required. This would enable capacity for patients to be assessed in outpatient settings, a treatment plan developed in consultation with community providers, and then for ongoing care and coordination.

The AOD sector would benefit from:

- Training of staff on pharmaceuticals and prescription drugs.
- Better linkages between sectors to address patients with comorbidities.
- Employment of specialist staff (medical, allied health, nursing) with expertise in managing comorbidities.
7. KEY THEMES AND CONCLUSIONS

Patterns and extent of diversion and misuse of pharmaceuticals amongst AOD clients
Patterns and extent of misuse
Misuse of pharmaceutical opioids and benzodiazepines was widespread amongst AOD clients interviewed.

Pharmaceutical opioids
Two thirds of the study group used pharmaceutical opioids not as prescribed in the month before entering treatment. The most frequently used opioids were long-acting morphine used by 41% of the sample and long acting oxycodone products used by 30%. These two products were also the most likely to be injected. Pharmacotherapy treatment drugs, methadone and buprenorphine were used not as prescribed by 13-15% of the participants.

Benzodiazepines
Almost 70% of participants reported the use of benzodiazepines not as prescribed in the month before entering treatment. The most frequently used benzodiazepine was diazepam used by more than half of the study group. This was followed by alprazolam used by 30%. Other benzodiazepines were less commonly reported. Most benzodiazepine use was reported as oral, although intravenous use was more frequent amongst those seeking treatment specifically for their benzodiazepine use.

Other pharmaceuticals
Although two thirds of participants had used prescribed anti-depressant medication in the month before treatment, only a minority (10%) used this medication other than as prescribed. Antipsychotics were used ‘as prescribed’ by a third of the sample (33%) and again only a minority of the sample reported misuse of antipsychotic medication (9%).

Approximately half of the study group reported lifetime misuse of over-the-counter analgesics, and about one quarter (23%) of participants reported misuse in the four weeks prior to treatment entry.

The findings of the survey with drug treatment clients regarding misused pharmaceuticals and patterns of use were consistent with patterns of misuse reported by KEs.

Diversion
Diverting prescribed pharmaceuticals to others
There was considerable diversion of pharmaceutical opioids with over a third of participants (37%) giving away opioids which had been prescribed to them. Selling of one’s prescribed opioids was less commonly reported by 12% of the study group while swapping one medication for another was reported by 22%.
Procurement of pharmaceuticals
When obtaining opioid medications the main sources reported were from a GP or buying from a dealer. Opioids were also purchased from a friend or partner (19%) or gifted from others (14%).

Benzodiazepines differed with about 60% of the sample reporting that they usually used BZD that were prescribed to them. Being gifted with benzodiazepines was less frequent (10%) as was purchasing from friends (10%) or a dealer (11%). Very few participants (1%) reported stealing benzodiazepines or prescription opioids.

Associated health harms and health service utilisation from diversion and pharmaceutical drug misuse
Harms from prescription opioid use
The development of dependence (reported by 63%) and the experience of opiate withdrawal (53%) were the most common harms identified, with loss of memory (42%), aggression towards others (29%), and loss of property (24%) also being reported. Furthermore, only a minority of participants reported requiring medical intervention for a pharmaceutical opioid related harm. Of participants reporting withdrawal, only 21% reported seeking medical intervention for withdrawal management, only 14% had sought management for dependence, and fewer than 5% of the sample reported other harms. Patients reported that the conditions requiring hospitalisation involved overdose (4 out of the 10 overdoses reported) and after being assaulted (2 of the 17 people that reported being assaulted).

The group who did report a greater incidence of harms were those who were injecting their pharmaceutical opioid use, where two thirds (65%) reported at least one injecting related harm. More common problems identified were pain during injection, difficulty injecting, ‘dirty hits’ and nerve problems after injecting – each reported by 20-30% of participants with a history of pharmaceutical opioid injecting. Participants who stated that they usually injected pharmaceutical opioids reported the majority of harms (including harms not directly related to injection).

More serious complications arising from pharmaceutical opioid injecting were less common. Nevertheless 10% reported having had an abscess, 7% a DVT, and several cases of systemic sepsis (septicaemia, lung, heart infection) were reported. Overall, only a minority of the 153 individuals who reported injecting pharmaceuticals required medical intervention (14%) or hospitalisation (8%) for an injecting related harm.

Harms from benzodiazepine use
The most common harm reported in relation to benzodiazepine use was loss of memory, reported by 65% of people who used benzodiazepines in the 4 weeks before entering treatment. This is consistent with known effects of benzodiazepines on cognition. Other common harms reported were similar to those reported for pharmaceutical opioids, such as withdrawal (reported by 37% of users) and dependence (reported by 51% of users). Overdose, seizures, psychosis and traffic accidents were also reported by 10% of people using benzodiazepines in the 4 weeks prior to entering treatment.
It appears that rates of harms are broadly comparable with pharmaceutical opioids and benzodiazepines, though effects on memory and being arrested while intoxicated appeared more common with benzodiazepines. A disproportionate amount of harm was reported with the benzodiazepine alprazolam.

Other harms
While opioid users (prescription and illicit) and benzodiazepine users appeared to be comparable on physical impairment levels (as determined by the SF-12), people entering treatment for benzodiazepine dependence appeared to have a much lower mental health component score, indicating greater impairment. Benzodiazepine users also had the highest scores of psychological distress as measured by the K10. While this may not represent a direct harm of benzodiazepine use, this finding may indicate significant untreated comorbidity within this group.

The mental health component score for the entire sample suggested that over two thirds of the sample showed moderate to severe mental health impairment, which is far greater than that seen in the general population.

Effect of pharmaceutical misuse on client presentations, treatment requirements, adherence and outcomes for alcohol and drug dependence treatment

Entry to treatment
Many of the reasons identified by participants as factors precipitating treatment entry are similar to broader AOD treatment populations: negative affect relationships, work and study, and finances. Prior experience of drug or alcohol treatment was identified by more clients as a positive rather than negative factor in returning to treatment.

However there were also barriers to treatment entry identified by this group:

- Poor knowledge/information on how to access treatment was identified by some pharmaceutical users who are different to the patient population traditionally seen in AOD services. This means:
  - Strategies are needed to enhance understanding of potential risks/harms of pharmaceutical misuse, and available treatment options, targeting pharmaceutical users, health professionals, and the general community.
  - Strategies should include public health approaches led by regulatory bodies (e.g. state and commonwealth government bodies), drug companies, and professional groups.
  - There is a potentially important role for doctors and pharmacists to be engaged in information provision, screening and referrals. Some pharmaceutical users identified this as a legitimate role for medical and pharmacy professionals to address.
• Waiting lists, poor availability and a poor range of treatment options were identified by some patients, and by key informants, particularly in regional settings and in some jurisdictions.

• Attendance requirements of treatment (e.g. travel requirements, daily dispensing, or residential treatment) were also identified by almost a quarter of patients as a barrier to treatment entry.

It should be remembered the scope of the research meant that participants were recent treatment entrants, that is those who were attracted to and retained into treatment. It would be important to examine barriers to treatment for pharmaceutical users that had not entered treatment, which was outside the scope of this study. This population may identify additional barriers to treatment.

**Delivering treatment**

**Assessment**

High levels of reported pharmaceutical misuse suggest that pharmaceutical misuse should be carefully screened for on treatment entry. Further measures of pharmaceutical use should also be included as a clinical outcome indicator of treatment progress. This highlights the difficulties in assessing and documenting pharmaceutical drug use. Documenting and reporting pharmaceutical use raises problems not encountered with illicit substance use or with alcohol. Clinicians should ideally identify:

• The preparation used (e.g. slow release oral morphine versus standard morphine preparations).

• The dose of each substance used.

• Whether the medication is used as prescribed, and any related aberrant drug behaviours (e.g. dose escalation, injecting, diversion, and hoarding).

A thorough assessment of drug use can be more complex than traditional assessment approaches for alcohol and illicit drugs. Further, research instruments have their limitations in describing pharmaceutical drug use. For example, some multi-domain instruments (e.g. ASI) rely on days used, which does not reflect changes in dose, while other instruments such as OTI report number of tablets used. Under such an approach, a 100mg morphine tablet will be recorded as the same amount as 1 x 10mg morphine tablet – despite the 10-fold difference in dose. Ideally, conversion to a standardised equivalent dose provides the most informative data (e.g. diazepam for BZDs, morphine for opioids), although, in clinical practice this can be very time-consuming if clients are using multiple drugs.

Whilst a comprehensive alcohol and drug assessment should always involve an assessment of the patient's medical, psychiatric and social circumstances, a greater emphasis should be placed on the identification and thorough assessment of medical or psychiatric conditions that may underpin a patient's pharmaceutical use, such as chronic pain, anxiety and mood disorders. The case file notes in this report highlight that in most instances there had not been a comprehensive assessment or documentation of underlying comorbidity. As a result, treatment planning may be compromised under such circumstances.
TREATMENT PLANNING

The key informant interviews and case series highlighted several concerns regarding treatment planning.

- Need for greater attention to comorbidities, especially pain and mental health disorders which if not addressed will result in poor treatment plans that may be unrealistic, ineffective and wasteful of resources. Mental health disorders have previously been linked with prescription drug misuse (Dowling et al, 2006; Sullivan et al, 2006) and with unmet mental health needs and mental health care (Harris and Edlund, 2005). This is also consistent with our findings of high mental health impairment and psychological distress within the participants of the client survey.

- Given that many of these patients have chronic and complex multi-systems disorders, and given the limited specialist medical and psychiatric expertise available within many alcohol and drug treatment services (e.g. Victoria), a much greater emphasis must be placed upon collaboration and consultation with other health care providers in treatment care planning. In particular, treatment care plans should include prescribing doctors in the community, mental health specialists, chronic pain services, other health and social service providers involved in the patient’s care, and regulatory bodies (e.g. state and commonwealth health departments responsible for controlled drugs).

TREATMENT OPTIONS

Case files were only sampled from detoxification and OST programs. Therefore, there is no comment made on other services such as residential rehabilitation services.

The concerns identified about the role of brief inpatient detoxification admissions for managing high dose pharmaceutical dependence included the following:

- Units that have brief (e.g. 7 day) admissions are unlikely to be able to successfully detoxify clients from high dose prescription opioids or BZDs. These services may be best considered as ‘stabilisation services’ for such patients, however, this requires a re-orientation of inpatient services with treatment plans to be identified in advance with community based providers. For example, a GP may not be prepared to continue prescribing opioids or benzodiazepines for a patient with a history of aberrant drug behaviours (e.g. widespread doctor shopping). Thus, a treatment plan which involves a brief inpatient admission for stabilisation on a ‘low dose’ of diazepam (e.g. 30mg daily) may be inappropriate without ensuring continuity of care in the community, and adequate safeguards in place (such as treatment contracts, daily dispensing conditions, HIC release of information, notification to state regulatory bodies and regular urine drug testing). Many GPs may be unprepared, under trained or under resourced for such a treatment plan; and treatment may necessitate AOD services to ‘take over’ treatment during the transition from inpatient to outpatient services. Again, this requires the capacity for continuity of care within alcohol and drug treatment settings.

- Another concern identified in the KE interviews and the case file review was the management of long acting medications in inpatient settings (such as BZDs). There
was evidence of poor understanding of pharmacology and related principles of pharmacotherapy. Specifically, several patients were admitted to inpatient units for a 7-10 day admission, and continued to have their dose of diazepam reduced on a daily basis, with reductions even on the day of discharge. The concern here is that patients will not have reached steady state equilibrium prior to discharge, and it may be that patients may be discharged home and then experience withdrawal symptoms. Clinical services should ensure that patients have a 2-3 day period of being stabilised on long-acting BZD or opioid medication prior to discharge.

Management of polydrug dependence raises its own issues:

- Difficulties in rapid withdrawal from multiple drugs (e.g. alcohol and high dose benzodiazepines) requires consideration of substitution pharmacotherapies (BZDs, opioids). This requires greater collaboration in development of treatment plans and in transitioning between residential and community based services.

- Interpretation of withdrawal scales and use of protocols designed for single drug withdrawal requires review. For example, using a symptom-triggered diazepam dosing regimen for treating alcohol withdrawal in the context of a patient who is also BZD dependent.

Pharmaceutical use in OST has its own clinical issues. BZDs are commonly used by patients (80% in the 4 weeks before treatment entry), were used not as prescribed (by 69%), and were injected by 7%. OST providers should be alert to the safety of such BZD use in patients, particularly in those receiving take-away doses of OST medications. There was evidence of inappropriate methadone take-away provision in several cases where patients did not report (or under-reported) BZD use to their treatment methadone prescriber. No urine drug screens appear to have been recorded in several of these cases, yet patients were receiving the maximum number of take-aways. This highlights the difficulties for treatment providers to assess suitability for take-away doses. Of course there are limitations as to methods available to OST providers. Most BZDs and pharmaceutical opioids were obtained by illicit means (not prescribed from doctors), limiting the utility of any prescription monitoring system or notification systems (Doctor Shopping Hotline, state Health Department files). Whilst objective tests such as urine drug screens should be regularly conducted in patients being considered for take aways, even here it can be very difficult to differentiate the patient taking one diazepam tablet daily as prescribed, from the patient abusing 10-20 tablets of diazepam a day.

Further, in Australia, it is not always possible to differentiate between prescribed opioids (e.g. morphine) and illicit heroin use. Whilst illicit heroin may be detected by examining for 6-monoacetyl-morphine, this is only reliable in cases where a person has recently used heroin (e.g. within 12 hours), and as such will under detect heroin use. Strategies to differentiate prescribed morphine from illicit heroin, as have been developed in Europe, would assist clinicians in identifying those pharmaceutical users who also use illicit heroin (Paterson et al, 2005).

The case series identified that the buprenorphine-naloxone combination product has been successful in treating patients with prescription opioid use and in some cases, concomitant chronic pain. The flexibility of take away doses available with Buprenorphine-naloxone (e.g.
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS

Turning Point Alcohol and Drug Centre

weekly dispense), minimises some of the inconvenience problems identified by clients as a barrier to treatment entry. Buprenorphine-naloxone is widely used in the USA in patients with a background of prescription opioid use (estimated that over one third of the 100,000 Buprenorphine-naloxone patients have a history of prescription opioid use). However, there is little published clinical research evidence regarding the effectiveness of this treatment approach. Further research is required.

Impact of pharmacotherapy treatment upon pharmaceutical use

For people entering pharmacotherapy treatment, NAP use of pharmaceuticals was noted to decrease following treatment entry, most notably a reduction in prescription opioid use from 77% of reporting non or not as prescribed use in the four weeks prior to treatment entry to 41% reporting misuse in the previous month of treatment. While this represents a significant reduction in misuse, the reduced use may also highlight a significant reduction in the burden on the healthcare system from drug acquisition, and a risk in the potential harms, particularly harms relating to the injection of pharmaceuticals.

Jurisdictional-specific differences in the extent and characteristics of pharmaceutical misuse amongst AOD clients

Jurisdictional differences in misuse

There were some differences in the use of pharmaceuticals across jurisdictions. Use of prescription opioids appeared generally more frequent in Tasmania and Queensland, with intravenous use of pharmaceutical opioids being the main route of administration used in Western Australia and Tasmania. This contrasted to Victoria and Queensland where NAP use of prescription opioids were mainly taken orally rather than injected.

With respect to misuse of pharmacotherapy medications, methadone and buprenorphine misuse was highest in Tasmania with around one third of participants using methadone not as prescribed. Non-prescription use of buprenorphine was highest among Queensland participants. In WA the misuse of methadone and buprenorphine was very low.

The non-prescribed use of benzodiazepines was common across all states but highest in Victoria (79% for diazepam) and Tasmania (64% for diazepam). The most commonly misused benzodiazepines was diazepam followed by alprazolam, oxazepam and temazepam. Clonazepam and nitrazepam, while reported as misused were misused less frequently.

The lowest frequency of use was in Queensland (mean 18 out of the last 28 days for participants using benzodiazepines) while the highest was in Western Australia (mean of 25/28 days for participants using benzodiazepines).

Jurisdictional differences in diversion

Between jurisdictions there were differences in the source of prescription opioids. The primary source in Victoria was from general practitioners, which was in contrast to the other three states where purchasing prescription opioids from a friend or the street were the main source.

A different pattern existed with benzodiazepines where in all states a general practitioner was the main source, with the largest black market for benzodiazepines existing in Western Australia.
Diversion of one’s own prescribed medication to others appeared most common in Victoria, where more than half of the sample had given away their own prescribed medication in the month before entering treatment. In the other three jurisdictions approximately one quarter of the sample reported giving away their own prescription drugs.

Non-adherence to opioid substitution pharmacotherapy treatments was also examined (which included not taking supervised drugs, injecting pharmacotherapies and selling pharmacotherapy doses). This was much higher in Queensland and Victoria (35-40% of the sample) compared to Tasmania and Western Australia (5-10% of the sample).

**Relationship between patterns of pharmaceutical drug diversion and characteristics of drug treatment service system in specific jurisdictions**

There is some relationship between pharmacotherapy programs and the types of opioids that treatment-seeking participants were using in a not as prescribed manner prior to treatment entry, but this is not strong, as has been demonstrated in other studies (e.g. Ritter & di Natale, 2005): for example, in jurisdictions where there is relatively little use of buprenorphine in opioid substitution treatment, there is little NAP use of the drug among people seeking treatment, with this increasing in line with the level of prescribed drug in that jurisdiction. More importantly, in every jurisdiction, opioids that are not used in substitution pharmacotherapies (morphine, oxycodone) were far more commonly (and more frequently) used among participants seeking drug treatment than drugs such as methadone or buprenorphine. In all jurisdictions other than Victoria, the vast majority of participants reported usually sourcing these opioids via illicit sources, while in Victoria approximately half of the participants using pharmaceutical opioids had received these from direct prescription.

Consistent with findings from other data sources (e.g. (Ritter and Di Natale, 2005; Black et al, 2008), the extent of pharmaceutical opioid use in a jurisdiction is more strongly related to drug market characteristics and local drug use cultures than the characteristics of pharmacotherapy programs. IDRS data demonstrates that pharmaceutical opioids are more commonly and more frequently used among IDU in jurisdictions where heroin is relatively less available. This was apparent in the current study, whereby pharmaceutical opioids were more frequently used (NAP) in jurisdictions with the lowest level of heroin use prior to treatment. Additionally, IDRS data suggests that there are cultural aspects to this, with consumers in jurisdictions with relatively higher rates of NAP pharmaceutical opioid use also more commonly reporting pharmaceutical opioids as their drug of choice rather than heroin (Black et al, 2008).

Finally, in terms of opioid substitution treatment, there is again little evidence of a strong relationship between treatment service characteristics and diversion or NAP use. In Victoria, a jurisdiction with relatively good access to pharmacotherapy, a substantial minority of the study sample reported non adherence (not taking supervised doses, injecting or diverting), however, a similar proportion of participants engaged in such behaviours in Queensland, a jurisdiction with relatively lower levels of access to such treatment. Similarly, among people interviewed in Tasmania, pharmacotherapy non compliance was very low, in contrast with a higher level of non-prescribed use of methadone among those people seeking treatment.
A minority of participants in each jurisdiction sought treatment for problems primarily relating to benzodiazepine use. Consistent with other studies of illicit drug consuming samples (e.g. Black, et al, 2008), the majority of participants in all jurisdictions had used benzodiazepines in the weeks prior to treatment entry. Across all jurisdictions, the majority of participants using benzodiazepines usually accessed these drugs from direct prescriptions from a medical practitioner, however, two thirds of people receiving benzodiazepine prescriptions were also using benzodiazepines accessed via illicit means (gifts, swaps or illicit purchases). There were small differences between jurisdictions in the current study, with benzodiazepine use prior to treatment entry less common (56%) among those interviewed in WA (and most commonly via black market purchases), and benzodiazepine use almost uniform among those interviewed in Victoria (93%) and Tasmania (90%) prior to treatment. Given the very high presence of benzodiazepine use among people seeking treatment in all jurisdictions, this is less of an issue about treatment service characteristics in each jurisdiction and more of an issue about benzodiazepine availability in general.

Methodological considerations
There are a number of methodological considerations that need to be considered when interpreting the findings of this report.

Convenience sample
The study population was a convenience sample of self-selected individuals who have recently entered treatment and were willing to disclose their misuse of pharmaceuticals whilst on treatment. It should be noted that:

- Not all pharmaceutical misusers will present to alcohol and drug treatment services.
- Users of pharmaceuticals may not be aware or identify that their patterns of use is excessive or inappropriate.
- Some pharmaceutical misusers may see general practitioners rather than alcohol and drug treatment services.

Survey design and informed consent
The survey administered to clients of treatment agencies was only available in English. Additionally, sufficient English was required to enable comprehension of the informed consent process. Therefore the survey results may not be generalised to Australians who do not have a sufficient level of English.

Retrospective data collection
The data on pharmaceutical misuse was collected retrospectively and this may affect recall capability and consequently the reliability of the data.

Recruitment difficulties
Despite considerable recruitment effort, some difficulties were experienced recruiting participants to this study, notably in Western Australia and Tasmania. This may affect how representative the treatment samples recruited may be of the general treatment population in these jurisdictions.
Directions for future research
*The hidden population of pharmaceutical misusers*

Further research is required to understand the characteristics of pharmaceutical misuse which may not come to the attention of alcohol and drug treatment services. This may be achieved through describing the reasons for use, patterns of use, harms identified and benefits of use amongst a sample of pharmaceutical misusers within the community who have not accessed treatment.

Further research is essential to develop a better understanding of:

- the extent of pharmaceutical misuse
- the range of pharmaceutical related problems
- developing appropriate interventions to increase awareness and treatment uptake
- what treatments are effective for individuals with pharmaceutical drug misuse

**Comorbidity**

Research is needed to better understand the link between psychological comorbidity or chronic pain and pharmaceutical misuse, as well as how to better screen for and treat comorbidity in this population.

An action research project including training needs analysis, training program and evaluation with general practitioners, engaging both Divisions of General Practitioners and the key pharmacy organisations to address pain and dependence management amongst general practitioners would be worthwhile.

**Harm reduction**

In parallel with increased promotion of the harms associated with pharmaceutical misuse amongst clients of treatment services, agency staff and general practitioners, there needs to be evaluation to see how clients change their practices i.e. what harm reduction practices do pharmaceutical misusers employ to reduce the risks, and are they effective.

**Education and training**

The following projects are recommended:

- Develop, conduct and evaluate an education and training program for general practitioners and pharmacists to increase awareness and information on pharmaceutical misuse and to improve prescribing and dispensing practices. An education and training program should encompass:
  1. Characteristics of pharmaceutical misuse, including screening, risks and benefits associated with use.
  2. Clinical care issues including managing pain, refusal methods and referral pathways.
  3. Revision of best practice relating to pharmacotherapy and contraindications of the scheduled drugs of concern.
INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS
Turning Point Alcohol and Drug Centre

- Develop, deliver and evaluate:
  1. Information sessions for clients of treatment modalities to reduce the risks associated with pharmaceutical misuse and examine any changes in pharmaceutical misuse patterns, three months post session.
  2. Brief interventions for NSP clients.

Conclusions and recommendations

1) Identification and treatment of pharmaceutical misuse

Monitoring medication adherence
The results of this study indicated that the majority of pharmaceutical use in a drug treatment population may occur in a non prescribed, or not as prescribed way. This means that while it may be important to detect non prescribed drug use and doctor shopping (as collected in surveillance studies such as IDRS and with prescription record data), it is also important to detect non-adherence with prescribed medications. Even where medications are prescribed directly to a patient they may not be taken as intended, making it important to screen for medication adherence. Only a minority of participants in this study report taking medication always as prescribed, with the majority reporting frequent misuse of pharmaceutical opioids and benzodiazepines.

Better screening for pharmaceutical misuse
In AOD treatment services, assessment tools in all jurisdictions need to screen for the use of a range of pharmaceuticals, including asking patients if use of pharmaceuticals is in a non or not as prescribed way. Included in this screening should be medications that are currently not routinely screened such as over the counter analgesics. Awareness of the risks of dependence to pharmaceuticals in the general public may be limited, suggesting a possible role for information and education for pharmaceutical users, health professionals and the general community.

Development of best practice clinical guidelines for delivering AOD treatment in the context of polydrug pharmaceutical dependence
The complications of delivering AOD treatment where secondary benzodiazepine dependence also exists requires an evidence base for the management of concurrent opioid or alcohol dependence with benzodiazepine dependence. The need for guidelines for the management of alcohol withdrawal with concurrent benzodiazepine dependence is specifically indicated from the findings of this study.

Monitoring harms associated with specific pharmaceuticals
The findings of this study, in agreement with the recommendation in the DCPC report (Drugs and Crime Prevention Committee, 2007) was that alprazolam was more problematic that other benzodiazepines. The finding of disproportionate harms associated with alprazolam use is significant. Monitoring to establish the extent of alprazolam misuse and related harms is warranted to inform consideration of whether a regulatory response is required.
2) Identification and treatment of physical and/or mental health comorbidities

Better screening for comorbidities

Pharmaceutical misusers appear to be a heterogeneous group. The population examined in this study suggest that some subgroups appear to exist with people who may use pharmaceuticals in non prescribed or not as prescribed ways.

One group of pharmaceutical misusers may be those who use pharmaceutical opioids in a similar way to illicit opioids, and may use illicit opioids if they are available. This group of primary pharmaceutical opioid users appear to have similar characteristics and treatment outcomes to those previously reported with illicit opioid use.

There appears to be another subgroup of pharmaceutical misusers that are clearly more complex. This complex group may have a range of comorbidities, including chronic pain and psychological comorbidities. Without detection and appropriate treatment of these underlying comorbidities it is unlikely that the misuse of pharmaceuticals will be able to be effectively addressed.

Significant psychological distress was reported amongst this treatment sample, with almost half of the sample reporting very high psychological distress, compared with about one quarter of IDU samples reporting ‘very high’ psychological distress. Research is needed to better understand the link between psychological comorbidity and pharmaceutical misuse.

The inclusion of a brief screening for pain and psychological comorbidity in all patients seeking AOD treatment (including in non-specialist services) should be considered to enable appropriate treatment of the presenting substance misuse problem but also for some of the common underlying comorbidities. The role of mental health nurses in primary care services could be utilised to address this need.

Suggested screening tools that could be used for all alcohol and drug clients could include:

- Screening for mental health disorders (SRQ)
- Brief Pain Inventory Short-Form (BPI-SF)

Routine screening for pain in opioid dependent patients has previously been recommended (Potter 2008).

Addressing comorbidities through treatment

A range of educational and treatment strategies needs to be developed and additional resources and linkages to other specialist services need to be established to more effectively address psychiatric comorbidities and chronic pain. As noted above, significant psychological distress was reported amongst this treatment sample; treatment to reduce psychological distress may reduce pharmaceutical misuse. In addition training to better manage pain in opioid dependent patients within AOD services is required.

Those presenting for treatment of benzodiazepine dependence as their primary problem were found to have the highest level of psychological impairment and distress.

Findings of the recently completed benzodiazepine capacity project in Victoria (Thompson et al, 2008) were endorsed by the findings of this study including the need for appropriate that
address co-morbidity with longer term treatment options and better integration between services.

**Linkages between services**

In addition to detection of comorbidities, better linkages to pain services are required with long waiting lists for specialist pain services impacting on effective alcohol and drug treatment. As identified in the recent DCPC report (Drugs and Crime Prevention Committee, 2007) a need for specialist services to manage pain and addiction are required. Consideration of either co-location of AOD services and pain services or other models of consultancy and integrated service delivery should be explored for feasibility.

**3) Training, screening and referral for non-AOD health professionals**

A role exists for GPs and pharmacists to intervene in problematic pharmaceutical use

The role for GPs and pharmacists was highlighted in the findings of this study. Health professionals should determine medication adherence when medications are prescribed and dispensed. The routine questioning of patients about medication adherence (for example, the prescriber and pharmacists should be asking regularly if patients are still taking their medication at the prescribed dose, if additional medications being used, or if the length of treatment still appropriate for the original complaint). Such questioning may help to identify problematic pharmaceutical misuse long before it may come to the attention of alcohol and drug treatment services.

Care must be taken to balance the caution about pharmaceutical misuse with the risks of under treatment, particularly with pain management and patient and prescriber ‘opiophobia’. It should be remembered that dependence following medical treatment (iatrogenic dependence) to pharmaceutical opioids appears to be uncommon (Fishbain et al, 2008), and screening for adherence may detect problematic use before addiction/abuse develops.

An education and training program for non-AOD health professionals should encompass:

- Characteristics of pharmaceutical misuse, including screening, risks and benefits associated with use.
- Clinical care issues including managing pain, refusal methods and most importantly appropriate referral pathways where problematic use is detected.
- Ongoing monitoring for adherence and diversion.

Training for health professionals should include clear referral pathways for patients in which problematic pharmaceutical use is identified, rather than refusal to keep prescribing drugs. Results of this study indicated that where one health professional refuses supply, it is likely another health professional will supply the desired substance and as a result, the opportunity for intervention may be lost. Simple refusal to supply pharmaceuticals will not necessarily reduce problematic use.

The development of a 24 hour telephone help line may be appropriate to provide advice to people who suspect they have a problem with pharmaceuticals, but may not have information about where to seek help. Pharmaceutical misusers not in contact with a drug using subculture may have limited sources of information regarding where to seek treatment.
4) Rural and jurisdictional differences
Regional/rural areas need additional resources and different treatment approaches
Distinct patterns appear to exist in regional/rural areas and in different jurisdictions. This means that different strategies including different treatment approaches may need to be used in these areas.

It is clear from findings of this study that regional/rural areas and some jurisdictions experience:

- Lack of pharmacotherapy prescribers.
- Pressure on current GPs.
- Prescription opioids being used in place of OST.

Daily attendance at pharmacies is even more problematic in geographically spread out or isolated areas. New ways for delivering treatment to address different needs/barriers in rural areas should be considered. This may include consideration of the less restricted prescribing of buprenorphine-naloxone with weekly (or less frequent where appropriate) supply. The reduction of requirements around prescribing of buprenorphine-naloxone may help increase the number of prescribers able to provide this treatment option, and reduced attendance requirements would decrease the burden of travel for people in treatment in rural areas. Recommended dispensing fees for weekly buprenorphine-naloxone are required to reduce tensions with pharmacies as the current model applied to opioid substitution treatment of charging a fee per daily dose of buprenorphine-naloxone if often used even when weekly pick up is utilised. The fee per daily dose of pharmacotherapy is often the same as the cost of a month supply of a prescription opioid, meaning that the cost of being in treatment is significantly higher than the cost of using prescription opioids. This may act as a disincentive to start treatment.

5) The hidden population of pharmaceutical misusers
Results from key experts indicate that we may only be seeing the ‘tip of the iceberg’ of pharmaceutical misuse.

Research is essential to develop a better understanding of:

- the extent of pharmaceutical misuse
- the range of pharmaceutical related problems
- the development of appropriate interventions to increase awareness and treatment uptake

Research aimed at assessing pharmaceutical misuse by non injecting drug users or non-AOD treatment samples is essential as well as using current data sources available to better describe and identify harms attributed to pharmaceuticals amongst the general population (including ambulance and hospital data).

Existing AOD services may not be appropriate for all pharmaceutical misusers, hence treatment options must be developed that are appropriate and attract people who do not
attend traditional AOD services. This may include different ways of delivering treatment such as the expansion buprenorphine-naloxone treatment in a less restrictive treatment model.

Better access to information for prescribers and pharmacists about medication history, such as real-time online prescription recording systems, as recommended in the DCPC report (Drugs and Crime Prevention Committee, 2007), may assist in the reduction of inappropriate prescribing and in the detection of pharmaceutical misuse and dependence.

The recommendations by Fry et al (Fry et al, 2007) and DCPC reports (Drugs and Crime Prevention Committee, 2007) regarding better surveillance of pharmaceutical misuse are legitimate, however any response regarding increased monitoring of misuse needs to balance the tensions between potential misuse and the genuine need for pharmaceuticals used for therapeutic purposes. In addition, it is essential that consideration be given to delivering a therapeutic response which includes appropriate referral pathways for people identified as misusing pharmaceuticals. Punitive responses may only serve to move people who are dependent on prescription drugs towards illicit sources and substances in order to manage their dependencies. Given the lack of awareness of pharmaceutical misuse that is thought to exist in the general population, education and information for the general public should be considered.
8. REFERENCES


Brand R, Rachel (2007) Drugs: just a click away. Online pharmacies can make dangerous drugs easy to get, but also can promote better health care. Should we regulate them?, in State legislatures p 45.


INVESTIGATION OF PHARMACEUTICAL MISUSE AMONGST DRUG TREATMENT CLIENTS

Turning Point Alcohol and Drug Centre


Fleming PM (2001) The role of treatment services in motivating and deterring treatment entry, in, Wells Healthcare Communications, Kent.


